

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

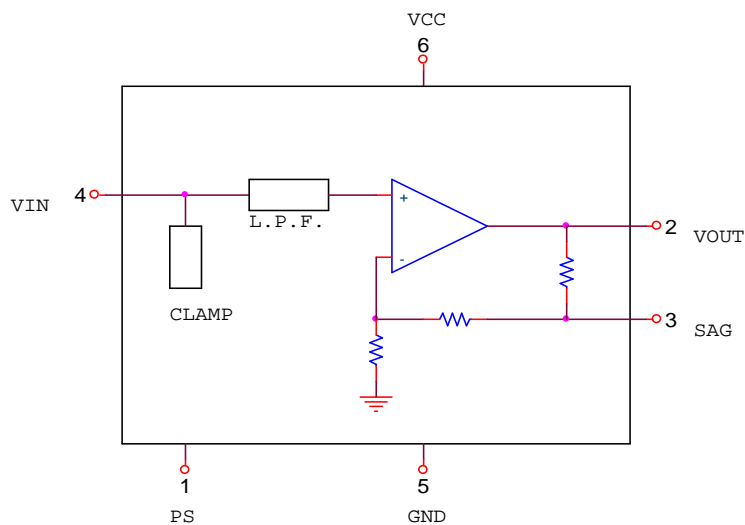
Set-top box

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
AC PERFORMANCE					
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

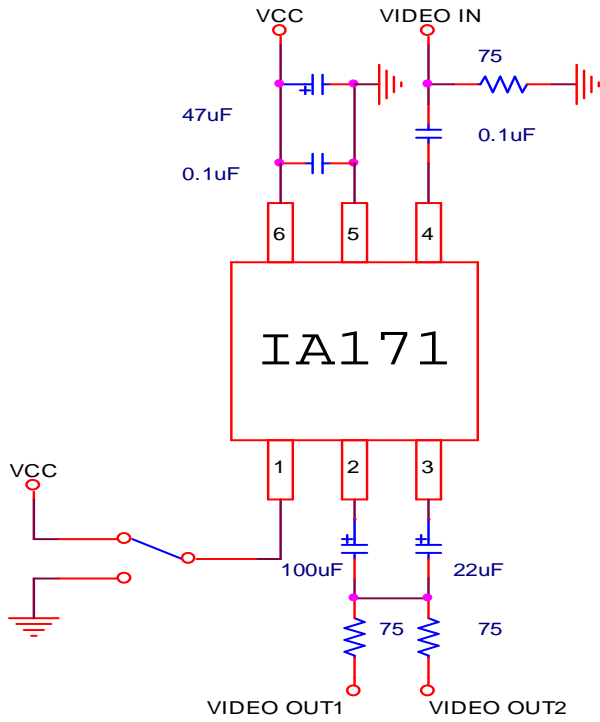
Pin No.	Pin Type	Pin Function
1	Input	Power save input
2	Output	Video output
3	Input	Sag correction input
4	Input	Video signal input
5	-	GND
6	-	VCC

Power Save Control Pin Function

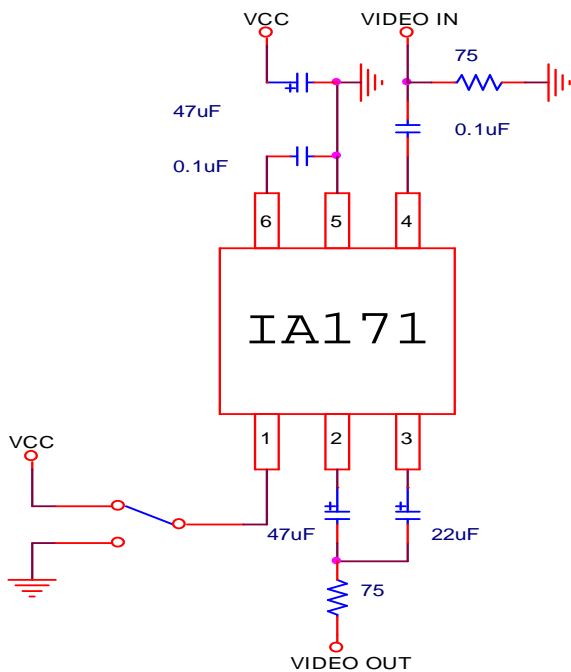
	Power Save
H	OFF
L	ON
OPEN	ON

Typical Applications

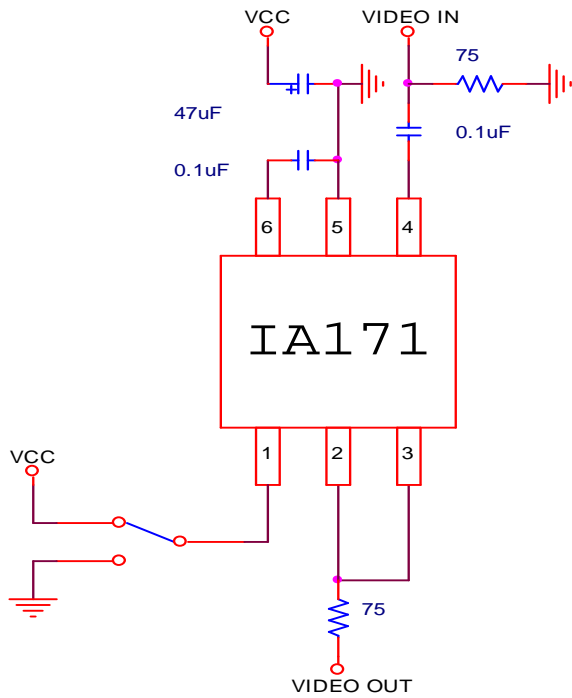
Application 1: Composite video input at VCC=2.8V~5.5V, with input and output capacitors and driving two 75 ohm loads



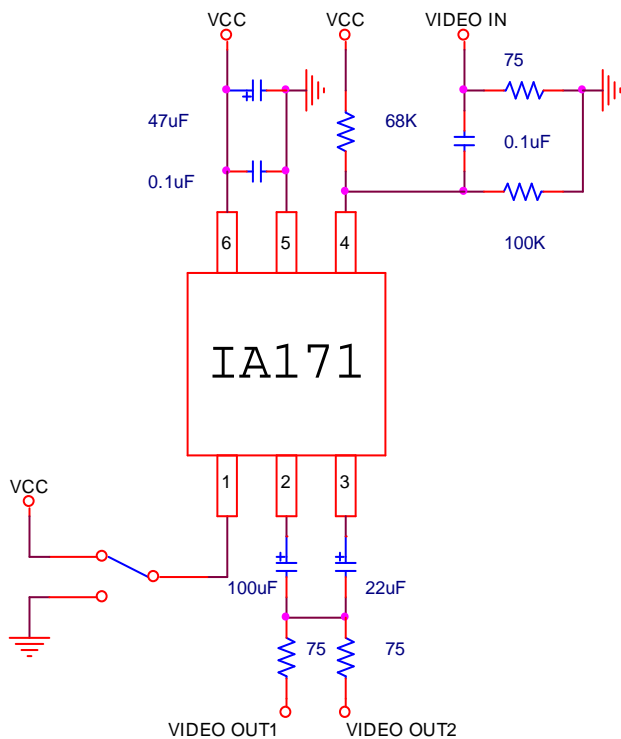
Application 2: Composite video input at VCC=2.8V~5.5V, with input and output capacitors and driving one 75 ohm load



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



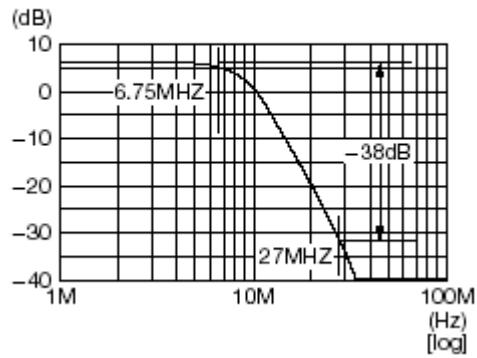
Compatible device

The IA171 is compatible with other brand video drivers

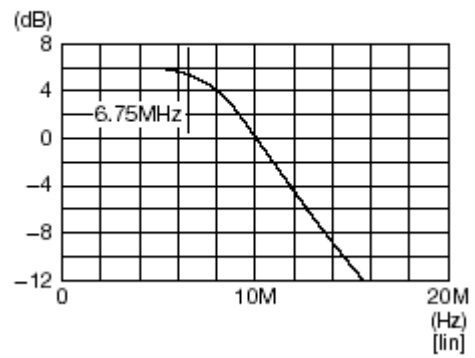
Company	JRC	Mitsumi	Intelligent Analog
Device name	NJM2561, NJM2575	MM1671	IA171

Performance Curve

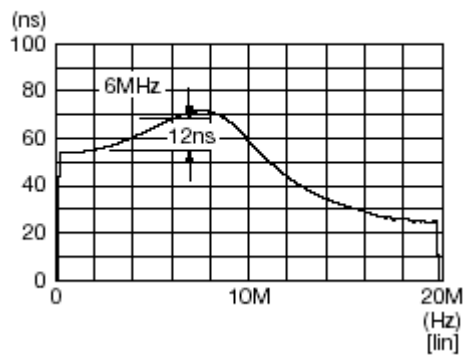
Frequency Characteristic [log]



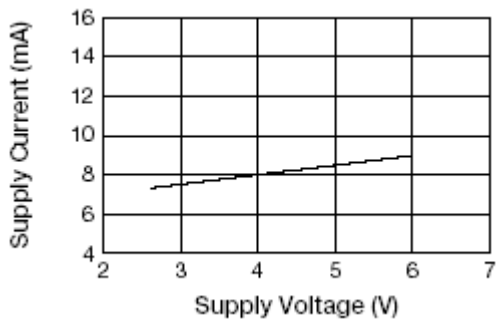
Frequency Characteristic [lin]



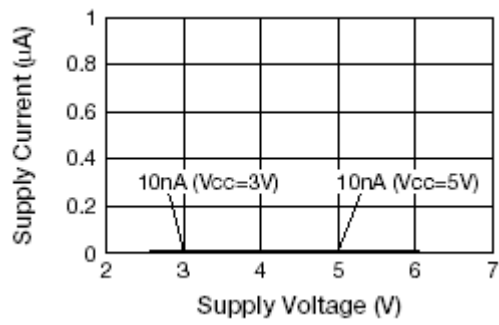
Group Delay [lin]



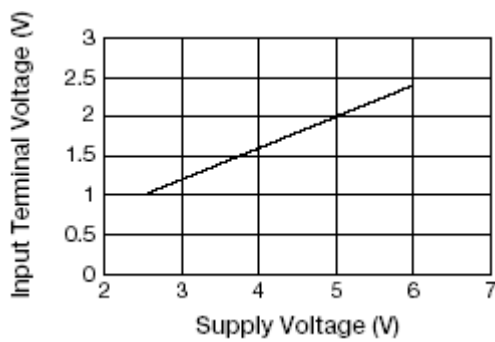
Supply Current vs Supply voltage



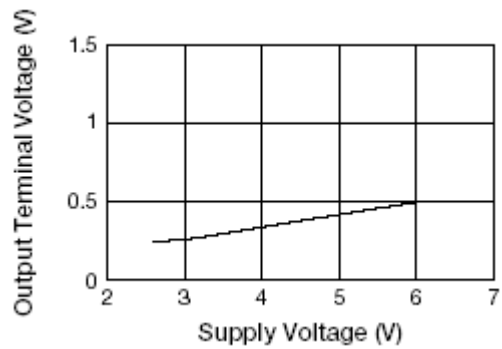
Power Save Supply Current



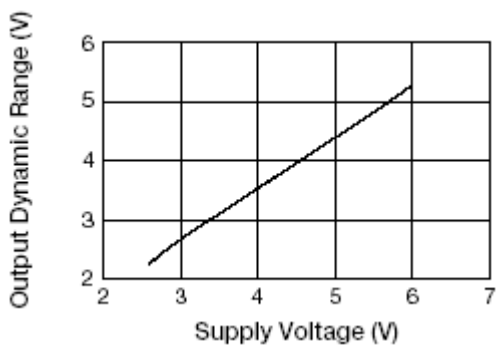
Input Voltage vs Supply Voltage



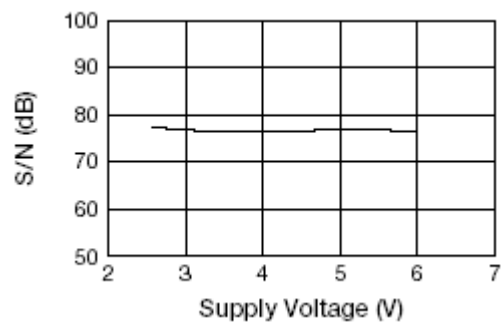
Output Voltage vs Supply Voltage



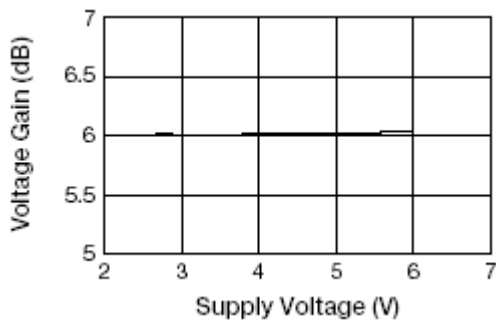
Output Dynamic Range



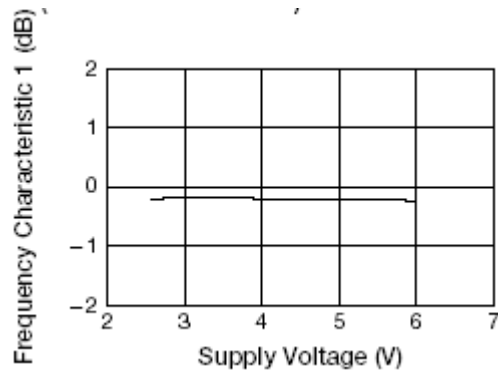
S/N vs Supply Voltage



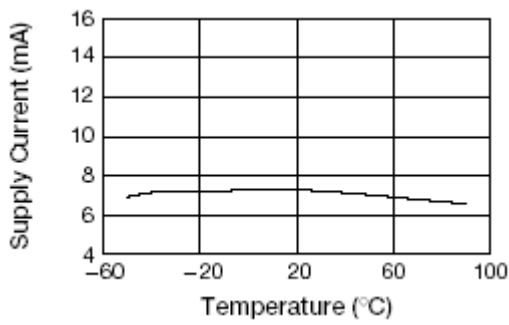
Voltage Gain vs Supply Voltage



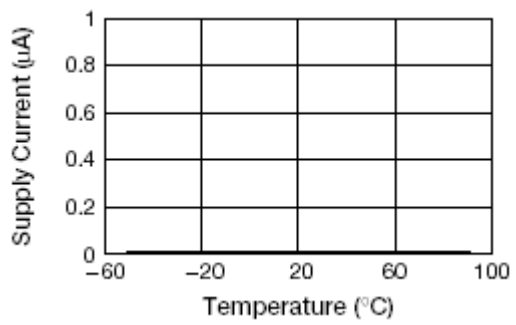
6.75M~100K Frequency vs Supply Voltage



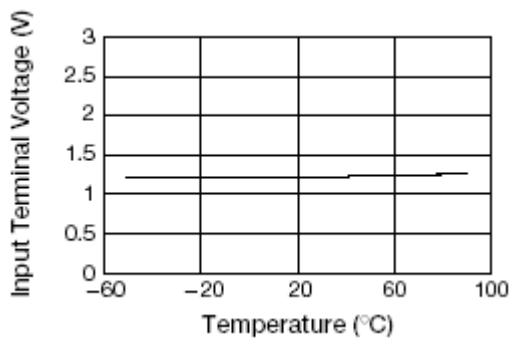
Supply Current vs Temperature



Power Save Current vs Temperature



Input Voltage vs Temperature



Output Voltage vs Temperature

