

## Intelligent Analog IA171

### Low voltage video driver

#### Features

Low voltage operation 2.8V~5.5V

Low stand-by current (<1uA) at power save

Transparent internal clamp

AC or DC-coupled output

Built-in high performance 4 stages Low Pass Filter (-40dB at 27MHz)

Dual video load drive (75 ohm x 2)

SAG correction reduce output capacitance

RoHS compliant Pb-free SOT-26 package

#### Applications

DVD player

Security camera

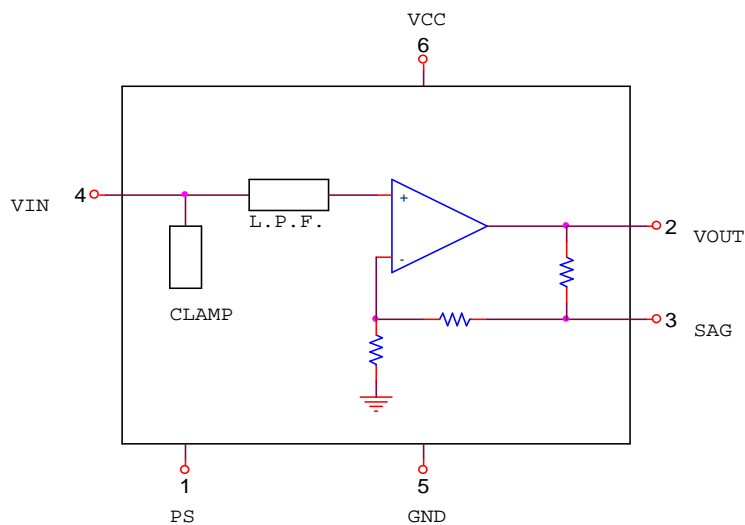
Set-top box

Portable media player

Communication device

Digital still camera

#### Block Diagram



## Description

IA171 is a high performance, low voltage, and low power consumption video driver with a built-in low pass filter. The internal transparent clamp circuit can restore composite video signal to fixed DC level. IA 171 incorporates a high performance 4 stages Low Pass Filter that is ideal for removing DAC sampling noise. Only small ceramic capacitor (0.1uF typical) is required for AC-coupled input. The output can be configured as AC or DC-coupled output. With AC-coupled, sag correction can reduce output coupling capacitance. With DC-coupled, it can eliminate large output coupling capacitors and save board space. It's low voltage and low power consumption is suitable for portable device. Ultra-low current consumption during power save to under 1uA. IA 171 can also be configured as bias inputs video driver when bias video signals are needed.

## Absolute Maximum Rating

Supply Voltage	10V
Continuous Output Current (One Channel)	45mA
Power Dissipation	200mW
Operating Temperature	-40°C ~+85°C
Storage Temperature	-65°C ~+125°C

## Electrical Specifications $V_{CC}=+3.0V$ , $T_a=25^{\circ}C$ , $R_L=150\text{ ohm}$ , $C_L=0.1\mu F$

DESCRIPTION	PARAMETER	MIN	TYP	MAX	UNIT
ISB	Standby Current at $V_{CC}=+3.0V$		6	10	mA
VOL	Output Level Shift Voltage		300	450	mV
VCLAMP	Input Clamp Voltage	1.1	1.25	1.40	V
GV	Voltage Gain	5.7	6.0	6.3	dB
IPS	Power Save Current		0.1	1	uA
VPSH	Power Save High voltage	2.0			V
VPSL	Power Save Low voltage			0.5	V
<b>AC PERFORMANCE</b>					
BW1	+/- 1dB Bandwidth, $R_L=150\text{ ohm}$ , $C_L=5pF$	6.75			MHZ
BW2	Frequency Response at 27MHz		-40	-27	dB
dG	Differential Gain		0.5	1.0	%
dP	Differential Phase		0.5	1.0	°

dG DC	Differential Gain DC-coupled		0.2	0.5	%
dP DC	Differential Phase DC-coupled		0.2	0.5	°
+SR	Positive Slew Rate, V in =1V step	20	40	60	V/uS
-SR	Negative Slew Rate, V in =1V step	15	30	45	V/uS
SNR	Signal to Noise Ratio		+70		dB
DR	Output Dynamic Range	2.2	2.4		V
Td1	Group Delay at 100KHz		50	80	nS
Td2	To 3.58MHz		4	10	nS
	To 4.43MHz		6	10	nS
	To 6MHz		12	18	nS

### Pin Description

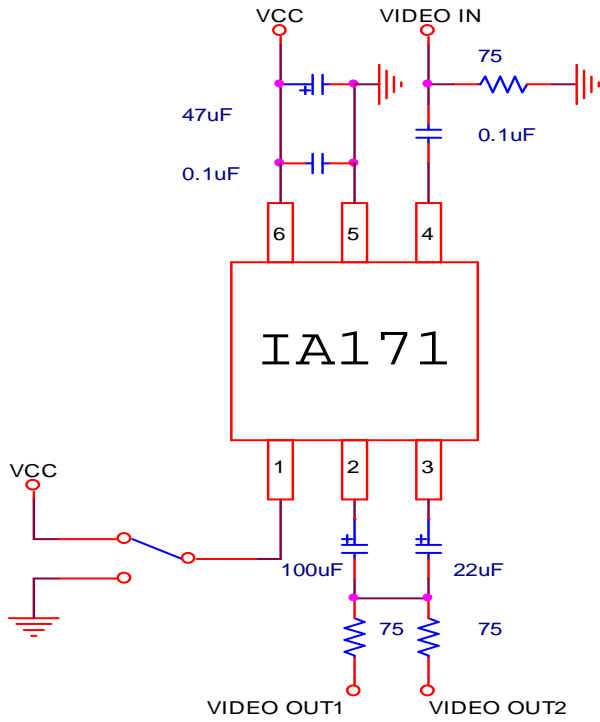
Pin No.	Pin Type	Pin Function
1	Input	Power save input
2	Output	Video output
3	Input	Sag correction input
4	Input	Video signal input
5	-	GND
6	-	VCC

### Power Save Control Pin Function

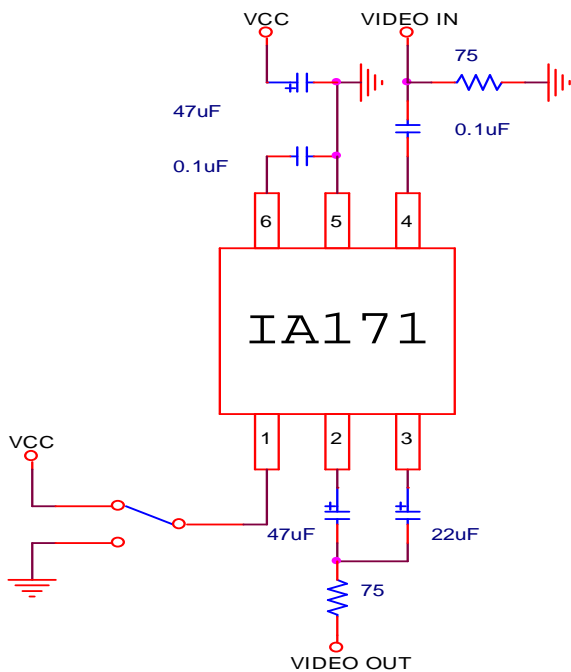
	Power Save
H	OFF
L	ON
OPEN	ON

### Typical Applications

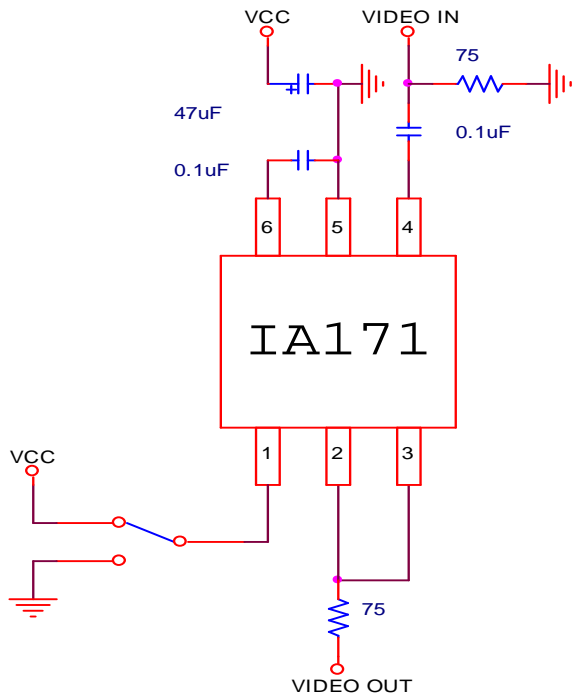
Application 1: Composite video input at VCC=2.8V~5.5V, with input and output capacitors and driving two 75 ohm loads



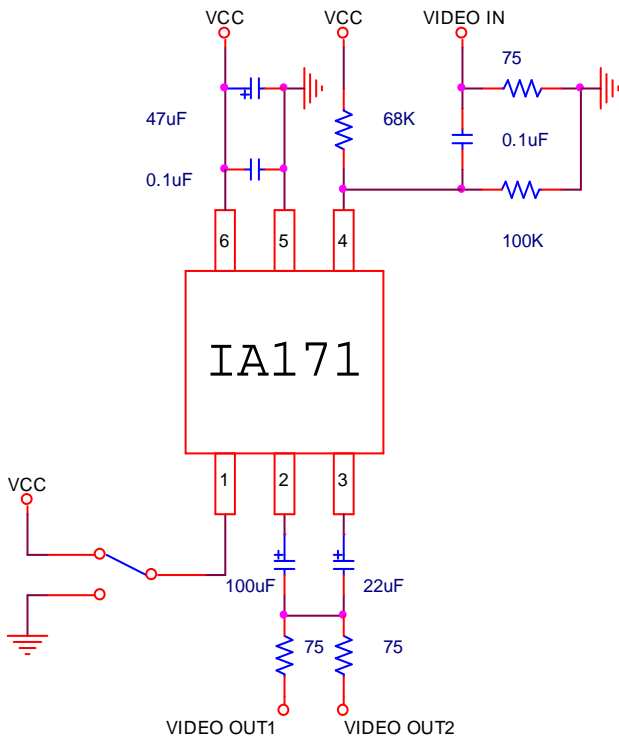
Application 2: Composite video input at VCC=2.8V~5.5V, with input and output capacitors and driving one 75 ohm load



Application 3: With input capacitor but without output capacitors at VCC=2.8V~3.3V and driving one 75 ohm load



Application 4: Bias video input at  $V_{CC}=2.8V\sim 5.5V$ , with input and output capacitors and driving two 75 ohm loads



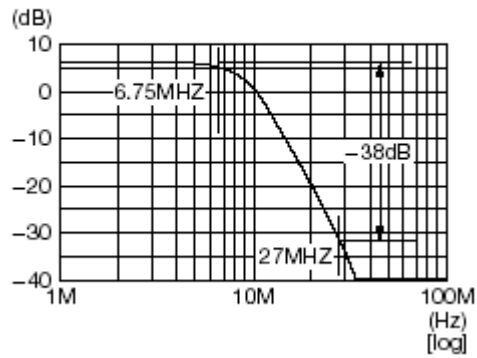
### Compatible device

The IA171 is compatible with other brand video drivers

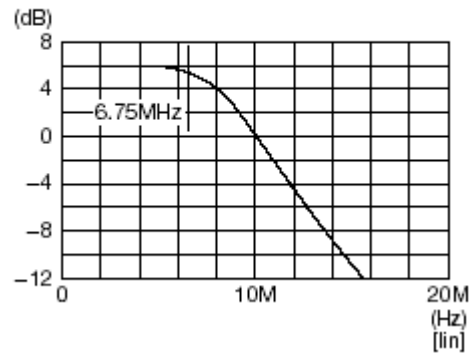
Company	JRC	Mitsumi	Intelligent Analog
Device name	NJM2561, NJM2575	MM1671	IA171

## Performance Curve

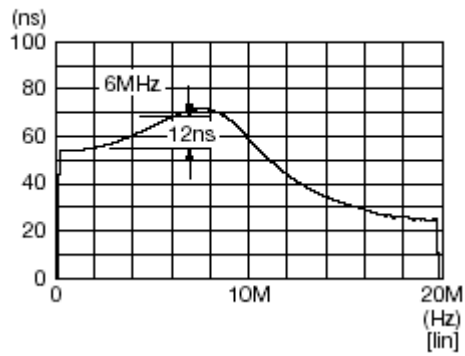
Frequency Characteristic [log]



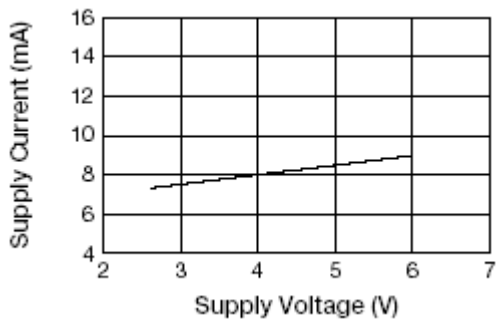
Frequency Characteristic [lin]



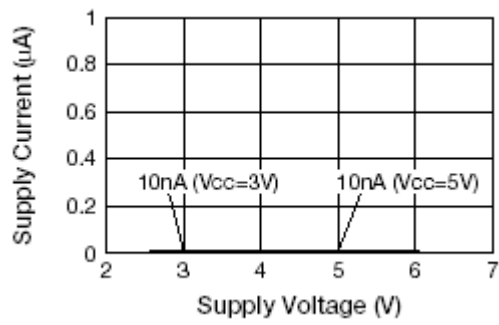
Group Delay [lin]



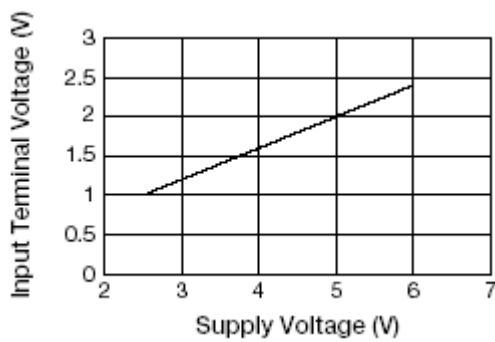
Supply Current vs Supply voltage



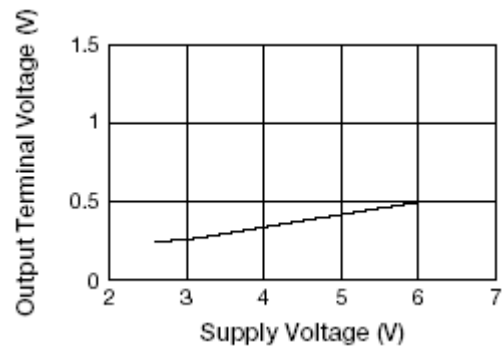
Power Save Supply Current



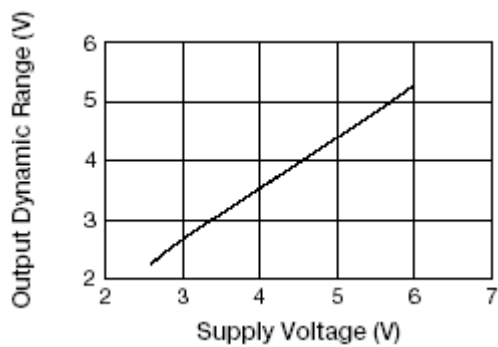
Input Voltage vs Supply Voltage



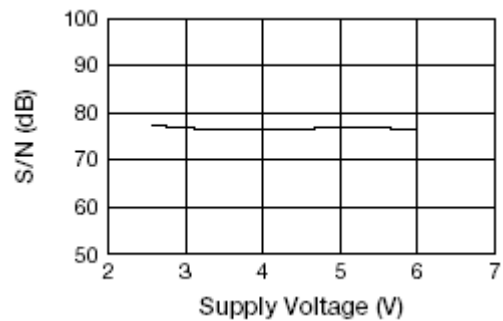
Output Voltage vs Supply Voltage



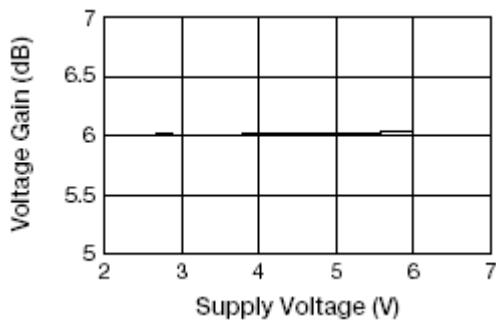
Output Dynamic Range



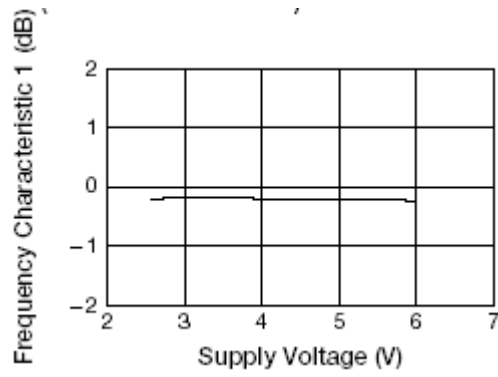
S/N vs Supply Voltage



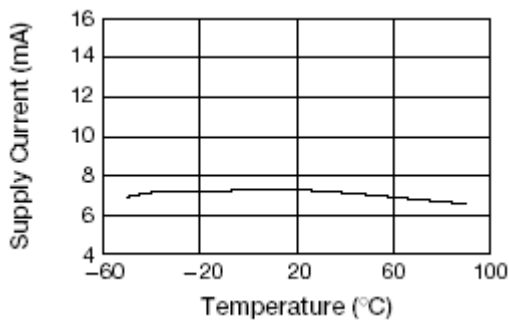
Voltage Gain vs Supply Voltage



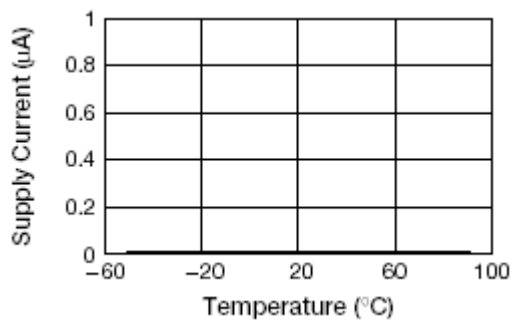
6.75M~100K Frequency vs Supply Voltage



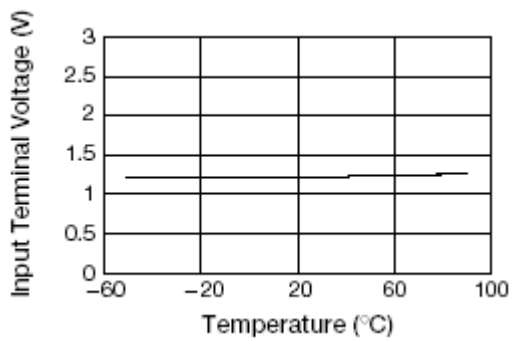
Supply Current vs Temperature



Power Save Current vs Temperature



Input Voltage vs Temperature



Output Voltage vs Temperature

