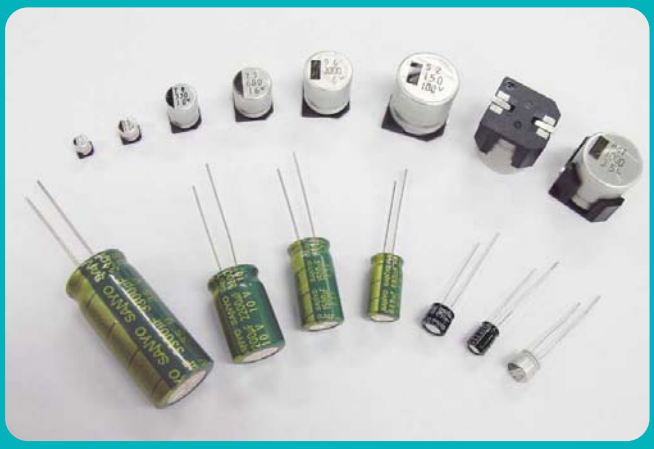


Aluminum Electrolytic Capacitors is hard to be in Short-mode because, it has Shelf-healing mechanism at the dielectric layer by its electrolyte.
Aluminum Electrolytic Capacitors supply wide range of capacitance and voltage.
They are suitable for econmical circuit design.

Features

Wide rated voltage range from 4.0V to 400V

Wide capacitance range from 0.1 μF to 82000 μF

Self healing of the dielectrics (aluminium oxide film) after damages.

The main failuremode is of wear-out. Short circuit within capacitor is not appreciable.

No voltage dependence of capacitance.

Can withstand applied pulse current and pulse voltage compared to other types of capacitors.

Applications

Automotive electric, Network equipment, Industrial equipment, Digital equipment, Consumer equipment, PC etc.

Series integration

On new order, please order from Integrated series.

Discontinued series	Integrated series	Feature
CE-GS	CE-GA	Surface mount type, 5.4mm height, low impedance
CE-GX	CE-AX	Surface mount type, low impedance, high-reliability
CE-FC	CE-FD	Surface mount type, 4.5mm height
CE-PX	CE-PC	Surface mount type, 125℃ Long life

Discontinued series	Integrated series	Feature
MV-AZ	ME-CZ	105℃ Standard
MV(ME)-FA	ME-CZ	105℃ Standard
MV-EG,GX	ME-AX	105℃ low impedance, high-reliability
MV-HW	ME-HC	85℃ Standard
MV-HPS	ME-HPC	85℃ Miniature, standard (mid.&high voltage)
MV-NPD, NPDW	ME-HWN	85℃ Bi-polar (miniature, standard)

INDEX

Please take note of the following points in order to make the best use of SANYO capacitor's performance.
Please use the capacitor within the range of specified performance after confirming each capacitor's usage environment and circuit condition.
Please choose the capacitor that matches the lifetime of the intended circuit design.
The performance of the capacitor the temperature or frequency. Therefore, please consider these variations when designing the circuit.
Please buy SANYO capacitors from our official distributors. Otherwise there is no SANYO warranty.

Line-Up

Aluminum Electrolytic Capacitor (E-CAP)
Aluminum Solid Capacitors with Conductive Polymer/Aluminum Solid Capacitors with Organic Semiconductive Electrolyte **OS-CON**
Aluminum Electrolytic Capacitors with Hybrid Conductive Polymer **EP-cap**
Tantalum Solid Capacitors with Conductive Polymer **POSCAP**

Considerations when using in industrial equipment

To when capacitor is used in industrial equipment, allow wider margin of capacitance, impedance and other characteristics.

Polarity

SANYO capacitors have polarity.
Please confirm the polarity prior to use.If it is used with the polarities reverse in leakage current or a short circuit may result.
Bi-polar capacitors should be used in circuit where polarity is occasionally reversed, or where polarity is unknown.
However bi-polar capacitors cannot be used for AC circuit, too.
There is no bi-polar model of OS-CON, EP-cap and POSCAP.

Operating temperature and ripple current

- Set the operating temperature so that it falls within the range stipulated in this delivery specification.
- Do not apply current that exceeds the allowable ripple current.When excessive ripple current is applied, internal heat increases and reduces the life span.
- In case the capacitor is used under the condition out of the specified frequency, ripple current shall not exceed the value revised by the frequency coefficient.
  POSCAP About TQC series please contact us.

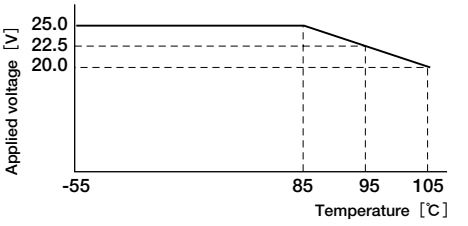
Applied voltage for designing

Do not apply voltages exceeding the full rated voltage.
If such voltage is applied, it may cause short circuit even though it is just a moment.

- 90% and below of the rated voltage or category voltage of POSCAP is recommended. If the rated voltage is 10V or over, 80% and below of the rated voltage or category voltage is recommended.
- Please refer to the following table for rated voltage of OS-CON.
- The sum of the DC voltage plus the peak AC voltage shall not exceed the rated voltage or category voltage.
- The sum of the DC voltage plus the negative peak AC voltage shall not allow reverse voltage.
- Do not apply reverse voltage.

Please contact us when there is a concern that circuit operation may cause reverse voltage.

	Operating environmental Temperature	Applied voltage
25V products except for SVPD	85℃ below	Less than the rated voltage
	85℃ above	Applied the voltage shown right figure
All except for the above	—	Less than the rated voltage



Parallel connection

Ripple current may be flowed to the capacitor that has lower impedance when different kind of capacitors are used in parallel.
Please be very careful of choosing models.
Please consider the balance of electric current when more than two capacitors are connected in parallel.

Operating environment restrictions

Do not use the capacitor in the following environments.

- Places where water, salt water or oil can directly fall on it and pleces where condensation may form
- Places with noxious gas (hydrogen sulfide, sulfurous acid, nitrous acid, chlorine, ammonia, etc)
- Places susceptible to ozone, ultraviolet rays and radiation
- Where vibration or shock exceeds the allowable value as specified in the catalog or specification sheet
- Places the capacitor under direct sunlight

Land pattern

Please design capacitor SMD type and hole space and hole diameter of circuit board for capacitor radial lead type,
or land patterns with consideration of the product dimension specified in the catalog or specificaion sheet and the size torelance.
Avoid locating heat-generating components around the capacitor and on the underside of the PC board.
When capacitor is mounted to the double sided circuit board, avoid placing through holes under capacitors.
Avoid having the printed wire under the capacitor.

Capacitor insulation (E-CAP. OS-CON. EP-cap)

Be sure to completely separate the case, negative lead terminal, positive lead terminal and PC board patterns with each other due to the following reasons.

- Insulation in the marking sleeve and the laminate resin is not guaranteed.
- The space between the case and the negative electrode terminal is not insulated and has some resistance.

Storage conditions

It is necessary to maintain a good storage environment in order to prevent the problem when soldering due to the degradation of solderability or moisturization of molding resin.

1. **When storing the reel in the storage bag, please ensure that the storage bag is fully sealed.**
2. **Do not store in high temperature and high humidity environment.**
3. **For duration of storage, refer to the respective "Guidelines and Precautions for Use" of each capacitor.**
4. **Do not store in damp conditions such as with water, salt water, or oil, and dew condensation.**
5. **Do not store in places filled with noxious gas (hydrogen sulfide, sulfurous acid, nitrous acid, chlorine, ammonia, etc).**
6. **Do not store in places susceptible to ozone, ultraviolet rays and radiation.**
7. **Please unseal storage bag just before mounting and be conscious that not remain.**
   Refer to the respective "Guidelines and Precautions for Use" of each capacitor when some remain by necessity.

※ Only for capacitors packed by laminate bag.

Considerations when soldering

- The soldering conditions as soldering iron, flow soldering, reflow soldering should be under the range prescribed in specifications.
- If the specifications are not followed, there is a possibility of the cosmetic defection, the intensive increase of leakage current or the capacitance reduction.
- Soldering heat stress to capacitor varies depending on temperature, duration time, mounting condition as size, material and component population of PC board. Please check the heat durability in your actual soldering condition.

Things to be noted before mounting

- Do not reuse capacitors that have been assembled in a set and energized.
- Leakage current may increase when capacitors are stored for long term. In this case, we recommend you to apply the rated voltage for 1 hour at 60℃ to 70℃ with a resistor load of 1kΩ.
- In case the capacitor has re-striking-voltage, please apply the rated voltage to the capacitor through 1kΩ resistor.

Mounting 1

- Please mount capacitor after confirming the polarity.
- Please mount capacitor after confirming its rated capacitance and rated voltage.
- When mounting capacitors to the circuit board, please use capacitors with the lead space matching the hole space of the circuit board.
- Do not drop capacitor or use capacitor dropped beforehand.
- Be careful not to deform the capacitor during installation.
- The space specified in the catalog or specitication sheet is needed over the pressure relieve vent of E-CAP or EP-cap.
- Avoid having the prented wire over the pressure relieve vent of E-CAP or EP-cap.
- If the space between the top of E-CAP or EP-cap and the circuit board is not enough, the hole where gas can escape is needed when the pressure relieve vent operates.

Mounting 2

- When an automatic inserter is used to clinch the capacitor lead terminal, make sure it is not set too strongly.
- Be careful to the shock force that can be produced by absorbers, product chckers and centers on automatic inserters and installers.
- Do not apply excessive external force to the lead terminal or the capacitor itself.
- When mounting snap-in type capacitors, please ensure it is snug fit to the circuit board.

Maintenance / Inspection

For industrial use, please periodically check the capacitor.
When checking, inspect the following points.

- Outside appearance.(Opened vent, leakage electrolyte, etc.)
- Electrical performance.(Leakage current, Capacitance, Tangent of loss angle, etc.)

Disposal of capacitors

Capacitor comprises solid organic compounds, various metals, resin, rubber, etc. Treat it as industrial waste when disposing of it.
In case of disposing a large amount of SANYO capacitor, SANYO can dispose on your behalf.

About the electronic part capacitor

Environmental concerns of SANYO capacitors

SANYO Electric Company Co.,Ltd. aims at "Environment · Energy Leading Manufacturer " under the brand vision " Think GAIA ".
Earth-conscious activities are promoted for SANYO capacitors, too.

RoHS compliance

All SANYO capacitors comply with RoHS directive (2002/95/EC).

Restricted Substance

Restricted substances of RoHS directive
Cadmium(Cd) and it's compounds
Lead(Pb) and it's compounds
Mercury(Hg) and it's compounds
Hexavalent chromium(Cr6+)
Polybrominated biphenyls(PBBs)
Polybromineted diphenyl ethers(PBDEs)

Lead-Free Stance

All complete parts and homogenous materials of SANYO capacitors are lead-free.(JEITA, PHASE3)

Halogen-Free Stance

Almost all SANYO capacitors already comply with halogen-free requirements. Please contact us for details.

The difinition of halogen-free for SANYO capacitors is about element or compound of chlorine(Cl) and bromine(Br) out of halogen family except fluorine, iodine and astatine, and satisfy the following conditions as homogeneous materials.

The content percentage of chlorine(Cl)	0.09wt% (900ppm) below
The content percentage of bromine(Br)	0.09wt% (900ppm) below
The total content percentage of chlorine(Cl) and bromine(Br)	0.15wt% (1500ppm) below

※It means a homogeneous material or the material that cannot be mechanically decomposed.

(Example)
- plastic composed of homogeneous material, adhesives, metallic material, ink, glass, paper, alloyed metal, etc.
- ink layer printed or coated on plastic material, coating layer or film of paint
- thin metallic film formed on the surface of plastic material or metallic material

Aluminum Electrolytic Capacitors

SANYO

Guidelines and Precautions for Use

Please observe the following guidelines when using aluminum electrolytic capacitors. (Hereafter "Capacitors")
(The crucial precantions is described to page 3 to 5)

Circuit Diagram

(1) Please use according to the values noted in the catalogue or the specification sheet when considering the application and use of the capacitors.

(2) Please use according to the temperaturerange and rated ripple current as noted in the catalog or the specification sheet.

(a) Life time of electrolytic capacitors depends on the ambient temperature. Generally the life time would be doubled as the temperature decreased by 10 degrees. It is recommended that capacitors be used at a lower temperature than that of the maximum warranty as possible.

(3) Please choose the capacitors that matches the lifetime of the intended circuit design.

(4) Regular capacitors have polarity. If electrical current is applied in the opposite direction to a capacitors polarity, the result could be a short circuit or destruction of the capacitor. Bi-polar capacitors should be used in circuit where polarity is occasionally reversed, or where is unknown. (except AC)

(5) In circuits where frequent charge and discharge are common, capacitance decrease as the internal overheat causes damage to capacitors. In such circuits, please use charge and discharge proof capacitors.

(6) Please consider the balance of the voltage when using two or more capacitors in series.

Mounting

(1) Please confirm the following points when you solder with a soldering iron.

(a) Follow the criteria of soldering condition including time and temperature noted in a catalogue or a specification.

(b) Process the shape of lead wires before soldering when the lead wire space of a capacitor does not match the through hole space of a circuit board, avoid the stress to the body of the capacitor.

(c) Melt solder enough to rework a capacitor with a soldering iron after removing it from a circuit board. Insufficience of melting solder causes physical stress to the lead wires.

(d) Do not touch the body of a capacitor with the tip of a soldering iron.

(2) Please confirm the following points when you preform flow soldering.

(a) Do not soak a capacitor in melt solder. Perform flow soldering only on the opposite side of a circuit board where no capacitor is placed.

(b) Follow the instruction in a catalog or specification with regard to the soldering condition ; preheat, soldering temperature, and soaking time.

(c) Avoid the attachment of flux to the body of a capacitor except lead wires.

(d) Do not locate a capacitor where metal lead wires of the other components contact with the capacitor.

(3) Please confirm the following points when you preform reflow soldering.

(a) Follow the specifications for pre-heat, reflow time and peak temperature as noted in the catalog or specification sheet.

(b) The absorption coefficient of infrared rays depend on the color and material of a capacitor. Avoid heating too much to a capacitor by an infrared heater.

(4) After mounting the circuit board, do not apply the following mechanical stress.

(a) Do not apply excessive force to the lead wires or terminals.

(b) Do not tilt or bring down the capacitor.

(c) Do not pick up circuit board by holding the mounted capacitor.

(d) Do not jolt the capacitor. When stacking circuit boards, make sure the capacitor does not come into contact with any other parts.

(5) In principle, aluminum electrolytic capacitors are not designed to withstand to the cleaning solvent.

If cleaning of a board is necessary, select capacitor designed to withstand cleaning process, and observe the cleaning condition specified in the catalog or in the manufactures specification.
Do not clean the capacitors using solvent, unless so specified in catalog or manufactures specfication.
Use of one of the following chemicals for cleaning may damage the capacitor.

(a) Solvent containing halogen ions ; Damage due to electrolysis of elements
(b) Alkaline solvent ; Corrosion of the aluminum case
(c) Xylene ; Degration of sealing rubber
(d) Acetone ; Disappear of marking
(e) Telpen, petro-based solvent ; Degration of sealing rubber

(6) When cleaning solvent proof capacitors, please confirm the following points.

(a) Please manage the pollution of the cleaning solvent. (conductivity, pH, specific gravity, content of water, etc)

(b) Do not keep in the environments of cleaning solvents or airtight containers, after cleaning the capacitors. Please dry the circuit board and capacitors in a hot blast stove within upper category temperature or less.

(7) When using polymer adhensives, select adhensives without halogenated solvents, nor chloroprene.

(8) Please confirm the following when using coating agents and polymer adhesives.

(a) When adhension or coating is performed after cleaning, air dry should be made immediately remove cleaning solvent between capacitors and circuit board.

(b) Avoid the treatment that cover the seal of the capacitor, such as coating agents and use of polymer adhesives.

(c) Please contact us for the thermoset condition of coating agents and polymer adhesives.

During operation or use

(1) Do not directly touch the capacitor.

(2) Do not short two lead wires with any conductive material.
Do not spray acid or alkali conductive solution to a capacitor.

(3) Confirm the following concerning the operating environments.

(a) In the environments of splashed water, salt water, and oil on the capacitors.
(b) Where a capacitor is exposed to direct sunshine.
(c) In the environments of applied ozone, ultraviolet rays and radical rays.
(d) Places with noxious gas (hydrogen sulfide, sulfurous acid, nitrous acid, chlorine, ammonia, etc)
(e) Where vibration or shock exceeds the allowable values as noted in the catalog or specification sheet.

In case a problem occurs

(1) When working with a pressure relief vent, high temperature gas spouts out, therefore, do not bring the face close to the capacitor.

(2) In case spouted gas got into eye, immediately wash with the water.
In case you breathe spouted gas, immediately rinse out your mouth.

Storage conditions

Product is safekeeping for less than 1 year after shipment.

This guide to use aluminum electrolytic capacitors conform to technical report EIAJ RCR-2367B "Guideline of notabilia for fixed aluminum electrolytic capacitors for use in electronic equipment".
Please refer to this technical report for additional details.

Aluminum Electrolytic Capacitors

SANYO

Product Line-up Table

Product Line-up Table of Aluminum Electrolytic Capacitors with Hybrid Semiconductor

Classification		Series	Page	Features	Small & Thin type	Low ESR	Long Life	Solvent Proof	Category Temperature Range(°C)	Rated Voltage Range(V.DC)	Rated Capacitance Range(μF)	External Appearance	Marking Color
S.M.T		CE-EX	135	Super Low ESR		●		●	-55 to +105	4.0 to 10	22to820	——	Green
		NEW H V H	136	Super Low ESR		●	●	●	-55 to +105	25 to 63	2.7to270	——	Blue
		NEW H V P	137	125°C		●	●	●	-55 to +125	25 to 63	3.9to270	——	Blue

Product Line-up Table of Surface Mount Type

Classification		Series	Page	Features	Small & Thin type	Low Impedance	Long Life	Solvent Proof	Category Temperature Range(°C)	Rated Voltage Range(V.DC)	Rated Capacitance Range(μF)	External Appearance	Marking Color
Surface Mount Type		CE-BJ	21	Super Low Profile 3.25mm Height	●			●	-40 to +85	4.0 to 50	10to82	——	Black
		CE-BE	22	Super Low Profile 3.9mm Height	●			●	-40 to +85	4.0 to 50	1.0to180	——	Black
		CE-BD	23	Low Profile 4.5mm Height	●			●	-40 to +85	4.0 to 50	0.1to220	——	Black
		CE-BSS	24	Miniature, Standard	●			●	-40 to +85	6.3 to 50	4.7to220	——	Black
		C E - C	25	φ 3mm Version	●			●	-40 to +85	4.0 to 50	0.1to22	——	Black
		CE-BS	26	Standard				●	-40 to +85	4.0 to 100	0.1to6800	——	Black
		CE-FE	27	3.9mm Height Temperature of Wide Range	●			●	-40 to +105	6.3 to 50	1.0to100	——	Black
		CE-FD	28	4.5mm Height Temperature of Wide Range	●			●	-40 to +105	6.3 to 50	0.1to100	——	Black
		CE-LD	29	4.5mm Height Long Life	●		●	●	-40 to +105	6.3 to 50	0.1to100	——	Black
		NEW CE-FSS	30	105°C Miniature Hi-Capacitance	●			●	-40 to +105	6.3 to 50	4.7to220	——	Black
		CE-FS	31	105°C, Standard					-40 to +105	160 to 400	2.2to82	——	Black
								●	-55 to +105	6.3 to 63	0.1to6800		
			32					●	-40 to +105	100	1.0to150		
		CE-FH	34	Long Life			●	●	-40 to +105	6.3 to 50	0.1to4700	——	Black
		CE-GA	35	5.4mm Height Super Low Impedance		●		●	-55 to +105	6.3 to 63	0.47to100	——	Black
		CE-AX	36	Low Impedance, High-Reliability		●		●	-55 to +105	6.3 to 50	4.7to6800	——	Black
		CE-KX	38	Super Low Impedance		●		●	-55 to +105	6.3 to 100	4.7to6800	——	Black
		CE-LX	40	Low Impedance, Long Life		●		●	-55 to +105	6.3 to 100	4.7to6800	——	Black
		CE-LS	42	Low Impedance, Long Life		●	●	●	-40 to +105	6.3 to 50	10to330	——	Black
		CE-LH	43	Long Life			●	●	-40 to +105	6.3 to 50	0.1to220	——	Black
			44				●		-40 to +105	160 to 400	2.2to82		
		NEW CE-LL	45	Low Impedance, Long Life		●	●	●	-25 to +105	6.3 to 50	10to1000	——	Black
		CE-PC	46	125°C, Long Life			●	●	-55 to +125	6.3 to 100	1.0to4700	——	Black
		CE-PX	※	125°C			●	●	-40 to +125	6.3 to 50	33to1500	——	Black
		CE-PH	48	125°C Low Impedance, Hi-Capacitance		●	●	●	-40 to +125	16 to 35	160to1500	——	Black
		CE-NP	49	Bi-polar				●	-40 to +85	6.3 to 50	0.1to47	——	Black
		CE-FN	50	Bi-polar Temperature of Wide Range				●	-55 to +105	6.3 to 63	0.1to47	——	Black

Product Line-up Table of Radial Lead Type

Classification		Series	Page	Features	Small & Thin type	Low Impedance	Long Life	Solvent Proof	Category Temperature Range(°C)	Rated Voltage Range(V.DC)	Rated Capacitance Range(μF)	External Appearance	Marking Color
Radial Lead Type		ME-UW	51	5mm Height	●			●	-40 to +85	4.0 to 50	10to330	Black	White
		ME-SWB	52	7mm Height	●			●	-40 to +85	4.0 to 63	0.1to470	Black	White
		ME-HC	53	Standard	●			●	-40 to +85	6.3 to 100	0.1to15000	Black	White
		ME-HPC	54	Miniature, Standard (Mid. & High Voltage)	●				-40 to +85	160 to 250	0.47to220	Black	White
									-25 to +85	350 to 450	0.47to100		
		ME-HPD	54	Miniature, Low Profile (Mid. & High Voltage)	●				-40 to +85	160 to 250	47to220	Black	White
									-25 to +85	350 to 450	10to68		

Product Line-up Table of Radial Lead Type

Classification		Series	Page	Features	Small & Thin type	Low Impedance	Long Life	Solvent Proof	Category Temperature Range(°C)	Rated Voltage Range(V.DC)	Rated Capacitance Range(μF)	External Appearance	Marking Color
Radial Lead Type		ME-UZ	55	5mm Height, Temperature of Wide Range	●			●	-55 to +105	6.3 to 50	10to220	Green	White
		ME-SZ	55	7mm Height, Temperature of Wide Range	●			●	-55 to +105	6.3 to 50	0.1to330	Green	White
		ME-CZ	56	Miniature, Standard Temperature of Wide Range	●			●	-55 to +105	6.3 to 100	0.1to15000	Green	White
		ME-UAX	58	5mm Height, Low Impedance	●	●		●	-55 to +105	6.3 to 35	33to220	Green	Gold
		ME-SAX	58	7mm Height, Low Impedance	●	●		●	-55 to +105	6.3 to 35	4.7to330	Green	Gold
		ME-LS	59	Long Life, High-Reliability		●	●	●	-40 to +105	6.3 to 50	1.0to1000	Black	Silver
		ME-CA	60	Miniature, Standard Low Impedance	●	●		●	-55 to +105	6.3 to 50	0.47to15000	Green	Silver
		ME-CX	62	Miniature, Low Impedance	●	●		●	-55 to +105	6.3 to 35	47to15000	Green	Gold
		ME-AX	64	Low Impedance, High-Reliability		●	●	●	-55 to +105 -40 to +105	6.3 to 63 100	0.47to12000 5.6to470	Green	Gold
		ME-WX	66	Low Impedance•High Ripple		●			-40 to +105	6.3 to 50	22to6800	Green	Gold
		ME-WA	68	Low Impedance · High Ripple Long Life		●	●		-40 to +105	6.3 to 35	220to8200	Black	Gold
		NEW ME-WL	70	Low Impedance Long Life	●	●	●		-40 to +105	6.3 to 63	1.0to330	Green	Silver
		MB-UWG	71	5mm Height,Low ESR	●	●			-40 to +105	6.3 to 25	39to150	—	Black
		ME-SWG	72	7mm Height,Low ESR	●	●			-40 to +105	6.3 to 35	22to330	Black	Gold
		ME-WG	73	Super Low ESR		●			-40 to +105	6.3 to 25	220to3300	Green	Gold
		ME-FZ	※	Extra Long Life, High Performance		●	●	●	-55 to +105	10 to 50	10to4700	Black	Silver
		ME-PX	74	125°C,High Performance		●	●	●	-55 to +125	10 to 100	1.0to4700	Clear Green	Black
			75				●		-40 to +125	160 to 250	10to150		
							●		-25 to +125	350 to 400	4.7to47		
		ME-FC	76	Miniature, Guaranteed 105°C (Mid. & High Voltage)	●				-40 to +105 -25 to +105	160 to 400 450	0.47to220 1.0to47	Black	White
		ME-FD	76	105°C, Miniature, Low Profile (Mid. & High Voltage)	●				-40 to +105 -25 to +105	160 to 400 450	22to220 10to33	Black	White
		ME-FAZ	77	High Ripple(Mid.Voltage)		●			-40 to +105	160 to 250	1.0to220	Black	White
		ME-FH	78	105°C, Long Life (Mid. & High Voltage)			●		-40 to +105 -25 to +105	160 to 400 450	10to220 6.8to47	Black	White
		ME-HLB	※	Low Leakage Current					-40 to +85	16 to 50	0.1to100	Blue	Black
		ME-HT	※	Timer Circuit Use					-40 to +85	10 to 50	1.0to2200	Green	Black
		ME-SWN	79	7mm Height,Bi-polar	●			●	-40 to +85	6.3 to 50	0.1to47	Black	White
		ME-HWN	80	Miniature, Standard,Bi-polar	●			●	-40 to +85	6.3 to 100	0.47to2200	Black	White

Product Line-up Table of Snap-in Type

Classification		Series	Page	Features	Small & Thin type	Low Impedance	Long Life	Solvent Proof	Category Temperature Range(°C)	Rated Voltage Range(V.DC)	Rated Capacitance Range(μF)	External Appearance	Marking Color
Snap-in Type		PE-HC	※	Standard					-40 to +85 -25 to +85	10 to 250 315 to 450	56to82000	Black	White
		PE-HD	※	Miniaturized	●				-40 to +85 -25 to +85	160 to 250 400 to 450	68to3300	Black	White
		PE-EC	※	105°C Standard					-40 to +105 -25 to +105	10 to 100 160 to 450	47to82000	Black	White
		PE-ED	※	105°C Smaller in Size	●				-25 to +105	160 to 450	56to2700	Black	White
		PE-EF	※	Guaranteed for 5000hours at 105°C			●		-25 to +105	200 to 450	82to2200	Black	White
		PE-EG	※	Guaranteed for 7000hours at 105°C			●		-25 to +105	160 to 450	39to2200	Black	White
		PE-ES	※	105°C Low Profile	●				-40 to +105 -25 to +105	10 to 100 160 to 450	27to10000	Black	White

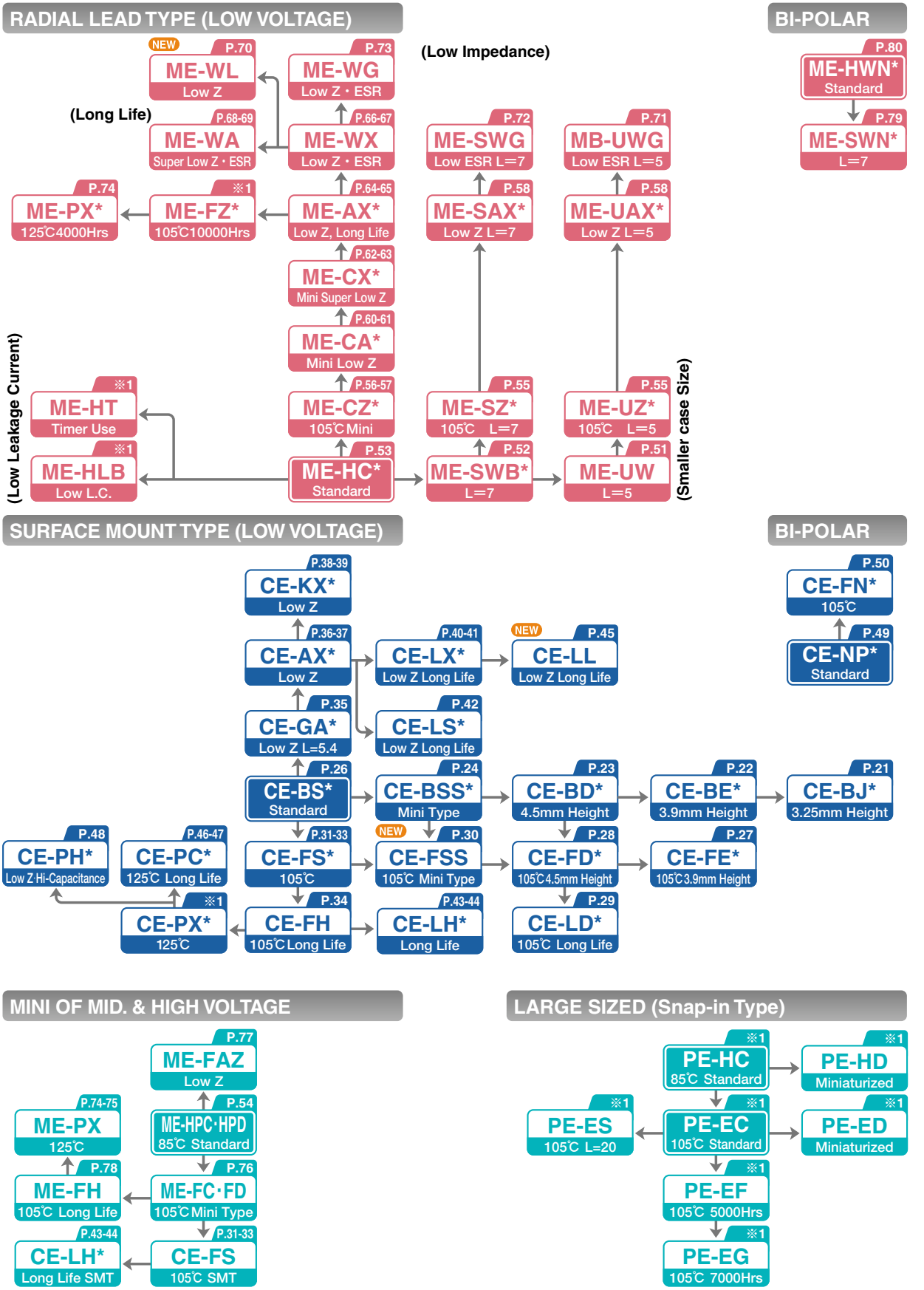
Please refer to http://www.edc.sanyo.com for the information in columns where ※ marking is indicated in a page row.

Aluminum Electrolytic Capacitors

SANYO

Series System Diagram

System Diagram

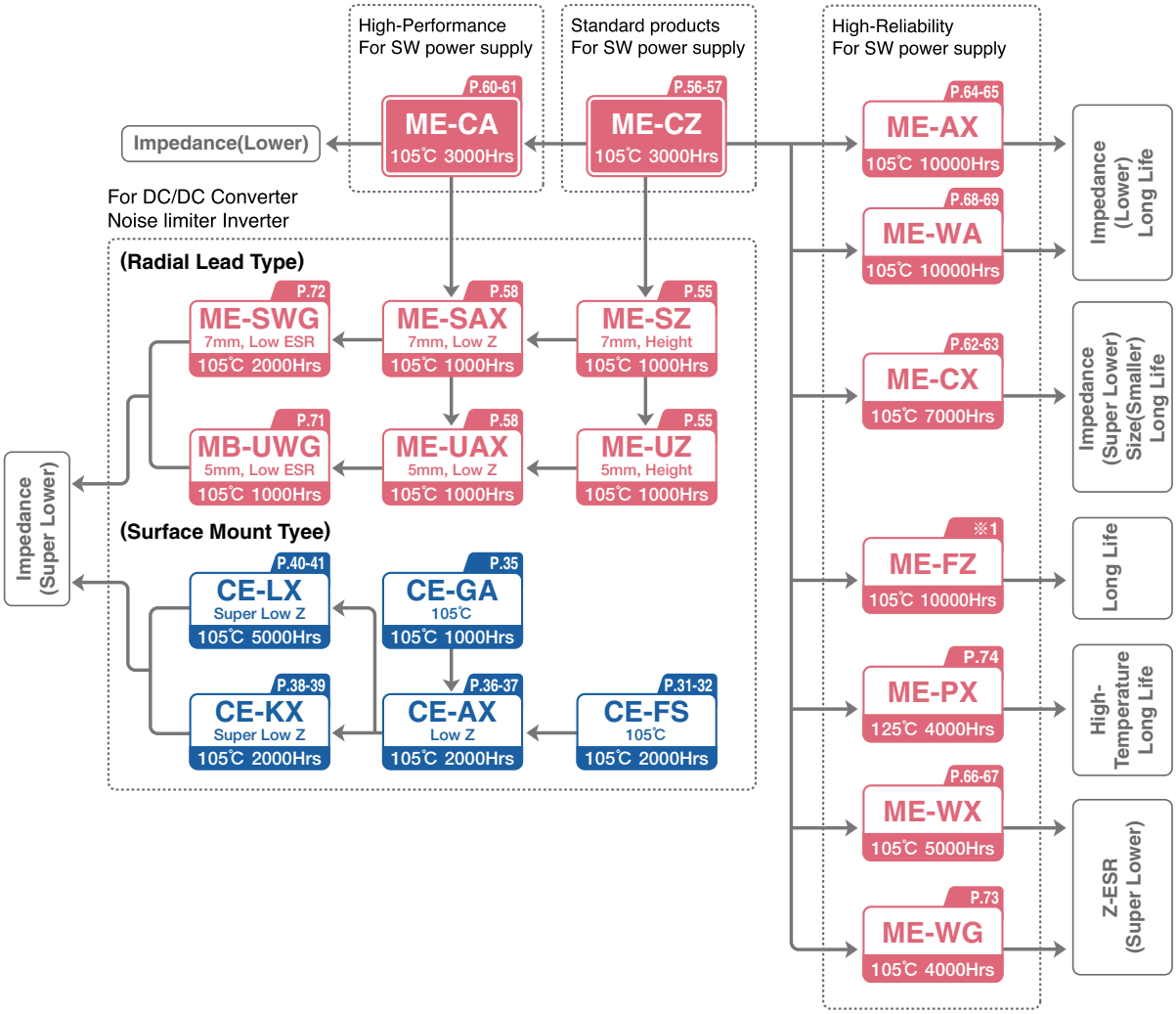


Please refer to http://www.edc.sanyo.com for the information in columns where ※1 marking is indicated in a page row.

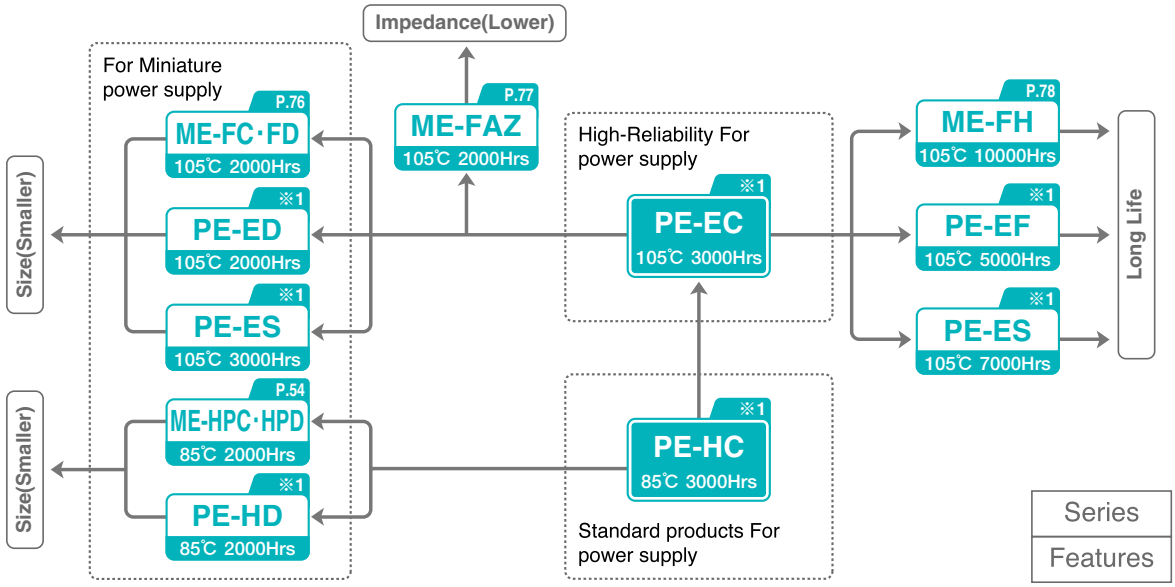
*solvent proof

System Diagram for Power supply

FOR SECONDARY SMOOTHING CIRCUIT



FOR PRIMARY SMOOTHING CIRCUIT



Aluminum Electrolytic Capacitors

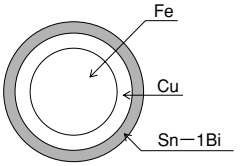
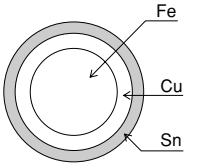
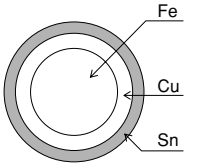
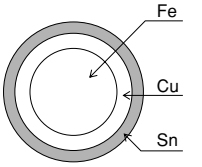
SANYO

Environmental Consideration / Surface Mount Type Recommended Land Pattern

We promote the activities which are considered for ecology.

The environmental products are available with Pb-free products which don't include Pb in terminals of main body and PVC-free products which don't include exterior materials. Please contact us about the specification etc.

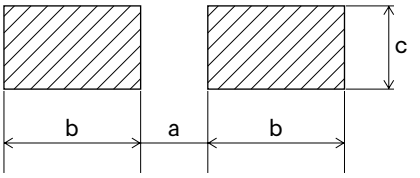
■ Environmental Products (Compliance of RoHS Directive)

	Surface Mount Type Aluminum Electrolytic Capacitors		Radial Lead Type Aluminum Electrolytic Capacitors	
Type code	CE	CE_T	ME	MB
Kind of coat	Sn−1Bi (φ3 to φ12.5) 	Sn (φ16) 	Sn 	Sn 
Model No. (example)	10CE100BS (100μF/10V)	10CE4700BST (4700μF/10V)	10ME100AX (100μF/10V)	10MB100UWG (100μF/10V)
Sleeve	No used	No used	PET	No used
Moisture Sensitivity Level (MSL)※	Not applicable No need dry package	Not applicable No need dry package	Not applicable No need dry package	Not applicable No need dry package

(※ Conform to IPC/JEDEC J-STD-020C)

Surface Mount Type Recommended Land Pattern

●land pattern



(Unit : mm)

Size	a	b	c
φ3	0.8	2.2	1.7
φ4	1.0	2.6	1.8
φ5	1.4	3.0	1.8
φ6.3	2.1	3.5	1.8
φ8	2.8	4.1	2.1
φ10	4.3	4.4	2.5
φ12.5	4.3	5.8	2.5
φ16	6.6	6.5	5.0

When using large surface mount capacitor, please design possibly larger land pattern area than the recommended pattern dimension in order to increase vibration resistance and avoid to falling off a circuit board.

Soldering Condition / Recommended Reflow Condition

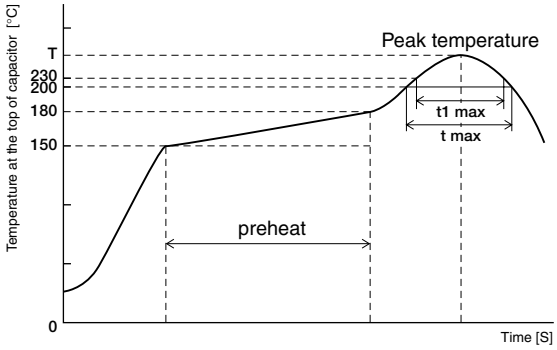
Soldering Condition

- Soldering with a soldering iron - whithin 350℃×3 seconds unless otherwise specified in the spec.
- Flow soldering - within 260℃×10 seconds unless otherwise specified in the spec.
- Thermal curing over - ambient temperature within 150℃×2 minutes.

Recommended Reflow Condition

●Profile 1

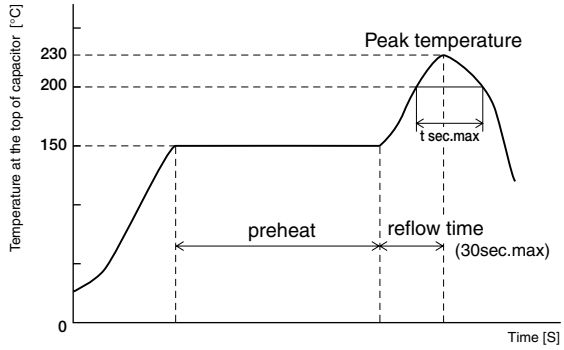
AIR reflow and IR reflow



Preheat ; 150℃ to 180℃, Within 120sec.

●Profile 2

AIR reflow and IR reflow



Preheat ; 150℃, Within 120sec.

Series	Voltage	Size	Time for more than 200°C (t)	Time for more than 230°C (t1)	Peak temperature (Within 5sec.)	Profile
CE-BSS, CE-C, CE-BS, CE-FSS, CE-FS, CE-FH CE-GA, CE-AX, CE-KX CE-LH, CE-LL, CE-PX CE-NP, CE-FN	4 to 63V	φ3 to φ6.3	Within 70sec.	Within 40sec.	250℃	1
		φ8	Within 60sec.	Within 30sec.	245℃	
		φ10、φ12.5	Within 50sec.	Within 20sec.	240℃	
		φ16	Within 50sec.	Within 15sec.	235℃	
	80 to 100V	φ4 to φ6.3	Within 60sec.	Within 40sec.	250℃	
		φ8	Within 60sec.	Within 30sec.	240℃	
		φ10	Within 50sec.	Within 20sec.	240℃	
		φ12.5	Within 50sec.	Within 20sec.	235℃	
		φ16	Within 45sec.	Within 10sec.	235℃	
	160 to 400V	φ8、φ10	Within 50sec.	Within 20sec.	240℃	
		φ12.5	Within 45sec.	Within 10sec.	235℃	
		φ16	Within 30sec.	—	230℃	2
CE-LX, CE-LS, CE-PC	6.3 to 50V	φ4 to φ8	Within 80sec.	Within 40sec.	260℃	1
		φ10	Within 70sec.	Within 40sec.	250℃	
		φ12.5	Within 50sec.	Within 20sec.	240℃	
		φ16	Within 50sec.	Within 15sec.	235℃	
	63V	φ8	Within 60sec.	Within 30sec.	245℃	
		φ10、φ12.5	Within 50sec.	Within 20sec.	240℃	
		φ16	Within 50sec.	Within 15sec.	235℃	
	100V	φ8	Within 60sec.	Within 30sec.	240℃	
		φ10	Within 50sec.	Within 20sec.	240℃	
		φ12.5	Within 50sec.	Within 20sec.	235℃	
		φ16	Within 45sec.	Within 10sec.	235℃	
CE-PH	ALL	φ8、φ10	Within 70sec.	Within 40sec.	250℃	
		φ12.5	Within 50sec.	Within 20sec.	240℃	
CE-BD, CE-FD, CE-LD	ALL	ALL	Within 60sec.	Within 30sec.	245℃	
CE-BE, CE-FE	ALL	ALL	Within 50sec.	Within 20sec.	240℃	
CE-BJ	ALL	ALL	Within 30sec.	—	230℃	2

Capacitors can withstand two reflow processes on the above conditions. Second reflow shall be taken after more than one hour natural cooling time and taken after the return to normal temperatures of PCB board and components.
Anti-vibration structure(CA Type) ; Please contact us about the reflow condition.

Aluminum Electrolytic Capacitors

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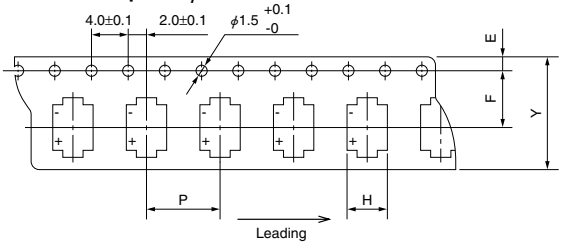
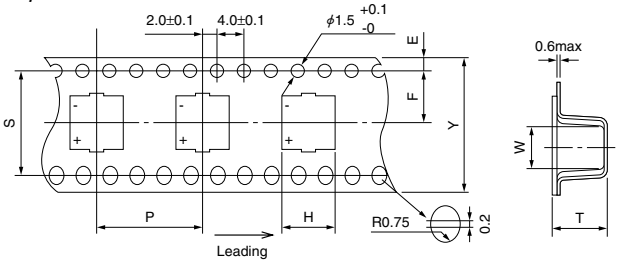
Packing Specifications

Surface Mount Type Taping Specifications (Unit:mm)

Carrier tape ϕ D≤10



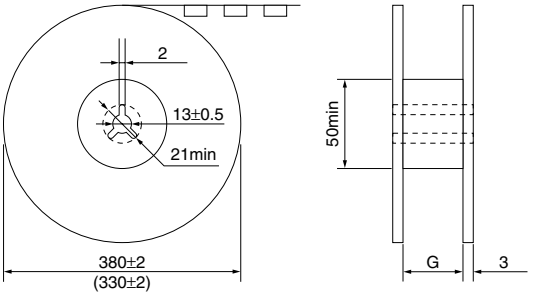
ϕ D≤12.5



(Unit:mm)

size (ϕD×L)	Y±0.3	H±0.2	W±0.2	P±0.1	E±0.1	F±0.1	T±0.2	S±0.1
ϕ6.3×3.25	16.0	7.0	7.0	12.0	1.75	7.5	3.8	—
ϕ5×3.9	12.0	5.7	5.7	12.0	1.75	5.5	4.5	—
ϕ6.3×3.9	16.0	7.0	7.0	12.0	1.75	7.5	4.5	—
ϕ4×4.5	12.0	4.7	4.7	8.0	1.75	5.5	5.0	—
ϕ5×4.5	12.0	5.7	5.7	12.0	1.75	5.5	5.0	—
ϕ6.3×4.5	16.0	7.0	7.0	12.0	1.75	7.5	5.1	—
ϕ3×5.4	12.0	3.7	3.7	8.0	1.75	5.5	5.8	—
ϕ4×5.4	12.0	4.7	4.7	8.0	1.75	5.5	5.8	—
ϕ5×5.4	12.0	5.7	5.7	12.0	1.75	5.5	5.8	—
ϕ5×6.0	12.0	5.7	5.7	12.0	1.75	5.5	6.4	—
ϕ6.3×5.4	16.0	7.0	7.0	12.0	1.75	7.5	5.8	—
ϕ4×6.0	12.0	4.7	4.7	8.0	1.75	5.5	6.4	—
ϕ6.3×6.0	16.0	7.0	7.0	12.0	1.75	7.5	6.5	—
ϕ5×7.0	12.0	5.7	5.7	12.0	1.75	5.5	7.1	—
ϕ6.3×7.0	16.0	7.0	7.0	12.0	1.75	7.5	7.5	—
ϕ6.3×7.7	16.0	7.0	7.0	12.0	1.75	7.5	8.2	—
ϕ6.3×8.4	16.0	7.0	7.0	12.0	1.75	7.5	9.2	—
ϕ8×10.2	24.0	8.7	8.7	16.0	1.75	11.5	11.1	—
ϕ10×7.7	24.0	10.7	10.7	16.0	1.75	11.5	8.3	—
ϕ10×10.2	24.0	10.7	10.7	16.0	1.75	11.5	11.2	—
ϕ12.5×13.5	32.0	13.2	13.2	24.0	1.75	14.2	14.3	28.4
ϕ16×16.5	44.0	17.5	17.5	28.0	1.75	20.2	17.3	40.4

Reel



	G
ϕ3, ϕ4, ϕ5	14
ϕ6.3	18
ϕ8, ϕ10	26
ϕ12.5	34
ϕ16	46

Minimum Packing Quantity

ϕD×L (mm)	Quantity of 1 Reel(ϕ380)	Quantity of 1 Reel(ϕ330)	Quantity of 1 package(Reel)
ϕ3×3.9	—	1000	5
ϕ6.3×3.25,3.9	—	1000	5
ϕ4×4.5	2000	1500 ※	5
ϕ5×4.5	—	1000	5
ϕ6.3×4.5	—	1000	5
ϕ3×5.4	2000	1500 ※	5
ϕ4×5.4	2000	1500 ※	5
ϕ5×5.4	—	1000	5
ϕ6.3×5.4	—	1000	5
ϕ4×6.0	2000	1200 ※	5
ϕ5×6.0	1000	800 ※	5
ϕ6.3×6.0	1000	800 ※	5
ϕ5×7.0	1000	—	5
ϕ6.3×7.0	1000	—	5
ϕ6.3×7.7	900	500 ※	5
ϕ6.3×8.4	800	—	5
ϕ8×10.2(10.5)	500	300 ※	3
ϕ10×7.7	500	400 ※	3
ϕ10×10.2(10.5)	500	300 ※	3
ϕ12.5×13.5	—	200	2
ϕ16×16.5	—	125	2

※Reel code has to be specified after the model number.

Model No. 25CE47BS+E

Reel code

When you place an order, please make sure that order should be integral multiple of the minimum packing unit.

Radial Lead Type Taping Specifications for Automatic Inserting Machines

Fig.1

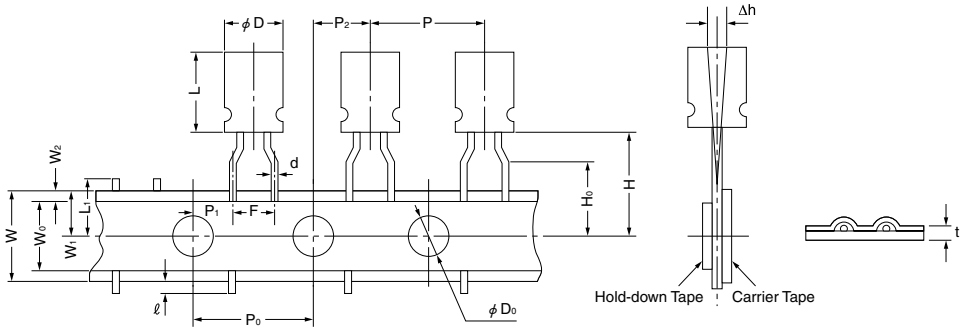


Fig.2

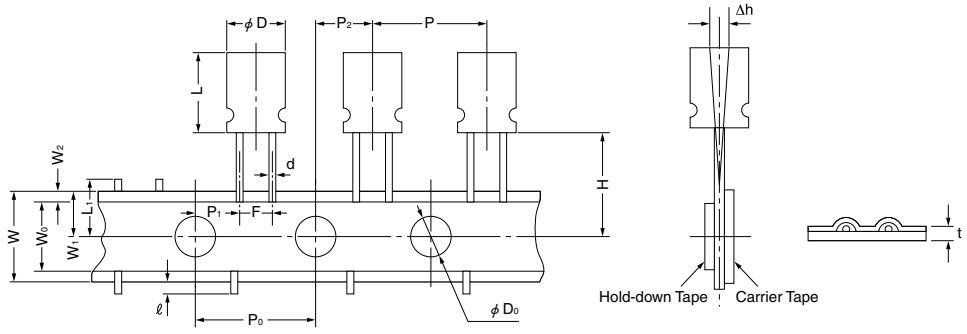
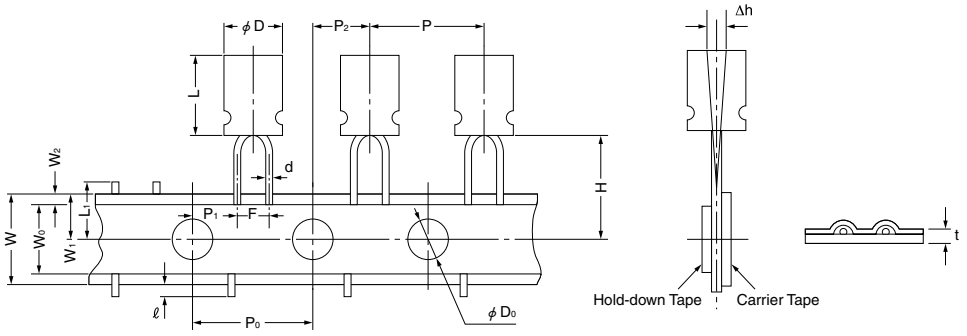


Fig.3



(Unit:mm)

Product Outer Dimensions		φ6.3x5 φ4 to φ6.3x7.5	φ5x11 φ6.3x11	φ8	φ10	φ12.5	φ16 x 25	φ3 x 5	φ4 to φ5x7	φ6.3x5 φ6.3x7.5	φ5 x 11	φ6.3 x 11	φ8
Fig. No.		1	1	1	2	2	※3	1	3	2	3	2	2
Lead wire interval	F $^{+0.8}_{-0.2}$ ※1	5.0	5.0	5.0	5.0	5.0	7.5	2.5	2.5	2.5	2.5	2.5	3.5
Pitch between components	P ±1.0	12.7	12.7	12.7	12.7	15.0	30.0	12.7	12.7	12.7	12.7	12.7	12.7
Sprocket hole pitch	P_0 ±0.2	12.7	12.7	12.7	12.7	15.0	15.0	12.7	12.7	12.7	12.7	12.7	12.7
Sprocket hole position	P_1 ±0.5	3.85	3.85	3.85	3.85	5.0	3.75	5.1	5.1	5.1	5.1	5.1	4.6
	P_2 ±1.0	6.35	6.35	6.35	6.35	7.5	7.5	6.35	6.35	6.35	6.35	6.35	6.35
Lateral deviation	Δh ±1.0	0	0	0	0	0	0	0	0	0	0	0	0
Carrier tape width	W ±0.5	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0
Hold-down tape width	W_0 MIN.	6.0	6.0	6.0	6.0	11.5	11.5	6.0	6.0	6.0	6.0	6.0	6.0
Sprocket hole position	W_1 ±0.5	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0
Hold-down tape position	W_2 MAX.	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Component-base height	H ±0.75 ※2	17.5 ※4	18.5	20.0	16.0 18.5	16.0 18.5	18.5	17.5	17.5 18.5	17.5 18.5	18.5	18.5	18.5
Lead wire clinch height	H_0 ±0.5	16.0	16.0	16.0	—	—	—	16.0	—	—	—	—	—
Sprocket hole diameter	φD_0 ±0.2	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Tape thickness(total depth)	t ±0.3	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Lead wire protrusion	ℓ MAX.	0	0	0	0	0	0	0	0	0	0	0	0
Cut position of interior Components	L_1 MAX.	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0

Taping code(standard)	Zig-Zag type	+T	+T	+T	+T	+TO	+T	+TO	+T	+TS	+TS	+TSO	+TS	+TSO	+TS	+TS	+TS

Taping code has to be specified after the model number.
Model No. 16ME100HC+T
└Taping code

※1 Fig.2, Fig.3:±0.5
※2 φ10・φ12.5 products (H=18.5): $^{+1.5}_{-0.5}$
※3 φ16 products:Skip one product at Fig.2
※4 φ3×5 products (H=18.5): $^{+0.75}_{-0.5}$

Aluminum Electrolytic Capacitors

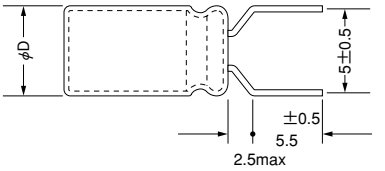
SANYO

Packing Specifications

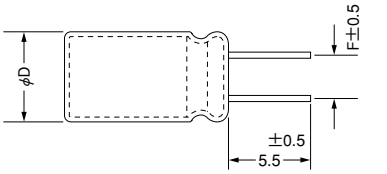
Radial Lead Type Process Standard Specifications (Unit:mm)

1.Lead wire forming ※

※φD is limited to 5,6.3 or 8mm



2.Lead wire cutting ※



φD	5	6.3	8	10	12.5	16	18
F	2.0	2.5	3.5	5.0	5.0	7.5	7.5

When ordering, please add the following notations to the end of the model number:

+FA・・・・・・for lead wire forming

+CA・・・・・・for lead wire cutting

Examples of model numbers:

16ME100HC+FA

160ME22HPC+CA

When ordering a capacitor with a lead wire whose length is not listed above, please keep in mind that the notation at the end of the model number changes. Inquire with your supplier.

Model No.

Rated voltage ※1 | Type code ※2 | Rated capacitance symbol ※3 | Series code

※1.Rated voltage expresses a product mark with 6 about 6.3v.

※2.Type code

CE: Surface mount type (Environmental products)
ME: Radial lead type (Environmental products)
MB: Radial lead type (Environmental products,sleeve less)
CA: Surface mount type (Anti-vibration structure)

・HV series: Please refer to page 136-137

※3

Rated capacitance(μF)	Symbol
0.10	R1
0.22	R22
1.0	1
4.7	4R7
10	10
100	100
1000	1000
10000	10000

Minimum Packaging Quantity

● Long lead

Size	Quantity	Remarks reference
φ3 to φ8※1	500 PCS.	※1. φ8×125L to 20L ; 200 PCS. (WA, WG series Size φ8×11.5L;200 PCS) ※2. φ12.5×30L ; 100 PCS. ※3. φ16×35L ; 50 PCS. Surface Mount Type ; Please refer to page16
φ10 to φ12.5※2	200 PCS.	
φ16※3	100 PCS.	
φ18	50 PCS.	

● Taping

Size	Quantity
φ3 to φ4	4000 PCS.
φ5	3000 PCS.
φ6.3	2500 PCS.
φ8	1400 PCS.
φ10	900 PCS.
φ12.5	600 PCS.
φ16	250 PCS.

When you place an order, please make sure that order should be integral multiple of the minimum packing unit.

Ripple Current Frequency Coefficient

Series	Capacitance:C(μF)	Frequency:F(Hz)			
		100≤F<1k	1k≤F<10k	10k≤F<100k	100k≤F
CE-BJ, CE-BE, CE-BD CE-BSS, CE-C, CE-BS CE-FE, CE-FD, CE-LD CE-FSS, CE-FS (6.3 to 100V), CE-FH CE-LH (6.3 to 50V), CE-NP, CE-FN	C≤4.7	1.00	1.30	1.50	1.80
	4.7<C≤33	1.00	1.20	1.30	1.45
	33<C	1.00	1.10	1.20	1.30
CE-GA	C≤4.7	0.07	0.55	0.85	1.00
	1<C≤4.7	0.25	0.60	0.90	1.00
	4.7<C≤47	0.45	0.75	0.92	1.00
	47<C	0.60	0.85	0.92	1.00
CE-AX CE-KX, CE-LX	C≤33	0.35	0.70	0.90	1.00
	33<C≤150	0.40	0.85	0.92	1.00
	150<C	0.60	0.85	0.95	1.00
CE-LS CE-LL, CE-PC	1<C≤22	0.50	0.80	0.90	1.00
	22<C≤150	0.65	0.85	0.92	1.00
	150<C	0.70	0.85	0.95	1.00
CE-PX	ALL ITEM	1.00	1.10	1.20	1.30
CE-PH	ALL ITEM	0.60	0.85	0.93	1.00

Series	Capacitance:C(μF)	Frequency:F(Hz)		
		100≤F<1k	100≤F<10k	10k≤F
ME-UW, ME-UWA, ME-SWB ME-HC, ME-HPC, ME-HPD ME-FC, ME-FD, ME-FH ME-HLB, ME-HT ME-SWN, ME-HWN	C<100	1.00	1.30	1.50
	100≤C<1000	1.00	1.20	1.30
	1000≤C	1.00	1.13	1.15
ME-AX ME-CX	C≤68	0.50	0.80	1.00
	68<C≤220	0.55	0.85	1.00
	220<C≤1000	0.65	0.90	1.00
	1000<C	0.75	0.90	1.00
ME-CZ ME-CA	0.1<C≤1.0	0.20	0.60	1.00
	1<C≤47	0.50	0.80	1.00
	47<C≤220	0.55	0.85	1.00
	220<C≤1000	0.65	0.90	1.00
	1000<C	0.75	0.90	1.00
ME-FZ ME-PX(10 to 100V)	C<4.7	0.40	0.70	1.00
	4.7≤C<100	0.55	0.80	1.00
	100≤C<1000	0.70	0.90	1.00
	1000≤C	0.90	0.95	1.00
ME-FAZ	C<100	0.35	0.54	1.00
	100≤C	0.50	0.70	1.00

Series	Capacitance:C(μF)	Frequency:F(Hz)			
		100≤F<1k	100≤F<10k	10k≤F<100k	100k≤F
ME-UAX ME-SAX	C≤47	0.40	0.80	0.90	1.00
	47<C≤100	0.60	0.75	0.95	1.00
	100<C	0.75	0.85	0.95	1.00
ME-UZ ME-SZ ME-LS	0.1<C≤0.47	0.20	0.50	0.85	1.00
	0.47<C≤4.7	0.50	0.65	0.95	1.00
	4.7<C≤33	0.60	0.75	0.95	1.00
	33<C	0.75	0.85	0.90	1.00
ME-WX ME-WA ME-WL	C≤33	0.40	0.65	0.90	1.00
	33<C≤1200	0.50	0.80	0.93	1.00
	1200<C	0.60	0.85	0.96	1.00
ME-WG	C≤820	0.45	0.80	0.94	1.00
	820<C≤1800	0.50	0.85	0.96	1.00
	1800<C	0.55	0.88	0.98	1.00
MB-UWG ME-SWG	C≤68	0.22	0.45	0.65	1.00
	68<C≤330	0.28	0.50	0.65	1.00

Series	Capacitance:C(μF)	Frequency:F(Hz)				
		50	120	300	1k	10k≤F
CE-FS(160 to 400V) CE-LH(160 to 400V)	ALL ITEM	0.75	1.00	1.20	1.30	1.50
ME-PX (160 to 400V)	C≤33	0.75	1.00	1.25	1.50	1.75
	33<C	0.80	1.00	1.15	1.30	1.40

Aluminum Electrolytic Capacitors

SANYO

Anti-vibration Structure

RoHS compliance

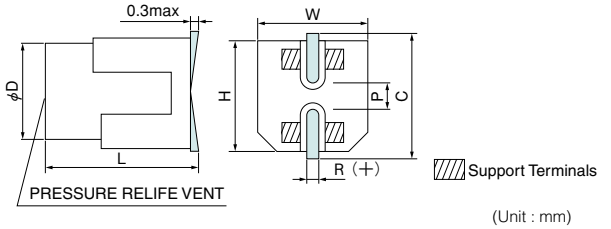
CA Type

- **Peak acceleration:30G**
- **Suitable for Automotive Application**

Specifications

Items		Specifications
Vibration		Peak acceleration : 30G Peak to peak amplitude : 5mm Frequency : 5 to 2,000Hz reciprocation for 20 min. Direction and duration of vibration : 3 orthogonal directions mutually each for 2h.
	△C/C	Within ±5% of the initial value
	tan δ	≤ The initial specified value
	LC	≤ The initial specified value

Dimensions



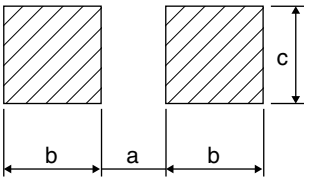
(Unit : mm)

D+0.5max	L	W±0.2	H±0.2	C±0.2	R	P±0.2
※ 8	10.5 ±0.5	8.3	8.3	9.0	0.7～1.0	3.2
※ 10	10.5 ±0.5	10.3	10.3	11.0	1.0～1.4	4.6
※ 12.5	13.5 ±1.0	13.5	13.5	14.2	1.0～1.4	4.6
16	16.5 ±1.0	17.0	17.0	18.0	1.8～2.1	7.0

※ Mass production in Dec.08

Surface Mount Type Recommended land pattern

land pattern (Anti-vibration Structure)



(unit : mm)

SIZE	a	b	c
※ φ8	2.5	4.5	4.7
※ φ10	3.8	4.8	4.7
※ φ12.5	3.8	6.1	6.9
φ16	5.0	8.0	9.5

※ Mass production in Dec.08

■Model No.

35 CA 1000 LXT

- LXT — Series code
- 1000 — Rated capacitance code
- CA — Type code (Anti-vibration Structure : CA)
- 35 — Rated voltage

Aluminum Electrolytic Capacitors

SANYO

Aluminum Electrolytic Type / Surface Mount Type

RoHS compliance

CE-BJ Series

Super Low Profile

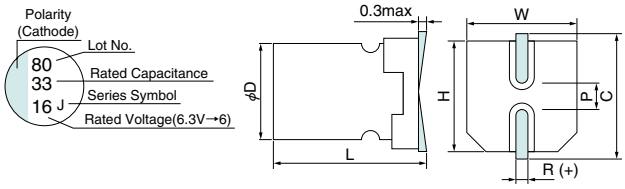
3.25mm Height

・**Solvent proof (within 2 minutes)**

Specifications

Items	Condition		Specifications						
Rated voltage (V)	—		4.0	6.3	10	16	25	35	50
Surge voltage (V)	Room temperature		5.0	8.0	13	20	32	44	63
Category temperature range (℃)	—		−40 to +85						
Capacitance tolerance (%)	120Hz/20℃		M : ±20						
Dissipation Factor (DF)	120Hz/20℃		0.40	0.35	0.24	0.20	0.16	0.14	0.12
Leakage current (LC)	μA/after 2minutes (max)		0.01CV						
Impedance ratio at low temperature	Based the value at 120Hz, +20℃	−25℃ Z/Z20℃	7	4	3	2	2	2	2
		−40℃ Z/Z20℃	15	10	8	6	4	4	4
Endurance	85℃, 1,000hrs. rated voltage applied (With the rated ripple current)	△C/C	Within ±25% of the initial value						
		tan δ	≤ 2 times the initial specified value						
		LC	≤ The initial specified value						

Marking, Dimensions



(Unit : mm)

D+0.5max	L+0.1 −0.2	W±0.2	H±0.2	C±0.2	R	P±0.2
6.3	3.25	6.6	6.6	7.3	0.5 to 0.8	2.2

Size List, Rated Ripple Current

μF \ V	4.0	6.3	10	16	25	35	50
10							6.3 x 3.25 31
15						6.3 x 3.25 44	
22					6.3 x 3.25 46		
33				6.3 x 3.25 46			
47			6.3 x 3.25 51				
68		6.3 x 3.25 60					
82	6.3 x 3.25 60						

Please refer to page 19 for the ripple current frequency coefficient.

Case size ; φD x L (mm)

Rated ripple current mArms (120Hz, 85°C)

■Model No.

16 CE 33 BJ
- Series code
- Rated capacitance code
- Type code
- Rated voltage

Aluminum Electrolytic Capacitors

SANYO

Aluminum Electrolytic Type / Surface Mount Type

RoHS compliance

CE-BE Series

Miniature Low Profile

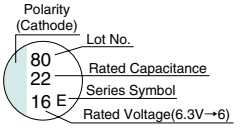
3.9mm Height

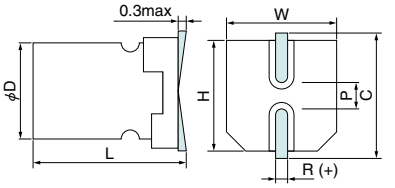
・Solvent proof (within 2 minutes)

Specifications

Items	Condition		Specifications						
Rated voltage (V)	—		4.0	6.3	10	16	25	35	50
Surge voltage (V)	Room temperature		5.0	8.0	13	20	32	44	63
Category temperature range (℃)	—		−40 to +85						
Capacitance tolerance (%)	120Hz/20℃		M : ±20						
Dissipation Factor (DF)	120Hz/20℃		0.40	0.30	0.24	0.20	0.16	0.14	0.12
Leakage current (LC)	μA/after 2minutes (max)		The greater value of either 0.01CV or 3						
Impedance ratio at low temperature	Based the value at 120Hz, +20℃	−25℃ Z/Z20℃	7	4	3	2	2	2	2
		−40℃ Z/Z20℃	15	10	8	6	4	4	4
Endurance	85℃, 1,000hrs. rated voltage applied (With the rated ripple current)	△C/C	Within ±25% of the initial value						
		tan δ	≤ 2 times the initial specified value						
		LC	≤ The initial specified value						

Marking, Dimensions





(Unit : mm)

D+0.5max	L+0.1 −0.2	W±0.2	H±0.2	C±0.2	R	P±0.2
5	3.9	5.3	5.3	6.0	0.5 to 0.8	1.4
6.3	3.9	6.6	6.6	7.3	0.5 to 0.8	2.2

Size List, Rated Ripple Current

μF \ V	4.0		6.3		10		16		25		35		50	
1.0													5 x 3.9	8.4
2.2													5 x 3.9	14
3.3													5 x 3.9	17
4.7									5 x 3.9	18	5 x 3.9	18	5 x 3.9	21
10							5 x 3.9	25	5 x 3.9	30	5 x 3.9	29	6.3 x 3.9	33
22			5 x 3.9	33	5 x 3.9	35	6.3 x 3.9※	45(37)	6.3 x 3.9	50	6.3 x 3.9	49		
33	5 x 3.9	33	5 x 3.9	40	6.3 x 3.9※	50(43)	6.3 x 3.9	50	6.3 x 3.9	60				
47	5 x 3.9	40	6.3 x 3.9※	60(48)	6.3 x 3.9	55	6.3 x 3.9	60						
68	6.3 x 3.9※	60(48)	6.3 x 3.9	70										
100	6.3 x 3.9※	70(58)	6.3 x 3.9	75										
180	6.3 x 3.9	85												

Please refer to page 19 for the ripple current frequency coefficient.

Case size ; φD x L (mm)

※ CE-BES (5 x 3.9)

Rated ripple current
mArms (120Hz, 85°C)
( ) ; CE-BES series

■Model No.

16 CE 22 BE
- Series code
- Rated capacitance code
- Type code
- Rated voltage

16 CE 22 BES
- Series code
- Rated capacitance code
- Type code
- Rated voltage

CE-BD Series

Miniature Low Profile

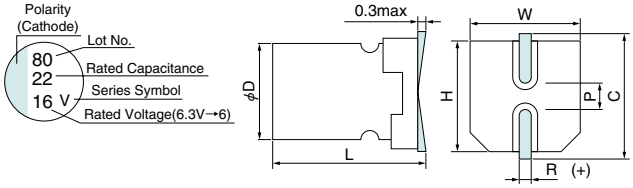
4.5mm Height

- **Solvent proof (within 2 minutes)**

Specifications

Items	Condition		Specifications						
Rated voltage (V)	—		4.0	6.3	10	16	25	35	50
Surge voltage (V)	Room temperature		5.0	8.0	13	20	32	44	63
Category temperature range (℃)	—		−40 to +85						
Capacitance tolerance (%)	120Hz/20℃		M : ±20						
Dissipation Factor (DF)	120Hz/20℃		0.40	0.30	0.24	0.20	0.16	0.14	0.12
Leakage current (LC)	μA/after 2minutes (max)		The greater value of either 0.01CV or 3						
Impedance ratio at low temperature	Based the value at 120Hz, +20℃	−25℃ Z/Z20℃	7	4	3	2	2	2	2
		−40℃ Z/Z20℃	15	10	8	6	4	4	4
Endurance	85℃, 1,000hrs. rated voltage applied (With the rated ripple current)	△C/C	Within ±25% of the initial value						
		tan δ	≤ 2 times the initial specified value						
		LC	≤ The initial specified value						

Marking, Dimensions



(Unit : mm)

D+0.5max	L+0.1 −0.2	W±0.2	H±0.2	C±0.2	R	P±0.2
4	4.5	4.3	4.3	5.0	0.5 to 0.8	1.0
5	4.5	5.3	5.3	6.0	0.5 to 0.8	1.4
6.3	4.5	6.6	6.6	7.3	0.5 to 0.8	2.2

Size List, Rated Ripple Current

μF \ V	4.0		6.3		10		16		25		35		50	
0.10													4 x 4.5	1.0
0.22													4 x 4.5	2.0
0.33													4 x 4.5	2.8
0.47													4 x 4.5	4.0
1.0													4 x 4.5	8.4
2.2													4 x 4.5	14
3.3													4 x 4.5	17
4.7									4 x 4.5	17	4 x 4.5	18	5 x 4.5	21
10							4 x 4.5	23	5 x 4.5	27	5 x 4.5	29	6.3 x 4.5	33
22			4 x 4.5	28	5 x 4.5	33	5 x 4.5	37	6.3 x 4.5	47	6.3 x 4.5	49		
33	4 x 4.5	28	5 x 4.5	37	5 x 4.5	41	6.3 x 4.5	51	6.3 x 4.5	57				
47	4 x 4.5	33	5 x 4.5	45	6.3 x 4.5	53	6.3 x 4.5	61						
100	5 x 4.5	56	6.3 x 4.5	70	6.3 x 4.5	74								
220	6.3 x 4.5	96												

Please refer to page 19 for the ripple current frequency coefficient.

Case size ; φD x L (mm)

Rated ripple current mArms (120Hz, 85°C)

■Model No.

16 CE 22 BD
- BD — Series code
- 22 — Rated capacitance code
- CE — Type code
- 16 — Rated voltage

Aluminum Electrolytic Capacitors

SANYO

Aluminum Electrolytic Type / Surface Mount Type

RoHS compliance

CE-BSS Series

Miniature High Capacitance

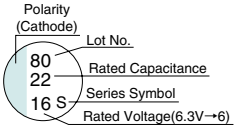
5.4mm Height

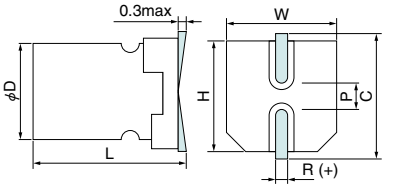
・Solvent proof (within 2 minutes)

Specifications

Items	Condition		Specifications					
Rated voltage (V)	—		6.3	10	16	25	35	50
Surge voltage (V)	Room temperature		8.0	13	20	32	44	63
Category temperature range (℃)	—		−40 to +85					
Capacitance tolerance (%)	120Hz/20℃		M : ±20					
Dissipation Factor (DF)	120Hz/20℃		0.28	0.24	0.20	0.16	0.14	0.12
Leakage current (LC)	μA/after 2minutes (max)		The greater value of either 0.01CV or 3					
Impedance ratio at low temperature	Based the value at 120Hz, +20℃	−25℃ Z/Z20℃	4	3	2	2	2	2
		−40℃ Z/Z20℃	10	8	6	4	4	4
Endurance	85℃, 2,000hrs. rated voltage applied (With the rated ripple current)	△C/C	Within ±25% of the initial value					
		tan δ	≤ 2 times the initial specified value					
		LC	≤ The initial specified value					

Marking, Dimensions





(Unit : mm)

D+0.5max	L+0.1 −0.2	W±0.2	H±0.2	C±0.2	R	P±0.2
4	5.4	4.3	4.3	5.0	0.5 to 0.8	1.0
5	5.4	5.3	5.3	6.0	0.5 to 0.8	1.4
6.3	5.4	6.6	6.6	7.3	0.5 to 0.8	2.2

Size List, Rated Ripple Current

μF \ V	6.3		10		16		25		35		50	
4.7											4 x 5.4	18
10							4 x 5.4	20	4 x 5.4	20	5 x 5.4	27
22			4 x 5.4	28	4 x 5.4	28	5 x 5.4	35	5 x 5.4	36	6.3 x 5.4	40
33	4 x 5.4	31	4 x 5.4	32	5 x 5.4	40	5 x 5.4	42	6.3 x 5.4	58		
47	4 x 5.4	36	5 x 5.4	43	5 x 5.4	44	6.3 x 5.4	65				
56	5 x 5.4	46	5 x 5.4	46	5 x 5.4	48	6.3 x 5.4	68				
100	5 x 5.4	47	5 x 5.4	50								
150	6.3 x 5.4	71	6.3 x 5.4	76								
220	6.3 x 5.4	74										

Please refer to page 19 for the ripple current frequency coefficient.

Case size ; φD x L (mm)

Rated ripple current mArms (120Hz, 85°C)

■Model No.

16 CE 22 BSS
- BSS — Series code
- 22 — Rated capacitance code
- CE — Type code
- 16 — Rated voltage

SANYO

Aluminum Electrolytic Type / Surface Mount Type

RoHS compliance

CE-C Series

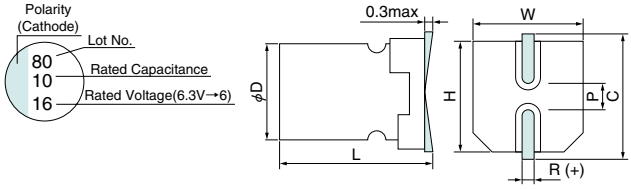
Ultra Mini Version, 3mm in Diameter

・**Solvent proof (within 2 minutes)**

Specifications

Items	Condition		Specifications					
Rated voltage (V)	—		4.0	6.3	16	25	35	50
Surge voltage (V)	Room temperature		5.0	8.0	20	32	44	63
Category temperature range (℃)	—		−40 to +85					
Capacitance tolerance (%)	120Hz/20℃		M : ±20					
Dissipation Factor (DF)	120Hz/20℃		0.40	0.30	0.19	0.16	0.14	0.14
Leakage current (LC)	μA/after 2minutes (max)		The greater value of either 0.01CV or 3					
Impedance ratio at low temperature	Based the value at 120Hz, +20℃	−25℃ Z/Z20℃	7	4	2	2	2	2
		−40℃ Z/Z20℃	15	10	6	4	4	4
Endurance	85℃, 2,000hrs. rated voltage applied (With the rated ripple current)	△C/C	Within ±25% of the initial value					
		tan δ	≤ 2 times the initial specified value					
		LC	≤ The initial specified value					

Marking, Dimensions



(Unit : mm)

D+0.5max	L+0.1 −0.2	W±0.2	H±0.2	C±0.2	R	P±0.2
3	5.4	3.3	3.3	3.9	0.45 to 0.75	0.6

Size List, Rated Ripple Current

μF \ V	4.0		6.3		16		25		35		50	
0.10											3 x 5.4	1
0.22											3 x 5.4	2
0.33											3 x 5.4	3
0.47											3 x 5.4	4
1.0											3 x 5.4	8
2.2									3 x 5.4	8	3 x 5.4	10
3.3									3 x 5.4	10		
4.7							3 x 5.4	12				
10					3 x 5.4	18						
22	3 x 5.4	19	3 x 5.4	19								

Please refer to page 19 for the ripple current frequency coefficient.

Case size ; φD x L (mm)

Rated ripple current mArms (120Hz, 85°C)

■Model No.

16 CE 10 C
- Series code
- Capacitance code
- Type code
- Rated voltage

Aluminum Electrolytic Capacitors

SANYO

Aluminum Electrolytic Type / Surface Mount Type

RoHS compliance

CE-BS Series

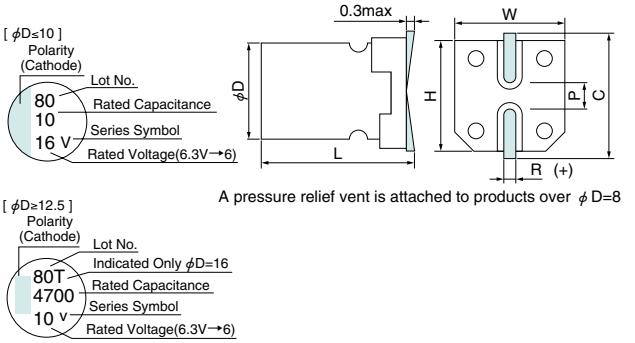
Standard

・Solvent proof (within 2 minutes)

Specifications

Items	Condition		Specifications								
Rated voltage (V)	—		4.0	6.3	10	16	25	35	50	63	100
Surge voltage (V)	Room temperature		5.0	8.0	13	20	32	44	63	79	125
Category temperature range (℃)	—		−40 to +85								
Capacitance tolerance (%)	120Hz/20℃		M : ±20								
Dissipation Factor (DF)	120Hz/20℃	φ4 to φ6.3	0.35	0.26	0.20	0.16	0.14	0.12	0.12	0.12	0.10
		φ8 to φ16	0.40	0.30	0.24	0.20	0.16	0.14	0.12	0.12	0.10
			When rated capacitance exceeds 1,000 μF, add 0.02 to the value above for each 1,000 μF increase.								
Leakage current (LC)	μA/after 2minutes (max)		The greater value of either 0.01CV or 3								
Impedance ratio at low temperature	Based the value at 120Hz, +20℃	−25℃ Z/Z20℃	7	4	3	2	2	2	2	2	2
		−40℃ Z/Z20℃	15	8	6	4	4	3	3	3	3
Endurance	85℃, 2,000hrs. rated voltage applied (With the rated ripple current)	△C/C	Within ±25% of the initial value								
		tan δ	≤ 2 times the initial specified value								
		LC	≤ The initial specified value								

Marking, Dimensions



(Unit : mm)

D+0.5max	L	W ±0.2	H ±0.2	C ±0.2	R	P ±0.2
4	5.4 +0.1 −0.2	4.3	4.3	5.0	0.5 to 0.8	1.0
5	5.4 +0.1 −0.2	5.3	5.3	6.0	0.5 to 0.8	1.4
6.3	5.4 +0.1 −0.2	6.6	6.6	7.3	0.5 to 0.8	2.2
4	6.0 ±0.3	4.3	4.3	5.0	0.5 to 0.8	1.0
6.3	6.0 ±0.3	6.6	6.6	7.3	0.5 to 0.8	2.2
6.3	7.7 ±0.3	6.6	6.6	7.3	0.5 to 0.8	2.2
8	10.2 ±0.3	8.3	8.3	9.0	0.7 to 1.0	3.2
10	7.7 ±0.3	10.3	10.3	11.0	1.0 to 1.4	4.6
10	10.2 ±0.3	10.3	10.3	11.0	1.0 to 1.4	4.6
12.5	13.5 ±0.5	12.8	12.8	13.5	1.0 to 1.4	4.6
16	16.5 ±0.5	16.3	16.3	17.3	1.8 to 2.1	7.0

Size List, Rated Ripple Current

μF \ V	4.0		6.3		10		16		25		35		50		63		100	
0.1 to 0.47													4 x 5.4	1 to 5	4 x 5.4	1 to 5		
1.0													4 x 5.4	10	4 x 5.4	10	4 x 6.0	10
2.2													4 x 5.4	15	4 x 5.4	15	6.3 x 6.0	20
3.3													4 x 5.4	18	5 x 5.4	20	6.3 x 6.0	28
4.7									4 x 5.4	19	4 x 5.4	20	5 x 5.4	23	5 x 5.4	23	6.3 x 6.0	35
10							4 x 5.4	25	5 x 5.4	28	5 x 5.4	30	6.3 x 5.4	34	6.3 x 5.4	34	6.3 x 7.7	50
22			4 x 5.4	31	5 x 5.4	35	5 x 5.4	39	6.3 x 5.4	52	6.3 x 5.4	54	6.3 x 6.0	60	6.3 x 7.7	70	8 x 10.2	120
33	4 x 5.4	26	5 x 5.4	39	5 x 5.4	43	6.3 x 5.4	57	6.3 x 5.4	63	6.3 x 6.0	60	6.3 x 7.7	85	8 x 10.2	160	10 x 10.2	190
47	4 x 5.4	34	5 x 5.4	47	6.3 x 5.4	59	6.3 x 5.4	68	6.3 x 6.0	68	6.3 x 6.0	70	6.3 x 7.7	90	8 x 10.2	170	12.5 x 13.5	330
68															8 x 10.2	180	12.5 x 13.5	350
82													10 x 7.7	200				
100	5 x 5.4	61	6.3 x 5.4	71	6.3 x 5.4	76	6.3 x 5.4	86	6.3 x 7.7	130	6.3 x 7.7	120	8 x 10.2	200	10 x 10.2	280	16 x 16.5	550
150					6.3 x 6.0	88	6.3 x 7.7	135	8 x 10.2	200	8 x 10.2	220					16 x 16.5	560
											10 x 7.7	220						
220	6.3 x 5.4	82	6.3 x 6.0	95	6.3 x 7.7	150	6.3 x 7.7	150	8 x 10.2	250	8 x 10.2	270	10 x 10.2	320	12.5 x 13.5	410		
									10 x 7.7	250								
330	6.3 x 6.0	102	6.3 x 7.7	150	8 x 10.2	280	8 x 10.2	280	8 x 10.2	310	10 x 10.2	340	12.5 x 13.5	520				
							10 x 7.7	280										
390													12.5 x 13.5	550				
470	6.3 x 7.7	150	8 x 10.2	300	8 x 10.2	300	8 x 10.2	330	10 x 10.2	430	12.5 x 13.5	590			16 x 16.5	700		
					10 x 7.7	300												
680			8 x 10.2	300			10 x 10.2	450			12.5 x 13.5	610	16 x 16.5	1000				
			10 x 7.7	300														
1000			8 x 10.2	330	10 x 10.2	450			12.5 x 13.5	660	16 x 16.5	1000	16 x 16.5	940				
	10 x 7.7	330																
1500			10 x 10.2	450			12.5 x 13.5	710			16 x 16.5	1060						
2200					12.5 x 13.5	730			16 x 16.5	1150								
3300			12.5 x 13.5	750			16 x 16.5	1200										
4700					16 x 16.5	1260												
6800			16 x 16.5	1330														

Please refer to page 19 for the ripple current frequency coefficient.

■Model No.

16 CE 10 BS
- Series code
- Rated capacitance code
- Type code
- Rated voltage

10 CE 470 BSA
- Series code
- Rated capacitance code
- Type code
- Rated voltage

10 CE 4700 BST
- Series code
- Rated capacitance code
- Type code
- Rated voltage

Case size ; φD x L (mm)
10 x 7.7 ; CE-BSA series
16 x 16.5 ; CE-BST series

Rated ripple current mArms (120Hz, 85℃)

SANYO

Aluminum Electrolytic Type / Surface Mount Type

RoHS compliance

CE-FE Series

Miniature Low Profile

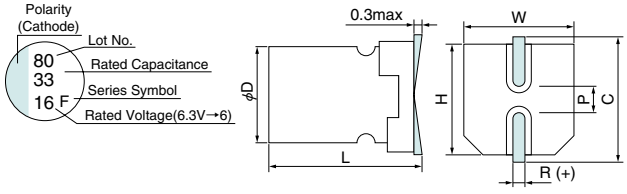
3.9mm Height

- 105℃, 1,000hrs
- Solvent proof (within 2 minutes)

Specifications

Items	Condition		Specifications					
Rated voltage (V)	—		6.3	10	16	25	35	50
Surge voltage (V)	Room temperature		8.0	13	20	32	44	63
Category temperature range (℃)	—		−40 to +105					
Capacitance tolerance (%)	120Hz/20℃		M : ±20					
Dissipation Factor (DF)	120Hz/20℃		0.38	0.32	0.20	0.16	0.14	0.14
Leakage current (LC)	μA/after 2minutes (max)		The greater value of either 0.01CV or 3					
Impedance ratio at low temperature	Based the value at 120Hz, +20℃	−25℃ Z/Z20℃	4	3	2	2	2	2
		−40℃ Z/Z20℃	10	8	6	4	4	4
Endurance	105℃, 1,000hrs. rated voltage applied (With the rated ripple current)	△C/C	Within ±30% of the initial value					
		tan δ	≤ 3 times the initial specified value					
		LC	≤ The initial specified value					

Marking, Dimensions



(Unit : mm)

D+0.5max	L+0.1 −0.2	W±0.2	H±0.2	C±0.2	R	P±0.2
5	3.9	5.3	5.3	6.0	0.5 to 0.8	1.4
6.3	3.9	6.6	6.6	7.3	0.5 to 0.8	2.2

Size List, Rated Ripple Current

μF \ V	6.3		10		16		25		35		50	
1.0											5 x 3.9	6
2.2											5 x 3.9	10
3.3											5 x 3.9	12
4.7							5 x 3.9	13	5 x 3.9	13	5 x 3.9	16
10					5 x 3.9	18	5 x 3.9	21	5 x 3.9	22	6.3 x 3.9	23
22	5 x 3.9	23	5 x 3.9	25	6.3 x 3.9 ※	31(26)	6.3 x 3.9	35	6.3 x 3.9	34		
33	5 x 3.9	28	6.3 x 3.9 ※	35(30)	6.3 x 3.9	35	6.3 x 3.9	42				
47	6.3 x 3.9 ※	42(34)	6.3 x 3.9	38	6.3 x 3.9	42						
68	6.3 x 3.9	49										
100	6.3 x 3.9	52										

※ CE-FES (5 x 3.9)

Please refer to page 19 for the ripple current frequency coefficient.

Case size ; φD x L (mm)

Rated ripple current mArms (120Hz, 105°C) ( ) ; CE-FES series

■Model No.

16 CE 33 FE
- Series code
- Rated capacitance code
- Type code
- Rated voltage

16 CE 22 FES
- Series code
- Rated capacitance code
- Type code
- Rated voltage

Aluminum Electrolytic Capacitors

SANYO

Aluminum Electrolytic Type / Surface Mount Type

RoHS compliance

CE-FD Series

Miniature Low Profile

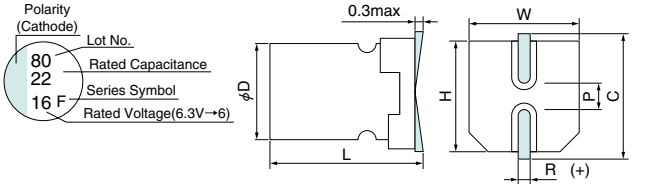
4.5mm Height

- 105℃, 1,000hrs
- Solvent proof (within 2 minutes)

Specifications

Items	Condition		Specifications					
Rated voltage (V)	—		6.3	10	16	25	35	50
Surge voltage (V)	Room temperature		8.0	13	20	32	44	63
Category temperature range (℃)	—		−40 to +105					
Capacitance tolerance (%)	120Hz/20℃		M : ±20					
Dissipation Factor (DF)	120Hz/20℃		0.35	0.28	0.20	0.16	0.14	0.12
Leakage current (LC)	μA/after 2minutes (max)		The greater value of either 0.01CV or 3					
Impedance ratio at low temperature	Based the value at 120Hz, +20℃	−25℃ Z/Z20℃	4	3	2	2	2	2
		−40℃ Z/Z20℃	10	8	6	4	4	4
Endurance	105℃, 1,000hrs. rated voltage applied (With the rated ripple current)	△C/C	Within ±25% of the initial value					
		tan δ	≤ 3 times the initial specified value					
		LC	≤ The initial specified value					

Marking, Dimensions



(Unit : mm)

D+0.5max	L+0.1 −0.2	W±0.2	H±0.2	C±0.2	R	P±0.2
4	4.5	4.3	4.3	5.0	0.5 to 0.8	1.0
5	4.5	5.3	5.3	6.0	0.5 to 0.8	1.4
6.3	4.5	6.6	6.6	7.3	0.5 to 0.8	2.2

Size List, Rated Ripple Current

μF \ V	6.3		10		16		25		35		50	
0.10											4 x 4.5	0.7
0.22											4 x 4.5	1.4
0.33											4 x 4.5	2.0
0.47											4 x 4.5	2.8
1.0											4 x 4.5	5.9
2.2											4 x 4.5	9.8
3.3											4 x 4.5	12
4.7							4 x 4.5	12	4 x 4.5	13	5 x 4.5	15
10					4 x 4.5	17	5 x 4.5	19	5 x 4.5	21	6.3 x 4.5	24
22	4 x 4.5	20	5 x 4.5	24	5 x 4.5	26	6.3 x 4.5	33	6.3 x 4.5	35		
33	5 x 4.5	26	5 x 4.5	29	6.3 x 4.5	36	6.3 x 4.5	40				
47	5 x 4.5	32	6.3 x 4.5	38	6.3 x 4.5	43						
100	6.3 x 4.5	49	6.3 x 4.5	52								

Please refer to page 19 for the ripple current frequency coefficient.

Case size ; φD x L (mm)

Rated ripple current mArms (120Hz, 105°C)

■Model No.

16 CE 22 FD
- FD — Series code
- 22 — Rated capacitance code
- CE — Type code
- 16 — Rated voltage

Aluminum Electrolytic Capacitors

SANYO

Aluminum Electrolytic Type / Surface Mount Type

RoHS compliance

CE-LD Series

Low Profile 4.5mm Height

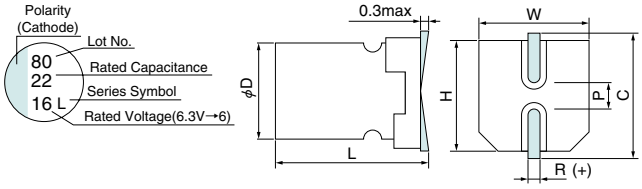
Long Life

- 105℃, 2,000 to 3,000hrs
- Solvent proof (within 2 minutes)

Specifications

Items	Condition		Specifications					
Rated voltage (V)	—		6.3	10	16	25	35	50
Surge voltage (V)	Room temperature		8.0	13	20	32	44	63
Category temperature range (℃)	—		−40 to +105					
Capacitance tolerance (%)	120Hz/20℃		M : ±20					
Dissipation Factor (DF)	120Hz/20℃		0.35	0.30	0.20	0.16	0.14	0.12
Leakage current (LC)	μA/after 2minutes (max)		The greater value of either 0.01CV or 3					
Impedance ratio at low temperature	Based the value at 120Hz, +20℃	−25℃ Z/Z20℃	4	3	2	2	2	2
		−40℃ Z/Z20℃	10	8	6	4	4	4
Endurance	105℃ rated voltage applied (With the rated ripple current)	Test	φ4 to φ5 : 2,000hrs., φ6.3 : 3,000hrs.					
		△C/C	Within ±30% of the initial value					
		tan δ	≤ 3 times the initial specified value					
		LC	≤ The initial specified value					

Marking, Dimensions



(Unit : mm)

D+0.5max	L+0.1 −0.2	W±0.2	H±0.2	C±0.2	R	P±0.2
4	4.5	4.3	4.3	5.0	0.5 to 0.8	1.0
5	4.5	5.3	5.3	6.0	0.5 to 0.8	1.4
6.3	4.5	6.6	6.6	7.3	0.5 to 0.8	2.2

Size List, Rated Ripple Current

μF \ V	6.3		10		16		25		35		50	
0.10											4 x 4.5	0.7
0.22											4 x 4.5	1.4
0.33											4 x 4.5	2.0
0.47											4 x 4.5	2.8
1.0											4 x 4.5	5.9
2.2											4 x 4.5	10
3.3											4 x 4.5	12
4.7							4 x 4.5	12	4 x 4.5	13	5 x 4.5	15
10					4 x 4.5	17	5 x 4.5	19	5 x 4.5	24	6.3 x 4.5	24
22	4 x 4.5	20	5 x 4.5	24	5 x 4.5	26	6.3 x 4.5	33	6.3 x 4.5	35		
33	5 x 4.5	26	5 x 4.5	29	6.3 x 4.5	36	6.3 x 4.5	40				
47	5 x 4.5	32	6.3 x 4.5	38	6.3 x 4.5	43						
100	6.3 x 4.5	49	6.3 x 4.5	52								

Please refer to page 19 for the ripple current frequency coefficient.

Case size ; φD x L (mm)

Rated ripple current mArms (120Hz, 105°C)

■Model No.

16 CE 22 LD
- LD — Series code
- 22 — Rated capacitance code
- CE — Type code
- 16 — Rated voltage

Aluminum Electrolytic Capacitors

SANYO

Aluminum Electrolytic Type / Surface Mount Type

RoHS compliance

CE-FSS Series

Miniature High Capacitance

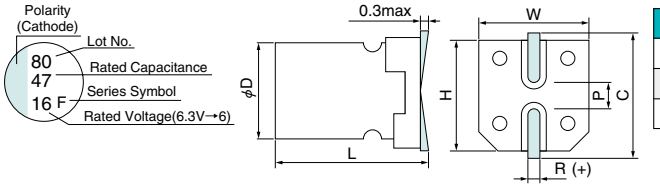
5.4mm Height

・Solvent proof (within 2 minutes)

Specifications

Items	Condition		Specifications					
Rated voltage (V)	—		6.3	10	16	25	35	50
Surge voltage (V)	Room temperature		8.0	13	20	32	44	63
Category temperature range (℃)	—		−40 to +105					
Capacitance tolerance (%)	120Hz/20℃		M : ±20					
Dissipation Factor (DF)	120Hz/20℃		0.35	0.30	0.26	0.20	0.16	0.12
Leakage current (LC)	μA/after 2minutes (max)		The greater value of either 0.01CV or 3					
Impedance ratio at low temperature	Based the value at 120Hz, +20℃	−25℃ Z/Z20℃	4	3	2	2	2	2
		−40℃ Z/Z20℃	10	8	6	4	4	4
Endurance	105℃, 1,000hrs rated voltage applied (With the rated ripple current)	△C/C	Within ±25% of the initial value(6.3WV:±30%)					
		tan δ	≤ 3 times the initial specified value					
		LC	≤ The initial specified value					

Marking, Dimensions



(単位：mm)

D+0.5max	L+0.1 −0.2	W±0.2	H±0.2	C±0.2	R	P±0.2
4	5.4	4.3	4.3	5.0	0.5 to 0.8	1.0
5	5.4	5.3	5.3	6.0	0.5 to 0.8	1.4
6.3	5.4	6.6	6.6	7.3	0.5 to 0.8	2.2

Size List, Rated Ripple Current

μF \ V	6.3		10		16		25		35		50	
4.7											4 x 5.4	16
10							4 x 5.4	22	4 x 5.4	22	5 x 5.4	23
22			4 x 5.4	28	4 x 5.4	28	5 x 5.4	35	5 x 5.4	35	6.3 x 5.4	35
33	4 x 5.4	29	4 x 5.4	29	5 x 5.4	35	5 x 5.4	45	6.3 x 5.4	42		
47	5 x 5.4	36	5 x 5.4	43	5 x 5.4	39	6.3 x 5.4	70				
100	5 x 5.4	47	5 x 5.4	47								
150	6.3 x 5.4	71	6.3 x 5.4	71								
220	6.3 x 5.4	74										

Please refer to page 19 for the ripple current frequency coefficient.

Case size ; φD x L (mm)

Rated ripple current mArms (120Hz, 105°C)

■Model No.

16 CE 47 FSS
- FSS — Series code
- 47 — Rated capacitance code
- CE — Type code
- 16 — Rated voltage

CE-FS Series

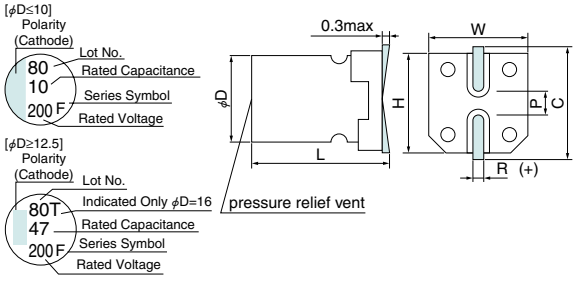
105℃ Standard
Mid. and High Voltage

- 160 to 400V 105℃, 1,000 to 2,000hrs
- Do not clean the capacitors using solvent.

Specifications

Items	Condition		Specifications			
Rated voltage (V)	—		160	200	250	400
Surge voltage (V)	Room temperature		200	250	300	450
Category temperature range (℃)	—		−40 to +105			
Capacitance tolerance (%)	120Hz/20℃		M : ±20			
Dissipation Factor (DF)	120Hz/20℃		0.20			0.25
Leakage current (LC)	μA/after 2minutes (max)	CV ≤ 1,000	0.03CV + 15			
		CV > 1,000	0.02CV + 25			
Impedance ratio at low temperature	Based the value at 120Hz, +20℃	−25℃ Z/Z20℃	3	3	3	6
		−40℃ Z/Z20℃	6	6	6	10
Endurance	105℃ rated voltage applied (With the rated ripple current)	Test	φ8 : 1,000hrs., φ10 to φ16 : 2,000hrs.			
		△C/C	Within ±25% of the initial value			
		tan δ	≤ 2 times the initial specified value			
		LC	≤ The initial specified value			

Marking, Dimensions



(Unit : mm)

D+0.5max	L±0.3	W±0.2	H±0.2	C±0.2	R	P±0.2
8	10.5	8.3	8.3	9.0	0.7 to 1.0	3.2
10	10.5	10.3	10.3	11.0	1.0 to 1.4	4.6
12.5	13.5 ±0.5	12.8	12.8	13.5	1.0 to 1.4	4.6
16	16.5 ±0.5	16.3	16.3	17.3	1.8 to 2.1	7.0

Size List, Rated Ripple Current

μF \ V	160		200		250		400	
2.2							8 x 10.5	25
3.3					8 x 10.5	31	10 x 10.5	36
4.7					8 x 10.5	37	10 x 10.5	38
6.8					8 x 10.5	44	12.5 x 13.5	47
10	8 x 10.5	57	10 x 10.5	64	10 x 10.5	64	12.5 x 13.5	57
22	12.5 x 13.5	112	12.5 x 13.5	112	12.5 x 13.5	112	16 x 16.5	115
33	12.5 x 13.5	137	12.5 x 13.5	137	16 x 16.5	150		
47	16 x 16.5	180	16 x 16.5	180	16 x 16.5	180		
68	16 x 16.5	215	16 x 16.5	215				
82	16 x 16.5	235						

Please refer to page 19 for the ripple current frequency coefficient.

Case size ; φD x L (mm)
16 x 16.5 ; CE-FST series

Rated ripple current
mArms (120Hz, 105°C)

■Model No.

200 CE 10 FS
- Series code
- Rated capacitance code
- Type code
- Rated voltage

200 CE 47 FST
- Series code
- Rated capacitance code
- Type code
- Rated voltage

Aluminum Electrolytic Capacitors

SANYO

Aluminum Electrolytic Type / Surface Mount Type

RoHS compliance

CE-FS Series

105℃ Standard

- 105℃, 1,000 to 2,000hrs
- Solvent proof (within 2 minutes)

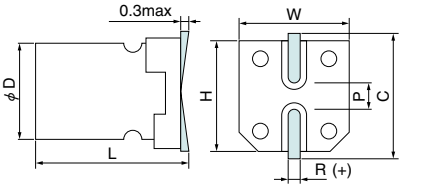
Specifications

Items	Condition		Specifications							
Rated voltage (V)	—		6.3	10	16	25	35	50	63	100
Surge Voltage (V)	Room temperature		8.0	13	20	32	44	63	79	125
Category temperature range (℃)	—		−55 to +105							−40 to +105
Capacitance tolerance (%)	120Hz/20℃		M : ±20							
Dissipation Factor (DF)	120Hz/20℃	φ4 to φ6.3	0.24	0.20	0.16	0.14	0.12	0.10	0.12	0.10
		φ8 to φ16	0.28	0.24	0.20	0.16	0.14	0.12	0.12	0.10
			When rated capacitance exceeds 1,000 μF, add 0.02 to the value above for each 1,000 μF increase.							
Leakage current (LC)	μA/after 2minutes (max)		The greater value of either 0.01CV or 3							
Impedance ratio at low temperature	Based the value at 120Hz, +20℃	−40℃ Z/Z20℃	3	3	2	2	2	2	2	3
		−55℃ Z/Z20℃	8	5	4	3	3	3	3	—
Endurance	105℃ rated voltage applied (With the rated ripple current)	Test	φ4 to φ6.3, φ10 × 7.7 : 1,000hrs., φ8 to φ16 : 2,000hrs.							
		△C/C	Within ±25% of the initial value							
		tan δ	≤ 2 times the initial specified value							
		LC	≤ The initial specified value							

Marking, Dimensions

[φD≤10]
Polarity (Cathode)
Lot No.
80 Rated Capacitance
470 Series Symbol
16F Rated Voltage(6.3V →6)

[φD≥12.5]
Polarity (Cathode)
Lot No. indicated only φD=16
80T Rated Capacitance
4700 Series Symbol
10F Rated Voltage(6.3V →6)



A pressure relief vent is attached to products over φD=8

(Unit : mm)

D+0.5max	L	W ±0.2	H ±0.2	C ±0.2	R	P ±0.2
4	5.4 +0.1 −0.2	4.3	4.3	5.0	0.5 to 0.8	1.0
5	5.4 +0.1 −0.2	5.3	5.3	6.0	0.5 to 0.8	1.4
6.3	5.4 +0.1 −0.2	6.6	6.6	7.3	0.5 to 0.8	2.2
4	6.0 ±0.3	4.3	4.3	5.0	0.5 to 0.8	1.0
6.3	6.0 ±0.3	6.6	6.6	7.3	0.5 to 0.8	2.2
6.3	7.7 ±0.3	6.6	6.6	7.3	0.5 to 0.8	2.2
8	10.2 ±0.3	8.3	8.3	9.0	0.7 to 1.0	3.2
10	7.7 ±0.3	10.3	10.3	11.0	1.0 to 1.4	4.6
10	10.2 ±0.3	10.3	10.3	11.0	1.0 to 1.4	4.6
12.5	13.5 ±0.5	12.8	12.8	13.5	1.0 to 1.4	4.6
16	16.5 ±0.5	16.3	16.3	17.3	1.8 to 2.1	7.0

Size List, Rated Ripple Current

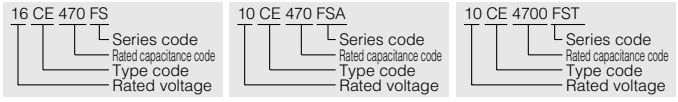
μF \ V	6.3		10		16		25		35		50		63		100	
0.10 to 0.47											4 x 5.4	0.7 to 3.5	4 x 5.4	0.7 to 3.5		
1.0											4 x 5.4	7	4 x 5.4	7	4 x 6.0	7
2.2											4 x 5.4	11	4 x 5.4	11	6.3 x 6.0	14
3.3											4 x 5.4	13	5 x 5.4	14	6.3 x 6.0	20
4.7							4 x 5.4	13	4 x 5.4	14	5 x 5.4	16	5 x 5.4	16	6.3 x 6.0	25
10					4 x 5.4	18	5 x 5.4	20	5 x 5.4	21	6.3 x 5.4	24	6.3 x 5.4	24	6.3 x 7.7	35
22	4 x 5.4	22	5 x 5.4	25	5 x 5.4	27	6.3 x 5.4	36	6.3 x 5.4	38	6.3 x 6.0	42	6.3 x 7.7	49	8 x 10.2	84
33	5 x 5.4	27	5 x 5.4	30	6.3 x 5.4	40	6.3 x 5.4	44	6.3 x 6.0	42	6.3 x 7.7	60	8 x 10.2	112	10 x 10.2	133
47	5 x 5.4	33	6.3 x 5.4	41	6.3 x 5.4	48	6.3 x 6.0	48	6.3 x 6.0	49	6.3 x 7.7	63	8 x 10.2	119	12.5 x 13.5	240
68													8 x 10.2	126	12.5 x 13.5	245
82											10 x 7.7	140				
100	6.3 x 5.4	50	6.3 x 5.4	53	6.3 x 5.4	60	6.3 x 7.7	91	6.3 x 7.7	84	8 x 10.2	140	10 x 10.2	196	16 x 16.5	490
150			6.3 x 6.0	62	6.3 x 7.7	95	8 x 10.2	140	8 x 10.2	155					16 x 16.5	500
									10 x 7.7	155						
220	6.3 x 6.0	67	6.3 x 7.7	105	6.3 x 7.7	105	8 x 10.2	175	8 x 10.2	190	10 x 10.2	220	12.5 x 13.5	287		
							10 x 7.7	175								
330	6.3 x 7.7	105	8 x 10.2	195	8 x 10.2	195	8 x 10.2	220	10 x 10.2	300	12.5 x 13.5	365				
					10 x 7.7	195										
390											12.5 x 13.5	380				
470	8 x 10.2	210	8 x 10.2	210	8 x 10.2	230	10 x 10.2	300	12.5 x 13.5	410			16 x 16.5	630		
			10 x 7.7	210												
680	8 x 10.2	210			10 x 10.2	310			12.5 x 13.5	430						
	10 x 7.7	210														
1000	8 x 10.2	230	10 x 10.2	310			12.5 x 13.5	460	16 x 16.5	700	16 x 16.5	655				
1500	10 x 10.2	310			12.5 x 13.5	500			16 x 16.5	740						
2200			12.5 x 13.5	510			16 x 16.5	805								
3300	12.5 x 13.5	520			16 x 16.5	840										
4700			16 x 16.5	880												
6800	16 x 16.5	930														

Please refer to page 19 for the ripple current frequency coefficient.

Case size ; φD x L (mm)
10 x 7.7 ; CE-FSA series
16 x 16.5 ; CE-FST series

Rated ripple current
mArms (120Hz, 105°C)

■Model No.



Aluminum Electrolytic Capacitors

SANYO

Aluminum Electrolytic Type / Surface Mount Type

RoHS compliance

CE-FH Series

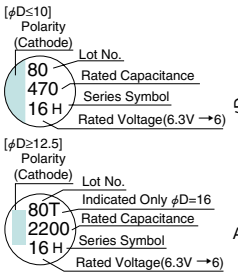
Long Life

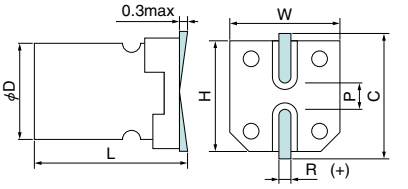
- 105℃, 2,000 to 5,000hrs
- Solvent proof (within 2 minutes)

Specifications

Items	Condition		Specifications					
Rated voltage (V)	—		6.3	10	16	25	35	50
Surge voltage (V)	Room temperature		8.0	13	20	32	44	63
Category temperature range (℃)	—		−40 to +105					
Capacitance tolerance (%)	120Hz/20℃		M : ±20					
Dissipation Factor (DF)	120Hz/20℃		0.30	0.24	0.20	0.16	0.14	0.14
			When rated capacitance exceeds 1,000 μF, add 0.02 to the value above for each 1,000 μF increase.					
Leakage current (LC)	μA/after 2minutes (max)		The greater value of either 0.01CV or 3					
Impedance ratio at low temperature	Based the value at 120Hz, +20℃	−25℃ Z/Z20℃	4	3	2	2	2	2
		−40℃ Z/Z20℃	8	6	4	4	3	3
Endurance	105℃ rated voltage applied (With the rated ripple current)	Test	φ4 to φ6.3 : 2,000hrs., φ8 to φ10 : 3,000hrs., φ12.5 to φ16 : 5,000hrs.					
		△C/C	Within ±25% of the initial value					
		tan δ	≤ 2.5 times the initial specified value					
		LC	≤ The initial specified value					

Marking, Dimensions





A pressure relief vent is attached to products over φD=8

(Unit : mm)

D+0.5max	L±0.3	W±0.2	H±0.2	C±0.2	R	P±0.2
4	6.0	4.3	4.3	5.0	0.5 to 0.8	1.0
5	6.0	5.3	5.3	6.0	0.5 to 0.8	1.4
6.3	6.0	6.6	6.6	7.3	0.5 to 0.8	2.2
6.3	7.7	6.6	6.6	7.3	0.5 to 0.8	2.2
8	10.2	8.3	8.3	9.0	0.7 to 1.0	3.2
10	10.2	10.3	10.3	11.0	1.1 to 1.4	4.6
12.5	13.5±0.5	12.8	12.8	13.5	1.1 to 1.4	4.6
16	16.5±0.5	16.3	16.3	17.3	1.8 to 2.1	7.0

Size List, Rated Ripple Current

μF \ V	6.3		10		16		25		35		50	
0.10											4 x 6.0	0.7
0.22											4 x 6.0	1.6
0.33											4 x 6.0	2.5
0.47											4 x 6.0	3.5
1.0											4 x 6.0	7
2.2											4 x 6.0	11
3.3											4 x 6.0	13
4.7							4 x 6.0	13	4 x 6.0	15	5 x 6.0	19
10					4 x 6.0	18	5 x 6.0	23	5 x 6.0	25	6.3 x 6.0	32
22	4 x 6.0	22	5 x 6.0	27	5 x 6.0	30	6.3 x 6.0	42	6.3 x 6.0	44	6.3 x 7.7	60
33	5 x 6.0	30	5 x 6.0	35	6.3 x 6.0	44	6.3 x 6.0	58	6.3 x 7.7	77	8 x 10.2	140
47	5 x 6.0	36	6.3 x 6.0	46	6.3 x 6.0	60	6.3 x 7.7	91	8 x 10.2	150	8 x 10.2	150
100	6.3 x 6.0	67	6.3 x 6.0	62	6.3 x 7.7	95	8 x 10.2	150	8 x 10.2	160	10 x 10.2	220
220	6.3 x 7.7	105	8 x 10.2	175	8 x 10.2	175	8 x 10.2	195	10 x 10.2	290	12.5 x 13.5	340
330	8 x 10.2	195	8 x 10.2	195	8 x 10.2	210	10 x 10.2	290	12.5 x 13.5	380		
470	8 x 10.2	210	8 x 10.2	210	10 x 10.2	290	12.5 x 13.5	400			16 x 16.5	610
680			10 x 10.2	300			12.5 x 13.5	415				
1000	10 x 10.2	300			12.5 x 13.5	440			16 x 16.5	620		
1500			12.5 x 13.5	480			16 x 16.5	720				
2200	12.5 x 13.5	490			16 x 16.5	785						
3300			16 x 16.5	820								
4700	16 x 16.5	860										

Please refer to page 19 for the ripple current frequency coefficient.

■Model No.

16 CE 47 FH
- Series code
- Rated capacitance code
- Type code
- Rated voltage

16 CE 2200 FHT
- Series code
- Rated capacitance code
- Type code
- Rated voltage

Case size ; φD x L (mm)
16 x 16.5 ; CE-FHT series

Rated ripple current
mArms (120Hz, 105°C)

SANYO

Aluminum Electrolytic Type / Surface Mount Type

RoHS compliance

CE-GA Series

Low Impedance

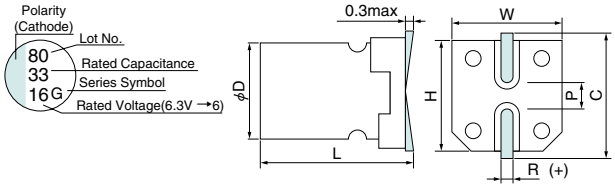
5.4mm Height

- 105℃, 1,000hrs
- Solvent proof (within 2 minutes)

Specifications

Items	Condition		Specifications						
Rated voltage (V)	—		6.3	10	16	25	35	50	63
Surge voltage (V)	Room temperature		8.0	13	20	32	44	63	79
Category temperature range (℃)	—		−55 to +105						
Capacitance tolerance (%)	120Hz/20℃		M : ±20						
Dissipation Factor (DF)	120Hz/20℃		0.24	0.20	0.16	0.14	0.12	0.12	0.12
Leakage current (LC)	μA/after 2minutes (max)		The greater value of either 0.01CV or 3						
Impedance ratio at low temperature	Based the value at 120Hz, +20℃	−40℃ Z/Z20℃	3	2	2	2	2	2	2
		−55℃ Z/Z20℃	5	4	4	3	3	3	3
Endurance	105℃, 1,000hrs. rated voltage applied (With the rated ripple current)	△C/C	Within ±25% of the initial value						
		tan δ	≤ 2 times the initial specified value						
		LC	≤ The initial specified value						

Marking, Dimensions



(Unit : mm)

D+0.5max	L+0.1 −0.2	W±0.2	H±0.2	C±0.2	R	P±0.2
4	5.4	4.3	4.3	5.0	0.5 to 0.8	1.0
5	5.4	5.3	5.3	6.0	0.5 to 0.8	1.4
6.3	5.4	6.6	6.6	7.3	0.5 to 0.8	2.2

Size List, Impedance, Rated Ripple Current

μF \ V	6.3			10			16			25			35			50			63		
0.47													4	6.0	51	4	8.0	30	4	10	15
1.0													4	3.1	68	4	7.4	37	4	8.0	20
2.2													4	2.9	68	4	6.6	45	4	8.0	24
3.3													4	2.7	68	4	5.4	52	5	3.5	40
4.7										4	2.3	68	4	2.3	68	5	2.9	75	5	3.5	40
10							4	2.3	68	5	1.1	105	5	1.1	105	6.3	1.3	120	6.3	1.6	65
22	4	2.3	68	5	1.1	105	5	1.1	105	6.3	0.6	155	6.3	0.6	155						
33	5	1.1	105	5	1.1	105	6.3	0.6	155	6.3	0.6	155									
47	5	1.1	105	6.3	0.6	155	6.3	0.6	155	6.3	0.6	155									
100	6.3	0.6	155	6.3	0.6	155	6.3	0.6	155												

Please refer to page 19 for the ripple current frequency coefficient.

Case size ; φD (mm)

Impedance (Ω) max at 100kHz, 20°C

Rated ripple current mArms (100kHz, 105°C)

■Model No.

10 CE 33 GA
- GA — Series code
- 33 — Rated capacitance code
- CE — Type code
- 10 — Rated voltage

Aluminum Electrolytic Capacitors

SANYO

Aluminum Electrolytic Type / Surface Mount Type

RoHS compliance

CE-AX Series

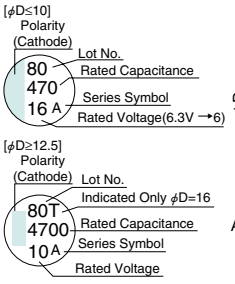
Low Impedance

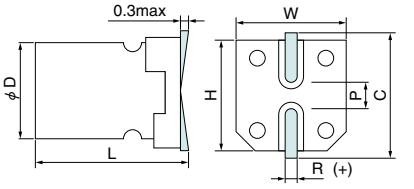
- 105℃, 1,000 to 2,000hrs
- Solvent proof (within 2 minutes)

Specifications

Items	Condition		Specifications					
Rated voltage (V)	—		6.3	10	16	25	35	50
Surge voltage (V)	Room temperature		8.0	13	20	32	44	63
Category temperature range (℃)	—		−55 to +105					
Capacitance tolerance (%)	120Hz/20℃		M : ±20					
Dissipation Factor (DF)	120Hz/20℃	φ4 to φ6.3	0.24	0.20	0.16	0.14	0.12	0.12
		φ8 to φ16	0.28	0.24	0.20	0.16	0.14	0.14
			When rated capacitance exceeds 1,000 μF, add 0.02 to the value above for each 1,000 μF increase.					
Leakage current (LC)	μA/after 2minutes (max)		The greater value of either 0.01CV or 3					
Impedance ratio at low temperature	Based the value at 120Hz, +20℃	−40℃ Z/Z20℃	3	2	2	2	2	2
		−55℃ Z/Z20℃	5	4	4	3	3	3
Endurance	105℃ rated voltage applied (With the rated ripple current)	Test	φ4 to φ6.3, φ10×7.7 : 1,000hrs., φ8 to φ16 : 2,000hrs.					
		△C/C	Within ±25% of the initial value					
		tan δ	≤ 2 times the initial specified value					
		LC	≤ The initial specified value					

Marking, Dimensions





A pressure relief vent is attached to products over φD=8

(Unit : mm)

D+0.5max	L ±0.3	W ±0.2	H ±0.2	C ±0.2	R	P ±0.2
4	6.0	4.3	4.3	5.0	0.5 to 0.8	1.0
5	6.0	5.3	5.3	6.0	0.5 to 0.8	1.4
6.3	6.0	6.6	6.6	7.3	0.5 to 0.8	2.2
6.3	7.7	6.6	6.6	7.3	0.5 to 0.8	2.2
8	10.2	8.3	8.3	9.0	0.7 to 1.0	3.2
10	7.7	10.3	10.3	11.0	1.0 to 1.4	4.6
10	10.2	10.3	10.3	11.0	1.0 to 1.4	4.6
12.5	13.5 ±0.5	12.8	12.8	13.5	1.0 to 1.4	4.6
16	16.5 ±0.5	16.3	16.3	17.3	1.8 to 2.1	7.0

Size List, Impedance, Rated Ripple Current

μF \ V	6.3			10			16			25			35			50		
4.7													4 x 6.0	1.80	80	4 x 6.0	2.90	60
10										4 x 6.0	1.80	80	5 x 6.0	0.76	150	6.3 x 6.0	0.88	165
15							4 x 6.0	1.80	80	5 x 6.0	0.76	150	5 x 6.0	0.76	150			
22				4 x 6.0	1.80	80	5 x 6.0	0.76	150	5 x 6.0	0.76	150	5 x 6.0	0.76	150	6.3 x 6.0	0.88	165
27	4 x 6.0	1.80	80															
33	→			5 x 6.0	0.76	150	→			6.3 x 6.0	0.44	230	6.3 x 6.0	0.44	230	6.3 x 7.7	0.68	195
47	5 x 6.0	0.76	150	→			6.3 x 6.0	0.44	230	6.3 x 6.0	0.44	230	6.3 x 6.0	0.44	230	6.3 x 7.7	0.68	195
56	5 x 6.0	0.76	150							6.3 x 6.0	0.44	230						
68	→			6.3 x 6.0	0.44	230	6.3 x 6.0	0.44	230	6.3 x 6.0	0.44	230	6.3 x 7.7	0.34	280			
100	6.3 x 6.0	0.44	230	→			6.3 x 6.0	0.44	230	6.3 x 7.7	0.34	280	8 x 10.2	0.17	450	8 x 10.2	0.39	300
150	6.3 x 6.0	0.44	230	6.3 x 6.0	0.44	230	6.3 x 7.7	0.34	280	8 x 10.2	0.17	450	8 x 10.2	0.17	450	10 x 10.2	0.21	450
										→			10 x 7.7	0.17	450			
220	6.3 x 6.0	0.44	230	6.3 x 7.7	0.34	280	6.3 x 7.7	0.34	280	8 x 10.2	0.17	450	8 x 10.2	0.17	450	10 x 10.2	0.21	450
										10 x 7.7	0.17	450						
330	6.3 x 7.7	0.34	280	8 x 10.2	0.17	450	8 x 10.2	0.17	450	8 x 10.2	0.17	450	10 x 10.2	0.09	670	12.5 x 13.5	0.14	620
				→			10 x 7.7	0.17	450									
390																12.5 x 13.5	0.14	620
470	8 x 10.2	0.17	450	8 x 10.2	0.17	450	8 x 10.2	0.17	450	10 x 10.2	0.09	670	12.5 x 13.5	0.066	900			
				10 x 7.7	0.17	450												
680	8 x 10.2	0.17	450	→			10 x 10.2	0.09	670				12.5 x 13.5	0.066	900			
	10 x 7.7	0.17	450															
1000	8 x 10.2	0.17	450	10 x 10.2	0.09	670				12.5 x 13.5	0.066	900				16 x 16.5	0.078	790
1500	10 x 10.2	0.09	670				12.5 x 13.5	0.066	900				16 x 16.5	0.052	1250			
2200				12.5 x 13.5	0.066	900				16 x 16.5	0.052	1250						
3300	12.5 x 13.5	0.066	900				16 x 16.5	0.052	1250									
4700				16 x 16.5	0.052	1250												
6800	16 x 16.5	0.052	1250															

→Use next higher voltage product.

Please refer to page 19 for the ripple current frequency coefficient.

Case size ; φD x L (mm)
10 x 7.7 ; CE-AXA series
16 x 16.5 ; CE-AXT series

Rated ripple current
mArms (100kHz, 105°C)

Impedance (Ω)
max at 100kHz, 20°C

■Model No.

16 CE 470 AX
- Series code
- Rated capacitance code
- Type code
- Rated voltage

10 CE 470 AXA
- Series code
- Rated capacitance code
- Type code
- Rated voltage

10 CE 4700 AXT
- Series code
- Rated capacitance code
- Type code
- Rated voltage

Aluminum Electrolytic Capacitors

SANYO

Aluminum Electrolytic Type / Surface Mount Type

RoHS compliance

CE-KX Series

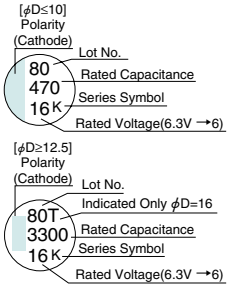
Low Impedance

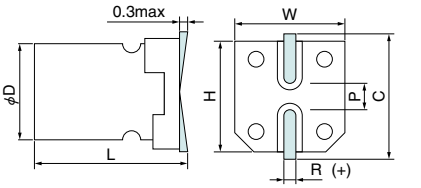
- **This series has 10 to 20% less impedance with same package than CE-AX series.**
- **105℃, 1,000 to 2,000hrs, Solvent proof (within 2 minutes)**

Specifications

Items	Condition		Specifications								
Rated voltage (V)	—		6.3	10	16	25	35	50	63	80	100
Surge voltage (V)	Room temperature		8.0	13	20	32	44	63	79	100	125
Category temperature range (℃)	—		−55 to +105								
Capacitance tolerance (%)	120Hz/20℃		M : ±20								
Dissipation Factor (DF)	120Hz/20℃	φ4 to φ6.3	0.24	0.20	0.16	0.14	0.12	0.12	0.10	0.08	0.07
		φ8 to φ16	0.28	0.24	0.20	0.16	0.14	0.14	0.12	0.10	0.08
			When rated capacitance exceeds 1,000 μF, add 0.02 to the value above for each 1,000 μF increase.								
Leakage current (LC)	μA/after 2minutes (max)		The greater value of either 0.01CV or 3								
Impedance ratio at low temperature	Based the value at 120Hz, +20℃	−40℃ Z/Z20℃	3	2	2	2	2	2	2	2	2
		−55℃ Z/Z20℃	5	4	4	3	3	3	3	3	3
Endurance	105℃ rated voltage applied (With the rated ripple current)	Test	φ4 to φ6.3 : 1,000hrs., φ8 to φ16 : 2,000hrs.								
		△C/C	Within ±25% of the initial value								
		tan δ	≤ 2 times the initial specified value								
		LC	≤ The initial specified value								

Marking, Dimensions





A pressure relief vent is attached to products over φD=8

(Unit : mm)

D+0.5max	L ±0.3	W ±0.2	H ±0.2	C ±0.2	R	P ±0.2
4	6.0	4.3	4.3	5.0	0.5 to 0.8	1.0
5	6.0	5.3	5.3	6.0	0.5 to 0.8	1.4
6.3	6.0	6.6	6.6	7.3	0.5 to 0.8	2.2
6.3	7.7	6.6	6.6	7.3	0.5 to 0.8	2.2
8	10.2	8.3	8.3	9.0	0.7 to 1.0	3.2
10	10.2	10.3	10.3	11.0	1.0 to 1.4	4.6
12.5	13.5 ±0.5	12.8	12.8	13.5	1.0 to 1.4	4.6
16	16.5 ±0.5	16.3	16.3	17.3	1.8 to 2.1	7.0

Size List, Impedance, Rated Ripple Current

μF \ V	6.3	10	16	25	35	50	63	80	100
4.7					4 x 6.0 1.45 90	4 x 6.0 2.55 64	5 x 6.0 2.00 55	6.3 x 6.0 2.40 45	
10				4 x 6.0 1.45 90	5 x 6.0 0.70 170	6.3 x 6.0 0.52 215	6.3 x 6.0 1.00 90	6.3 x 7.7 2.00 65	
15			4 x 6.0 1.45 90	5 x 6.0 0.70 170	5 x 6.0 0.70 170				
22		4 x 6.0 1.45 90	5 x 6.0 0.70 170	5 x 6.0 0.70 170	5 x 6.0 0.70 170	6.3 x 6.0 0.52 215	6.3 x 7.7 0.80 135	8 x 10.2 0.90 140	8 x 10.2 0.90 140
27	4 x 6.0 1.45 90								
33	→	5 x 6.0 0.70 170	→	6.3 x 6.0 0.39 250	6.3 x 6.0 0.39 250	6.3 x 7.7 0.44 243	8 x 10.2 0.35 280	8 x 10.2 0.90 140	10 x 10.2 0.50 220
47	5 x 6.0 0.70 170	→	6.3 x 6.0 0.39 250	6.3 x 6.0 0.39 250	6.3 x 6.0 0.39 250	6.3 x 7.7 0.44 243	8 x 10.2 0.35 280	10 x 10.2 0.50 220	12.5 x 13.5 0.24 500
56	5 x 6.0 0.70 170			6.3 x 6.0 0.39 250					
68	→	6.3 x 6.0 0.39 250	6.3 x 6.0 0.39 250	6.3 x 6.0 0.39 250	6.3 x 7.7 0.30 300				
100	6.3 x 6.0 0.39 250	→	6.3 x 6.0 0.39 250	6.3 x 7.7 0.30 300	8 x 10.2 0.15 600	8 x 10.2 0.22 400	10 x 10.2 0.20 480	12.5 x 13.5 0.24 500	16 x 16.5 0.14 800
150	6.3 x 6.0 0.39 250	6.3 x 6.0 0.39 250	6.3 x 7.7 0.30 300	8 x 10.2 0.15 600	8 x 10.2 0.15 600			12.5 x 13.5 0.24 500	16 x 16.5 0.14 800
220	6.3 x 6.0 0.39 250	6.3 x 7.7 0.30 300	6.3 x 7.7 0.30 300	8 x 10.2 0.15 600	8 x 10.2 0.15 600	10 x 10.2 0.13 585	12.5 x 13.5 0.14 800		
330	6.3 x 7.7 0.30 300	8 x 10.2 0.15 600	8 x 10.2 0.15 600	8 x 10.2 0.15 600	10 x 10.2 0.08 850	12.5 x 13.5 0.10 800		16 x 16.5 0.14 800	
470	8 x 10.2 0.15 600	8 x 10.2 0.15 600	8 x 10.2 0.15 600	10 x 10.2 0.08 850	12.5 x 13.5 0.058 1150		16 x 16.5 0.065 1410		
680	8 x 10.2 0.15 600	→	10 x 10.2 0.08 850		12.5 x 13.5 0.058 1150				
1000	8 x 10.2 0.15 600	10 x 10.2 0.08 850		12.5 x 13.5 0.058 1150	16 x 16.5 0.035 1800	16 x 16.5 0.060 1610			
1500	10 x 10.2 0.08 850		12.5 x 13.5 0.058 1150		16 x 16.5 0.035 1800				
2200		12.5 x 13.5 0.058 1150		16 x 16.5 0.035 1800					
3300	12.5 x 13.5 0.058 1150		16 x 16.5 0.035 1800						
4700		16 x 16.5 0.035 1800							
6800	16 x 16.5 0.035 1800								

→Use next higher voltage product.

Please refer to page 19 for the ripple current frequency coefficient.

Case size ; φD x L (mm)
16 x 16.5 ; CE-KXT series

Rated ripple current
mArms (100kHz, 105°C)

Impedance (Ω)
max at 100kHz, 20°C

■Model No.

16 CE 470 KX
- Series code
- Rated capacitance code
- Type code
- Rated voltage

16 CE 3300 KXT
- Series code
- Rated capacitance code
- Type code
- Rated voltage

Aluminum Electrolytic Capacitors

SANYO

Aluminum Electrolytic Type / Surface Mount Type

RoHS compliance

CE-LX Series

Low Impedance

Long Life

- 105℃, 2,000 to 5,000hrs
- Solvent proof (within 2 minutes)

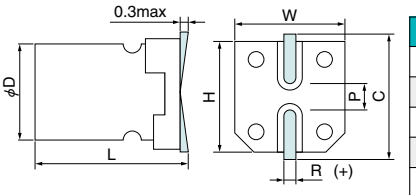
Specifications

Items	Condition		Specifications							
Rated voltage (V)	—		6.3	10	16	25	35	50	60	100
Surge voltage (V)	Room temperature		8.0	13	20	32	44	63	79	125
Category temperature range (℃)	—		−55 to +105							
Capacitance tolerance (%)	120Hz/20℃		M : ±20							
Dissipation Factor (DF)	120Hz/20℃	φ4 to φ6.3	0.26	0.20	0.16	0.14	0.12	0.12	—	—
		φ8 to φ16	0.28	0.24	0.22	0.16	0.14	0.14	0.08	0.07
			When rated capacitance exceeds 1,000 μF, add 0.02 to the value above for each 1,000 μF increase.							
Leakage current (LC)	μA/after 2minutes (max)		The greater value of either 0.01CV or 3							
Impedance ratio at low temperature	Based the value at 120Hz, +20℃	−40℃ Z/Z20℃	3	3	3	3	3	3	2	2
		−55℃ Z/Z20℃	4	4	4	3	3	3	3	3
Endurance	105℃ rated voltage applied (With the rated ripple current)	Test	φ4 to φ6.3 : 2,000hrs., φ8 to φ16 : 5,000hrs.							
		△C/C	Within ±30% of the initial value							
		tan δ	≤ 3 times the initial specified value							
		LC	≤ The initial specified value							

Marking, Dimensions

[φD≤10]
Polarity (Cathode)
Lot No.
80
470
16 L
Rated Capacitance
Series Symbol
Rated Voltage(6.3V →6)

[φD≥12.5]
Polarity (Cathode)
Lot No.
Indicated Only φD=16
80T
3300
16 L
Rated Capacitance
Series Symbol
Rated Voltage(6.3V →6)



A pressure relief vent is attached to products over φD=8

(Unit : mm)

D+0.5max	L±0.3	W±0.2	H±0.2	C±0.2	R	P±0.2
4	6.0	4.3	4.3	5.0	0.5 to 0.8	1.0
5	6.0	5.3	5.3	6.0	0.5 to 0.8	1.4
6.3	6.0	6.6	6.6	7.3	0.5 to 0.8	2.2
6.3	7.7	6.6	6.6	7.3	0.5 to 0.8	2.2
8	10.2	8.3	8.3	9.0	0.7 to 1.0	3.2
10	10.2	10.3	10.3	11.0	1.0 to 1.4	4.6
12.5	13.5±0.5	12.8	12.8	13.5	1.0 to 1.4	4.6
16	16.5±0.5	16.3	16.3	17.3	1.8 to 2.1	7.0

Size List, Impedance, Rated Ripple Current

μF \ V	6.3			10			16			25			35			50			63			100		
4.7													4 x 6.0	1.45	90	4 x 6.0	2.9	60						
10										4 x 6.0	1.45	90	5 x 6.0	0.70	170	6.3 x 6.0	0.88	165						
15							4 x 6.0	1.45	90	5 x 6.0	0.70	170	5 x 6.0	0.70	170	6.3 x 6.0	0.88	165						
22				4 x 6.0	1.45	90	5 x 6.0	0.70	170	5 x 6.0	0.70	170	5 x 6.0	0.70	170	6.3 x 6.0	0.88	165						
27	4 x 6.0	1.45	90	5 x 6.0	0.70	170	5 x 6.0	0.70	170	6.3 x 6.0	0.39	250	6.3 x 6.0	0.39	250	6.3 x 7.7	0.68	195						
33	5 x 6.0	0.70	170	5 x 6.0	0.70	170	6.3 x 6.0	0.39	250	6.3 x 6.0	0.39	250	6.3 x 6.0	0.39	250	6.3 x 7.7	0.68	195				10 x 10.2	0.65	200
47	5 x 6.0	0.70	170	6.3 x 6.0	0.39	250	6.3 x 6.0	0.39	250	6.3 x 6.0	0.39	250	6.3 x 6.0	0.39	250	6.3 x 7.7	0.68	195				12.5 x 13.5	0.32	500
56	5 x 6.0	0.70	170	6.3 x 6.0	0.39	250	6.3 x 6.0	0.39	250	6.3 x 6.0	0.39	250	6.3 x 7.7	0.30	300	8 x 10.2	0.34	300						
68	6.3 x 6.0	0.39	250	6.3 x 6.0	0.39	250	6.3 x 6.0	0.39	250	6.3 x 6.0	0.39	250	6.3 x 7.7	0.30	300	8 x 10.2	0.34	300				12.5 x 13.5	0.32	500
100	6.3 x 6.0	0.39	250	6.3 x 6.0	0.39	250	6.3 x 6.0	0.39	250	6.3 x 7.7	0.30	300	8 x 10.2	0.17	450	8 x 10.2	0.34	300				16 x 16.5	0.17	793
150	6.3 x 6.0	0.39	250	6.3 x 6.0	0.39	250	6.3 x 7.7	0.30	300	8 x 10.2	0.17	450	8 x 10.2	0.17	450	10 x 10.2	0.18	490	12.5 x 13.5	0.16	580	16 x 16.5	0.17	793
220	6.3 x 6.0	0.39	250	6.3 x 7.7	0.30	300	6.3 x 7.7	0.30	300	8 x 10.2	0.17	450	8 x 10.2	0.17	450	10 x 10.2	0.18	490	12.5 x 13.5	0.16	580			
330	6.3 x 7.7	0.30	300	8 x 10.2	0.17	450	8 x 10.2	0.17	450	8 x 10.2	0.17	450	10 x 10.2	0.090	670	12.5 x 13.5	0.12	620						
470	8 x 10.2	0.17	450	8 x 10.2	0.17	450	8 x 10.2	0.17	450	10 x 10.2	0.090	670	12.5 x 13.5	0.060	900	16 x 16.5	0.073	1610	16 x 16.5	0.082	1410			
680	8 x 10.2	0.17	450	10 x 10.2	0.090	670	10 x 10.2	0.090	670	12.5 x 13.5	0.060	900	12.5 x 13.5	0.060	900	16 x 16.5	0.073	1610						
1000	8 x 10.2	0.17	450	10 x 10.2	0.090	670	12.5 x 13.5	0.060	900	12.5 x 13.5	0.060	900	16 x 16.5	0.035	1800	16 x 16.5	0.073	1610						
1500	10 x 10.2	0.090	670	12.5 x 13.5	0.060	900	12.5 x 13.5	0.060	900	16 x 16.5	0.035	1800	16 x 16.5	0.035	1800									
2200	12.5 x 13.5	0.060	900	12.5 x 13.5	0.060	900				16 x 16.5	0.035	1800												
3300							16 x 16.5	0.035	1800															
4700				16 x 16.5	0.035	1800																		
6800	16 x 16.5	0.035	1800																					

Please refer to page 19 for the ripple current frequency coefficient.

Case size ; φ D x L (mm)
16 x 16.5; CE-LXT series

Rated ripple current
mArms (100kHz, 105°C)

Impedance (Ω)
max at 100kHz, 20°C

■Model No.

LX series 10 CE 470 LX
- Series code
- Rated capacitance code
- Type code
- Rated voltage

LXT series 16 CE 3300 LXT
- Series code
- Rated capacitance code
- Type code
- Rated voltage

Aluminum Electrolytic Capacitors

SANYO

Aluminum Electrolytic Type / Surface Mount Type

RoHS compliance

CE-LS Series

Low Impedance

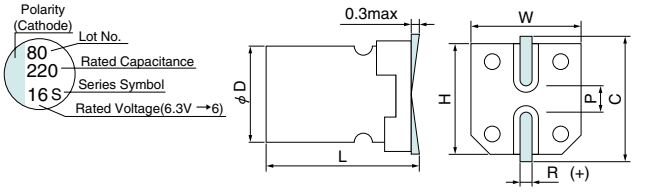
Long Life

- 105℃, 3,000hrs
- Solvent proof (within 2 minutes)

Specifications

Items	Condition		Specifications					
Rated voltage (V)	—		6.3	10	16	25	35	50
Surge voltage (V)	Room temperature		8.0	13	20	32	44	63
Category temperature range (℃)	—		−40 to +105					
Capacitance tolerance (%)	120Hz/20℃		M : ±20					
Dissipation Factor (DF)	120Hz/20℃		0.28	0.24	0.22	0.16	0.13	0.12
Leakage current (LC)	μA/after 2minutes (max)		The greater value of either 0.01CV or 3					
Impedance ratio at low temperature	Based the value at 120Hz, +20℃	−25℃ Z/Z20℃	4	3	2	2	2	2
		−40℃ Z/Z20℃	10	7	5	3	3	3
Endurance	105℃, 3,000hrs. rated voltage applied (With the rated ripple current)	△C/C	Within ±30% of the initial value					
		tan δ	≤ 3 times the initial specified value					
		LC	≤ The initial specified value					

Marking, Dimensions



(Unit : mm)

D±0.5max	L±0.3	W±0.2	H±0.2	C±0.2	R	P±0.2
5	6.0	5.3	5.3	6.0	0.5 to 0.8	1.4
6.3	6.0	6.6	6.6	7.3	0.5 to 0.8	2.2
6.3	7.7	6.6	6.6	7.3	0.5 to 0.8	2.2

Size List, Impedance, Rated Ripple Current

μF \ V	6.3	10	16	25	35	50
10					5 x 6.0 1.30 95	6.3 x 6.0 2.00 70
22			5 x 6.0 1.30 95	5 x 6.0 1.30 95	6.3 x 6.0 0.70 140	6.3 x 6.0 2.00 70
33		5 x 6.0 1.30 95		6.3 x 6.0 0.70 140		6.3 x 7.7 1.35 100
47	5 x 6.0 1.30 95		6.3 x 6.0 0.70 140	6.3 x 6.0 0.70 140	6.3 x 7.7 0.60 230	
100	6.3 x 6.0 0.70 140		6.3 x 6.0 0.70 140	6.3 x 7.7 0.60 230		
150		6.3 x 6.0 0.70 140	6.3 x 7.7 0.60 230			
220	6.3 x 7.7 0.60 230		6.3 x 7.7 0.60 230			
330	6.3 x 7.7 0.60 230					

Please refer to page 19 for the ripple current frequency coefficient.

Case size ; φD x L (mm)

Impedance (Ω) max at 100kHz, 20°C

Rated ripple current mArms (100kHz, 105°C)

■Model No.

16 CE 220 LS
- LS — Series code
- 220 — Rated capacitance code
- CE — Type code
- 16 — Rated voltage

CE-LH Series

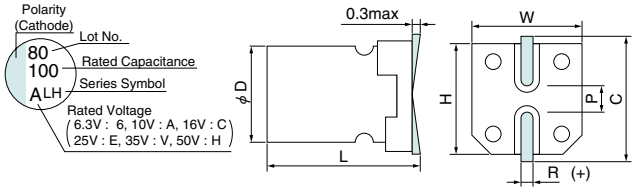
Long Life

- 105℃, 5,000hrs
- Solvent proof (within 2 minutes)

Specifications

Items	Condition		Specifications					
Rated voltage (V)	—		6.3	10	16	25	35	50
Surge voltage (V)	Room temperature		8.0	13	20	32	44	63
Category temperature range (℃)	—		−40 to +105					
Capacitance tolerance (%)	120Hz/20℃		M : ±20					
Dissipation Factor (DF)	120Hz/20℃		0.32	0.24	0.20	0.16	0.13	0.12
Leakage current (LC)	μA/after 2minutes (max)		The greater value of either 0.01CV or 3					
Impedance ratio at low temperature	Based the value at 120Hz, +20℃	−25℃ Z/Z20℃	4	3	2	2	2	2
		−40℃ Z/Z20℃	10	7	5	3	3	3
Endurance	105℃, 5,000hrs. rated voltage applied (With the rated ripple current)	△C/C	Within ±30% of the initial value					
		tan δ	≤ 3 times the initial specified value					
		LC	≤ The initial specified value					

Marking, Dimensions



(Unit : mm)

D+0.5max	L±0.3	W±0.2	H±0.2	C±0.2	R	P±0.2
4	6.0	4.3	4.3	5.0	0.5 to 0.8	1.0
5	6.0	5.3	5.3	6.0	0.5 to 0.8	1.4
6.3	6.0	6.6	6.6	7.3	0.5 to 0.8	2.2
6.3	7.7	6.6	6.6	7.3	0.5 to 0.8	2.2

Size List, Rated Ripple Current

μF \ V	6.3		10		16		25		35		50	
0.1											4 x 6.0	1.0
0.22											4 x 6.0	2.6
0.33											4 x 6.0	3.2
0.47											4 x 6.0	3.8
1.0											4 x 6.0	6.2
2.2											4 x 6.0	11
3.3											4 x 6.0	14
4.7									4 x 6.0	15	5 x 6.0	19
10					4 x 6.0	18	5 x 6.0	25	5 x 6.0	25	6.3 x 6.0	30
22			5 x 6.0	30	5 x 6.0	30	6.3 x 6.0	42	6.3 x 6.0	42	6.3 x 7.7	49
33	5 x 6.0	35	5 x 6.0	35	6.3 x 6.0	48	6.3 x 6.0	48	6.3 x 7.7	57		
47	5 x 6.0	36	6.3 x 6.0	50	6.3 x 6.0	50	6.3 x 7.7	63				
100	6.3 x 6.0	60	6.3 x 7.7	81	6.3 x 7.7	81						
220	6.3 x 7.7	101										

Please refer to page 19 for the ripple current frequency coefficient.

Case size ; φD x L (mm)

Rated ripple current mArms (120Hz, 105°C)

■Model No.

10 CE 100 LH
- LH — Series code
- 100 — Rated capacitance code
- CE — Type code
- 10 — Rated voltage

Aluminum Electrolytic Capacitors

SANYO

Aluminum Electrolytic Type / Surface Mount Type

RoHS compliance

CE-LH Series

105℃ Long Life

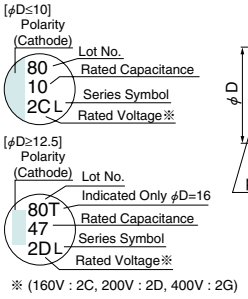
Mid and High Voltage

- 160 to 400V 105℃, 5,000hrs
- Do not clean the capacitors using solvent.

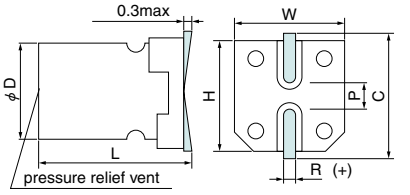
Specifications

Items	Condition		Specifications		
Rated voltage (V)	—		160	200	400
Surge voltage (V)	Room temperature		200	250	450
Category temperature range (℃)	—		−40 to +105		
Capacitance tolerance (%)	120Hz/20℃		M : ±20		
Dissipation Factor (DF)	120Hz/20℃		0.20	0.20	0.25
Leakage current (LC)	μA/after 2minutes (max)	CV ≤ 1,000	0.03CV + 15		
		CV > 1,000	0.02CV + 25		
Impedance ratio at low temperature	Based the value at 120Hz, +20℃	−25℃ Z/Z20℃	3	3	6
		−40℃ Z/Z20℃	6	6	10
Endurance	105℃, 5,000hrs. rated voltage applied (With the rated ripple current)	△C/C	Within ±30% of the initial value		
		tan δ	≤ 3 times the initial specified value		
		LC	≤ The initial specified value		

Marking, Dimensions



※ (160V : 2C, 200V : 2D, 400V : 2G)



(Unit : mm)

D+0.5max	L	W±0.2	H±0.2	C±0.2	R	P±0.2
8	10.5±0.3	8.3	8.3	9.0	0.7 to 1.0	3.2
10	10.5±0.3	10.3	10.3	11.0	1.0 to 1.4	4.6
12.5	13.5±0.5	12.8	12.8	13.5	1.0 to 1.4	4.6
16	16.5±0.5	16.3	16.3	17.3	1.8 to 2.1	7.0

Size List, Rated Ripple Current

μF \ V	160		200		400	
2.2					8 x 10.5	25
3.3					10 x 10.5	36
4.7					10 x 10.5	38
10	10 x 10.5	43			12.5 x 13.5	57
22	12.5 x 13.5	112	12.5 x 13.5	112	16 x 16.5	115
33	12.5 x 13.5	137	12.5 x 13.5	137		
47	16 x 16.5	180	16 x 16.5	180		
68	16 x 16.5	215	16 x 16.5	215		
82	16 x 16.5	235				

Please refer to page 19 for the ripple current frequency coefficient.

Case size ; φD x L (mm)
16 x 16.5 ; CE-LHT series

Rated ripple current
mArms (120Hz, 105°C)

■Model No.

LH series 200 CE 22 LH
- LH: Series code
- 22: Rated capacitance code
- CE: Type code
- 200: Rated voltage

LHT series 200 CE 47 LHT
- LHT: Series code
- 47: Rated capacitance code
- CE: Type code
- 200: Rated voltage

Aluminum Electrolytic Capacitors

SANYO

Aluminum Electrolytic Type / Surface Mount Type

RoHS compliance

CE-LL Series

Low Impedance

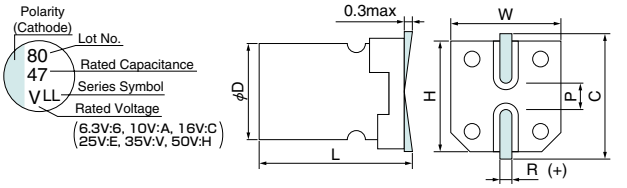
Long Life

- 105℃, 7,000 to 10,000hrs
- Solvent proof (within 2 minutes)

Specifications

Items	Condition		Specifications					
Rated voltage (V)	—		6.3	10	16	25	35	50
Surge voltage (V)	Room temperature		8.0	13	20	32	44	63
Category temperature range (℃)	—		−25 to +105					
Capacitance tolerance (%)	120Hz/20℃		M : ±20					
Dissipation Factor (DF)	120Hz/20℃		0.32	0.28	0.26	0.16	0.14	0.14
Leakage current (LC)	μA/after 2minutes (max)		The greater value of either 0.01CV or 3					
Impedance ratio at low temperature	Based the value at 120Hz, +20℃	−25℃ Z/Z20℃	4	3	2	2	2	2
Endurance	105℃, rated voltage applied (With the rated ripple current)	test	φD ≤ 6.3 : 7,000hrs., φD ≤ 8 : 10,000hrs.					
		△C/C	Within ±30% of the initial value					
		tan δ	≤ 3 times the initial specified value					
		LC	≤ The initial specified value					

Marking, Dimensions



A pressure relief vent is attached to products over φD=8

(Unit : mm)

D+0.5max	L±0.3	W±0.2	H±0.2	C±0.2	R	P±0.2
5	7.0	5.3	5.3	6.0	0.5 to 0.8	1.4
6.3	7.0	6.6	6.6	7.3	0.5 to 0.8	1.9
6.3	8.4	6.6	6.6	7.3	0.5 to 0.8	1.9
8	10.2	8.3	8.3	9.0	0.7 to 1.0	3.2
10	10.2	10.3	10.3	11.0	1.0 to 1.4	4.5

Size List, Rated Ripple Current

μF \ V	6.3	10	16	25	35	50
10					5 X 7.0 2.2 95	
22			5 X 7.0 2.2 95	5 X 7.0 2.2 95	5 X 7.0 2.2 95	
33		5 X 7.0 2.2 95		6.3 X 7.0 1.1 140	6.3 X 8.4 1.0 230	
47	5 X 7.0 2.2 95		6.3 X 7.0 1.1 140	6.3 X 7.0 1.1 140	6.3 X 8.4 1.0 230	8 X 10.2 0.53 350
100	6.3 X 7.0 1.1 140		6.3 X 7.0 1.1 140	6.3 X 8.4 1.0 230	8 X 10.2 0.22 600	10 X 10.2 0.35 670
150		6.3 X 7.0 1.1 140	6.3 X 8.4 1.0 230			
220	6.3 X 8.4 1.0 230		6.3 X 8.4 1.0 230	8 X 10.2 0.22 600	10 X 10.2 0.16 850	
330	6.3 X 8.4 1.0 230		8 X 10.2 0.22 600	10 X 10.2 0.16 850		
470	8 X 10.2 0.22 600		10 X 10.2 0.16 850			
1000	10 X 10.2 0.16 850					

Please refer to page 19 for the ripple current frequency coefficient.

Case size ; φD x L (mm)

Rated ripple current mArms (100kHz, 105°C)

Impedance (Ω) max at 100kHz, 20°C

■Model No.

35 CE 47 LL
- LL — Series code
- 47 — Rated capacitance code
- CE — Type code
- 35 — Rated voltage

Aluminum Electrolytic Capacitors

SANYO

Aluminum Electrolytic Type / Surface Mount Type

RoHS compliance

CE-PC Series

125℃ Long Life

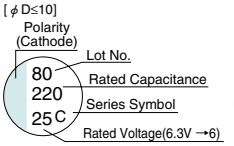
- 125℃, 1,000 to 2,000hrs
- Solvent proof (within 2 minutes)

Specifications

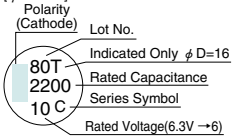
Items	Condition			Specifications							
Rated voltage (V)	—			6.3	10	16	25	35	50	63	100
Surge voltage (V)	Room temperature			8.0	13	20	32	44	63	79	125
Category temperature range (℃)	—			−55 to +125							
Capacitance tolerance (%)	120Hz/20℃			M : ±20							
Dissipation Factor (DF)	120Hz/20℃			0.30	0.24	0.20	0.16	0.14	0.14	0.12	0.10
				When rated capacitance exceeds 1,000 μF, add 0.02 to the value above for each 1,000 μF increase.							
Leakage current (LC)	μA/after 2minutes (max)			The greater value of either 0.01CV or 3							
Impedance ratio at low temperature	Based the value at 120Hz, +20℃	−25℃	Z/Z20℃	4	3	2	2	2	2	2	2
		−40℃	Z/Z20℃	8	6	4	3	3	3	3	3
Endurance	125℃ rated voltage applied (With the rated ripple current)	Test		6.3 to 50V 2,000hrs. (φD=6.3 : 1,000hrs.) ,63 to 100V 1,500hrs.							
		△C/C		Within ±30% of the initial value							
		tan δ		≤ 3 times the initial specified value							
		LC		≤ The initial specified value							

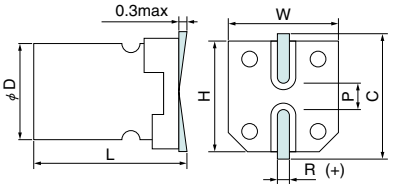
Marking, Dimensions

[φD≤10]



[φD≥12.5]





A pressure relief vent is attached to products over φD=8

(Unit : mm)

D+0.5max	L±0.3	W±0.2	H±0.2	C±0.2	R	P±0.2
6.3	6.0	6.6	6.6	7.3	0.5 to 0.8	2.2
6.3	7.7	6.6	6.6	7.3	0.5 to 0.8	2.2
8	10.2	8.3	8.3	9.0	0.7 to 1.0	3.2
10	10.2	10.3	10.3	11.0	1.0 to 1.4	4.6
12.5	13.5 ±0.5	12.8	12.8	13.5	1.0 to 1.4	4.6
16	16.5 ±0.5	16.3	16.3	17.3	1.8 to 2.1	7.0

Size List, ESR, Rated Ripple Current

μF \ V	6.3			10			16			25			35			50			63			100		
1.0																6.3 X 6.0	3.5	45						
2.2																6.3 X 6.0	3.5	45						
3.3																6.3 X 6.0	3.5	45						
4.7													6.3 X 6.0	2.0	60	6.3 X 6.0	3.5	45						
10													6.3 X 6.0	1.6	70	6.3 X 6.0	2.8	50				8 X 10.2	1.0	70
22													6.3 X 6.0	1.6	70	6.3 X 7.7	2.0	80	8 X 10.2	1.0	100	8 X 10.2	1.0	70
33										6.3 X 6.0	1.6	70	6.3 X 7.7	0.9	110	6.3 X 7.7	2.0	80	8 X 10.2	1.0	100	10 X 10.2	0.80	115
																8 X 10.2	0.7	140						
47				6.3 X 6.0	1.6	70	6.3 X 6.0	1.6	70	6.3 X 7.7	0.9	110	6.3 X 7.7	0.9	110	8 X 10.2	0.7	140	8 X 10.2	1.0	100	12.5 X 13.5	0.33	350
													8 X 10.2	0.4	160	10 X 10.2	0.5	240	10 X 10.2	0.50	150			
100	6.3 X 6.0	1.6	70	6.3 X 7.7	0.9	110	8 X 10.2	0.4	160	6.3 X 7.7	0.9	110	8 X 10.2	0.4	160	10 X 10.2	0.5	240	10 X 10.2	0.50	150	16 X 16.5	0.24	500
										8 X 10.2	0.4	160	10 X 10.2	0.3	220	12.5 X 13.5	0.23	490	12.5 X 13.5	0.25	350			
220	6.3 X 7.7	0.9	110	6.3 X 7.7	0.9	110	8 X 10.2	0.4	160	8 X 10.2	0.4	160	10 X 10.2	0.3	220	12.5 X 13.5	0.23	490	12.5 X 13.5	0.25	350			
				8 X 10.2	0.4	160				10 X 10.2	0.3	220	12.5 X 13.5	0.12	550				16 X 16.5	0.18	500			
330	8 X 10.2	0.4	160	8 X 10.2	0.4	160	10 X 10.2	0.3	220	10 X 10.2	0.3	220	12.5 X 13.5	0.12	550	12.5 X 13.5	0.23	490	16 X 16.5	0.18	500			
										12.5 X 13.5	0.12	550				16 X 16.5	0.15	800						
470	8 X 10.2	0.4	160	10 X 10.2	0.3	220	12.5 X 13.5	0.12	550	12.5 X 13.5	0.12	550	12.5 X 13.5	0.12	550	16 X 16.5	0.15	800	16 X 16.5	0.18	500			
													16 X 16.5	0.08	900									
680	10 X 10.2	0.3	220	12.5 X 13.5	0.12	550	12.5 X 13.5	0.12	550	12.5 X 13.5	0.12	550	16 X 16.5	0.08	900	16 X 16.5	0.15	800						
1000	12.5 X 13.5	0.12	550	12.5 X 13.5	0.12	550	12.5 X 13.5	0.12	550	16 X 16.5	0.08	900	16 X 16.5	0.08	900									
1500	12.5 X 13.5	0.12	550	12.5 X 13.5	0.12	550	16 X 16.5	0.08	900	16 X 16.5	0.08	900												
2200	12.5 X 13.5	0.12	550	16 X 16.5	0.08	900	16 X 16.5	0.08	900															
3300	16 X 16.5	0.08	900	16 X 16.5	0.08	900																		
4700	16 X 16.5	0.08	900																					

Please refer to page 19 for the ripple current frequency coefficient.

Upper; PCS series
Lower; PC series

Case size ; φD x L (mm)
16 x 16.5 ; CE-PCT series

ESR (Ω)
max at 100kHz, 20°C

Rated ripple current
mArms (100kHz, 125°C)

■Model No.

PC series 25 CE 220 PC
- Series code
- Rated capacitance code
- Type code
- Rated voltage

PCS series 25 CE 220 PCS
- Series code
- Rated capacitance code
- Type code
- Rated voltage

PCT series 10 CE 2200 PCT
- Series code
- Rated capacitance code
- Type code
- Rated voltage

Aluminum Electrolytic Capacitors

SANYO

Aluminum Electrolytic Type / Surface Mount Type

RoHS compliance

CE-PH Series

125℃ Low Impedance

Hi-Ripple,Hi-Capacitance,Long life

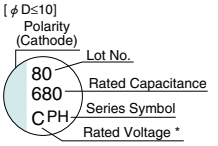
- 125℃, 2,000hrs
- Suitable for Automotive Application
- Solvent proof (within 2 minutes)

Specifications

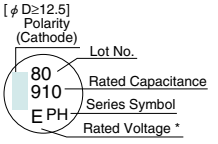
Items	Condition		Specifications		
Rated voltage (V)	—		16	25	35
Surge voltage (V)	Room temperature		20	32	44
Category temperature range (℃)	—		−40 to +125		
Capacitance tolerance (%)	120Hz/20℃		M : ±20		
Dissipation Factor (DF)	120Hz/20℃		0.20	0.16	0.14
Leakage current (LC)	μA/after 2minutes (max)		The greater value of either 0.01CV or 3		
Impedance ratio at low temperature	Based the value at 120Hz, +20℃	−25℃ Z/Z20℃	2	2	2
		−40℃ Z/Z20℃	4	3	3
Endurance	125℃, 2,000hrs. rated voltage applied (With the rated ripple current)	△C/C	Within ±30% of the initial value		
		tan δ	≤ 3 times the initial specified value		
		LC	≤ The initial specified value		

Marking, Dimensions

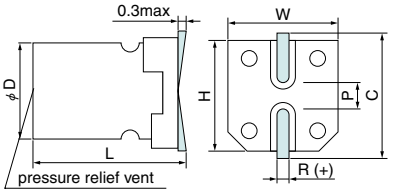
[φD≤10]



[φD≥12.5]



*(16V:C,25V:E,35V:V)



(Unit : mm)

D+0.5max	L	W±0.2	H±0.2	C±0.2	R	P±0.2
8	10.5±0.3	8.3	8.3	9.0	0.7 to 1.0	3.2
10	10.5±0.3	10.3	10.3	11.0	1.0 to 1.4	4.6
12.5	13.5±0.5	12.8	12.8	13.5	1.0 to 1.4	4.6

Size List, Impedance, Rated Ripple Current

μF \ V	16 (C)			25 (E)			35 (V)		
160							8 x 10.5	0.18	300
270				8 x 10.5	0.18	300			
300							10 x 10.5	0.11	500
390	8 x 10.5	0.18	300						
470				10 x 10.5	0.11	500			
620							12.5 x 13.5	0.08	1200
680	10 x 10.5	0.11	500						
910				12.5 x 13.5	0.08	1200			
1500	12.5 x 13.5	0.08	1200						

Please refer to page 19 for the ripple current frequency coefficient.

Case size ; φD x L (mm)

Impedance (Ω) max at 100kHz, 20°C

Rated ripple current mArms (100kHz, 125°C)

■Model No.

16 CE 680 PH
- Series code
- Rated capacitance code
- Type code
- Rated voltage

CE-NP Series

Bi-polar

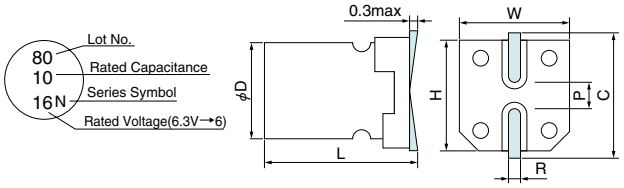
5.4mm Height

- 85℃, 2,000hrs
- Solvent proof (within 2 minutes)

Specifications

Items	Condition		Specifications					
Rated voltage (V)	—		6.3	10	16	25	35	50
Surge voltage (V)	Room temperature		8.0	13	20	32	44	63
Category temperature range (℃)	—		−40 to +85					
Capacitance tolerance (%)	120Hz/20℃		M : ±20					
Dissipation Factor (DF)	120Hz/20℃		0.26	0.22	0.20	0.20	0.20	0.18
Leakage current (LC)	μA/after 1minute (max)		0.03CV + 6					
Impedance ratio at low temperature	Based the value at 120Hz, +20℃	−25℃ Z/Z20℃	4	3	2	2	2	2
		−40℃ Z/Z20℃	8	6	4	4	3	3
Endurance	500hrs.×4(alternately) 85℃,rated voltage applied (With the rated ripple current)	△C/C	Within ±25% of the initial value					
		tan δ	≤ 2 times the initial specified value					
		LC	≤ The initial specified value					

Marking, Dimensions



(Unit : mm)

D+0.5max	L +0.1 −0.2	W±0.2	H±0.2	C±0.2	R	P±0.2
4	5.4	4.3	4.3	5.0	0.5 to 0.8	1.0
5	5.4	5.3	5.3	6.0	0.5 to 0.8	1.4
6.3	5.4	6.6	6.6	7.3	0.5 to 0.8	2.2

Size List, Rated Ripple Current

μF \ V	6.3		10		16		25		35		50	
0.10											4	1.0
0.22											4	2.3
0.33											4	3.5
0.47											4	5.0
1.0											4	10
2.2									4	8.4	5	15
3.3							4	10	5	17	5	18
4.7					4	12	5	19	5	20	6.3	23
10			4	17	5	25	6.3	28	6.3	30		
22	5	31	6.3	35	6.3	39						
33	6.3	39	6.3	43	6.3	57						
47	6.3	47										

Please refer to page 19 for the ripple current frequency coefficient.

Case size ; φD (mm)

Rated ripple current mArms (120Hz, 85°C)

■Model No.

16 CE 10 NP
- NP — Series code
- 10 — Rated capacitance code
- CE — Type code
- 16 — Rated voltage

Aluminum Electrolytic Capacitors

SANYO

Aluminum Electrolytic Type / Surface Mount Type

RoHS compliance

CE-FN Series

Bi-polar 105℃

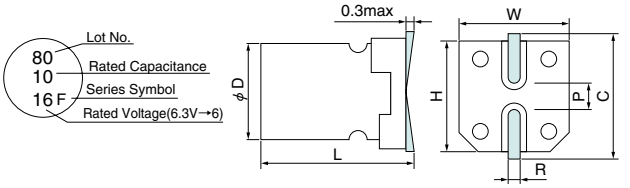
5.4mm Height

- 105℃, 1,000hrs
- Solvent proof (within 2 minutes)

Specifications

Items	Condition		Specifications						
Rated voltage (V)	—		6.3	10	16	25	35	50	63
Surge voltage (V)	Room temperature		8.0	13	20	32	44	63	79
Category temperature range (℃)	—		−55 to +105						
Capacitance tolerance (%)	120Hz/20℃		M : ±20						
Dissipation Factor (DF)	120Hz/20℃		0.24	0.22	0.20	0.20	0.20	0.18	0.16
Leakage current (LC)	μA/after 1minute (max)		0.03CV + 6						
Impedance ratio at low temperature	Based the value at 120Hz, +20℃	−40℃ Z/Z20℃	3	3	2	2	2	2	2
		−55℃ Z/Z20℃	8	6	4	4	3	3	3
Endurance	500hrs.×2(alternately) 105℃,rated voltage applied (With the rated ripple current)	△C/C	Within ±25% of the initial value						
		tan δ	≤ 2 times the initial specified value						
		LC	≤ The initial specified value						

Marking, Dimensions



(Unit : mm)

D+0.5max	L +0.1 −0.2	W±0.2	H±0.2	C±0.2	R	P±0.2
4	5.4	4.3	4.3	5.0	0.5 to 0.8	1.0
5	5.4	5.3	5.3	6.0	0.5 to 0.8	1.4
6.3	5.4	6.6	6.6	7.3	0.5 to 0.8	2.2

Size List, Rated Ripple Current

μF \ V	6.3		10		16		25		35		50		63	
0.10											4	0.7	4	0.7
0.22											4	1.6	4	1.6
0.33											4	2.4	4	2.4
0.47											4	3.5	4	3.5
1.0											4	7	4	7
2.2									4	5.9	5	10	5	10
3.3							4	7	5	12	5	13	6.3	13
4.7					4	8	5	13	5	14	6.3	16	6.3	16
10			4	12	5	17	6.3	20	6.3	21				
22	5	22	6.3	25	6.3	27								
33	6.3	27	6.3	30	6.3	40								
47	6.3	33												

Please refer to page 19 for the ripple current frequency coefficient.

Case size ; φD (mm)

Rated ripple current mArms (120Hz, 105°C)

■Model No.

16 CE 10 FN
- Series code
- Rated capacitance code
- Type code
- Rated voltage

ME-UW Series

Standard

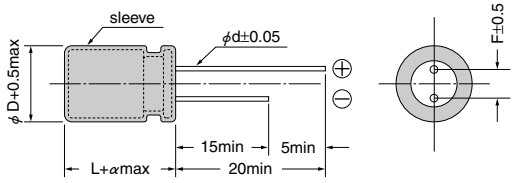
5mm Height

・**Solvent proof (within 2 minutes)**

Specifications

Items	Condition			Specifications						
Rated voltage (V)	—			4.0	6.3	10	16	25	35	50
Surge voltage (V)	Room temperature			5.0	8.0	13	20	32	44	63
Category temperature range (℃)	—			−40 to +85						
Capacitance tolerance (%)	120Hz/20℃			M : ±20						
Dissipation Factor (DF)	120Hz/20℃			0.35	0.24	0.20	0.16	0.14	0.12	0.10
Leakage current (LC)	μA/after 2minutes (max)			The greater value of either 0.01CV or 3						
Impedance ratio at low temperature	Based the value at 120Hz, +20℃	−25℃	Z/Z20℃	7	4	3	2	2	2	2
		−40℃	Z/Z20℃	15	10	8	6	4	4	4
Endurance	85℃, 1,000hrs. rated voltage applied (With the rated ripple current)	△C/C		Within ±25% of the initial value						
		tan δ		≤ 2 times the initial specified value						
		LC		≤ The initial specified value						

Dimensions



α : UW α=1.0 UWX α=1.3

(Unit : mm)

φD	6.3
F	2.5
φd	0.45

Size List, Rated Ripple Current

μF \ V	4.0		6.3		10		16		25		35		50	
10													6.3 x 5	34
22									6.3 x 5	52	6.3 x 5	54	6.3 x 5※1	54
33							6.3 x 5	57	6.3 x 5	63	6.3 x 5※1	68		
47					6.3 x 5	59	6.3 x 5	68	6.3 x 5※1	73	6.3 x 5※1	73		
100			6.3 x 5	71	6.3 x 5	76	6.3 x 5	86						
220	6.3 x 5	82	6.3 x 5※1	90	6.3 x 5※1	90								
330	6.3 x 5※1	85	6.3 x 5※1	92										

Please refer to page 19 for the ripple current frequency coefficient.

※1 UWX Type

Case size ; φD x L (mm)

Rated ripple current mArms (120Hz, 85°C)

■Model No.

16 ME 33 UW
- Series code
- Rated capacitance code
- Type code
- Rated voltage

※1 10 ME 220 UWX
- Series code
- Rated capacitance code
- Type code
- Rated voltage

Aluminum Electrolytic Capacitors

SANYO

Aluminum Electrolytic Type / Radial Lead Type

RoHS compliance

ME-SWB Series

Standard

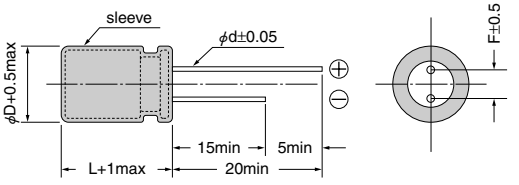
7mm Height

・Solvent proof (within 3 minutes)

Specifications

Items	Condition		Specifications							
Rated voltage (V)	—		4.0	6.3	10	16	25	35	50	63
Surge voltage (V)	Room temperature		5.0	8.0	13	20	32	44	63	79
Category temperature range (℃)	—		−40 to +85							
Capacitance tolerance (%)	120Hz/20℃		M : ±20							
Dissipation Factor (DF)	120Hz/20℃		0.35	0.24	0.20	0.16	0.14	0.12	0.10	0.10
Leakage current (LC)	μA/after 2minutes (max)		The greater value of either 0.01CV or 3							
Impedance ratio at low temperature	Based the value at 120Hz, +20℃	−25℃ Z/Z20℃	7	4	3	2	2	2	2	2
		−40℃ Z/Z20℃	15	10	7	6	4	4	4	4
Endurance	85℃, 2,000hrs. rated voltage applied (With the rated ripple current)	△C/C	Within ±25% of the initial value							
		tan δ	≤ 2 times the initial specified value							
		LC	≤ The initial specified value							

Dimensions



(Unit : mm)

φD	4	5	6.3
F	1.5	2.0	2.5
φd	0.45	0.45	0.45

Size List, Rated Ripple Current

μF \ V	4.0		6.3		10		16		25		35		50		63	
0.10													4 x 7	1.0	4 x 7	1.2
0.22													4 x 7	2.3	4 x 7	2.9
0.33													4 x 7	3.5	4 x 7	4.4
0.47													4 x 7	5.0	4 x 7	5.0
1.0													4 x 7	10	4 x 7	10
2.2													4 x 7	15	4 x 7	17
3.3									4 x 7	16	4 x 7	17	4 x 7	18	4 x 7	21
4.7									4 x 7	19	4 x 7	20	4 x 7	23	5 x 7	26
10							4 x 7	25	4 x 7	28	5 x 7	30	5 x 7	34	6.3 x 7	43
22			4 x 7	31	4 x 7	35	4 x 7	39	5 x 7	52	6.3 x 7	54	6.3 x 7	60	6.3 x 7	65
33	4 x 7	26	4 x 7	39	4 x 7	43	5 x 7	57	6.3 x 7	63	6.3 x 7	65	6.3 x 7	70		
47	4 x 7	34	4 x 7	47	5 x 7	59	5 x 7	68	6.3 x 7	70	6.3 x 7	75	6.3 x 7	80		
100	5 x 7	61	5 x 7	71	6.3 x 7	80	6.3 x 7	91	6.3 x 7	100	6.3 x 7	105				
150							6.3 x 7	105								
220	6.3 x 7	82	6.3 x 7	103	6.3 x 7	110	6.3 x 7	110								
330	6.3 x 7	100	6.3 x 7	110												
470	6.3 x 7	110														

Please refer to page 19 for the ripple current frequency coefficient.

Case size ; φD x L (mm)

Rated ripple current mArms (120Hz, 85°C)

■Model No.

16 ME 33 SWB
- SWB — Series code
- 33 — Rated capacitance code
- ME — Type code
- 16 — Rated voltage

ME-HC Series

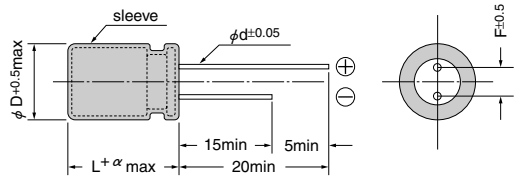
Standard

・**Solvent proof (within 5 minutes)**

Specifications

Items	Condition		Specifications							
Rated voltage (V)	—		6.3	10	16	25	35	50	63	100
Surge voltage (V)	Room temperature		8.0	13	20	32	44	63	79	125
Category temperature range (℃)	—		−40 to +85							
Capacitance tolerance (%)	120Hz/20℃		M : ±20							
Dissipation Factor (DF)	120Hz/20℃		0.28	0.24	0.20	0.16	0.14	0.12	0.10	0.10
			When rated capacitance exceeds 1,000 μF, add 0.02 to the value above for each 1,000 μF increase.							
Leakage current (LC)	μA/after 2minutes (max)		The greater value of either 0.01CV or 3							
Impedance ratio at low temperature	Based the value at 120Hz, +20℃	−25℃ Z/Z20℃	5	4	3	2	2	2	2	2
		−40℃ Z/Z20℃	12	10	8	6	4	4	4	4
Endurance	85℃, 2,000hrs. rated voltage applied (With the rated ripple current)	△C/C	Within ±25% of the initial value							
		tan δ	≤ 2 times the initial specified value							
		LC	≤ The initial specified value							

Dimensions



α : L<20 α=1.5, L≥20 α=2.0

A pressure relief vent is attached to products over φD=6.3

(Unit : mm)

φD	5	6.3	8	10	12.5	16	18
F	2.0	2.5	3.5	5.0	5.0	7.5	7.5
φd	0.5	0.5	0.6	0.6	0.6	0.8	0.8

Size List, Rated Ripple Current

μF \ V	6.3		10		16		25		35		50		63		100	
0.10											5 x 11	1.0	5 x 11	1.2	5 x 11	2.1
0.22											5 x 11	2.5	5 x 11	3.0	5 x 11	4.7
0.33											5 x 11	4.0	5 x 11	4.8	5 x 11	7.0
0.47											5 x 11	5.0	5 x 11	5.0	5 x 11	10
1.0											5 x 11	10	5 x 11	10	5 x 11	21
2.2											5 x 11	20	5 x 11	20	5 x 11	30
3.3											5 x 11	28	5 x 11	28	5 x 11	40
4.7							5 x 11	25			5 x 11	38	5 x 11	40	5 x 11	50
10					5 x 11	28	5 x 11	40	5 x 11	45	5 x 11	50	5 x 11	60	6.3 x 11	70
22			5 x 11	38	5 x 11	50	5 x 11	60	5 x 11	75	5 x 11	90	5 x 11	105	8 x 11.5	120
33	5 x 11	50	5 x 11	58	5 x 11	60	5 x 11	80	5 x 11	90	5 x 11	110	6.3 x 11	130	8 x 12.5	145
47	5 x 11	60	5 x 11	70	5 x 11	85	5 x 11	90	5 x 11	125	6.3 x 11	135	6.3 x 11	160	10 x 12.5	180
100	5 x 11	120	5 x 11	125	5 x 11	165	6.3 x 11	180	6.3 x 11	200	8 x 11.5	250	8 x 12.5	280	10 x 20	350
220	5 x 11	210	5 x 11	210	6.3 x 11	260	8 x 11.5	320	8 x 11.5	320	10 x 12.5	410	10 x 16	450	12.5 x 25	550
330	6.3 x 11	260	6.3 x 11	295	8 x 11.5	360	8 x 11.5	380	10 x 12.5	440	10 x 16	580	10 x 20	600	16 x 25	750
470	6.3 x 11	330	6.3 x 11	330	8 x 11.5	380	10 x 12.5	540	10 x 16	585	10 x 20	750	12.5 x 20	800	16 x 31.5	950
1000	8 x 11.5	420	10 x 12.5	620	10 x 16	740	10 x 20	940	12.5 x 20	1000	12.5 x 25	1150	16 x 25	1250		
2200	10 x 16	890	10 x 20	1000	12.5 x 20	1150	12.5 x 25	1350	16 x 25	1500	16 x 31.5	1700				
3300	10 x 20	1080	12.5 x 20	1300	12.5 x 25	1500	16 x 25	1600	16 x 35.5	1750	18 x 35.5	1850				
4700	12.5 x 20	1400	12.5 x 25	1550	16 x 25	1750	16 x 31.5	1900	18 x 35.5	2000						
6800	12.5 x 25	1600	16 x 25	1800	16 x 31.5	1900	18 x 35.5	2000								
10000	16 x 25	1750	16 x 31.5	1900	18 x 35.5	2000										
15000	16 x 35.5	1900	18 x 35.5	2000												

Please refer to page 19 for the ripple current frequency coefficient.

Case size ; φD x L (mm)

Rated ripple current mArms (120Hz, 85°C)

■Model No.

6 ME 15000 HC
- HC : Series code
- 15000 : Rated capacitance code
- ME : Type code
- 6 : Rated voltage

Aluminum Electrolytic Capacitors

SANYO

Aluminum Electrolytic Type / Radial Lead Type

RoHS compliance

ME-HPC·HPD Series

Miniature, Mid. and High Voltage

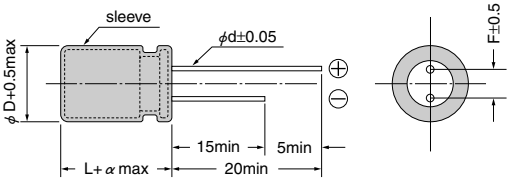
Low Profile, Mid. and High Voltage

・**Do not clean the capacitors using solvent**

Specifications

Items	Condition		Specifications					
Rated voltage (V)	—		160	200	250	350	400	450
Surge voltage (V)	Room temperature		200	250	300	400	450	500
Category temperature range (℃)	—		−40 to +85			−25 to +85		
Capacitance tolerance (%)	120Hz/20℃		M : ±20					
Dissipation Factor (DF)	120Hz/20℃		0.20	0.20	0.20	0.25	0.25	0.25
Leakage current (LC)	μA/after 2minutes (max)	CV ≤ 1,000	0.03CV + 15					
		CV > 1,000	0.02CV + 25					
Impedance ratio at low temperature	Based the value at 120Hz, +20℃	−25℃ Z/Z20℃	3	3	3	4	6	12
		−40℃ Z/Z20℃	6	6	6	—	—	—
Endurance	85℃, 2,000hrs. rated voltage applied (With the rated ripple current)	△C/C	Within ±20% of the initial value					
		tan δ	≤ 2 times the initial specified value					
		LC	≤ The initial specified value					

Dimensions



α : L<20 α=1.5, L≥20 α=2.0

A pressure relief vent is attached to products over φD=6.3

(Unit : mm)

φD	5	6.3	8	10	12.5	16	18
F	2.0	2.5	3.5	5.0	5.0	7.5	7.5
φd	0.5	0.5	0.6	0.6	0.6	0.8	0.8

Size List, Rated Ripple Current

μF \ V	160		200		250		350		400		450	
0.47	5 x 11	10	5 x 11	11	5 x 11	12	6.3 x 11	14	6.3 x 11	14		
1.0	5 x 11	21	5 x 11	23	5 x 11	25	6.3 x 11	29	8 x 11.5	29	8 x 12.5	26
2.2	6.3 x 11	31	6.3 x 11	34	6.3 x 11	35	8 x 11.5	40	8 x 11.5	40	10 x 16	40
3.3	6.3 x 11	40	6.3 x 11	46	8 x 11.5	48	8 x 12.5	52	10 x 12.5	52	10 x 20	52
4.7	6.3 x 11	55	8 x 11.5	57	8 x 11.5	59	10 x 12.5	67	10 x 16	67	12.5 x 20	67
10	8 x 11.5	90	8 x 12.5	92	10 x 12.5	94	10 x 16	100	10 x 20	100	12.5 x 25 16 x 21	100
22	10 x 12.5	153	10 x 16	160	10 x 20	170	12.5 x 20	175	12.5 x 25 16 x 21	180	16 x 25 18 x 21	180
33	10 x 20	195	10 x 20	210	12.5 x 20	220	12.5 x 25 16 x 21	225	16 x 25 18 x 21	230	16 x 30 18 x 25	220
47	12.5 x 20	245	12.5 x 20	250	12.5 x 25 16 x 21	260	16 x 25 18 x 21	260	16 x 30 18 x 25	270	18 x 35.5	245
68	12.5 x 20	310	12.5 x 25 16 x 21	325	16 x 25 18 x 21	335	16 x 35.5 18 x 25	340	16 x 35.5 18 x 30.5	345		
82	12.5 x 25 16 x 21	380		390	16 x 30 18 x 25	400	18 x 30.5	405	18 x 35.5	420		
100	12.5 x 25 16 x 21	410	16 x 25 18 x 21	430	16 x 30 18 x 25	432	18 x 35.5	440				
150	16 x 30 18 x 25	550	16 x 35.5 18 x 30.5	575	18 x 35.5	588						
220	16 x 35.5 18 x 30.5	745	18 x 35.5	760								

Please refer to page 19 for the ripple current frequency coefficient.

Upper ; HPC series (0.47μF to 4.7μF ; HPC series)
Lower ; HPD series

Case size ; φD x L (mm)

Rated ripple current mArms (120Hz, 85°C)

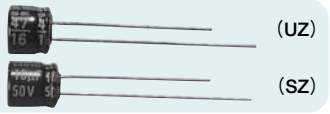
■Model No.

HPC series 160 ME 33 HPC
- Series code
- Rated capacitance code
- Type code
- Rated voltage

HPD series 450 ME 10 HPD
- Series code
- Rated capacitance code
- Type code
- Rated voltage

ME-UZ·SZ Series

5mm Height, Wide Temperature Range
7mm Height, Wide Temperature Range

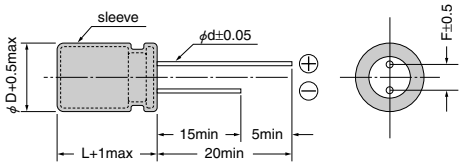


- **ME-UZ: 105℃, 1,000hrs, Solvent proof (within 2 minutes)**
- **ME-SZ: 105℃, 1,000hrs, Solvent proof (within 3 minutes)**

Specifications

Items	Condition		Specifications					
Rated voltage (V)	—		6.3	10	16	25	35	50
Surge voltage (V)	Room temperature		8.0	13	20	32	44	63
Category temperature range (℃)	—		−55 to +105					
Capacitance tolerance (%)	120Hz/20℃		M : ±20					
Dissipation Factor (DF)	120Hz/20℃		0.24	0.20	0.16	0.14	0.12	0.10
Leakage current (LC)	μA/after 2minutes (max)		The greater value of either 0.01CV or 3					
Impedance ratio at low temperature	Based the value at 120Hz, +20℃	−40℃ Z/Z20℃	3	2	2	2	2	2
		−55℃ Z/Z20℃	5	4	4	3	3	3
Endurance	105℃, 1,000hrs. rated voltage applied (With the rated ripple current)	△C/C	Within ±25% of the initial value					
		tan δ	≤ 2 times the initial specified value					
		LC	≤ The initial specified value					

Dimensions



(Unit : mm)

φD	4	5	6.3
F	1.5	2.0	2.5
φd	0.45	0.45	0.45

Size List, Impedance, Rated Ripple Current

■UZ Series

μF \ V	6.3			10			16			25			35			50		
10																6.3 x 5	2.0	70
22										6.3 x 5	1.6	100	6.3 x 5	2.0	70	6.3 x 5	2.0	70
33							6.3 x 5	1.6	100	6.3 x 5	1.6	100	6.3 x 5	2.0	70			
47				6.3 x 5	1.6	100	6.3 x 5	1.6	100	6.3 x 5	1.6	100	6.3 x 5	2.0	70			
100	6.3 x 5	1.6	100	6.3 x 5	1.6	100	6.3 x 5	1.6	100									
220	6.3 x 5	1.6	100															

■SZ Series

μF \ V	6.3			10			16			25			35			50		
0.10																4 x 7	30	10
0.22																4 x 7	16	10
0.33																4 x 7	13	15
0.47																4 x 7	12	20
1.0																4 x 7	10	30
2.2																4 x 7	7.8	35
3.3																4 x 7	6.2	40
4.7										4 x 7	4.2	50	4 x 7	6.0	40	5 x 7	3.1	70
10							4 x 7	4.2	50	5 x 7	2.0	85	5 x 7	3.1	70	6.3 x 7	1.6	100
22	4 x 7	4.2	50	5 x 7	2.0	85	5 x 7	2.0	85	6.3 x 7	1.2	120	6.3 x 7	1.6	100	6.3 x 7	1.6	100
33	5 x 7	2.0	85	5 x 7	2.0	85	6.3 x 7	1.2	120	6.3 x 7	1.2	120	6.3 x 7	1.6	100	6.3 x 7	1.6	100
47	5 x 7	2.0	85	6.3 x 7	1.2	120	6.3 x 7	1.2	120	6.3 x 7	1.2	120	6.3 x 7	1.6	100	6.3 x 7	1.6	100
100	6.3 x 7	1.2	120	6.3 x 7	1.2	120	6.3 x 7	1.2	120	6.3 x 7	1.2	120	6.3 x 7	1.6	100			
220	6.3 x 7	1.2	120	6.3 x 7	1.2	120	6.3 x 7	1.2	120									
330	6.3 x 7	1.2	120															

Please refer to page 19 for the ripple current frequency coefficient.

Case size ; φD x L (mm)
Rated ripple current mArms (100kHz, 105°C)
Impedance (Ω) max at 100kHz, 20°C

■Model No.

UZ series 16 ME 33 UZ
- Series code
- Rated capacitance code
- Type code
- Rated voltage

SZ series 16 ME 10 SZ
- Series code
- Rated capacitance code
- Type code
- Rated voltage

Aluminum Electrolytic Capacitors

SANYO

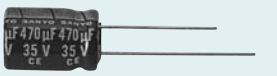
Aluminum Electrolytic Type / Radial Lead Type

RoHS compliance

ME-CZ Series

Temperature of Wide Range

Smaller in Size Miniature Standard

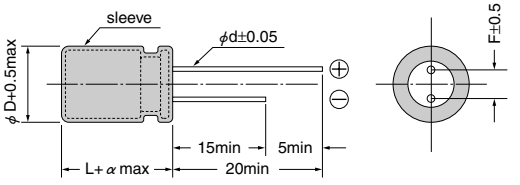


- 105℃, 1,000 to 3,000hrs
- Solvent proof (within 5 minutes)

Specifications

Items	Condition			Specifications							
Rated voltage (V)	—			6.3	10	16	25	35	50	63	100
Surge voltage (V)	Room temperature			8.0	13	20	32	44	63	79	125
Category temperature range (℃)	—			−55 to +105							
Capacitance tolerance (%)	120Hz/20℃			M : ±20							
Dissipation Factor (DF)	120Hz/20℃			0.28	0.24	0.20	0.16	0.14	0.12	0.10	0.10
				When rated capacitance exceeds 1,000 μF, add 0.02 to the value above for each 1,000 μF increase.							
Leakage current (LC)	μA/after 2minutes (max)			The greater value of either 0.01CV or 3							
Impedance ratio at low temperature	Based the value at 120Hz, +20℃	−40℃	Z20℃	4	4	3	3	2	2	2	2
		−55℃	Z20℃	10	8	6	5	4	3	3	3
Endurance	105℃ rated voltage applied (With the rated ripple current)	Test		φ5 to φ8 : 1,000hrs., φ10 : 2,000hrs., φ12.5 to φ18 : 3,000hrs.							
		△C/C		Within ±25% of the initial value							
		tan δ		≤ 2 times the initial specified value							
		LC		≤ The initial specified value							

Dimensions



α : L<20 α=1.5, L≥20 α=2.0

A pressure relief vent is attached to products over φD=6.3

(Unit : mm)

φD	5	6.3	8	10	12.5	16	18
F	2.0	2.5	3.5	5.0	5.0	7.5	7.5
φd	0.5	0.5	0.6	0.6	0.6	0.8	0.8

Size List, Impedance, Rated Ripple Current

V / Items / Case size φD x L (mm)	6.3			10		
	Capacitance (μF)	Impedance (Ωmax) (20°C/100kHz)	Ripple current (mArms) (105°C/100kHz)	Capacitance (μF)	Impedance (Ωmax) (20°C/100kHz)	Ripple current (mArms) (105°C/100kHz)
5 x 11	220	1.4	160	100	1.4	150
6.3 x 11	330	0.58	240	220	0.58	240
6.3 x 11	470	0.55	250	330	0.55	250
8 x 11.5	1000	0.26	450	470	0.39	370
10 x 12.5				1000	0.16	560
10 x 16	2200	0.12	760			
10 x 20	3300	0.10	900	2200	0.10	900
12.5 x 20	4700	0.072	1100	3300	0.074	1100
12.5 x 25	6800	0.054	1420	4700	0.054	1420
16 x 25	10000	0.043	1700	6800	0.043	1700
16 x 31.5				10000	0.035	1950
16 x 35.5	15000	0.032	2100			
18 x 35.5				15000	0.028	2400

Size List, Impedance, Rated Ripple Current

V / Items / Case size φD x L (mm)	16			25		
	Capacitance (μF)	Impedance (Ωmax) (20°C/100kHz)	Ripple current (mArms) (105°C/100kHz)	Capacitance (μF)	Impedance (Ωmax) (20°C/100kHz)	Ripple current (mArms) (105°C/100kHz)
5 x 11	100	1.4	150	47	1.4	150
6.3 x 11	220	0.55	240	100	0.60	240
8 x 11.5	330	0.35	370	220	0.39	370
8 x 11.5	470	0.28	450	330	0.34	400
10 x 12.5				470	0.17	560
10 x 16	1000	0.13	760			
10 x 20				1000	0.10	900
12.5 x 20	2200	0.075	1100			
12.5 x 25	3300	0.054	1320	2200	0.062	1320
16 x 25	4700	0.043	1600	3300	0.043	1600
16 x 31.5	6800	0.035	1900	4700	0.035	1900
18 x 35.5	10000	0.028	2300	6800	0.028	2200

V / Items / Case size φD x L (mm)	35			50		
	Capacitance (μF)	Impedance (Ωmax) (20°C/100kHz)	Ripple current (mArms) (105°C/100kHz)	Capacitance (μF)	Impedance (Ωmax) (20°C/100kHz)	Ripple current (mArms) (105°C/100kHz)
5 x 11				0.10	30	10
5 x 11				0.22	20	10
5 x 11				0.33	15	10
5 x 11				0.47	10	20
5 x 11				1.0	7.0	30
5 x 11				2.2	5.5	40
5 x 11				3.3	4.0	50
5 x 11				4.7	2.8	80
5 x 11				10	2.3	90
5 x 11	33	2.1	120	22	2.2	110
5 x 11	47	2.1	140	33	2.1	120
6.3 x 11	100	1.1	180	47	1.1	180
8 x 11.5	220	0.46	360	100	0.55	310
10 x 12.5	330	0.26	500	220	0.30	500
10 x 16	470	0.18	650	330	0.20	650
10 x 20				470	0.13	800
12.5 x 20	1000	0.11	900			
12.5 x 25				1000	0.10	1100
16 x 25	2200	0.056	1400			
16 x 31.5				2200	0.055	1650
16 x 35.5	3300	0.038	1800			
18 x 35.5	4700	0.035	2000	3300	0.035	2000

V / Items / Case size φD x L (mm)	63			100		
	Capacitance (μF)	Impedance (Ωmax) (20°C/100kHz)	Ripple current (mArms) (105°C/100kHz)	Capacitance (μF)	Impedance (Ωmax) (20°C/100kHz)	Ripple current (mArms) (105°C/100kHz)
5 x 11	0.47	15	15	0.47	20	15
5 x 11	1.0	10.5	30	1.0	14	30
5 x 11	2.2	8.3	42	2.2	11	42
5 x 11	3.3	6.0	58	3.3	8.0	58
5 x 11	4.7	4.2	64	4.7	5.6	64
5 x 11	10	2.8	90			
5 x 11	22	2.4	140			
6.3 x 11	33	1.4	200	10	1.7	108
6.3 x 11	47	1.3	240			
8 x 11.5				22	0.83	235
8 x 12.5	100	0.60	300	33	0.60	300
10 x 12.5				47	0.39	330
10 x 16	220	0.22	520			
10 x 20	330	0.17	765	100	0.24	450
12.5 x 20	470	0.14	960			
12.5 x 25				220	0.15	700
16 x 25	1000	0.065	1100	330	0.090	950
16 x 31.5				470	0.085	1100

Please refer to page 19 for the ripple current frequency coefficient.

■Model No.

16 ME 100 CZ
- CZ: Series code
- 100: Rated capacitance code
- ME: Type code
- 16: Rated voltage

Aluminum Electrolytic Capacitors

SANYO

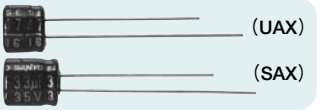
Aluminum Electrolytic Type / Radial Lead Type

RoHS compliance

ME-UAX·SAX Series

Low Impedance

5mm Height (UAX), 7mm Height (SAX)

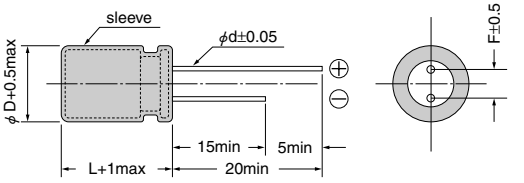


- **ME-UAX: 105℃, 1,000hrs, Solvent proof (within 2 minutes)**
- **ME-SAX: 105℃, 1,000hrs, Solvent proof (within 3 minutes)**

Specifications

Items	Condition		Specifications				
Rated voltage (V)	—		6.3	10	16	25	35
Surge voltage (V)	Room temperature		8.0	13	20	32	44
Category temperature range (℃)	—		−55 to +105				
Capacitance tolerance (%)	120Hz/20℃		M : ±20				
Dissipation Factor (DF)	120Hz/20℃		0.24	0.20	0.16	0.14	0.12
Leakage current (LC)	μA/after 2minutes (max)		The greater value of either 0.01CV or 3				
Impedance ratio at low temperature	Based the value at 120Hz, +20℃	−40℃ Z/Z20℃	3	2	2	2	2
		−55℃ Z/Z20℃	5	4	4	3	3
Endurance	105℃, 1,000hrs. rated voltage applied (With the rated ripple current)	△C/C	Within ±25% of the initial value				
		tan δ	≤ 2 times the initial specified value				
		LC	≤ The initial specified value				

Dimensions



(Unit : mm)

φD	4	5	6.3
F	1.5	2.0	2.5
φd	0.45	0.45	0.45

Size List, Impedance, Rated Ripple Current

■UAX Series

μF \ V	6.3			10			16			25			35		
33										6.3 x 5	0.44	230	6.3 x 5	0.44	230
47							6.3 x 5	0.44	230	6.3 x 5	0.44	230	6.3 x 5	0.44	230
56										6.3 x 5	0.44	230			
68				6.3 x 5	0.44	230	6.3 x 5	0.44	230						
100	6.3 x 5	0.44	230				6.3 x 5	0.44	230						
120							6.3 x 5	0.44	230						
130				6.3 x 5	0.44	230									
150	6.3 x 5	0.44	230												
220	6.3 x 5	0.44	230												

■SAX Series

μF \ V	6.3			10			16			25			35		
4.7													4 x 7	1.15	90
10										4 x 7	1.15	90	5 x 7	0.49	160
15							4 x 7	1.15	90	5 x 7	0.49	160	6.3 x 7	0.29	280
22				4 x 7	1.15	90	5 x 7	0.49	160	5 x 7	0.49	160	6.3 x 7	0.29	280
33				5 x 7	0.49	160				6.3 x 7	0.24	280	6.3 x 7	0.29	280
47	5 x 7	0.49	160	5 x 7	0.49	160	6.3 x 7	0.24	280	6.3 x 7	0.24	280	6.3 x 7	0.29	280
68										6.3 x 7	0.24	280			
100				6.3 x 7	0.24	280	6.3 x 7	0.24	280	6.3 x 7	0.29	280			
150				6.3 x 7	0.24	280	6.3 x 7	0.29	280						
220	6.3 x 7	0.24	280	6.3 x 7	0.29	280	6.3 x 7	0.29	280						
330	6.3 x 7	0.29	280												

Please refer to page 19 for the ripple current frequency coefficient.

Case size ; φD x L (mm)

Rated ripple current mArms (100kHz, 105°C)

Impedance (Ω) max at 100kHz, 20°C

■Model No.

UAX series 16 ME 47 UAX
- Series code
- Rated capacitance code
- Type code
- Rated voltage

SAX series 16 ME 22 SAX
- Series code
- Rated capacitance code
- Type code
- Rated voltage

ME-LS Series

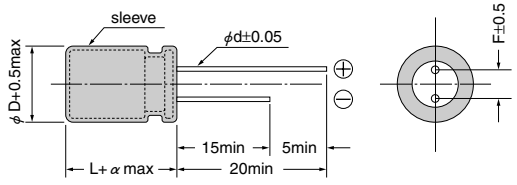
105℃ Long Life

- 105℃, 3,000hrs
- Solvent proof (φ 4 to 6.3 ; within 3minutes, φ 8 ; within 5 minutes)

Specifications

Items	Condition		Specifications					
Rated voltage (V)	—		6.3	10	16	25	35	50
Surge voltage (V)	Room temperature		8.0	13	20	32	44	63
Category temperature range (℃)	—		−40 to +105					
Capacitance tolerance (%)	120Hz/20℃		M : ±20					
Dissipation Factor (DF)	120Hz/20℃		0.30	0.28	0.24	0.18	0.16	0.14
Leakage current (LC)	μA/after 2minutes (max)		The greater value of either 0.01CV or 3					
Impedance ratio at low temperature	Based the value at 120Hz, +20℃	−25℃ Z/Z20℃	5	4	3	2	2	2
		−40℃ Z/Z20℃	10	8	6	4	3	3
Endurance	105℃, 3,000hrs. rated voltage applied (With the rated ripple current)	△C/C	Within ±30% of the initial value					
		tan δ	≤ 3 times the initial specified value					
		LC	≤ The initial specified value					

Dimensions



α : L<9 α=1.0, L≥9 α=1.5

A pressure relief vent is attached to products φ 8 x 11.5

(Unit : mm)

φD	4	5	6.3	8
F	1.5	2.0	2.5	3.5
φd	0.45	0.45	0.45	0.60

Size List, Impedance, Rated Ripple Current

μF \ V	6.3			10			16			25			35			50		
1.0																4x7	17.0	23
2.2																4x7	13.0	26
3.3																4x7	11.0	29
4.7													4x7	6.6	37	5x7	9.0	37
10							4x7	4.2	46				5x7	2.3	74	6.3x7	2.5	84
22	4x7	4.2	46				5x7	2.3	74	5x7	2.3	74	6.3x7	1.2	120	6.3x7.5	1.6	112
33				5x7	2.3	74				6.3x7	1.2	120	6.3x7.5	0.75	163			
47	5x7	2.3	74				6.3x7	1.2	120	6.3x7.5	0.75	163	6.3x7.5	0.75	163	8x9	1.1	162
100	6.3x7	1.2	120				6.3x7.5	0.75	163	8x9	0.55	230				8x9	1.1	162
150				6.3x7.5	0.75	163	8x9	0.55	230									
220	6.3x7.5	0.75	163	8x9	0.55	230	8x9	0.55	230	8x11.5	0.40	298	8x11.5	0.40	298			
330	8x9	0.55	230				8x9	0.55	230	8x11.5	0.40	298						
470	8x9	0.55	230				8x11.5	0.40	298									
1000	8x11.5	0.40	298															

Please refer to page 19 for the ripple current frequency coefficient.

Case size ; φD x L (mm)

Rated ripple current mArms (100kHz, 105°C)

Impedance (Ω) max at 100kHz, 20°C

■Model No.

6 ME 1000 LS
- LS — Series code
- 1000 — Rated capacitance code
- ME — Type code
- 6 — Rated voltage

Aluminum Electrolytic Capacitors

SANYO

Aluminum Electrolytic Type / Radial Lead Type

RoHS compliance

ME-CA Series

Low Impedance

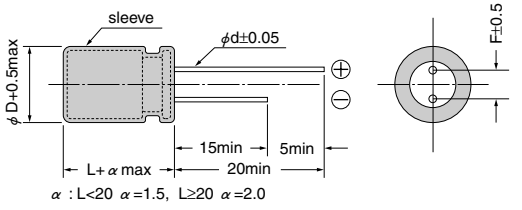
Miniature

- 105℃, 1,000 to 3,000hrs
- Solvent proof (within 5 minutes)

Specifications

Items	Condition		Specifications					
Rated voltage (V)	—		6.3	10	16	25	35	50
Surge voltage (V)	Room temperature		8.0	13	20	32	44	63
Category temperature range (℃)	—		−55 to +105					
Capacitance tolerance (%)	120Hz/20℃		M : ±20					
Dissipation Factor (DF)	120Hz/20℃		0.28	0.24	0.20	0.16	0.14	0.12
			When rated capacitance exceeds 1,000 μF, add 0.02 to the value above for each 1,000 μF increase.					
Leakage current (LC)	μA/after 2minutes (max)		The greater value of either 0.01CV or 3					
Impedance ratio at low temperature	Based the value at 120Hz, +20℃	−40℃ Z/Z20℃	3	3	2	2	2	2
		−55℃ Z/Z20℃	6	5	4	4	3	3
Endurance	105℃ rated voltage applied (With the rated ripple current)	Test	φ5 to φ8 : 1,000hrs., φ10 : 2,000hrs., φ12.5 to φ16 : 3,000hrs.					
		△C/C	Within ±25% of the initial value					
		tan δ	≤ 2 times the initial specified value					
		LC	≤ The initial specified value					

Dimensions



(Unit : mm)

φD	5	6.3	8	10	12.5	16
F	2.0	2.5	3.5	5.0	5.0	7.5
φd	0.5	0.5	0.6	0.6	0.6	0.8

A pressure relief vent is attached to products over φD=6.3

Size List, Impedance, Rated Ripple Current

V / Items / Case size φD x L (mm)	6.3			10		
	Capacitance (μF)	Impedance (Ω max) (20°C/100kHz)	Ripple current (mArms) (105°C/10k to 200kHz)	Capacitance (μF)	Impedance (Ω max) (20°C/100kHz)	Ripple current (mArms) (105°C/10k to 200kHz)
5 x 11	220	0.50	180			
6.3 x 11	330	0.30	280	220	0.30	280
6.3 x 11	470	0.24	280	330	0.24	280
8 x 11.5	1000	0.15	560	470	0.16	410
10 x 12.5				1000	0.086	710
10 x 16	2200	0.066	950			
10 x 20	3300	0.047	1150	2200	0.047	1150
12.5 x 20	4700	0.042	1460	3300	0.042	1460
12.5 x 25	6800	0.031	1780	4700	0.031	1780
16 x 25	10000	0.026	2000	6800	0.026	2000
16 x 31.5				10000	0.022	2200
16 x 35.5	15000	0.022	2200			

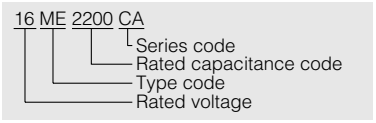
Size List, Impedance, Rated Ripple Current

V / Items / Case size φD x L (mm)	16			25		
	Capacitance (μF)	Impedance (Ωmax) (20°C/100kHz)	Ripple current (mArms) (105°C/10k to 200kHz)	Capacitance (μF)	Impedance (Ωmax) (20°C/100kHz)	Ripple current (mArms) (105°C/10k to 200kHz)
5 x 11	100	0.50	180			
6.3 x 11	220	0.24	280	100	0.30	280
8 x 11.5	330	0.16	410	220	0.16	410
8 x 11.5	470	0.15	560	330	0.15	560
10 x 12.5				470	0.086	710
10 x 16	1000	0.066	950			
10 x 20				1000	0.047	1150
12.5 x 20	2200	0.042	1460			
12.5 x 25	3300	0.035	1780	2200	0.035	1780
16 x 25	4700	0.026	2000	3300	0.026	2000
16 x 31.5	6800	0.022	2200	4700	0.022	2200

V / Items / Case size φD x L (mm)	35			50		
	Capacitance (μF)	Impedance (Ωmax) (20°C/100kHz)	Ripple current (mArms) (105°C/10k to 200kHz)	Capacitance (μF)	Impedance (Ωmax) (20°C/100kHz)	Ripple current (mArms) (105°C/10k to 200kHz)
5 x 11				0.47	5.5	20
5 x 11				1.0	3.3	30
5 x 11				2.2	3.0	45
5 x 11				3.3	2.7	55
5 x 11				4.7	2.0	90
5 x 11				10	1.7	110
5 x 11	33	0.72	180	22	1.2	120
5 x 11	47	0.50	180	33	0.95	130
6.3 x 11	100	0.24	280	47	0.56	190
8 x 11.5	220	0.15	560	100	0.30	320
10 x 12.5	330	0.086	710	220	0.16	520
10 x 16	470	0.066	950	330	0.12	670
10 x 20				470	0.088	820
12.5 x 20	1000	0.042	1460			
12.5 x 25				1000	0.053	1200
16 x 25	2200	0.026	2000			
16 x 31.5				2200	0.029	1750
16 x 35.5	3300	0.022	2200			

Please refer to page 19 for the ripple current frequency coefficient.

■Model No.



Aluminum Electrolytic Capacitors

SANYO

Aluminum Electrolytic Type / Radial Lead Type

RoHS compliance

ME-CX Series

Low Impedance

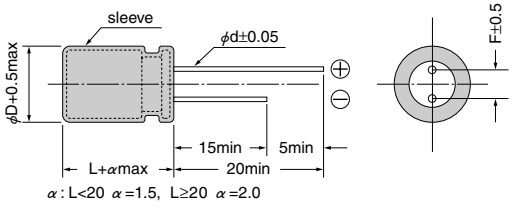
Miniature, Long Life

- 105℃, 2,000 to 7,000hrs
- Solvent proof (within 5 minutes)

Specifications

Items	Condition		Specifications				
Rated voltage (V)	—		6.3	10	16	25	35
Surge voltage (V)	Room temperature		8.0	13	20	32	44
Category temperature range (℃)	—		−55 to +105				
Capacitance tolerance (%)	120Hz/20℃		M : ±20				
Dissipation Factor (DF)	120Hz/20℃		0.22	0.19	0.16	0.14	0.12
			When rated capacitance exceeds 1.000 μF, add 0.02 to the value above for each 1,000 μF increase.				
Leakage current (LC)	μA/after 2minutes (max)		0.01CV				
Impedance ratio at low temperature	Based the value at 120Hz, +20℃	−40℃ Z/Z20℃	3	2	2	2	2
		−55℃ Z/Z20℃	4	4	3	3	3
Endurance	105℃ rated voltage applied (With the rated ripple current)	Test	φ5 to φ6.3 : 2,000hrs., φ8 : 3,000hrs., φ10 : 4,000hrs., φ12.5 : 5,000hrs., φ16 to φ18 : 7,000hrs.				
		△C/C	Within ±25% of the initial value				
		tan δ	≤ 2 times the initial specified value				
		LC	≤ The initial specified value				

Dimensions



A pressure relief vent is attached to products over φD=6.3

(Unit : mm)

φD	5	6.3	8	10	12.5	16	18
F	2.0	2.5	3.5	5.0	5.0	7.5	7.5
φd	0.5	0.5	0.6	0.6	0.6※	0.8	0.8

※ φ12.5 x 30 : φd=0.8

Size List, Impedance, Rated Ripple Current

V / Items / Case size φD x L (mm)	6.3 Capacitance (μF)	6.3 Impedance (Ωmax) (20°C/100kHz)	6.3 Ripple current (mArms) (105°C/10k to 200kHz)	10 Capacitance (μF)	10 Impedance (Ωmax) (20°C/100kHz)	10 Ripple current (mArms) (105°C/10k to 200kHz)
5 x 11	180	0.34	205	150	0.34	205
6.3 x 11	330	0.17	330	270	0.17	330
6.3 x 11	390	0.17	330			
8 x 11.5	680	0.11	580	470	0.11	580
8 x 11.5				560	0.11	580
8 x 15	1000	0.080	750	680	0.080	750
8 x 20	※1 1200	0.060	1000	※1 1000	0.060	1000
8 x 20	※1 1500	0.060	1000			
10 x 12.5	1200	0.063	900	820	0.063	900
10 x 16	1500	0.049	1200	1000	0.049	1200
10 x 16				1200	0.049	1200
10 x 20	2200	0.036	1450	1500	0.036	1450
10 x 22	2700	0.036	1500	1800	0.036	1500
12.5 x 20	3900	0.035	1660	2700	0.035	1660
12.5 x 25	4700	0.027	2000	3900	0.027	2000
12.5 x 25	5600	0.027	2000			
12.5 x 30	※1 6800	0.024	2450	※1 4700	0.024	2450
16 x 21	※2 5600	0.032	2000	※2 3900	0.032	2000
16 x 25	6800	0.022	2560	4700	0.022	2560
16 x 25	8200	0.022	2560	5600	0.022	2560
16 x 31.5	10000	0.017	3010	6800	0.017	3010
16 x 31.5				8200	0.017	3010
16 x 35.5	12000	0.016	3150	10000	0.016	3150
18 x 21	※2 6800	0.030	2490	※2 5600	0.030	2490
18 x 25	※2 10000	0.022	2740	※2 6800	0.022	2740
18 x 30.5	※2 12000	0.017	3330	※2 10000	0.017	3330
18 x 35.5	15000	0.016	3680	12000	0.016	3680

Please refer to page 19 for the ripple current frequency coefficient.

※1 Series code is CXL, ※2 Series code is CXS

Size List, Impedance, Rated Ripple Current

V / Items / Case size φD x L (mm)	16 Capacitance (μF)	16 Impedance (Ωmax) (20°C/100kHz)	16 Ripple current (mArms) (105°C/10k to 200kHz)	25 Capacitance (μF)	25 Impedance (Ωmax) (20°C/100kHz)	25 Ripple current (mArms) (105°C/10k to 200kHz)
5 x 11	100	0.34	205	68	0.34	205
6.3 x 11	180	0.17	330	120	0.17	330
8 x 11.5	330	0.11	580	220	0.11	580
8 x 15	470	0.080	750	330	0.080	750
8 x 20	680	0.060	1000	470	0.060	1000
10 x 12.5	560	0.063	900	390	0.063	900
10 x 16	820	0.049	1200	560	0.049	1200
10 x 20	1000	0.036	1450	680	0.036	1450
10 x 20				820	0.036	1450
10 x 22	1200	0.036	1500	1000	0.036	1500
12.5 x 20	1500	0.035	1660	1200	0.035	1660
12.5 x 20	1800	0.035	1660			
12.5 x 25	2200	0.027	2000	1800	0.027	2000
12.5 x 25	2700	0.027	2000			
12.5 x 30	※1 3300	0.024	2450	※1 2200	0.024	2450
16 x 21	※2 2700	0.032	2000	※2 1800	0.032	2000
16 x 25	3300	0.022	2560	2700	0.022	2560
16 x 25	3900	0.022	2560			
16 x 31.5	4700	0.017	3010	3300	0.017	3010
16 x 31.5	5600	0.017	3010			
16 x 35.5	6800	0.016	3150	3900	0.016	3150
18 x 21	※2 3300	0.030	2490	※2 2200	0.030	2490
18 x 25	※2 4700	0.022	2740	※2 3300	0.022	2740
18 x 30.5				※2 3900	0.017	3330
18 x 35.5	8200	0.016	3680	5600	0.016	3680

V / Items / Case size φD x L (mm)	35 Capacitance (μF)	35 Impedance (Ωmax) (20°C/100kHz)	35 Ripple current (mArms) (105°C/10k to 200kHz)
5 x 11	47	0.34	205
6.3 x 11	100	0.17	330
8 x 11.5	150	0.11	580
8 x 15	220	0.080	750
8 x 20	※1 330	0.060	1000
10 x 12.5	270	0.063	900
10 x 16	330	0.049	1200
10 x 16	390	0.049	1200
10 x 20	470	0.036	1450
10 x 20	560	0.036	1450
10 x 22	680	0.036	1500
12.5 x 20	820	0.035	1660
12.5 x 25	1200	0.027	2000
12.5 x 30	※1 1500	0.024	2450
16 x 21	※2 1200	0.032	2000
16 x 25	1800	0.022	2560
16 x 31.5	2700	0.017	3010
16 x 35.5	3300	0.016	3150
18 x 21	※2 1500	0.030	2490
18 x 25	2200	0.022	2740
18 x 35.5	3900	0.016	3680

※1 Series code is CXL, ※2 Series code is CXS

■Model No.

6 ME 1000 CX
- CX: Series code
- 1000: Rated capacitance code
- ME: Type code
- 6: Rated voltage

※1 10 ME 1000 CXL
- CXL: Series code
- 1000: Rated capacitance code
- ME: Type code
- 10: Rated voltage

※2 10 ME 3900 CXS
- CXS: Series code
- 3900: Rated capacitance code
- ME: Type code
- 10: Rated voltage

Aluminum Electrolytic Capacitors

SANYO

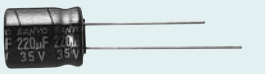
Aluminum Electrolytic Type / Radial Lead Type

RoHS compliance

ME-AX Series

Low Impedance

Long Life

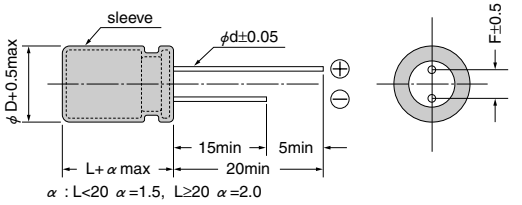


- 105℃, 2,500 to 10,000hrs
- Solvent proof (within 5 minutes)

Specifications

Items	Condition			Specifications							
Rated voltage (V)	—			6.3	10	16	25	35	50	63	100
Surge voltage (V)	Room temperature			8.0	13	20	32	44	63	79	125
Category temperature range (℃)	—			−55 to +105							−40 to +105
Capacitance tolerance (%)	120Hz/20℃			M : ±20							
Dissipation Factor (DF)	120Hz/20℃			0.22	0.19	0.16	0.14	0.12	0.10	0.10	0.10
				When rated capacitance exceeds 1,000 μF, add 0.02 to the value above for each 1,000 μF increase.							
Leakage current (LC)	μA/after 2minutes (max)			The greater value of either 0.01CV or 3							
Impedance ratio at low temperature	Based the value at 120Hz, +20℃	−40℃	Z/Z20℃	3	2	2	2	2	2	2	2
		−55℃	Z/Z20℃	4	4	3	3	3	2	2	—
Endurance	105℃ rated voltage applied (With the rated ripple current)	Test		φ5 : 2,500hrs., φ6.3 : 3,000hrs., φ8 × φ11.5, φ8 × 12.5 : 3,500hrs., φ8 × 15, φ8 × 20 : 4,500hrs., φ10 : 5,000hrs., φ12.5 : 7,000hrs., φ16 to φ18 : 10,000hrs.							
		△C/C		Within ±20% of the initial value							
		tan δ		≤ 2 times the initial specified value							
		LC		≤ The initial specified value							

Dimensions



(Unit : mm)

φD	5	6.3	8	10	12.5	16	18
F	2.0	2.5	3.5	5.0	5.0	7.5	7.5
φd	0.5	0.5	0.6	0.6	0.6	0.8	0.8

A pressure relief vent is attached to products over φD=6.3

Size List, Impedance, Rated Ripple Current

V / Items / Case size φD x L (mm)	6.3			10		
	Capacitance (μF)	Impedance (Ωmax) (20°C/100kHz)	Ripple current (mArms) (105°C/10k to 200kHz)	Capacitance (μF)	Impedance (Ωmax) (20°C/100kHz)	Ripple current (mArms) (105°C/10k to 200kHz)
5 x 11	150	0.42	190	100	0.42	190
6.3 x 11	270	0.22	300	220	0.22	300
8 x 11.5	470	0.11	560	330	0.11	560
8 x 12.5	560	0.11	570	390	0.11	570
8 x 15	680	0.085	730	470	0.085	730
8 x 20	1000	0.069	800	※1 680	0.069	800
10 x 12.5	820	0.085	800	680	0.085	800
10 x 16	1200	0.062	1050	820	0.062	1050
10 x 20	1500	0.044	1250	1200	0.044	1250
10 x 22	1800	0.039	1450	1500	0.039	1450
12.5 x 20	2700	0.038	1600	2200	0.038	1600
12.5 x 25	3900	0.029	1800	2700	0.029	1800
16 x 25	5600	0.022	2100	3900	0.022	2100
16 x 31.5	8200	0.018	2350	5600	0.018	2350
16 x 35	10000	0.018	2550	6800	0.018	2550
18 x 35.5	12000	0.018	2800	8200	0.018	2800

※1 Series code is AXL

Size List, Impedance, Rated Ripple Current

V / Items / Case size φD x L (mm)	16			25		
	Capacitance (μF)	Impedance (Ωmax) (20°C/100kHz)	Ripple current (mArms) (105°C/10k to 200kHz)	Capacitance (μF)	Impedance (Ωmax) (20°C/100kHz)	Ripple current (mArms) (105°C/10k to 200kHz)
5 x 11	68	0.42	190	47	0.42	190
6.3 x 11	150	0.22	300	100	0.22	300
8 x 11.5	220	0.11	560	150	0.11	560
8 x 12.5	270	0.11	570	180	0.11	570
8 x 15	330	0.085	730	220	0.085	730
8 x 20	※1 470	0.069	800	330	0.069	800
10 x 12.5	470	0.085	800	270	0.085	800
10 x 16	560	0.062	1050	390	0.062	1050
10 x 20	820	0.044	1250	560	0.044	1250
10 x 22	1000	0.039	1450	680	0.039	1450
12.5 x 20	1200	0.038	1600	1000	0.038	1600
12.5 x 25	1800	0.029	1800	1200	0.029	1800
16 x 25	2700	0.022	2100	1800	0.022	2100
16 x 31.5	3900	0.018	2350	2700	0.018	2350
16 x 35	4700	0.018	2550	3300	0.018	2550
18 x 35.5	5600	0.018	2800	3900	0.018	2800

V / Items / Case size φD x L (mm)	35			50		
	Capacitance (μF)	Impedance (Ωmax) (20°C/100kHz)	Ripple current (mArms) (105°C/10k to 200kHz)	Capacitance (μF)	Impedance (Ωmax) (20°C/100kHz)	Ripple current (mArms) (105°C/10k to 200kHz)
5 x 11	4.7	1.2	115	0.47 to 4.7	5.5 to 2.0	20 to 90
5 x 11	10	0.90	140	10	1.7	110
5 x 11	22	0.42	190	15	1.2	130
5 x 11	33	0.42	190	22	0.70	160
6.3 x 11	68	0.22	300	47	0.43	220
8 x 11.5	100	0.11	560	68	0.26	360
8 x 12.5	120	0.11	570	82	0.24	400
8 x 15	150	0.085	730	100	0.18	500
8 x 20	※1 220	0.069	800	150	0.16	650
10 x 12.5	220	0.085	800	120	0.16	550
10 x 16	270	0.062	1050	180	0.12	760
10 x 20	330	0.044	1250	270	0.088	950
10 x 22	470	0.039	1450	330	0.072	1000
12.5 x 20	680	0.038	1600	470	0.059	1200
12.5 x 25	1000	0.029	1800	560	0.045	1400
16 x 25	1500	0.022	2100	1000	0.039	1750
16 x 31.5	2200	0.018	2350	1200	0.025	2100
16 x 35	※1 2200	0.018	2550	1500	0.025	2300
18 x 35.5	2700	0.018	2800	1800	0.024	2400

V / Items / Case size φD x L (mm)	63			100		
	Capacitance (μF)	Impedance (Ωmax) (20°C/100kHz)	Ripple current (mArms) (105°C/10k to 200kHz)	Capacitance (μF)	Impedance (Ωmax) (20°C/100kHz)	Ripple current (mArms) (105°C/10k to 200kHz)
5 x 11	18	1.6	140	5.6	2.7	120
6.3 x 11	33	0.90	200	12	1.4	170
8 x 11.5	68	0.52	275	22	0.81	230
8 x 12.5	※1 68	0.47	300	※1 22	0.79	250
8 x 15	82	0.34	360	27	0.64	295
8 x 20	※1 120	0.21	510	※1 39	0.36	400
10 x 12.5	120	0.26	420	39	0.39	360
10 x 16	150	0.20	525	47	0.35	420
10 x 20	220	0.15	765	68	0.24	630
10 x 22	270	0.12	840	82	0.21	700
12.5 x 20	330	0.10	960	100	0.15	800
12.5 x 25	470	0.064	1200	150	0.11	920
16 x 25	680	0.052	1500	220	0.071	1100
16 x 31.5	1000	0.042	1750	330	0.049	1490
16 x 35	1200	0.036	1920	390	0.043	1630
18 x 35.5	1500	0.033	2000	470	0.038	1700

Please refer to page 19 for the ripple current frequency coefficient.

※1 Series code is AXL

■Model No.

10 ME 470 AX
- AX: Series code
- 470: Rated capacitance code
- ME: Type code
- 10: Rated voltage

※1 16 ME 470 AXL
- AXL: Series code
- 470: Rated capacitance code
- ME: Type code
- 16: Rated voltage

Aluminum Electrolytic Capacitors

SANYO

Aluminum Electrolytic Type / Radial Lead Type

RoHS compliance

ME-WX Series

Low Impedance

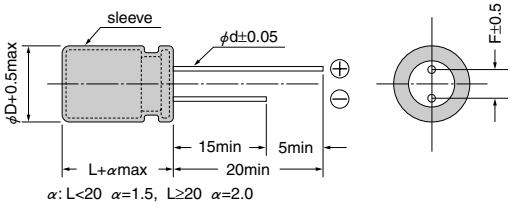
High Ripple Current

- 105℃, 2,000 to 5,000hrs
- Do not clean the capacitors using solvent.

Specifications

Items	Condition		Specifications					
Rated voltage (V)	—		6.3	10	16	25	35	50
Surge voltage (V)	Room temperature		8.0	13	20	32	44	63
Category temperature range (℃)	—		−40 to +105					
Capacitance tolerance (%)	120Hz/20℃		M : ±20					
Dissipation Factor (DF)	120Hz/20℃		0.22	0.19	0.16	0.14	0.12	0.10
			When rated capacitance exceeds 1,000 μF, add 0.02 to the value above for each 1,000 μF increase.					
Leakage current (LC)	μA/after 2minutes (max)		0.01CV					
Impedance ratio at low temperature	Based the value at 120Hz, +20℃	−25℃ Z/Z20℃	2	2	2	2	2	2
		−40℃ Z/Z20℃	3	3	3	3	3	3
Endurance	105℃ rated voltage applied (With the rated ripple current)	Test	φ5 to φ6.3 : 2,000hrs., φ8 : 3,000hrs., φ10 to φ12.5 : 4,000hrs., φ16 : 5,000hrs.					
		△C/C	Within ±25% of the initial value					
		tan δ	≤ 2 times the initial specified value					
		LC	≤ The initial specified value					

Dimensions



α: L<20 α=1.5, L≥20 α=2.0

A pressure relief vent is attached to products over φD=6.3

(Unit : mm)

φD	5	6.3	8	10	12.5	16
F	2.0	2.5	3.5	5.0	5.0	7.5
φd	0.5	0.5	0.6	0.6	0.6 ※	0.8

※ φ12.5 x 30 : φd=0.8

Size List, Impedance, Rated Ripple Current

V / Items / Case size φD x L (mm)	6.3 Capacitance (μF)	6.3 Impedance and ESR (Ωmax) (20°C/100kHz)	6.3 Ripple current (mArms) (105°C/100kHz)	10 Capacitance (μF)	10 Impedance and ESR (Ωmax) (20°C/100kHz)	10 Ripple current (mArms) (105°C/100kHz)
5 x 11	150	0.30	250	100	0.30	250
6.3 x 11	330	0.13	405	220	0.13	405
8 x 11.5	560	0.072	760	470	0.072	760
8 x 15	820	0.056	995	※1 680	0.056	995
8 x 20	※1 1200	0.041	1250	※1 1000	0.041	1250
10 x 12.5	1000	0.053	1030	680	0.053	1030
10 x 16	1200	0.038	1430	1000	0.038	1430
10 x 20	1500	0.023	1820	1200	0.023	1820
10 x 20	2200	0.023	1820	1500	0.023	1820
10 x 23	※3 2200	0.022	2150	※3 1500	0.022	2150
12.5 x 20	3300	0.021	2360	2200	0.021	2360
12.5 x 25	3900	0.018	2770	3300	0.018	2770
12.5 x 30	4700	0.016	3290	3900	0.016	3290
16 x 21	5600	0.018	3140	※2 3900	0.018	3140
16 x 25	6800	0.016	3460	5600	0.016	3460

※1 Series code is WXL
※2 Series code is WXS
※3 Series code is WXV

Size List, Impedance, Rated Ripple Current

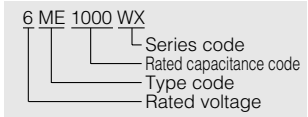
V / Items / Case size φD x L (mm)	16			25		
	Capacitance (μF)	Impedance and ESR (Ωmax) (20°C/100kHz)	Ripple current (mArms) (105°C/100kHz)	Capacitance (μF)	Impedance and ESR (Ωmax) (20°C/100kHz)	Ripple current (mArms) (105°C/100kHz)
5 x 11	56	0.30	250	47	0.30	250
6.3 x 11	120	0.13	405	100	0.13	405
8 x 11.5	330	0.072	760	220	0.072	760
8 x 15	※1 470	0.056	995	330	0.056	995
8 x 20	※1 680	0.041	1250	※1 470	0.041	1250
10 x 12.5	470	0.053	1030	※2 330	0.053	1030
10 x 16	680	0.038	1430	470	0.038	1430
10 x 20	1000	0.023	1820	680	0.023	1820
10 x 20	1200	0.023	1820	820	0.023	1820
10 x 23	※3 1200	0.022	2150	※3 820	0.022	2150
12.5 x 20	1500	0.021	2360	1000	0.021	2360
12.5 x 25	2200	0.018	2770	1500	0.018	2770
12.5 x 30	2700	0.016	3290	1800	0.016	3290
16 x 21	※2 2700	0.018	3140	※2 1800	0.018	3140
16 x 25	3900	0.016	3460	2700	0.016	3460

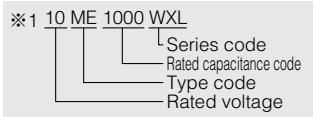
V / Items / Case size φD x L (mm)	35			50		
	Capacitance (μF)	Impedance and ESR (Ωmax) (20°C/100kHz)	Ripple current (mArms) (105°C/100kHz)	Capacitance (μF)	Impedance and ESR (Ωmax) (20°C/100kHz)	Ripple current (mArms) (105°C/100kHz)
5 x 11	33	0.30	250	22	0.34	238
6.3 x 11	56	0.13	405	47	0.14	385
8 x 12.5	※3 150	0.072	760	100	0.074	724
8 x 15	220	0.056	995	120	0.061	950
8 x 20	※1 270	0.041	1250	180	0.046	1190
10 x 12.5	※2 220	0.053	1030	150	0.061	979
10 x 16	330	0.038	1430	220	0.042	1370
10 x 20	470	0.023	1820	270	0.030	1580
10 x 23	※3 560	0.022	2150	330	0.028	1870
12.5 x 20	680	0.021	2360	470	0.027	2050
12.5 x 25	1000	0.018	2770	560	0.023	2410
12.5 x 30	1200	0.016	3290	680	0.021	2860
16 x 21	※2 1200	0.018	3140	820	0.023	2730
16 x 25	1800	0.016	3460	1000	0.021	3010

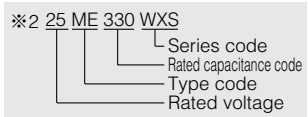
Please refer to page 19 for the ripple current frequency coefficient.

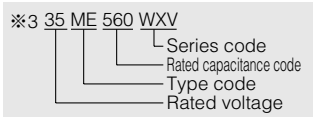
※1 Series code is WXL
※2 Series code is WXS
※3 Series code is WXV

■Model No.









Aluminum Electrolytic Capacitors

SANYO

Aluminum Electrolytic Type / Radial Lead Type

RoHS compliance

ME-WA Series

105℃, Miniature, Long Life

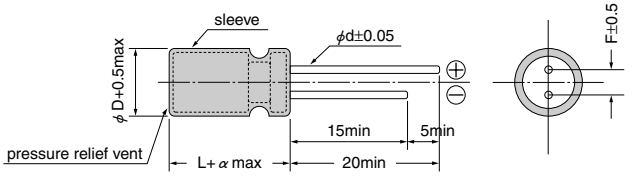
Low Impedance, High Ripple Current

- 105℃, 8,000 to 10,000hrs
- Do not clean the capacitors using solvent.

Specifications

Items	Condition			Specifications				
Rated voltage (V)	—			6.3	10	16	25	35
Surge voltage (V)	Room temperature			8.0	13	20	32	44
Category temperature range (℃)	—			−40 to +105				
Capacitance tolerance (%)	120Hz/20℃			M : ±20				
Dissipation Factor (DF)	120Hz/20℃			0.22	0.19	0.16	0.14	0.12
				When rated capacitance exceeds 1,000 μF, add 0.02 to the value above for each 1,000 μF increase.				
Leakage current (LC)	μA/after 2minutes (max)			0.03CV				
Impedance ratio at low temperature	Based the value at 120Hz, +20℃	−25℃	Z/Z20℃	2	2	2	2	2
		−40℃	Z/Z20℃	3	3	3	3	3
Endurance	105℃ rated voltage applied (With the rated ripple current)	Test		φ8 : 8,000hrs., φ10 to φ16 : 10,000hrs.				
		△C/C		Within ±25% of the initial value (6.3V, 10V : ±30%)				
		tan δ		≤ 2 times the initial specified value				
		LC		≤ The initial specified value				

Dimensions



α : L<20 α=1.5, L≥20 α=2.0 (Only φ8 x 11.5 α=2.0)

(Unit : mm)

φD	8	10	12.5	16
F	3.5	5.0	5.0	7.5
φd	0.6	0.6	0.6※	0.8

※ φ12.5 x 30 : φd=0.8

Size List, Impedance, Rated Ripple Current

V / Items / Case size φD x L (mm)	6.3			10		
	Capacitance (μF)	Impedance (Ωmax) (20°C/100kHz)	Ripple current (mArms) (105°C/100kHz)	Capacitance (μF)	Impedance (Ωmax) (20°C/100kHz)	Ripple current (mArms) (105°C/100kHz)
8 x 11.5	820	0.059	945	680	0.059	945
8 x 15	※1 1200	0.046	1250	※1 1000	0.046	1250
8 x 20	1500	0.031	1500	※1 1500	0.031	1500
10 x 12.5	1200	0.043	1330	1000	0.043	1330
10 x 16	1800	0.030	1760	1500	0.030	1760
10 x 20	2200	0.021	1960	1800	0.021	1960
10 x 22	2700	0.020	2250	2200	0.020	2250
12.5 x 20	3900	0.019	2480	3300	0.019	2480
12.5 x 25	4700	0.016	2900	3900	0.016	2900
12.5 x 30	5600	0.014	3450	※1 4700	0.014	3450
16 x 21	6800	0.018	3250	4700	0.018	3250
16 x 25	8200	0.014	3630	6800	0.014	3630

※1 Series code is WAL

Size List, Impedance, Rated Ripple Current

V / Items / Case size φD x L (mm)	16			25		
	Capacitance (μF)	Impedance (Ωmax) (20°C/100kHz)	Ripple current (mArms) (105°C/100kHz)	Capacitance (μF)	Impedance (Ωmax) (20°C/100kHz)	Ripple current (mArms) (105°C/100kHz)
8 x 11.5	470	0.059	945	330	0.059	945
8 x 15	※1 680	0.046	1250	390	0.046	1250
8 x 20	※1 1000	0.031	1500	560	0.031	1500
10 x 12.5	680	0.043	1330	470	0.043	1330
10 x 16	1000	0.030	1760	680	0.030	1760
10 x 20	1500	0.021	1960	820	0.021	1960
10 x 22	1800	0.020	2250	1000	0.020	2250
12.5 x 20	2200	0.019	2480	1500	0.019	2480
12.5 x 25	2700	0.016	2900	1800	0.016	2900
12.5 x 30	※1 3300	0.014	3450	※1 2200	0.014	3450
16 x 21	3300	0.018	3250	2200	0.018	3250
16 x 25	4700	0.014	3630	3300	0.014	3630

V / Items / Case size φD x L (mm)	35		
	Capacitance (μF)	Impedance (Ωmax) (20°C/100kHz)	Ripple current (mArms) (105°C/100kHz)
8 x 11.5	220	0.059	945
8 x 15	270	0.046	1250
8 x 20	390	0.031	1500
10 x 12.5	330	0.043	1330
10 x 16	470	0.030	1760
10 x 20	560	0.021	1960
10 x 22	680	0.020	2250
12.5 x 20	1000	0.019	2480
12.5 x 25	1200	0.016	2900
12.5 x 30	※1 1500	0.014	3450
16 x 21	1500	0.018	3250
16 x 25	2200	0.014	3630

Please refer to page 19 for the ripple current frequency coefficient.

※1 Series code is WAL

■Model No.

10 ME 1000 WA
- WA: Series code
- 1000: Rated capacitance code
- ME: Type code
- 10: Rated voltage

※1 16 ME 1000 WAL
- WAL: Series code
- 1000: Rated capacitance code
- ME: Type code
- 16: Rated voltage

Aluminum Electrolytic Capacitors

SANYO

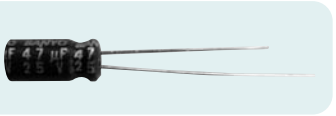
Aluminum Electrolytic Type / Radial Lead Type

RoHS compliance

ME-WL Series

105℃, Miniature, Low Impedance

Long Life

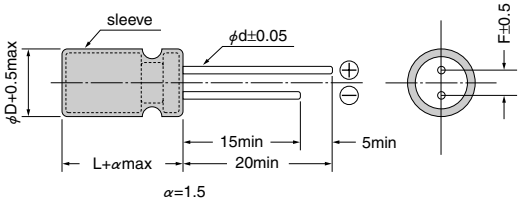


- 105℃, 4,000 to 5,000hrs
- Do not clean the capacitors using solvent.

Specifications

Items	Condition		Specifications						
Rated voltage (V)	—		6.3	10	16	25	35	50	63
Surge voltage (V)	Room temperature		8.0	13	20	32	44	63	79
Category temperature range (℃)	—		−40 to +105						
Capacitance tolerance (%)	120Hz/20℃		M : ±20						
Dissipation Factor (DF)	120Hz/20℃		0.22	0.19	0.16	0.14	0.12	0.10	0.10
Leakage current (LC)	μA/after 2minutes (max)		The greater value of either 0.01CV or 3						
Impedance ratio at low temperature	Based the value at 120Hz, +20℃	−25℃ Z/Z20℃	4	3	2	2	2	2	2
		−40℃ Z/Z20℃	8	6	4	3	3	3	3
Endurance	105℃, rated voltage applied (With the rated ripple current)	test	4,000hrs.		5,000hrs.				
		△C/C	Within ±25% of the initial value						
		tan δ	≤ 2 times the initial specified value						
		LC	≤ The initial specified value						

Dimensions



A pressure relief vent is attached to products φD=6.3

(Unit : mm)

φD	5	6.3
F	2.0	2.5
φd	0.5	0.5

Size List, Impedance, Rated Ripple Current

μF \ V	6.3	10	16	25	35	50	63
1.0						5×11 4.80 30	
2.2						5×11 3.00 43	
3.3						5×11 2.64 53	
4.7						5×11 2.28 88	
10						5×11 1.80 100	
15							5×11 1.06 165
22						5×11 0.84 180	
33					5×11 0.69 210		6.3×11 0.42 265
47				5×11 0.69 210		6.3×11 0.40 250	
56			5×11 0.69 210		6.3×11 0.26 340	6.3×11 0.36 295	
100		5×11 0.69 210		6.3×11 0.26 340			
120			6.3×11 0.26 340				
150	5×11 0.69 210						
220		6.3×11 0.26 340					
330	6.3×11 0.26 340						

Please refer to page 19 for the ripple current frequency coefficient.

Rated ripple current mArms (100kHz, 105°C)

Case size ; φD x L (mm)

Impedance (Ω) max at 100kHz, 20°C

■Model No. 16 ME 120 WL

- Series code
- Rated capacitance code
- Type code
- Rated voltage

Aluminum Electrolytic Capacitors

SANYO

Aluminum Electrolytic Type / Radial Lead Type

RoHS compliance

MB-UWG Series

Low ESR, High Ripple Current

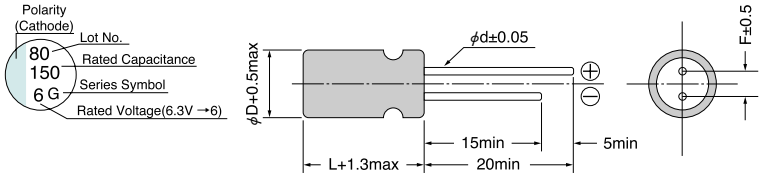
5mm Height

- 105℃, 1,000hrs
- Laminated aluminum case
- Do not clean the capacitors using solvent.

Specifications

Items	Condition		Specifications			
Rated voltage (V)	—		6.3	10	16	25
Surge voltage (V)	Room temperature		8.0	13	20	32
Category temperature range (℃)	—		−40 to +105			
Capacitance tolerance (%)	120Hz/20℃		M : ±20			
Dissipation Factor (DF)	120Hz/20℃		0.24	0.20	0.16	0.14
Leakage current (LC)	μA/after 2minutes (max)		0.03CV			
Impedance ratio at low temperature	Based the value at 120Hz, +20℃	−25℃ Z/Z20℃	2	2	2	2
		−40℃ Z/Z20℃	3	3	3	3
Endurance	105℃, 1,000hrs. rated voltage applied (With the rated ripple current)	△C/C	Within ±25% of the initial value (6.3V, 10V : ±30%)			
		tan δ	≤ 2 times the initial specified value			
		LC	≤ The initial specified value			

Marking, Dimensions



(Unit : mm)

φD	6.3
F	2.5
φd	0.45

Size List, ESR, Rated Ripple Current

V / Items / μF	6.3			10			16			25		
	Case size φD x L (mm)	ESR (Ωmax) 20°C/100kHz	Ripple current (mArms) 105°C/100kHz	Case size φD x L (mm)	ESR (Ωmax) 20°C/100kHz	Ripple current (mArms) 105°C/100kHz	Case size φD x L (mm)	ESR (Ωmax) 20°C/100kHz	Ripple current (mArms) 105°C/100kHz	Case size φD x L (mm)	ESR (Ωmax) 20°C/100kHz	Ripple current (mArms) 105°C/100kHz
39										6.3 x 5	0.14	360
68							6.3 x 5	0.14	360			
100				6.3 x 5	0.14	360						
150	6.3 x 5	0.14	360									

Please refer to page 19 for the ripple current frequency coefficient.

■Model No.

6 MB 150 UWG
- Series code
- Rated capacitance code
- Type code
- Rated voltage

Aluminum Electrolytic Capacitors

SANYO

Aluminum Electrolytic Type / Radial Lead Type

RoHS compliance

ME-SWG Series

Low ESR, Miniature

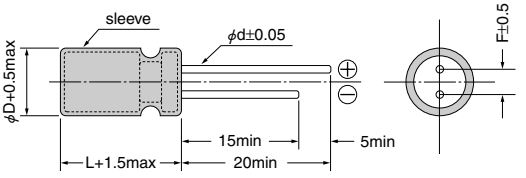
7mm Height

- 105℃, 1,000 to 2,000hrs
- Do not clean the capacitors using solvent.

Specifications

Items	Condition		Specifications				
Rated voltage (V)	—		6.3	10	16	25	35
Surge voltage (V)	Room temperature		8.0	13	20	32	44
Category temperature range (℃)	—		−40 to +105				
Capacitance tolerance (%)	120Hz/20℃		M : ±20				
Dissipation Factor (DF)	120Hz/20℃		0.24	0.20	0.16	0.14	0.12
Leakage current (LC)	μA/after 2minutes (max)		0.03CV				
Impedance ratio at low temperature	Based the value at 120Hz, +20℃	−25℃ Z/Z20℃	2	2	2	2	2
		−40℃ Z/Z20℃	3	3	3	3	3
Endurance	105℃ rated voltage applied (With the rated ripple current)	Test	φ5 : 1,000hrs., φ6.3 : 2,000hrs., (6ME330SWG, 10ME220SWG : 1,000hrs.)				
		△C/C	Within ±25% of the initial value (6.3V, 10V : ±30%)				
		tan δ	≤ 2 times the initial specified value				
		LC	≤ The initial specified value				

Dimensions



(Unit : mm)

φD	5	6.3
F	2.0	2.5
φd	0.45	0.45

Size List, ESR, Rated Ripple Current

V / Items / μF	6.3			10			16			25			35		
	Case size φD x L (mm)	ESR (Ωmax) 20℃/100kHz	Ripple current (mArms) 105℃/100kHz	Case size φD x L (mm)	ESR (Ωmax) 20℃/100kHz	Ripple current (mArms) 105℃/100kHz	Case size φD x L (mm)	ESR (Ωmax) 20℃/100kHz	Ripple current (mArms) 105℃/100kHz	Case size φD x L (mm)	ESR (Ωmax) 20℃/100kHz	Ripple current (mArms) 105℃/100kHz	Case size φD x L (mm)	ESR (Ωmax) 20℃/100kHz	Ripple current (mArms) 105℃/100kHz
22										5 x 7	0.17	390	5 x 7	0.17	390
39							5 x 7	0.17	390	5 x 7	0.17	390			
47													6.3 x 7	0.082	760
56				5 x 7	0.17	390									
100	5 x 7	0.17	390	6.3 x 7	0.082	760	6.3 x 7	0.082	760	6.3 x 7	0.082	760			
150	6.3 x 7	0.082	760	6.3 x 7	0.082	760	6.3 x 7	0.082	760						
220	6.3 x 7	0.082	760	6.3 x 7	0.082	760									
330	6.3 x 7	0.082	760												

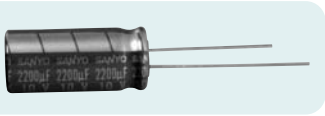
Please refer to page 19 for the ripple current frequency coefficient.

■Model No.

25 ME 100 SWG
- SWG — Series code
- 100 — Rated capacitance code
- ME — Type code
- 25 — Rated voltage

ME-WG Series

Low ESR, Miniature

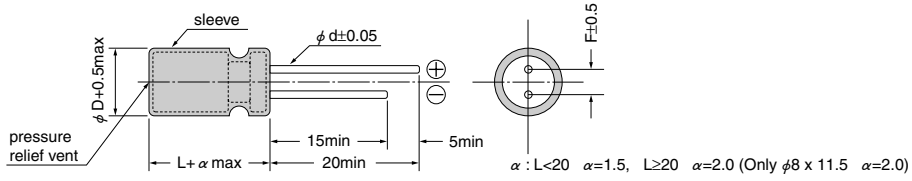


- 105℃, 2,000 to 4,000hrs
- Do not clean the capacitors using solvent.

Specifications

Items	Condition		Specifications			
Rated voltage (V)	—		6.3	10	16	25
Surge voltage (V)	Room temperature		8.0	13	20	32
Category temperature range (℃)	—		−40 to +105			
Capacitance tolerance (%)	120Hz/20℃		M : ±20			
Dissipation Factor (DF)	120Hz/20℃		0.22	0.19	0.16	0.14
			When rated capacitance exceeds 1,000 μF, add 0.02 to the value above for each 1,000 μF increase.			
Leakage current (LC)	μA/after 2minutes (max)		0.03CV			
Impedance ratio at low temperature	Based the value at 120Hz, +20℃	−25℃ Z/Z20℃	2	2	2	2
		−40℃ Z/Z20℃	3	3	3	3
Endurance	105℃ rated voltage applied (With the rated ripple current)	Test	φ8X11.5, φ8X16, φ10X12.5, φ10X16 : 2,000hrs., φ8X20 : 3,000hrs., φ10X20, φ10X23 : 4,000hrs.			
		△C/C	Within ±25% of the initial value			
		tan δ	≤ 2 times the initial specified value			
		LC	≤ The initial specified value			

Dimensions



α : L<20 α=1.5, L≥20 α=2.0 (Only φ8 x 11.5 α=2.0)

(Unit : mm)

φD	8	10
F	3.5	5.0
φd	0.6	0.6

Size List, ESR, Rated Ripple Current

V / Items μF	6.3 Case size φD x L (mm)	6.3 ESR (mΩmax) 20℃/100kHz	6.3 Ripple current (mArms) 105℃/100kHz	10 Case size φD x L (mm)	10 ESR (mΩmax) 20℃/100kHz	10 Ripple current (mArms) 105℃/100kHz	16 Case size φD x L (mm)	16 ESR (mΩmax) 20℃/100kHz	16 Ripple current (mArms) 105℃/100kHz	25 Case size φD x L (mm)	25 ESR (mΩmax) 20℃/100kHz	25 Ripple current (mArms) 105℃/100kHz
220										8 x 11.5	30	1110
330							8 x 11.5	30	1140	8 x 11.5	32	1080
										10 x 12.5 ※3	25	1440
470				8 x 11.5	30	1140	8 x 11.5	36	1140	8 x 20 ※1	18	1820
										10 x 12.5	27	1390
										10 x 16 ※3	20	1920
680				8 x 11.5	36	1140	8 x 16 ※1	28	1490	10 x 16	22	1830
							10 x 12.5	26	1540	10 x 20 ※3	16	2180
820	8 x 11.5	36	1140									
1000	8 x 11.5	30	1140	8 x 16 ※1	28	1490	8 x 20 ※1	19	1870	10 x 23 ※1	16	2180
				10 x 12.5	26	1540	10 x 16	19	2000			
1200	8 x 16	28	1490	8 x 20 ※1	19	1870						
1500	8 x 20 ※1	19	1870	8 x 20 ※1	19	1870	10 x 20	13	2550			
	8 x 20 ※2	16	1950	10 x 16	19	2000						
	10 x 12.5	26	1540									
	10 x 16 ※3	18	2000									
1800	8 x 20 ※2	16	1950	10 x 20	13	2550	10 x 23	12	2800			
	10 x 16	19	2000									
2200	10 x 20	13	2550	10 x 23	12	2800						
3300	10 x 23	12	2800									

Please refer to page 19 for the ripple current frequency coefficient.

※1 Series code is WGL
※2 Series code is WGL2
※3 Series code is WGV

■Model No.

10 ME 1000 WG
- WG: Series code
- 1000: Rated capacitance code
- ME: Type code
- 10: Rated voltage

※1 6 ME 1500 WGL
- WGL: Series code
- 1500: Rated capacitance code
- ME: Type code
- 6: Rated voltage

※2 6 ME 1500 WGL2
- WGL2: Series code
- 1500: Rated capacitance code
- ME: Type code
- 6: Rated voltage

※3 25 ME 470 WGV
- WGV: Series code
- 470: Rated capacitance code
- ME: Type code
- 25: Rated voltage

Aluminum Electrolytic Capacitors

SANYO

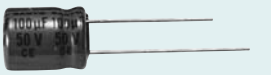
Aluminum Electrolytic Type / Radial Lead Type

RoHS compliance

ME-PX Series

125℃, 4,000Hrs.

High Performance

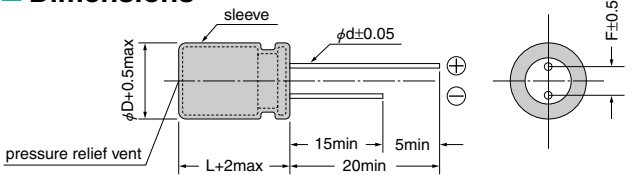


- 125℃, 2,000 to 4,000hrs
- Solvent proof (within 5 minutes)

Specifications

Items	Condition			Specifications					
Rated voltage (V)	—			10	16	25	35	50	100
Surge voltage (V)	Room temperature			13	20	32	44	63	125
Category temperature range (℃)	—			−55 to +125					
Capacitance tolerance (%)	120Hz/20℃			M : ±20					
Dissipation Factor (DF)	120Hz/20℃			0.20	0.16	0.14	0.12	0.10	0.08
				When rated capacitance exceeds 1,000 μF, add 0.02 to the value above for each 1,000 μF increase.					
Leakage current (LC)	μA/after 2minutes (max)			The greater value of either 0.01CV or 3					
Impedance ratio at low temperature	Based the value at 120Hz, +20℃	−40℃	Z/Z20℃	2	2	2	2	2	2
		−55℃	Z/Z20℃	4	3	3	3	2	2
Endurance	125℃ rated voltage applied (With the rated ripple current)	Test		φ8 : 2,000hrs., φ10 : 3,000hrs., φ12.5 to φ18 : 4,000hrs.					
		△C/C		Within ±30% of the initial value					
		tan δ		≤ 3 times the initial specified value					
		LC		≤ The initial specified value					

Dimensions



(Unit : mm)

φD	8	10	12.5	16	18
F	3.5	5.0	5.0	7.5	7.5
φd	0.6	0.6	0.6	0.8	0.8

Size List, Impedance, Rated Ripple Current

μF \ V	10			16			25			35			50			100		
1.0													8x11.5	2.0	28			
2.2													8x11.5	1.8	42			
3.3													8x11.5	1.5	49			
4.7													8x11.5	1.15	70	8x11.5	2.0	100
10													8x11.5	0.95	150	8x11.5	1.5	150
22													8x11.5	0.65	210	8x12.5	1.5	190
33													8x12.5	0.45	230	10x12.5	0.75	330
47										8x12.5	0.45	230	8x12.5	0.45	230	10x16	0.57	400
100				8x11.5	0.39	250	8x12.5	0.26	280	10x12.5	0.35	315	10x12.5	0.35	315	12.5x20	0.29	580
220	8x12.5	0.26	280	10x12.5	0.20	350	10x12.5	0.17	380	10x16	0.29	420	10x20	0.20	560	16x25	0.22	670
330	10x12.5	0.20	350	10x12.5	0.17	380	10x16	0.15	490	10x20	0.20	560	12.5x20	0.12	630	16x31.5	0.15	810
470	10x12.5	0.17	380	10x16	0.15	490	10x20	0.12	590	12.5x20	0.12	630	12.5x25	0.10	770	18x31.5	0.11	950
1000	10x20	0.12	590	12.5x20	0.073	770	12.5x25	0.050	1050	16x25	0.058	980	16x31.5	0.045	1200			
2200	12.5x25	0.050	1050	16x25	0.044	1150	16x31.5	0.030	1500									
3300	16x25	0.044	1150	16x31.5	0.030	1500												
4700	16x31.5	0.030	1500															

Please refer to page 19 for the ripple current frequency coefficient.

Case size ; φD x L (mm)

Rated ripple current mArms (10k to 100kHz, 125°C)

Impedance (Ω) max at 100kHz, 20°C

■Model No.

50 ME 220 PX
- PX : Series code
- 220 : Rated capacitance code
- ME : Type code
- 50 : Rated voltage

ME-PX Series

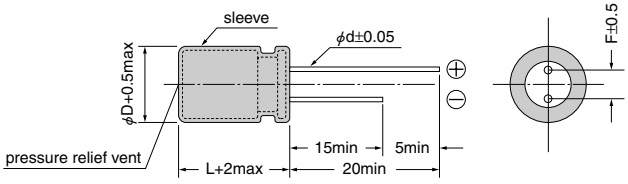
125℃
Mid. and High Voltage

- 125℃, 2,000hrs
- Do not clean the capacitors using solvent.

Specifications

Items	Condition		Specifications				
Rated voltage (V)	—		160	200	250	350	400
Surge voltage (V)	Room temperature		200	250	300	400	450
Category temperature range (℃)	—		−40 to +125			−25 to +125	
Capacitance tolerance (%)	120Hz/20℃		M : ±20				
Dissipation Factor (DF)	120Hz/20℃		0.20	0.20	0.20	0.24	0.24
Leakage current (LC)	μA/after 2minutes (max)		0.02CV + 25				
Impedance ratio at low temperature	Based the value at 120Hz, +20℃	−25℃ Z/Z20℃	3	3	3	6	6
		−40℃ Z/Z20℃	6	6	6	—	—
Endurance	125℃, 2,000hrs. rated voltage applied (With the rated ripple current)	△C/C	Within ±20% of the initial value				
		tan δ	≤ 2 times the initial specified value				
		LC	≤ The initial specified value				

Dimensions



(Unit : mm)

φD	10	12.5	16
F	5.0	5.0	7.5
φd	0.6	0.6	0.8

Size List, Rated Ripple Current

μF \ V	160		200		250		350		400	
4.7							10 x 20	53	10 x 20	53
10			10 x 20	78	10 x 20	78	10 x 20	67	12.5 x 20	86
22	10 x 20	115	10 x 20	95	12.5 x 20	128	12.5 x 25	139	12.5 x 25	142
33	10 x 20	125	12.5 x 20	157	12.5 x 25	171	16 x 25	189	16 x 25	189
47	12.5 x 20	187	12.5 x 25	204	16 x 25	225	16 x 31.5	243	16 x 31.5	243
68	12.5 x 20	200	16 x 21	250	16 x 31.5	292				
100	16 x 25	329								
150	16 x 31.5	434								

Please refer to page 19 for the ripple current frequency coefficient.

Case size ; φD x L (mm)
Rated ripple current mArms (120Hz, 125°C)

■Model No.

160 ME 33 PX
- PX: Series code
- 33: Rated capacitance code
- ME: Type code
- 160: Rated voltage

Aluminum Electrolytic Capacitors

SANYO

Aluminum Electrolytic Type / Radial Lead Type

RoHS compliance

ME-FC·FD Series

105℃ Miniature, Mid. and High Voltage

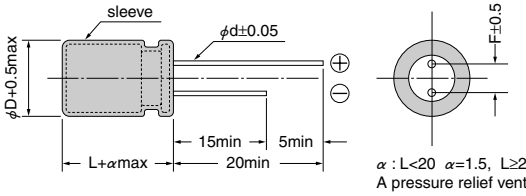
105℃ Low Profile, Mid. and High Voltage

- 105℃, 1,000 to 2,000hrs
- Do not clean the capacitors using solvent.

Specifications

Items	Condition		Specifications					
Rated voltage (V)	—		160	200	250	350	400	450
Surge voltage (V)	Room temperature		200	250	300	400	450	500
Category temperature range (℃)	—		−40 to +105					−25 to +105
Capacitance tolerance (%)	120Hz/20℃		M : ±20					
Dissipation Factor (DF)	120Hz/20℃		0.20	0.20	0.20	0.25	0.25	0.25
Leakage current (LC)	µA/after 2minutes (max)	CV ≤ 1,000	0.03CV + 15					
		CV > 1,000	0.02CV + 25					
Impedance ratio at low temperature	Based the value at 120Hz, +20℃	−25℃ Z/Z20℃	3	3	3	4	6	6
		−40℃ Z/Z20℃	6	6	6	8	10	—
Endurance	105℃ rated voltage applied (With the rated ripple current)	Test	φ5 to φ8 : 1,000hrs., φ10 to φ18 : 2,000hrs.					
		△C/C	Within ±20% of the initial value					
		tan δ	≤ 2 times the initial specified value					
		LC	≤ The initial specified value					

Dimensions



α : L<20 α=1.5, L≥20 α=2.0
A pressure relief vent is attached to products over φD=6.3

(Unit : mm)

φD	5	6.3	8	10	12.5	16	18
F	2.0	2.5	3.5	5.0	5.0	7.5	7.5
φd	0.5	0.5	0.6	0.6	0.6	0.8	0.8

Size List, Rated Ripple Current

µF \ V	160		200		250		350		400		450	
0.47	5 x 11	7	5 x 11	8	5 x 11	8	6.3 x 11	10	6.3 x 11	10		
1.0	5 x 11	15	5 x 11	16	5 x 11	18	6.3 x 11	20	8 x 11.5	20	8 x 12.5	18
2.2	6.3 x 11	22	6.3 x 11	24	6.3 x 11	25	8 x 11.5	28	8 x 11.5	28	10 x 16	28
3.3	6.3 x 11	28	6.3 x 11	32	8 x 11.5	34	8 x 12.5	36	10 x 12.5	36	10 x 20	36
4.7	6.3 x 11	39	8 x 11.5	40	8 x 11.5	41	10 x 12.5	47	10 x 16	47	12.5 x 20	47
10	8 x 11.5	63	8 x 12.5	64	10 x 12.5	66	10 x 20	70	10 x 20	70	12.5 x 25 16 x 21	70
22	10 x 12.5	107	10 x 16	112	10 x 20	119	12.5 x 25 16 x 21	123	12.5 x 25 16 x 21	126	16 x 25 18 x 21	125
33	10 x 20	137	10 x 20	147	12.5 x 20	154	16 x 25 18 x 21	158	16 x 25 18 x 21	161	16 x 30 18 x 25	154
47	12.5 x 20	172	12.5 x 20	175	12.5 x 25 16 x 21	182	16 x 30 18 x 25	182	16 x 30 18 x 25	189	18 x 35.5	172
68	12.5 x 20	217	12.5 x 25 16 x 21	228	16 x 25 18 x 21	235	16 x 35.5 18 x 30.5	242	18 x 35.5	249		
82	12.5 x 25 16 x 21	270	16 x 21	277	16 x 30 18 x 25	284	18 x 35.5	294				
100	12.5 x 25 16 x 21	287	16 x 25 18 x 21	301	16 x 35.5 18 x 25	302						
150	16 x 30 18 x 25	385	16 x 35.5 18 x 30.5	403	18 x 35.5	412						
220	16 x 35.5 18 x 30.5	522	18 x 35.5	532								

Upper ; FC series (0.47µF to 4.7µF ; FC series)
Lower ; FD series

Please refer to page 19 for the ripple current frequency coefficient.

Rated ripple current mArms (120Hz, 105°C)

Case size ; φD x L (mm)

■Model No.

FC series 160 ME 33 FC
- Series code
- Rated capacitance code
- Type code
- Rated voltage

FD series 450 ME 10 FD
- Series code
- Rated capacitance code
- Type code
- Rated voltage

SANYO

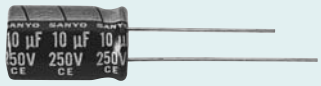
Aluminum Electrolytic Type / Radial Lead Type

RoHS compliance

ME-FAZ Series

Low Impedance

High Ripple, Mid. Voltage

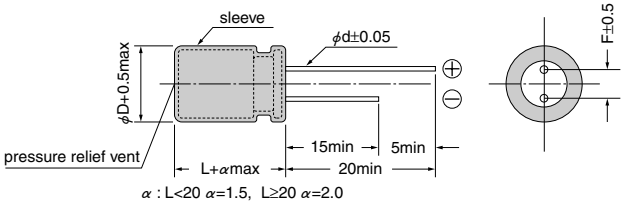


- 105℃, 1,000 to 2,000hrs
- Do not clean the capacitors using solvent.

Specifications

Items	Condition		Specifications			
Rated voltage (V)	—		160	180	200	250
Surge voltage (V)	Room temperature		200	225	250	300
Category temperature range (℃)	—		−40 to +105			
Capacitance tolerance (%)	120Hz/20℃		M : ±20			
Dissipation Factor (DF)	120Hz/20℃		0.10	0.10	0.10	0.10
Leakage current (LC)	μA/after 2minutes (max)	CV ≤ 1,000	0.03CV + 15			
		CV > 1,000	0.02CV + 25			
Impedance ratio at low temperature	Based the value at 120Hz, +20℃	−25℃ Z/Z20℃	3	3	3	3
		−40℃ Z/Z20℃	5	5	5	5
Endurance	105℃ rated voltage applied (With the rated ripple current)	Test	φ8 : 1,000hrs., φ10 to φ18 : 2,000hrs.			
		△C/C	Within ±20% of the initial value			
		tan δ	≤ 2 times the initial specified value			
		LC	≤ The initial specified value			

Dimensions



(Unit : mm)

φD	8	10	12.5	16	18
F	3.5	5.0	5.0	7.5	7.5
φd	0.6	0.6	0.6	0.8	0.8

Size List, Impedance, Rated Ripple Current

μF \ V	160			180			200			250		
1.0							8 x 11.5	6.30	56	8 x 11.5	4.83	64
2.2							8 x 11.5	4.65	79	8 x 11.5	3.93	86
3.3	8 x 11.5	3.12	106	8 x 11.5	3.12	106	8 x 11.5	3.12	106	8 x 11.5	3.29	116
4.7	8 x 11.5	2.58	117	8 x 11.5	2.58	117	8 x 12.5	1.65	151	10 x 12.5	1.89	160
10	8 x 12.5	2.05	212	8 x 12.5	2.05	212	10 x 12.5	1.24	233	10 x 16	1.32	253
22	10 x 16	0.96	389	10 x 16	0.96	389	10 x 20	0.85	423	12.5 x 20	0.58	440
33	10 x 20	0.54	515	10 x 20	0.54	515	12.5 x 20	0.50	530	12.5 x 25	0.54	546
47	12.5 x 20	0.41	638	12.5 x 20	0.41	638	12.5 x 25	0.38	659	16 x 25	0.39	665
100	16 x 25	0.24	728	16 x 25	0.24	728	16 x 30	0.17	740	16 x 35.5	0.17	751
150	16 x 30	0.13	844	16 x 35.5	0.12	892	18 x 35.5	0.12	917	18 x 35.5	0.12	955
220	16 x 35.5	0.11	1113	18 x 35.5	0.10	1134						

Please refer to page 19 for the ripple current frequency coefficient.

Case size ; φD x L (mm)

Impedance (Ω) max at 100kHz, 20°C

Rated ripple current mArms (100kHz, 105°C)

■Model No.

250 ME 1 FAZ
- Series code
- Rated capacitance code
- Type code
- Rated voltage

Aluminum Electrolytic Capacitors

SANYO

Aluminum Electrolytic Type / Radial Lead Type

RoHS compliance

ME-FH Series

105℃, Miniature, Long Life

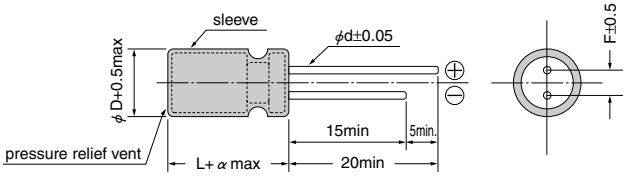
Mid. and High Voltage

- 105℃, 10,000hrs
- Do not clean the capacitors using solvent.

Specifications

Items	Condition		Specifications					
Rated voltage (V)	—		160	200	250	350	400	450
Surge voltage (V)	Room temperature		200	250	300	400	450	500
Category temperature range (℃)	—		−40 to +105					−25 to +105
Capacitance tolerance (%)	120Hz/20℃		M : ±20					
Dissipation Factor (DF)	120Hz/20℃		0.20	0.20	0.20	0.25	0.25	0.25
Leakage current (LC)	μA/after 2minutes (max)		0.02CV + 25					
Impedance ratio at low temperature	Based the value at 120Hz, +20℃	−25℃ Z/Z20℃	3	3	3	4	6	6
		−40℃ Z/Z20℃	6	6	6	8	10	—
Endurance	105℃, 10,000hrs. rated voltage applied (With the rated ripple current)	△C/C	Within ±20% of the initial value					
		tan δ	≤ 2 times the initial specified value					
		LC	≤ The initial specified value					

Dimensions



α : L<20 α=1.5, L≥20 α=2.0

(Unit : mm)

φD	10	12.5	16	18
F	5.0	5.0	7.5	7.5
φd	0.6	0.6	0.8	0.8

Size List, Rated Ripple Current

μF \ V	160		200		250		350		400		450	
6.8											10 x 20	58
10					10 x 16	106	10 x 16	100	10 x 20	108	12.5 x 20	145
22			10 x 16	173	10 x 20	184	12.5 x 20	184	12.5 x 25	195	16 x 25	218
33	10 x 16	190	10 x 20	227	12.5 x 20	238	12.5 x 25	224	16 x 25	249	16 x 31.5	243
47	10 x 20	270	12.5 x 20	270	12.5 x 25	282	16 x 25	282	16 x 31.5	292	18 x 31.5	304
68	12.5 x 20	336	12.5 x 20	325	16 x 25	364	16 x 31.5	334	18 x 31.5	346		
82	12.5 x 20	346	12.5 x 25	370	16 x 25	403	18 x 31.5	360				
100	12.5 x 25	410	16 x 25	436	16 x 31.5	418						
150	16 x 25	500	16 x 31.5	470	18 x 31.5	545						
220	16 x 31.5	570	18 x 31.5	660								

Please refer to page 19 for the ripple current frequency coefficient.

Case size ; φD x L (mm)

Rated ripple current mArms (120Hz,105°C)

■Model No.

200 ME 33 FH
- FH — Series code
- 33 — Rated capacitance code
- ME — Type code
- 200 — Rated voltage

ME-SWN Series

Bi-polar

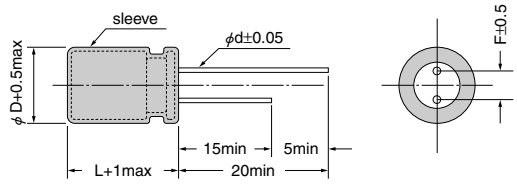
7mm Height

- 85℃, 1,000hrs
- Solvent proof (within 3 minutes)

Specifications

Items	Condition		Specifications					
Rated voltage (V)	—		6.3	10	16	25	35	50
Surge voltage (V)	Room temperature		8.0	13	20	32	44	63
Category temperature range (℃)	—		−40 to +85					
Capacitance tolerance (%)	120Hz/20℃		M : ±20					
Dissipation Factor (DF)	120Hz/20℃		0.24	0.22	0.20	0.18	0.16	0.16
Leakage current (LC)	μA/after 1minute (max)		0.03CV + 6					
Endurance	500hrs. × 2 (alternately) 85℃,rated voltage applied (With the rated ripple current)	△C/C	Within ±25% of the initial value					
		tan δ	≤ 2 times the initial specified value					
		LC	≤ The initial specified value					

Dimensions



(Unit : mm)

φD	4	5	6.3
F	1.5	2.0	2.5
φd	0.45	0.45	0.45

Size List, Rated Ripple Current

μF \ V	6.3		10		16		25		35		50	
0.10											4 x 7	1.0
0.22											4 x 7	2.3
0.33											4 x 7	3.5
0.47											4 x 7	5.0
1.0											4 x 7	10
2.2									4 x 7	10	5 x 7	15
3.3							4 x 7	16	5 x 7	17	5 x 7	18
4.7							4 x 7	19	5 x 7	20	6.3 x 7	23
10			4 x 7	17	4 x 7	25	5 x 7	28	6.3 x 7	30	6.3 x 7	34
22	5 x 7	31	5 x 7	35	6.3 x 7	39	6.3 x 7	52				
33	5 x 7	39	6.3 x 7	43	6.3 x 7	57						
47	6.3 x 7	47	6.3 x 7	59	6.3 x 7	68						

Please refer to page 19 for the ripple current frequency coefficient.

Rated ripple current mArms (120Hz, 85℃)

Case size ; φD x L (mm)

■Model No.

16 ME 33 SWN
- SWN — Series code
- 33 — Rated capacitance code
- ME — Type code
- 16 — Rated voltage

Aluminum Electrolytic Capacitors

SANYO

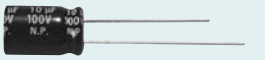
Aluminum Electrolytic Type / Radial Lead Type

RoHS compliance

ME-HWN Series

Bi-polar

Standard

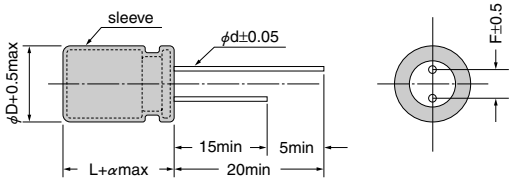


- 85℃, 2,000hrs
- Solvent proof (within 5 minutes)

Specifications

Items	Condition		Specifications						
Rated voltage (V)	—		6.3	10	16	25	35	50	100
Surge voltage (V)	Room temperature		8.0	13	20	32	44	63	125
Category temperature range (℃)	—		−40 to +85						
Capacitance tolerance (%)	120Hz/20℃		M : ±20						
Dissipation Factor (DF)	120Hz/20℃		0.24	0.20	0.18	0.16	0.14	0.13	0.10
			When rated capacitance exceeds 1,000 μF, add 0.02 to the value above for each 1,000 μF increase.						
Leakage current (LC)	μA/after 1minute (max)		0.03CV + 6						
Impedance ratio at low temperature	Based the value at 120Hz, +20℃	−25℃ Z/Z20℃	4	3	3	2	2	2	2
		−40℃ Z/Z20℃	10	8	8	6	4	4	4
Endurance	500hrs. × 4 (alternately) 85℃,rated voltage applied (With the rated ripple current)	△C/C	Within ±25% of the initial value						
		tan δ	≤ 2 times the initial specified value						
		LC	≤ The initial specified value						

Dimensions



α: L<20 α=1.5, L≥20 α=2.0

A pressure relief vent is attached to products over φD=6.3

(Unit : mm)

φD	5	6.3	8	10	12.5
F	2.0	2.5	3.5	5.0	5.0
φd	0.5	0.5	0.6	0.6	0.6

Size List, Rated Ripple Current

μF \ V	6.3		10		16		25		35		50		100	
0.47											5 x 11	5.0	5 x 11	8.0
1.0											5 x 11	10	5 x 11	15
2.2											5 x 11	20	5 x 11	25
3.3											5 x 11	28	6.3 x 11	30
4.7							5 x 11	25	5 x 11	30	5 x 11	38	6.3 x 11	45
10					5 x 11	28	5 x 11	40	5 x 11	45	6.3 x 11	50	8 x 12.5	70
22			5 x 11	38	5 x 11	50	5 x 11	60	6.3 x 11	75	6.3 x 11	90	10 x 16	120
33	5 x 11	50	5 x 11	58	5 x 11	60	6.3 x 11	80	6.3 x 11	90	8 x 11.5	110	10 x 20	170
47	5 x 11	60	5 x 11	70	6.3 x 11	85	6.3 x 11	90	8 x 11.5	125	10 x 12.5	135	12.5 x 20	200
100	6.3 x 11	120	6.3 x 11	125	8 x 11.5	165	8 x 12.5	180	10 x 12.5	200	10 x 20	250		
220	8 x 11.5	210	8 x 12.5	225	10 x 12.5	260	10 x 16	320	10 x 20	350	12.5 x 25	410		
330	8 x 11.5	260	10 x 12.5	295	10 x 16	360	10 x 20	425	12.5 x 20	440				
470	10 x 12.5	330	10 x 16	390	10 x 20	420	12.5 x 20	540	12.5 x 25	585				
1000	10 x 20	560	12.5 x 20	620	12.5 x 25	740								
2200	12.5 x 25	890												

Please refer to page 19 for the ripple current frequency coefficient.

Case size ; φD x L (mm)

Rated ripple current mArms (120Hz, 85°C)

■Model No.

50 ME 1 HWN
- HWN — Series code
- 1 — Rated capacitance code
- ME — Type code
- 50 — Rated voltage