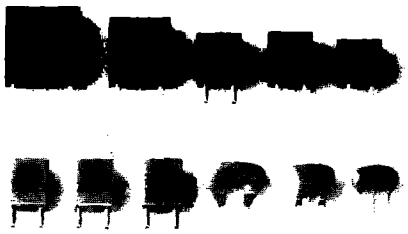
PIEZOELECTRIC CERAMIC RESONATORS



Murata Erie's ceramic resonators are widely used in clock oscillators for microprocessors, replacing quartz crystals at substantially reduced cost, and in many other applications.

Features of ceramic resonators include low cost, good stability, small size and rugged construction, and a wide frequency range.

Available as standard through authorized Murata Erie Distributors

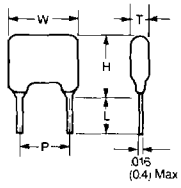
CSA 11.0 MT	CSA 8.00 MT
CSA 2.00 MG	CSB 400 J
CSA 3.58 MG	CSB 455 J
CSA 4.00 MG	CSB 480 J
CSA 6.00 MG	CSB 500 J
	CSB 640 J

SPECIFICATIONS

TYPE	CSA TYPE	CSB TYPE	CST TYPE
Frequency Range	1.26 to 32 MHz	190 to 1250 KHz	2.0 to 25.99 MHz
Frequency Tolerance	±0.5%	±0.5%	±0.5%
Temperature Stability (–20°C to +80°C)	±0.5%	±0.3%	±0.3%
Time Stability (10 years)	±0.3%	±0.3%	±0.3%

CSA TYPE*

Dimensions: in. (mm)

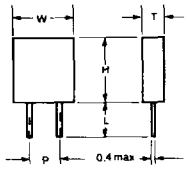


Dimensions mm	MK	MG	MT	MX
	1.26 to 1.799 MHz	1.8 to 6.0 MHz	6.01 to 13.0 MHz	10.0 to 32.0 MHz
W	10.0	10.0 (12.0)**	10.0	10.0
H	10.0	7.5 (12.0)	10.0	10.0
T	5.0	5.0 (5.0)	5.0	5.0
P	5.0	5.0 (5.0)	(5.0)	5.0
L	5.0	5.0 (5.0)	5.0	5.0
	Capacitance			
CL_1	30pF			
CL_2	30pF			

**Dimensions in parentheses ( ) for Freq. Range 2.0 to 2.75 MHz

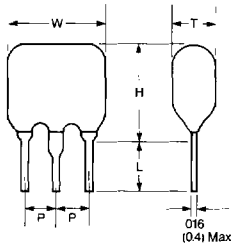
CSB TYPE*

D : Offset
J : In-Line



Dimensions mm	D	D	J	J	J	J
	190 to 249 KHz	250 to 374 KHz	375 to 429 KHz	430 to 519 KHz	520 to 699 KHz	700 to 1250 KHz
W	13.5	10.8	8.0	7.5	7.5	5.0
H	14.5	12.2	9.0	8.5	7.2	6.0
T	3.8	3.8	3.3	3.3	2.8	2.2
P	10.1	7.7	5.0	5.0	5.0	2.5
L	9.0	6.7	3.5	3.5	3.5	3.5
			Capacitance			
CL_1	330pF	220pF	120pF	100pF	100pF	100pF
CL_2	470pF	470pF	470pF	100pF	100pF	100pF

CST TYPE*



Dimensions mm	MG	MT	MGW
	2.00 to 6.00 MHz	6.0 to 13.0 MHz	2.45 to 6.0 MHz
W	10.0	10.0	10.0
H	10.0	10.0	5.0
T	5.0	5.0	5.0
P	2.5	2.5	2.5
L	5.0	5.0	5.0

CL_1 and CL_2 (loading capacitors) built-in.

*For additional information, please refer to Catalog #63-06

PART NUMBERING SYSTEM

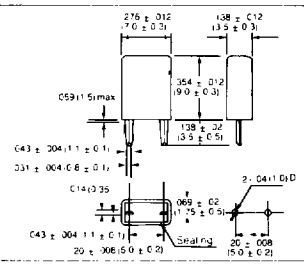
CS A □ □ □ □ MG

- CS: CERAMIC RESONATOR
- A: FREQUENCY RANGE — A : 1.26 MHz to 32 MHz; T : 2.0 MHz to 13.0 MHz
- □ □ □ □: FREQUENCY (3 or 4 digits, floating decimal)
- MG: SUFFIX

CS B 0 0 0 J

- CS: CERAMIC RESONATOR
- B: FREQUENCY RANGE (190 KHz to 1250 KHz)
- 0 0 0: FREQUENCY (No decimal)
- J: PIN CONFIGURATION — D=Offset; J =In-Line

EMITTER BYPASS FILTER

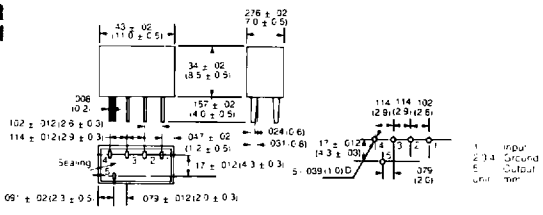


Model	Center Frequency (KHz)	3dB Bandwidth (KHz)	Ripple (dB) max.	Selectivity (dB) min.	Termination Impedance (ohms) max.
BFU455K	455±2	8 (±2KHz)	—	8 @ -9KHz 12 @ +9KHz	30 (15)

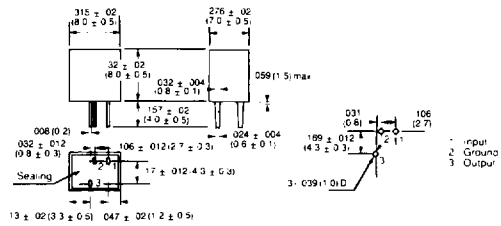
Dimensions: (mm)

CERAMIC FILTERS FOR DIGITAL COMMUNICATIONS

SFR
SFH



SFP
SFG

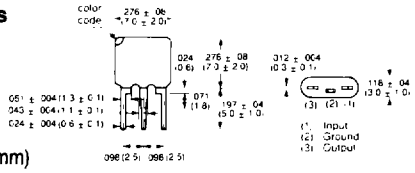


Dimensions: (mm)

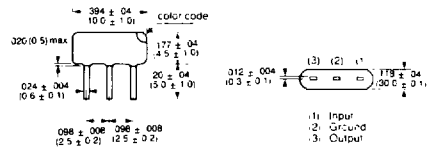
Model	Nominal Center Frequency (KHz)	6dB Bandwidth (KHz) min.	Stopband Attenuation (dB) min. (f_0±100KHz)	Ripple (dB) max.	Selectivity (dB) min.	GDT 20μ/Sec. Bandwidth (KHz)	Insertion Loss (dB) min.	Input/Output Impedance (ohms)	Operating Temperature Range	Withstanding Voltage
SFP450D	450	±10	27	450±7 2	40 @ ±20KHz	—	4	1.5K	-20°C to +80°C	50V DC
SFP450F	450	±6	27	450±4 1.5	40 @ ±12.5KHz	—	6	2K		
SFR450D	450	±10	25	—	50 @ ±20KHz	—	5	2K		
SFR450F	450	±6	25	—	50 @ ±12.5KHz	—	4	1.5K		
SFG450D	450	±10	23	—	40 @ ±25KHz	±9	7	1.5K		
SFG450F	450	±6	23	—	40 @ ±17.5KHz	±6	9	2K		
SFH450D	450	±10	35	—	50 @ ±25KHz	±8	8	1.5K		
SFH450F	450	±6	35	—	50 @ ±17.5KHz	±5	10	2K		

CERAMIC FILTERS FOR FM RADIOS

SFE Series



SFT 10.7 Series



Dimensions: (mm)

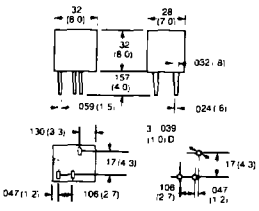
Model	Center Frequency (MHz, ±30KHz)	3dB Bandwidth (KHz) min.	20dB Bandwidth (KHz) max.	40dB Bandwidth (KHz) max.	Ripple (dB) max.	Spurious Response (8-12MHz) (dB) min.	Insertion Loss (dB) max.	Input/Output Impedance (ohms)	Operating Temperature Range	Withstanding Voltage
★SFE 10.7MA5-Z	★A:10.7 (Red) B:10.67 (Blue) C:10.730 (Orange) D:10.640 (Black) E:10.760 (White)	280±50	650	—	1.0	30	6	330	-20°C to +80°C	50V DC
★SFE 10.7MS2-Z		230±50	570	—	1.0	40	6			
★SFE 10.7MS3-Z		180±40	520	—	1.0	40	7			
★SFE 10.7MJ-Z		150±40	380	—	1.0	38	10			
SFT 10.7MS3-Z		180±40	—	550	0.5	(9-12 MHz) 50	7.5			
SFT 10.7MA5-Z		280±50	—	700	0.5	(9-12 MHz) 50	6.0			

Z = Combination of all frequency groups (A thru E)

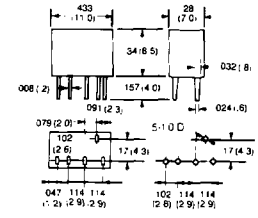
★ Available as standard through authorized Murata Erie Distributors.

MULTI-ELEMENT LADDER FILTERS FOR HIGH SELECTIVITY

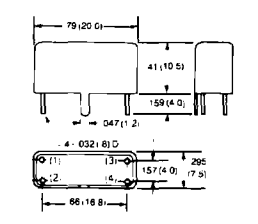
Dimensions: in (mm)



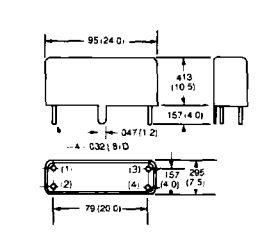
Model	Center Frequency (KHz)	6dB Bandwidth (KHz) min.	40dB Bandwidth (KHz) min.	Spurious Response (dB) min.	Insertion Loss (dB) max.	Input/Output Impedance (ohms)
*CFU455B2	455±2	±15	±30	27	4	1500
*CFU455C2	455±2	±12.5	±24	27	4	1500
*CFU455D2	455±1.5	±10	±20	27	4	1500
*CFU455E2	455±1.5	±7.5	±15	27	6	1500
CFU455F2	455±1.0	±6	±12.5	27	6	2000
CFU455G2	455±1.0	±4.5	±10	25	6	2000
CFU455H2	455±1.0	±3	±9	25	6	2000
CFU455I2	455±1.0	±2	±7.5	25	6	2000



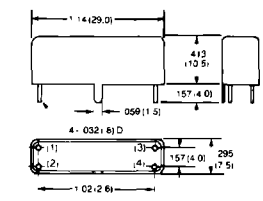
Model	Center Frequency (KHz)	6dB Bandwidth (KHz) min.	50dB Bandwidth (KHz) min.	Spurious Response (dB) min.	Insertion Loss (dB) max.	Input/Output Impedance (ohms)
*CFW455B	455±2	±15	±30	35	4	1500
*CFW455C	455±2	±12.5	±24	35	4	1500
CFW455D	455±1.5	±10	±20	35	4	1500
CFW455E	455±1.5	±7.5	±15	35	6	1500
CFW455F	455±1.0	±6	±12.5	35	6	2000
CFW455G	455±1.0	±4.5	±10	35	6	2000
CFW455H	455±1.0	±3	±9	35	6	2000
CFW455I	455±1.0	±2	±7.5	35	7	2000



Model	Center Frequency (KHz)	6dB Bandwidth (KHz) min.	50dB Bandwidth (KHz) min.	Ripple (dB) max.	Spurious Response (dB) min.	Insertion Loss (dB) max.	Input/Output Impedance (ohms)
*CFM455A	455±2	±17.5	±30	3dB within 3dB B.W. and 6dB within 6dB B.W.	50	3	1000
CFM455B	455±2	±15	±25		50	3	1000
CFM455C	455±2	±13	±23		50	3	1000
CFM455D	455±1.5	±10	±20		50	3	1500
CFM455E	455±1.5	±8	±16		45	5	1500
CFM455F	455±1.0	±6	±12		45	5	2000
CFM455G	455±1.0	±4	±10	*	45	5	2000
CFM455H	455±1.0	±3	±7.5	*	45	6	2000
CFM455I	455±1.0	±2	±5	*	45	7	2000



Model	Center Frequency (KHz)	6dB Bandwidth (KHz) min.	70dB Bandwidth (KHz) min.	Ripple (dB) max.	Spurious Response (dB) min.	Insertion Loss (dB) max.	Input/Output Impedance (ohms)
CFR455A	455±2	±17.5	±30	3dB within 3dB B.W. and 6dB within 6dB B.W.	60	4	1000
CFR455B	455±2	±15	±25		60	4	1000
CFR455C	455±2	±13	±23		60	4	1000
CFR455D	455±1.5	±10	±20		60	4	1500
CFR455E	455±1.5	±8	±16		55	6	1500
CFR455F	455±1.0	±6	±12		55	6	2000
CFR455G	455±1.0	±4	±10	*	55	6	2000
CFR455H	455±1.0	±3	±7.5	*	55	7	2000
CFR455I	455±1.0	±2	±5	*	55	8	2000
CFR455J	455±1.0	±1.5	±4.5	*	55	8	2000



Model	Center Frequency (KHz)	6dB Bandwidth (KHz) min.	70dB Bandwidth (KHz) min.	Ripple (dB) max.	Spurious Response (dB) min.	Insertion Loss (dB) max.	Input/Output Impedance (ohms)
CFS455A	455±2	±17.5	±30	3dB within 3dB B.W. and 6dB within 6dB B.W.	70	4	1500
CFS455B	455±2	±15	±25		70	4	1500
CFS455C	455±2	±13	±23		70	4	1500
CFS455D	455±1.5	±10	±20		70	4	1500
CFS455E	455±1.5	±8	±15		70	6	1500
CFS455F	455±1.0	±6	±12		70	6	2000
CFS455G	455±1.0	±4	±9	*	70	6	2000
CFS455H	455±1.0	±3	±7.5	*	70	7	2000
CFS455I	455±1.0	±2	±5	*	70	8	2000
CFS455J	455±1.0	±1.5	±4.5	*	60	8	2000

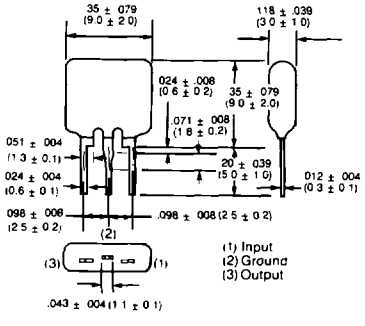
*3dB Ripple in 6dB B.W.

(Other bandwidths available.)

TV SOUND FILTERS

Dimensions: in (mm)

SFE



Model	Nominal Frequency (MHz)	3dB Bandwidth (KHz) min.	20dB Bandwidth (KHz) max.	Spurious Response (dB) min.	Insertion Loss (dB) max.	Input/Output Impedance (ohms)
*SFE 4.5 MBF	4.5	±60	530KHz	30dB min. (3.5-4.5MHz) 20dB min (4.5-5.3MHz)	6	1000

Model	Nominal Frequency (MHz)	Recovered Audio Volt. (mV min.)	Recovered Audio 3dB Bandwidth (KHz)	Distortion Factor (90 max.)	Modulation	Applicable I.C.
CDA 4.5MD 3	4.5	100	±45 min.	3 ± 45KHz	400MHz ±7.5KHz Dev. FM	CA 3065 (RCA)

Model	Nominal Frequency (MHz)	20dB Bandwidth (KHz) max.	Min. Attenuation (dB min. at fo)
*TPS 4.5 MBF	4.5	50 min.	35

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