LOW VOLTAGE VIDEO AMPLIFIER WITH LPF

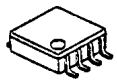
■GENRERAL DESCRIPTION

The NJM2574 is a Low Voltage Video Amplifier contained LPF circuit, 75Ω driver and internal CLAMP/BIAS SW, LPF/through SW to connect TV monitor directly.

The input composite signal.(0.5Vpp) The mute circuit with power save function is suitable for low power design.

The NJM2574 is suitable for down sizing of Digital Steel Camera, and DVC for small package.

■PACKAGE OUTLINE

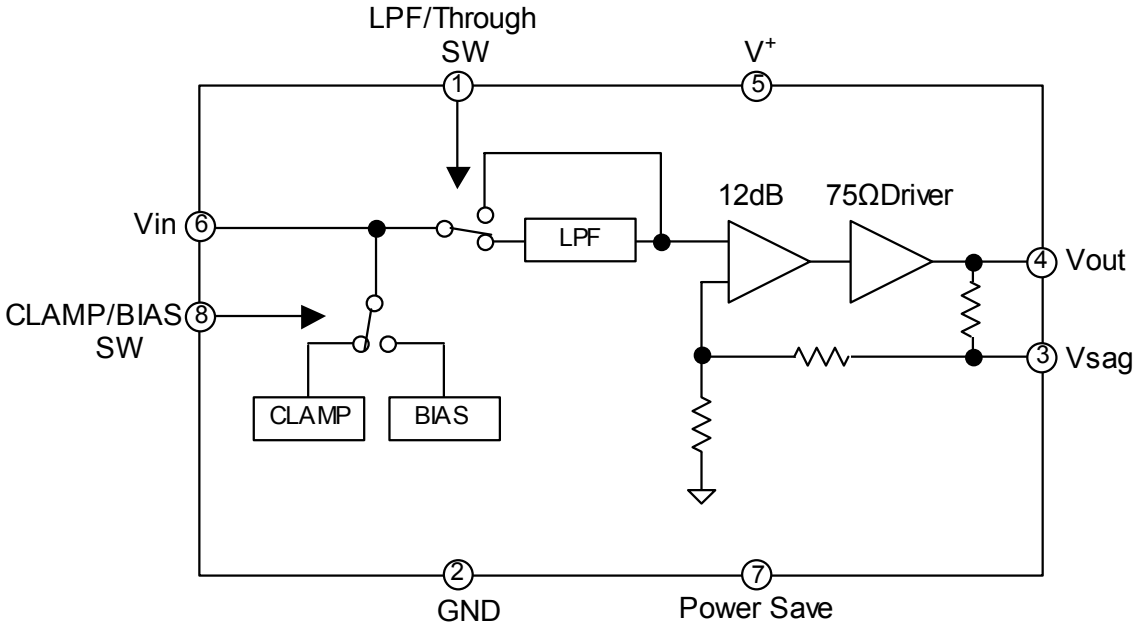


NJM2574RB1

■FEATURES

- Operating Voltage 2.8 to 5.5V
- Input Composite Signa 0.5Vpp
- Output Swing 2.4Vpp typ. at Vcc=3V,CLAMP MODE
- Internal CLAMP/BIAS SW
- Internal LPF/through SW
- Operating Current 9.0mA typ. at Vcc=3.0V
- Operating Current in Battery Saving 70uAtyp. at Vcc=3.0V
- 75Ω 2 system Drive
- Bipolar Technology
- Package Outline TVSP8

■BLOCK DIAGRAM



■**ABSOLUTE MAXIMUM RATINGS** (Ta=25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V^+	7.0	V
Power Dissipation	P_D	320	mW
Operating Temperature Range	Topr	-40 to +85	°C
Storage Temperature Range	Tstg	-40 to +125	°C

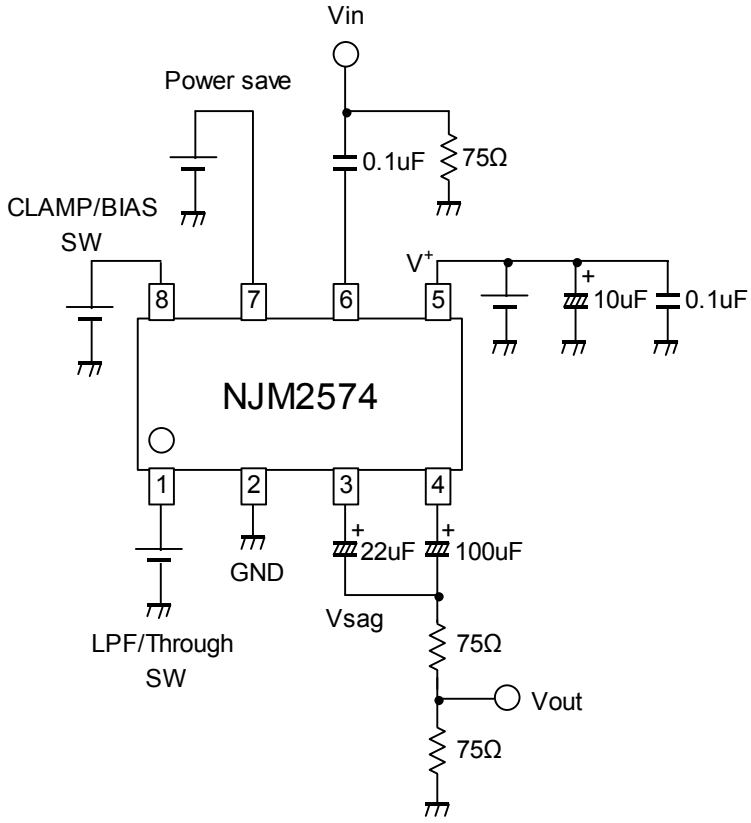
■**ELECTRICAL CHARACTERISTICS** (V^+=3.0V,RL=150Ω,Ta=25°C)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Operating Voltage	Vopr		2.8	3.0	5.5	V
Operating Current	I_{CC}	No Signal	-	9.0	10.0	mA
Operating Current at Power Save	Isave	Power Save Mode	-	70	90	uA
Maximum Output Voltage Swing	Vomv	f=1kHz,THD=1%,CLAMP MODE LPF MODE	2.2	2.7	-	Vp-p
	Vom RGB	f=1kHz,THD=1%, BIAS MODE, through MODE	1.4	2.0	-	
Voltage Gain	Gv	Vin=100kHz,0.5Vp-p, Input Sine Signal	12.0	12.4	12.8	dB
Frequency Characteristic (Through MODE)	Gf	Vin=20MHz/100kHz,0.5Vp-p	-6.0	-3.0	-	dB
Low Pass Filter Characteristic	Gfy4.5M	Vin=4.5MHz/100kHz,0.5Vp-p	-0.95	-0.45	0.05	dB
	Gfy8M	Vin=8MHz/100kHz,0.5Vp-p	-	-3.0	-	
	Gfy23.5M	Vin=23.5MHz/100kHz,0.5Vp-p	-	-23	-17	
Differential Gain	DG	Vin=0.5Vp-p, Input 10step Video Signal	-	0.5	-	%
Differential Phase	DP	Vin=0.5Vp-p, Input 10step Video Signal	-	0.5	-	deg
S/N	SNv	Vin=0.5Vp-p, 100% White Video Signal, R_L=75Ω Band Width 100kHz to 6MHz	-	+60	-	dB
2nd. Distortion	Hv	Vin=0.5Vp-p, 3.58MHz, Sine Video Signal, R_L=75Ω,	-	-60	-	dB
SW Change Voltage High Level	VthH		1.8	-	V^+	V
SW Change Voltage Low Level	VthL		0	-	0.3	

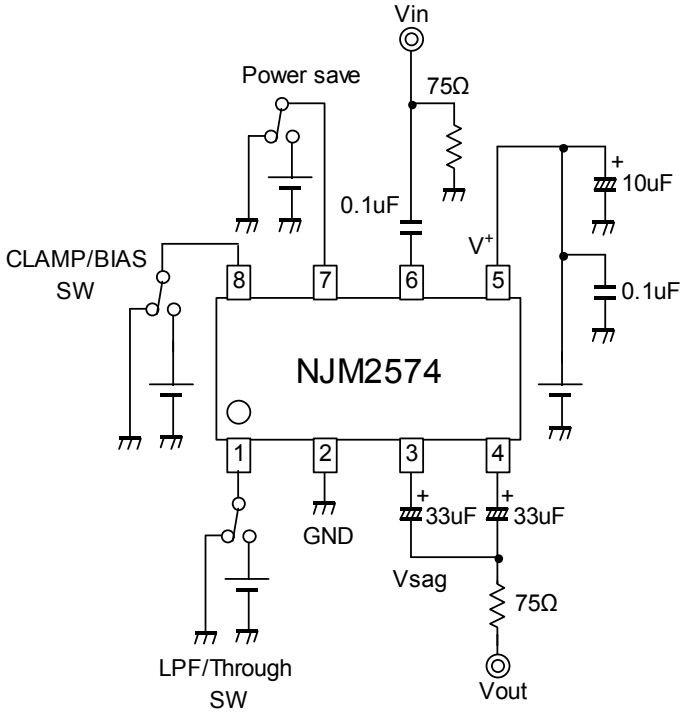
■ **CONTROL TERMINAL**

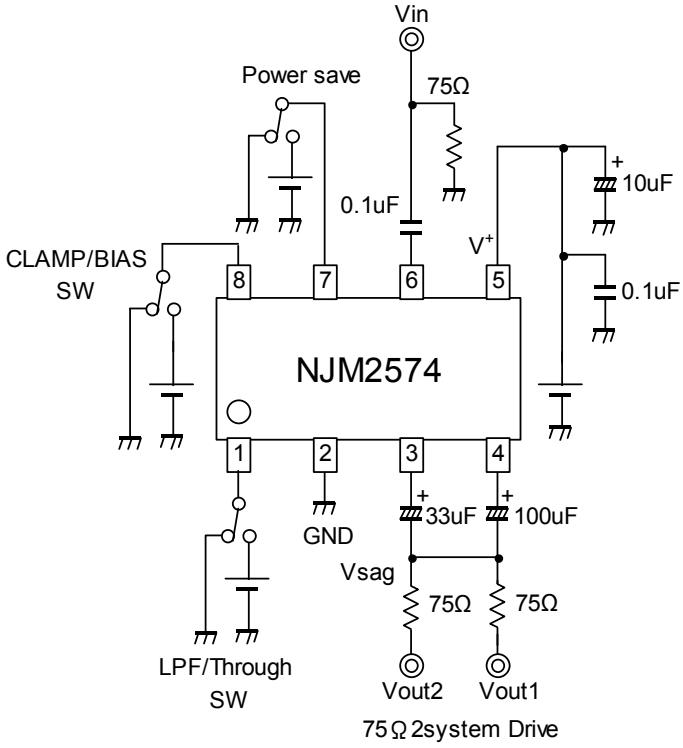
PARAMETER	STATUS	NOTE
Power Save(7pin)	H	Power Save : OFF
	L	Power Save : ON
	OPEN	Power Save : ON
LPF/Through SW(1pin)	H	LPF MODE
	L	Through MODE
	OPEN	Through MODE

■TEST CIRCUIT



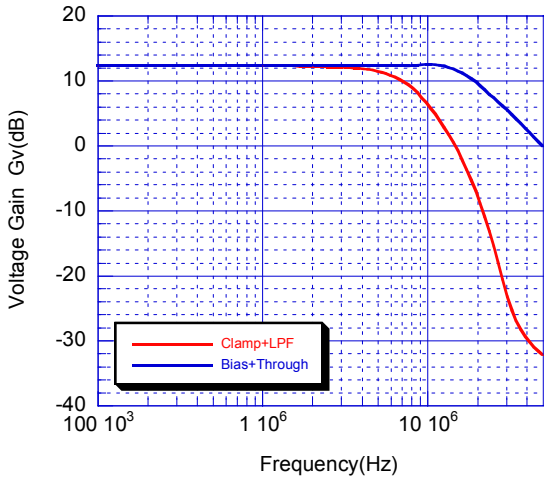
■APPLICATION CIRCUIT



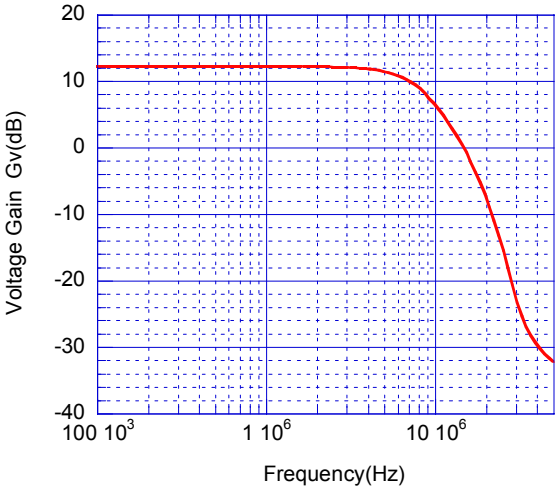


■ TYPICAL CHARACTERISTICS

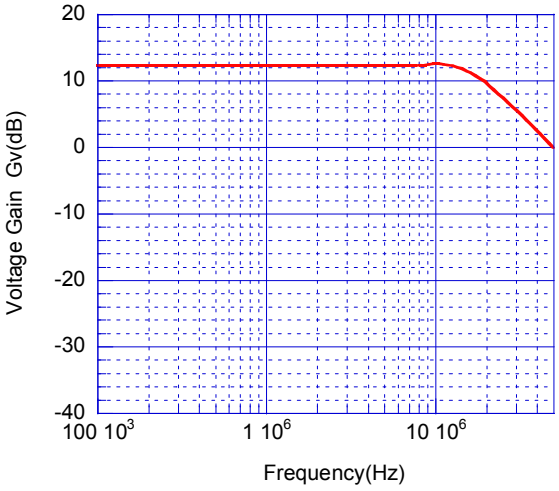
Voltage Gain vs. Freqency



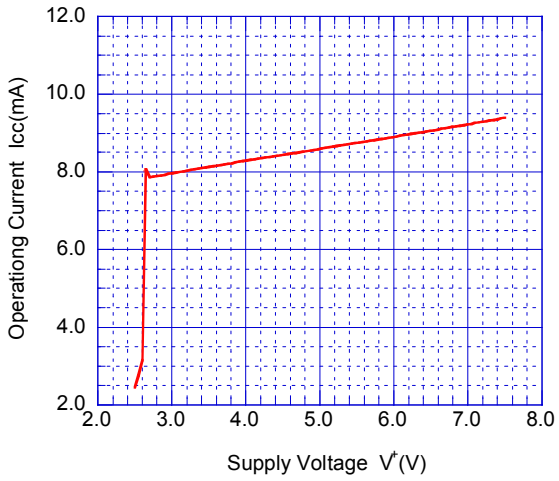
Voltage Gain vs. Freqency
(Clamp+LPF Input)



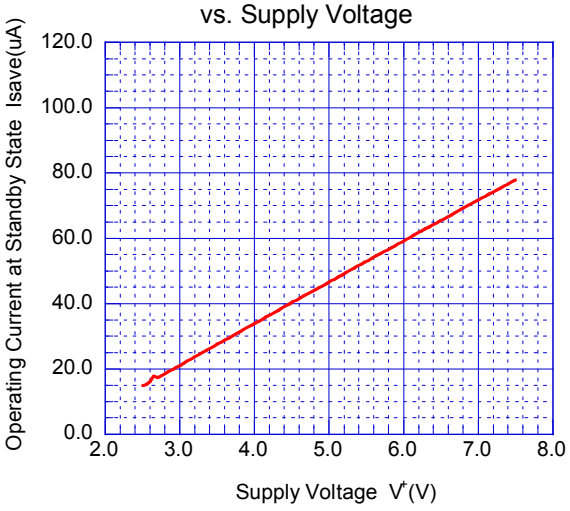
Voltage Gain vs. Freqency
(Bias+Through Input)



Operating Current vs. Supply Voltage

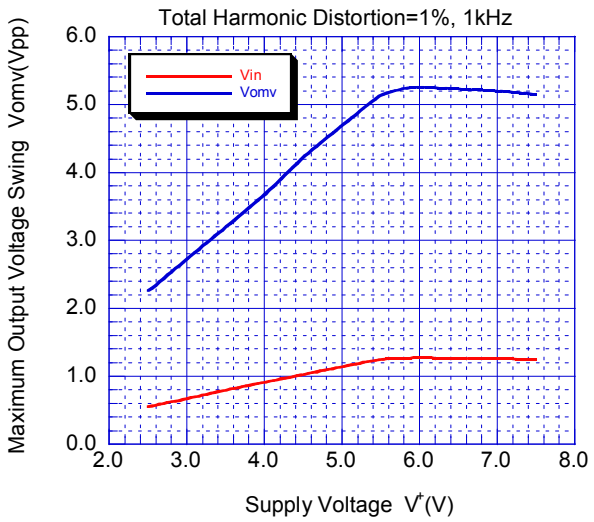


Operating Current at Standby State
vs. Supply Voltage

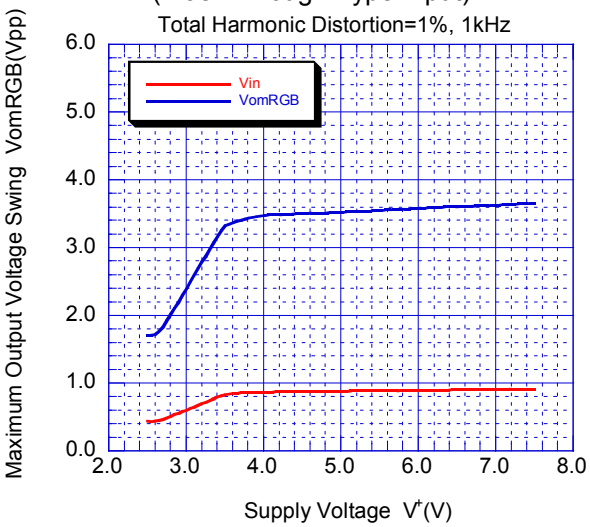


■ TYPICAL CHARACTERISTICS

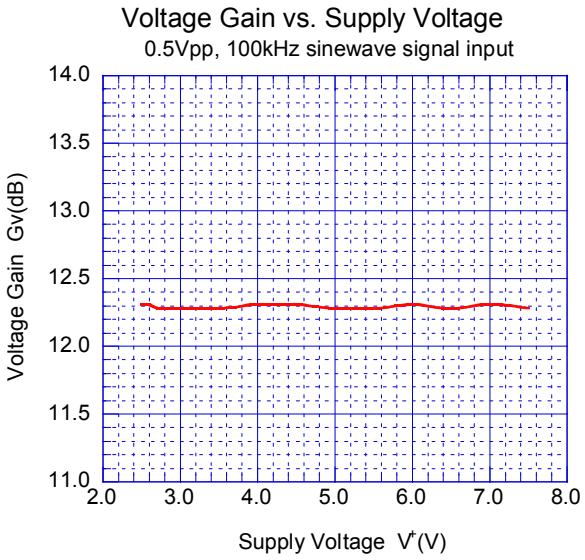
Maximum Output Voltage Swing vs. Supply Voltage
(Clamp+LPF Type Input)



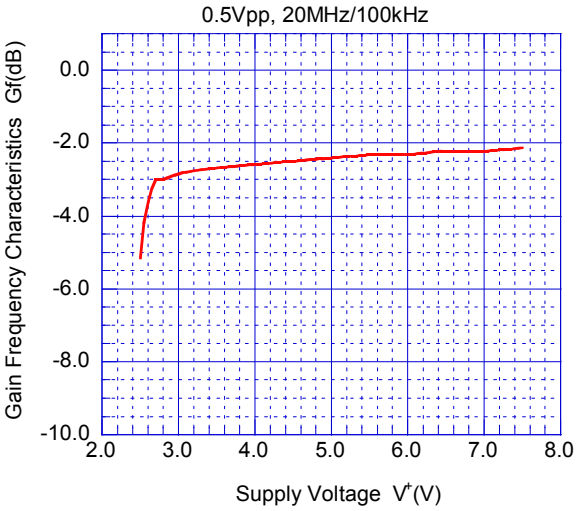
Maximum Output Voltage Swing vs. Supply Voltage
(Bias+Through Type Input)



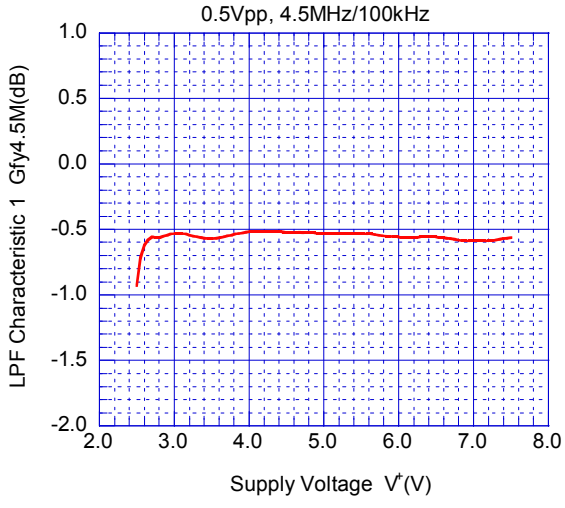
Voltage Gain vs. Supply Voltage



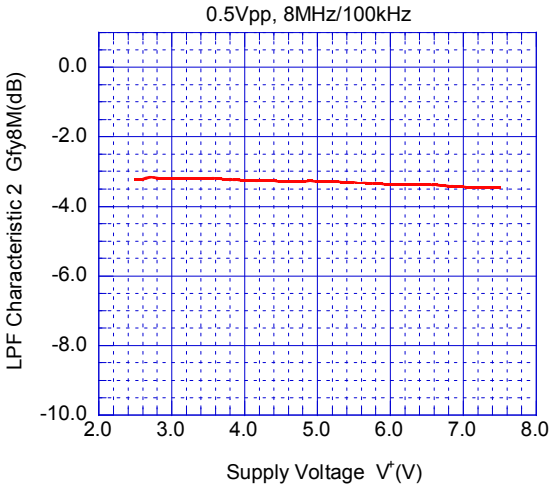
Gain Frequency Characteristics vs. Supply Voltage
(Bias+Through Type Input)



Low Pass Filter Characteristic 1 vs. Supply Voltage
(Clamp+LPF Type Input)

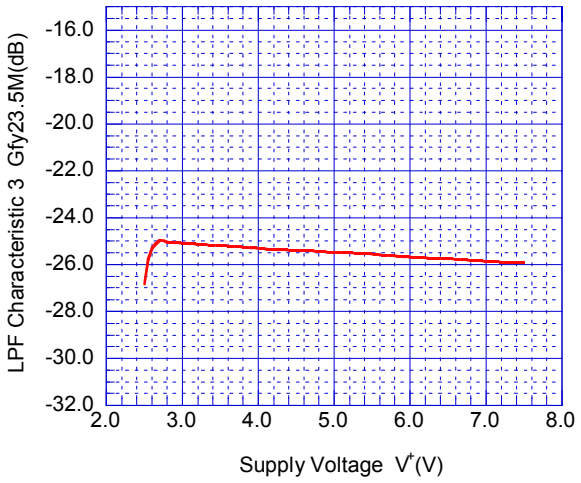


Low Pass Filter Characteristic 2 vs. Supply Voltage
(Clamp+LPF Type Input)

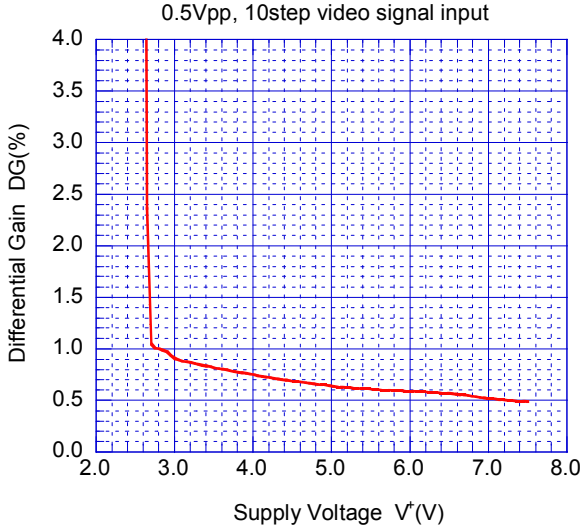


■ TYPICAL CHARACTERISTICS

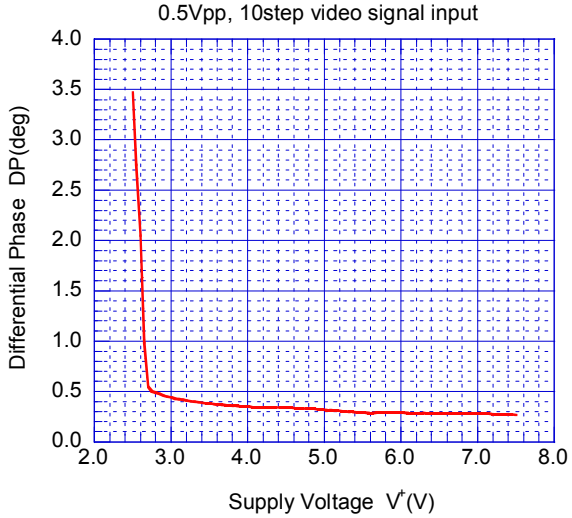
Low Pass Filter Characteristic 3 vs. Supply Voltage
(Clamp+LPF Type Input)
0.5Vpp, 23.5MHz/100kHz



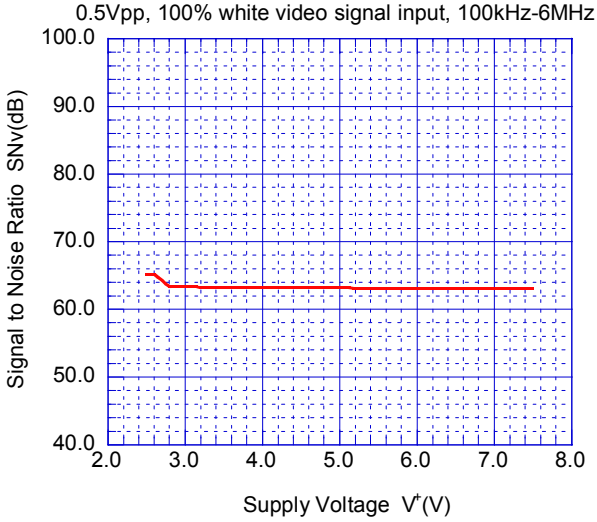
Differential Gain vs. Supply Voltage
0.5Vpp, 10step video signal input



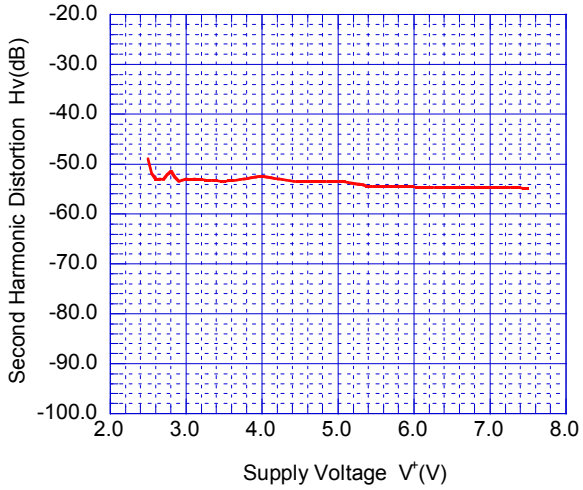
Differential Phase vs. Supply Voltage
0.5Vpp, 10step video signal input



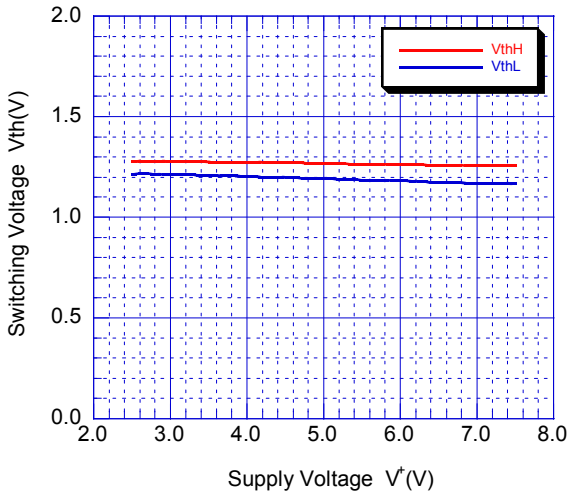
Signal to Noise Ratio vs. Supply Voltage
0.5Vpp, 100% white video signal input, 100kHz-6MHz



Second Harmonic Distortion vs. Supply Voltage
0.5Vpp, 3.58MHz sinewave signal input

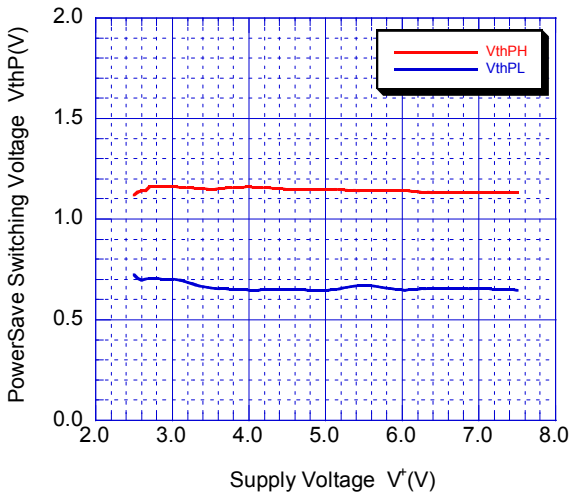


Switching Voltage vs. Supply Voltage

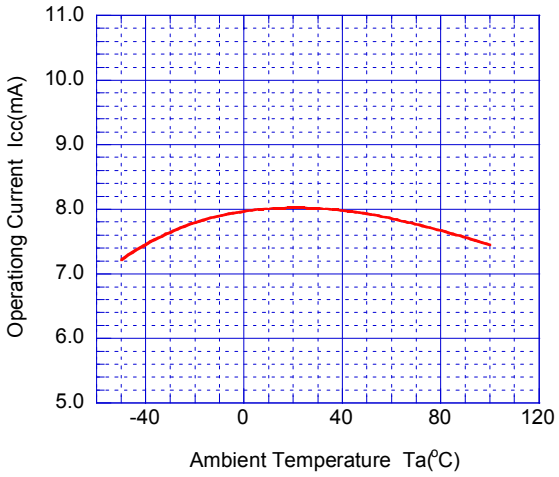


■ TYPICAL CHARACTERISTICS

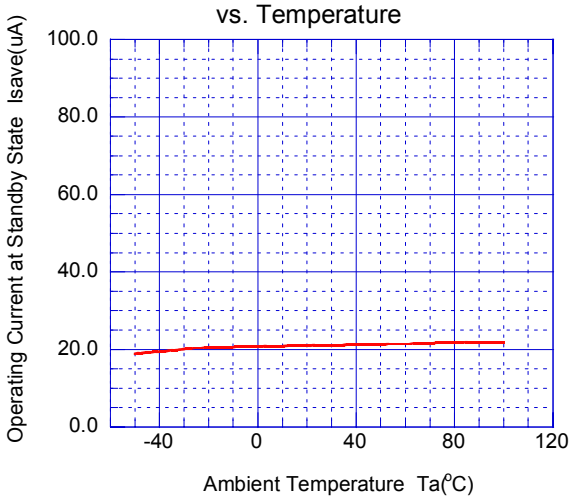
PowerSave Switching Voltage vs. Supply Voltage



Operating Current vs. Temperature

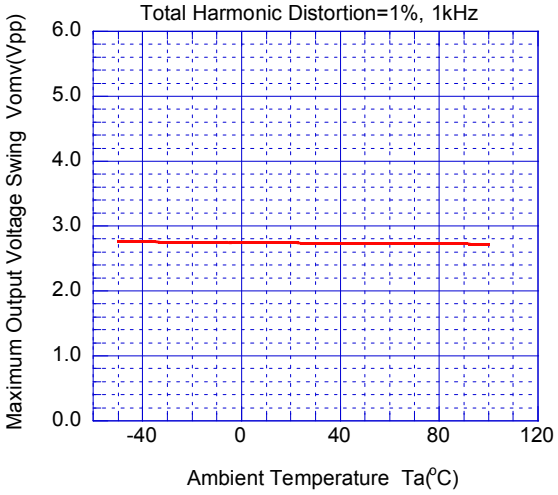


Operating Current at Standby State vs. Temperature



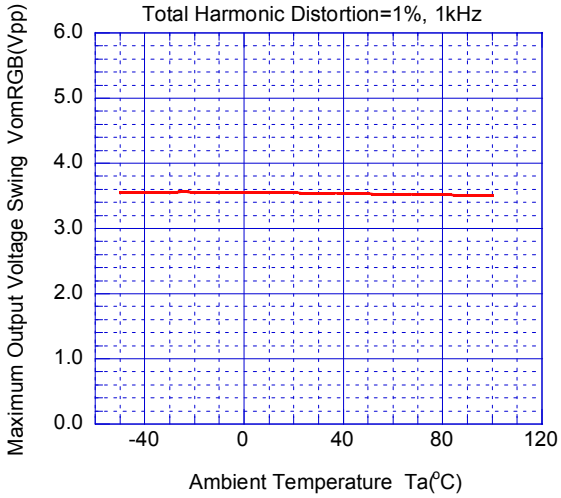
Maximum Output Voltage Swing vs. Temperature (Clamp+LPF Type Input)

Total Harmonic Distortion=1%, 1kHz



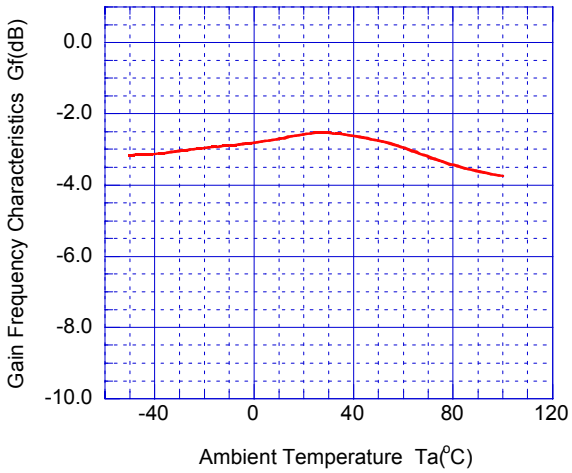
Maximum Output Voltage Swing vs. Temperature (Bias+Through Type Input)

Total Harmonic Distortion=1%, 1kHz



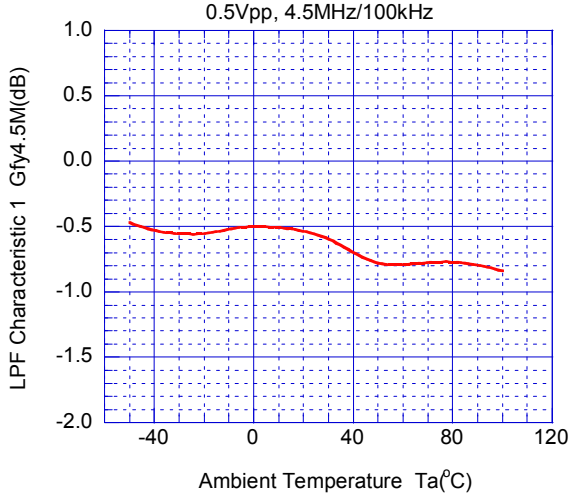
Gain Frequency Characteristics vs. Temperature (Bias+Through Type Input)

0.5Vpp, 20MHz/100kHz

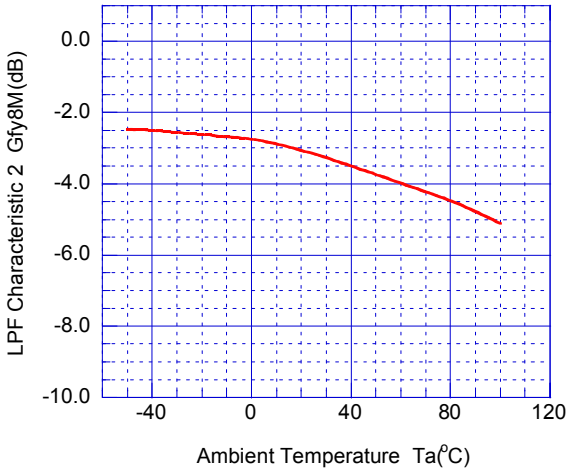


■ TYPICAL CHARACTERISTICS

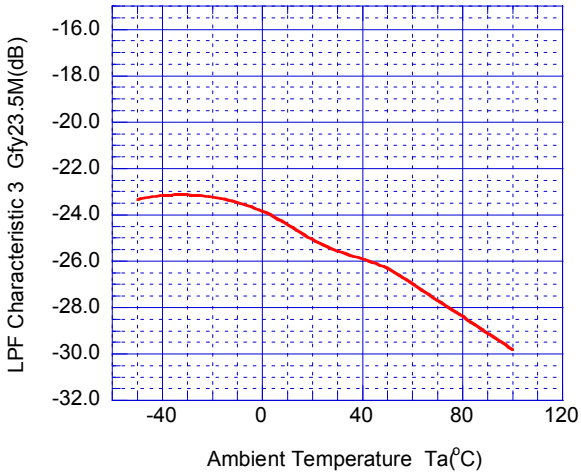
Low Pass Filter Characteristic 1 vs. Temperature
(Clamp+LPF Type Input)
0.5Vpp, 4.5MHz/100kHz



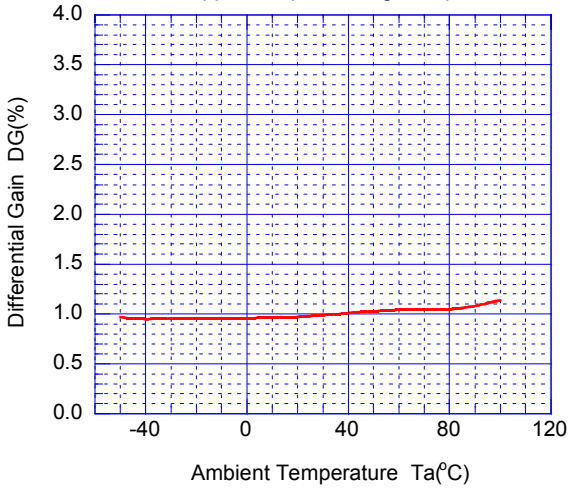
Low Pass Filter Characteristic 2 vs. Temperature
(Clamp+LPF Type Input)
0.5Vpp, 8MHz/100kHz



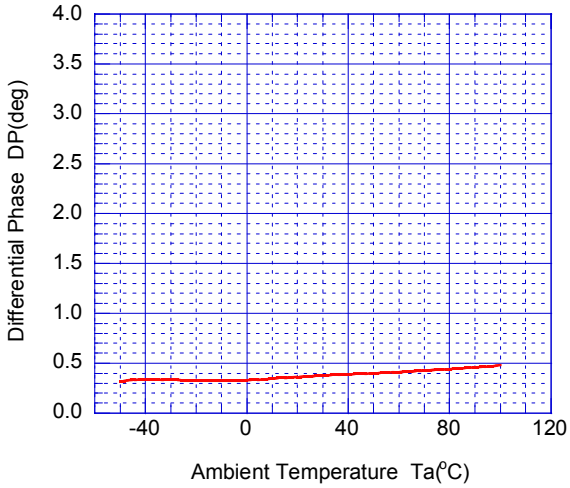
Low Pass Filter Characteristic 3 vs. Temperature
(Clamp+LPF Type Input)
0.5Vpp, 23.5MHz/100kHz



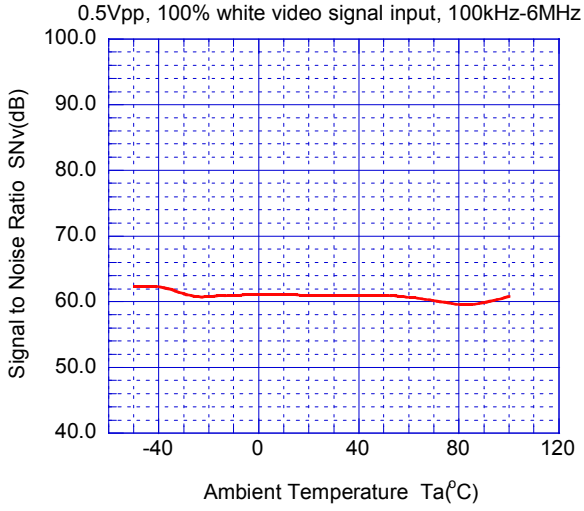
Differential Gain vs. Temperature
0.5Vpp, 10step video signal input



Differential Phase vs. Temperature
0.5Vpp, 10step video signal input



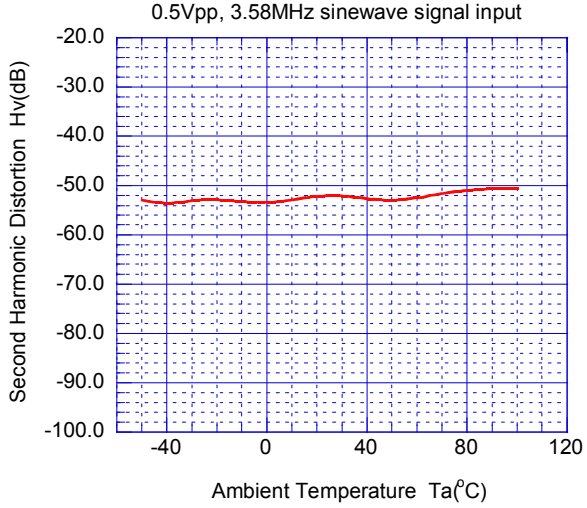
Signal to Noise Ratio vs. Temperature
0.5Vpp, 100% white video signal input, 100kHz-6MHz



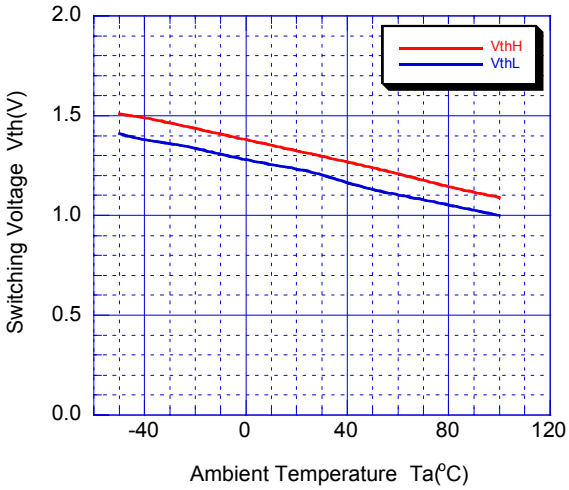
■ TYPICAL CHARACTERISTICS

Second Harmonic Distortion vs. Temperature

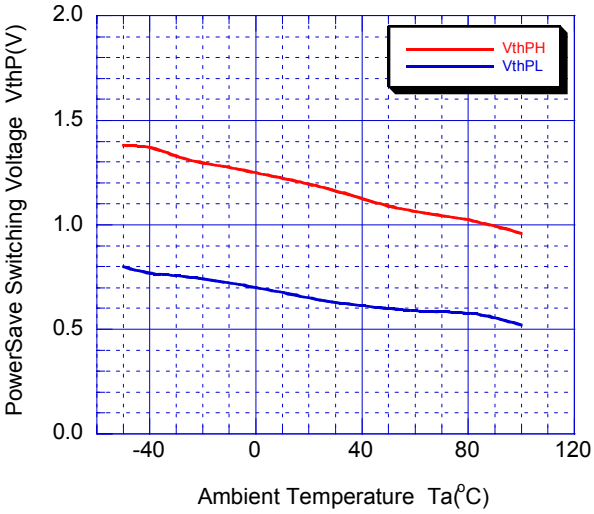
0.5Vpp, 3.58MHz sinewave signal input



Switching Voltage vs. Temperature



PowerSave Switching Voltage vs. Temperature



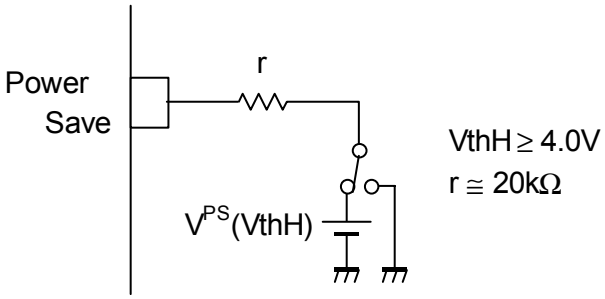
■ APPLICATION

When you use a power save terminal more than by 4.0V, please put resistance of about 20kΩ into a power save terminal.

I n addition, power save terminal voltage (VthH) -- in the case of below 4.0V, resistance is not required

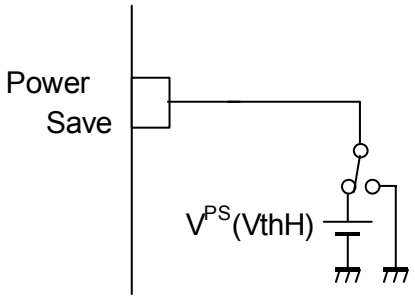
Example)

● PS(VthH) ≥ 4.0V



VthH ≥ 4.0V
r ≅ 20kΩ

● PS(VthH) < 4.0V



VthH < 4.0V

[CAUTION]
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