

LOW VOLTAGE VIDEO AMPLIFIER WITH LPF

■GENERAL DESCRIPTION

The **NJM2575** is a Low Voltage Video Amplifier contained LPF circuit. Internal 75Ω driver is easy to connect TV monitor directly. The **NJM2575** features low power and small package, and is suitable for low power design on downsizing of DSC and DVC.

■PACKAGE OUTLINE

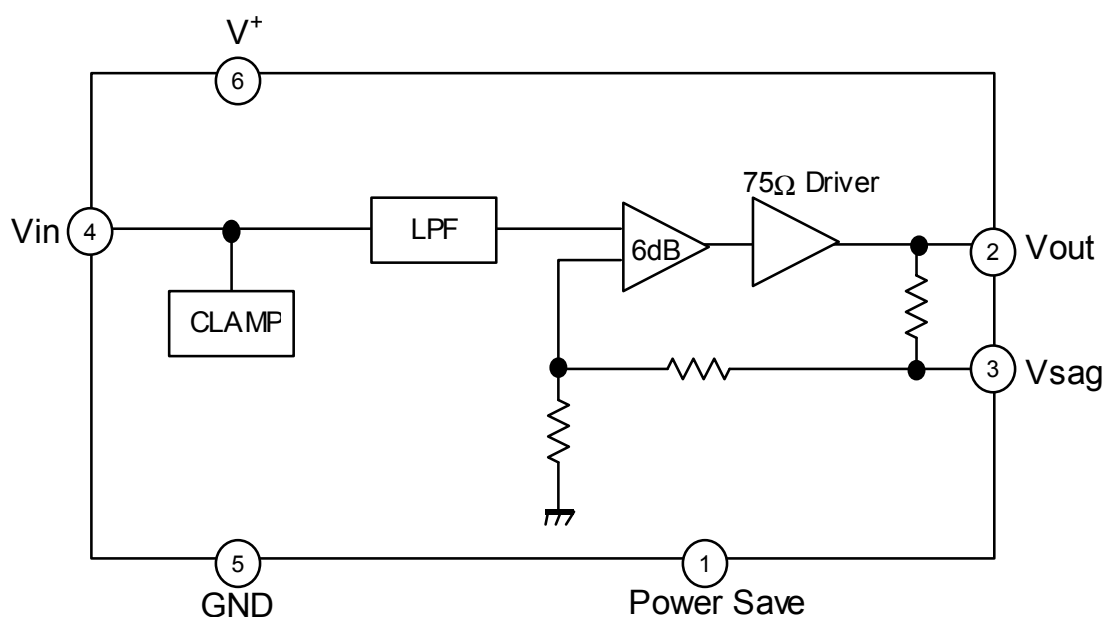


NJM2575F1

■FEATURES

- Operating Voltage 2.8 to 5.5V
- Composite Video Signal Input 1.0Vp-p
- 6dB Amplifier
- 75Ω Driver
- 2nd order Low Pass Filter
- Operating Current 7.0mA typ. at $V^+ = 3.0V$
- Operating Current 60μA typ. at $V^+ = 3.0V$ (Power Save Mode)
- Bipolar Technology
- Package Outline SOT23-6 (MTP6)

■BLOCK DIAGRAM



NJM2575

■ABSOLUTE MAXIMUM RATINGS

(Ta=25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V ⁺	7.0	V
Power Dissipation	P _D	200	mW
Operating Temperature Range	Topr	-40 to +85	°C
Storage Temperature Range	Tstg	-40 to +125	°C

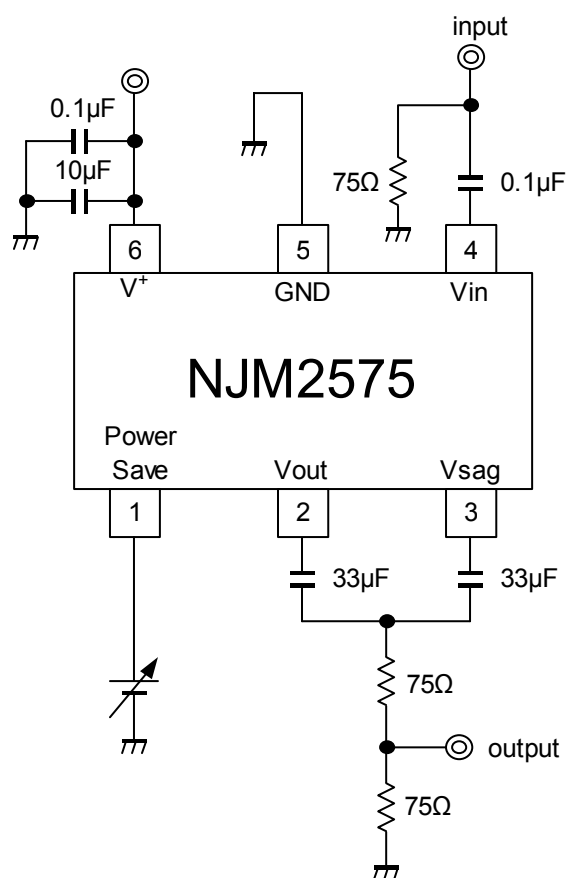
■ELECTRICAL CHARACTERISTICS (V⁺=3.0V, R_L=150Ω, Ta=25°C)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Operating Voltage	Vopr		2.8	3.0	5.5	V
Operating Current	I _{CC}	No Signal	-	7.0	10.0	mA
Operating Current at Power Save	I _{save}	Power Save Mode	-	60	90	μA
Maximum Output Voltage Swing	Vom	f=1kHz, THD=1%	2.2	2.4	-	Vp-p
Voltage Gain	Gv	Vin=100kHz, 1.0Vp-p, Input Sine Signal	6.1	6.5	6.9	dB
Low Pass Filter Characteristic	Gfy4.5M	Vin=4.5MHz/100kHz, 1.0Vp-p	-0.5	0.0	+0.5	dB
	Gfy8M	Vin=8MHz/100kHz, 1.0Vp-p	-	-2.0	-	
	Gfy16M	Vin=16MHz/100kHz, 1.0Vp-p	-	-12.0	-	
Differential Gain	DG	Vin=1.0Vp-p, Input 10step Video Signal	-	0.2	-	%
Differential Phase	DP	Vin=1.0Vp-p, Input 10step Video Signal	-	0.2	-	deg
S/N Ratio	SNv	Vin=1.0Vp-p, 100% White Video Signal, R _L =75Ω	-	+60	-	dB
2nd. Distortion	Hv	Vin=1.0Vp-p, 3.58MHz, Sine Video Signal, R _L =75Ω	-	-40	-	dB
SW Change Voltage High Level	VthPH	active	1.8	-	V ⁺	V
SW Change Voltage Low Level	VthPL	non-active	0	-	0.3	

■CONTROL TERMINAL

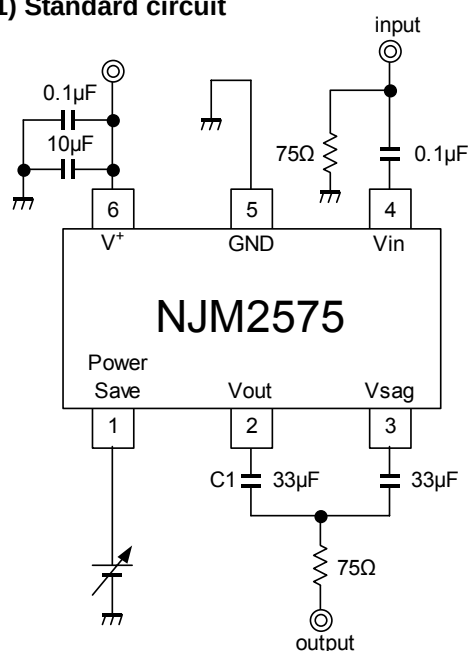
PARAMETER	STATUS	NOTE
Power Save	H	Power Save : OFF
	L	Power Save : ON (Mute)
	OPEN	Power Save : ON (Mute)

■TEST CIRCUIT

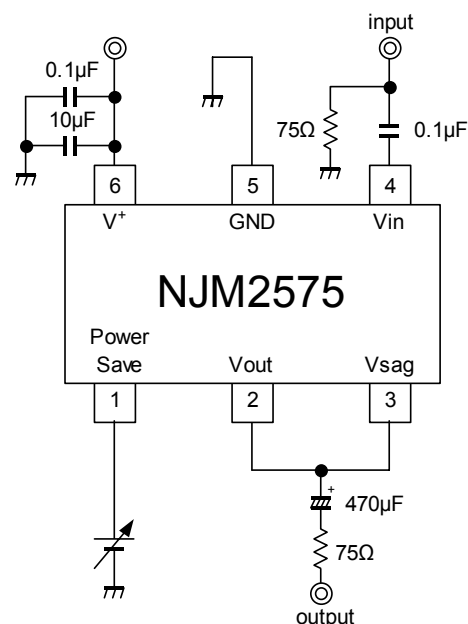


APPLICATION CIRCUIT

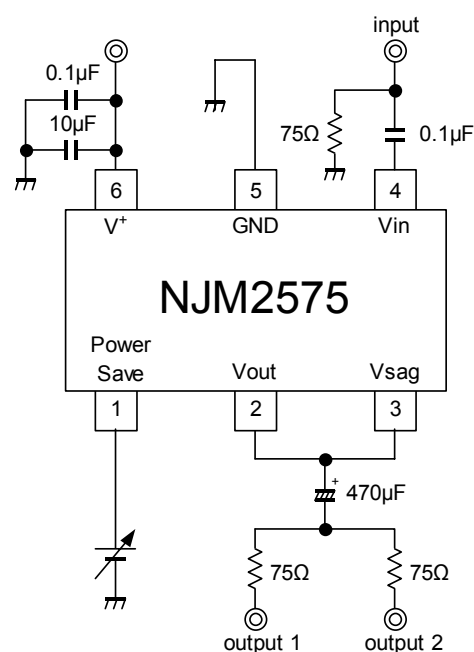
(1) Standard circuit



(2) SAG correction unused circuit



(3) Two-line driving circuit



(1) Standard circuit

This circuit is for a portable equipment of small mounting space.

The SAG correction reduces output coupling capacitor values.

However, this circuit may cause to SAG deterioration, and lose synchronization by luminance fluctuation.

Adjust the C1 value, checking the waveform containing a lot of low frequency components like a bounce waveform (Worst condition waveform of SAG). Change the capacitor of C1 into a large value to improve SAG.

(2) SAG correction unused circuit

We recommend this circuit when there is no space limitation.

Connect the coupling capacitor after connecting the Vout pin and Vsag pin. The recommended value is 470µF or more.

(3) Two-line driving circuit

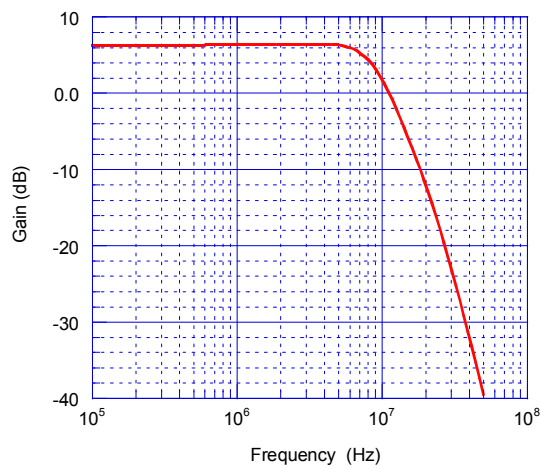
This circuit drives two-line of 150Ω. However, it may cause to lose synchronization by an input signal of large APL change (100% white signals more than 1Vp-p). Confirm the large APL change waveform (100% white signals more than 1Vp-p) and evaluate sufficiently.

■ TERMINAL FUNCTION

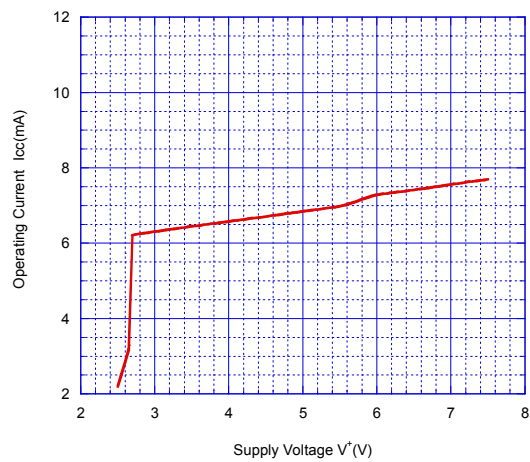
PIN No.	PIN NAME	DC VOLTAGE	EQUIVALENT CIRCUIT
1	Power save	-	
2	Vout	0.26V	
3	Vsag	-	
4	Vin	1.10V	
5	GND	-	
6	V ⁺	3V	

TYPICAL CHARACTERISTICS

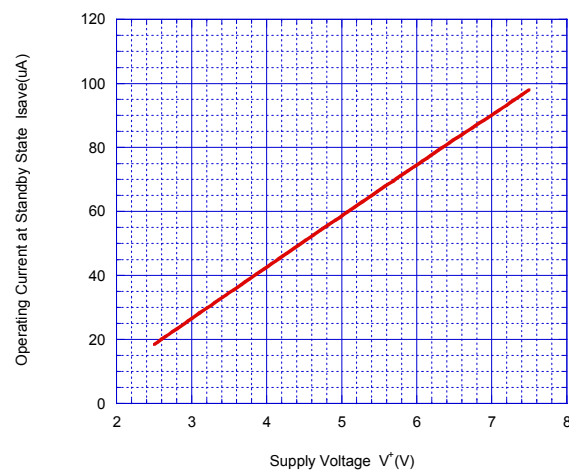
Frequency Characteristic



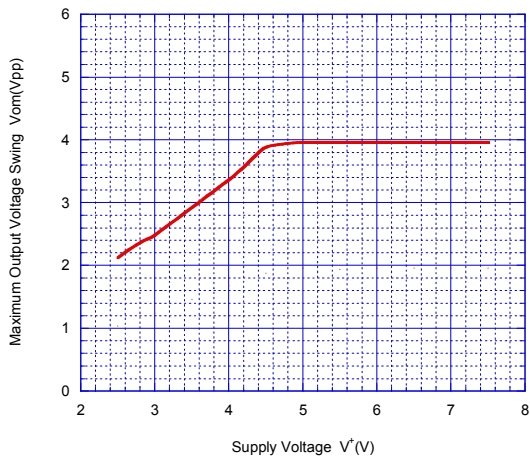
Operating Current vs. Supply Voltage



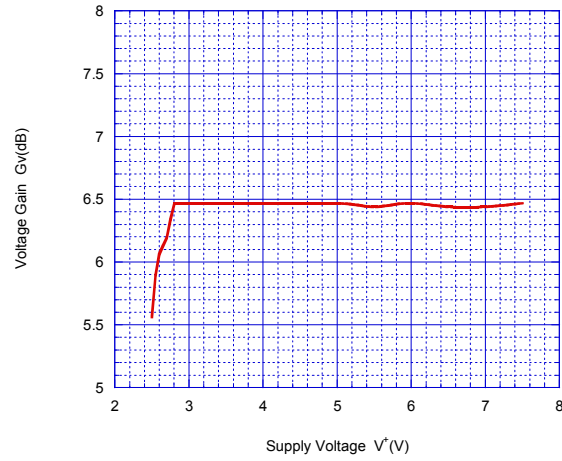
Operating Current at Standby State vs. Supply Voltage



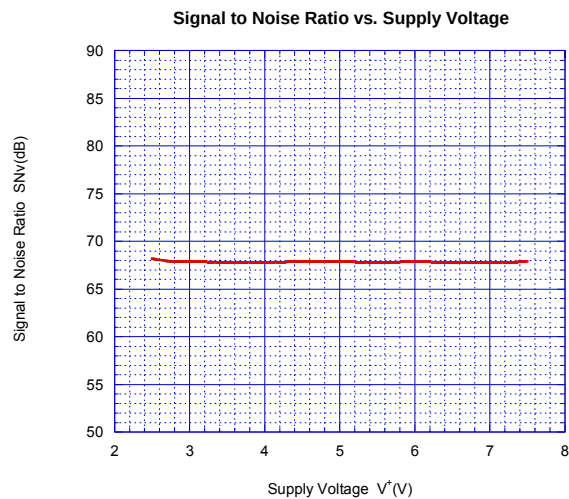
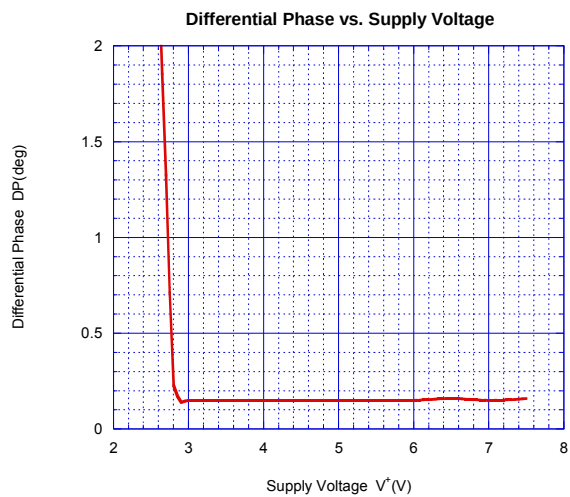
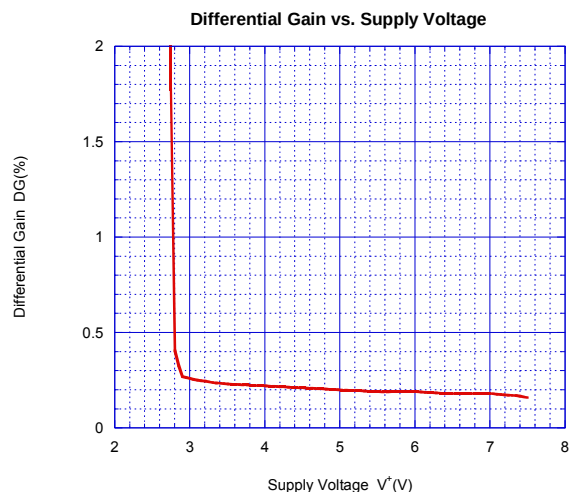
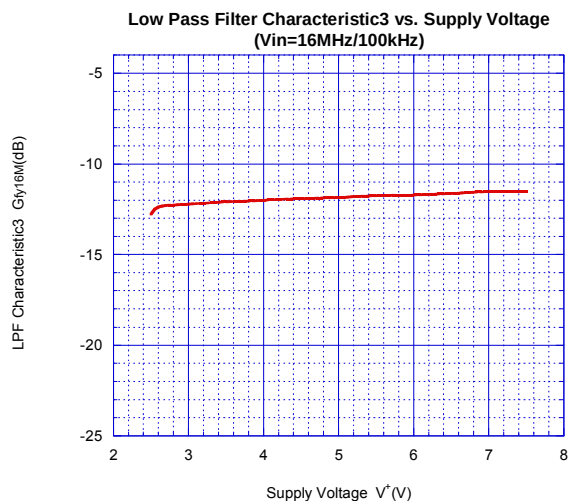
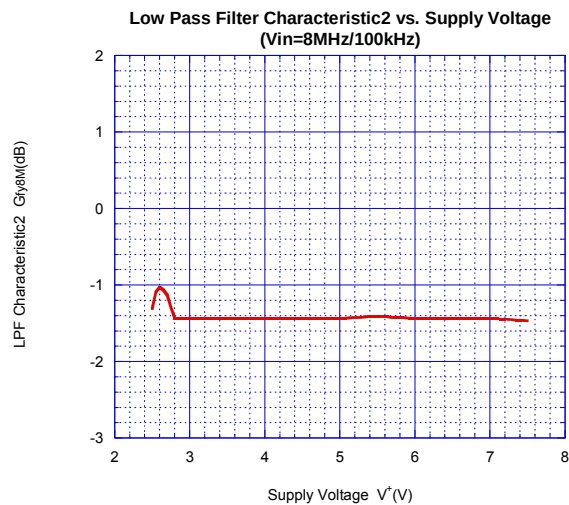
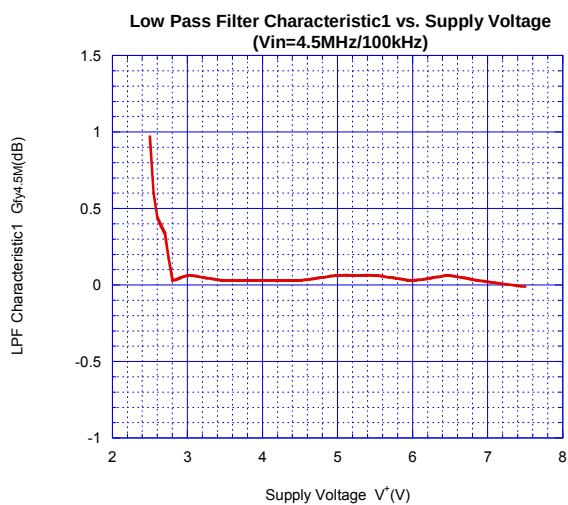
Maximum Output Voltage Swing vs. Supply Voltage



Voltage Gain vs. Supply Voltage

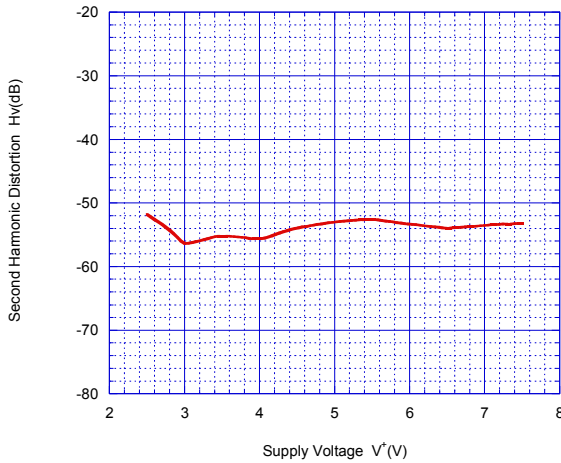


TYPICAL CHARACTERISTICS

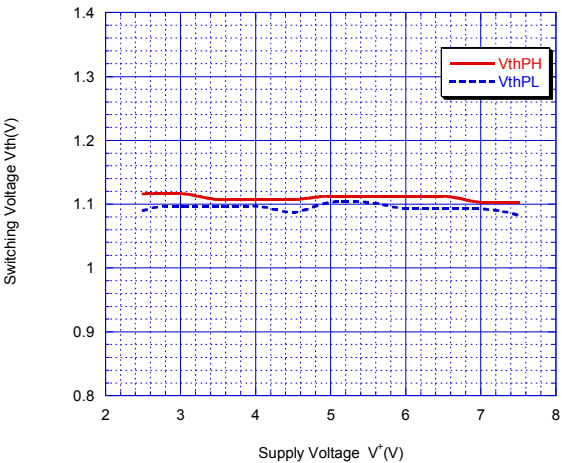


TYPICAL CHARACTERISTICS

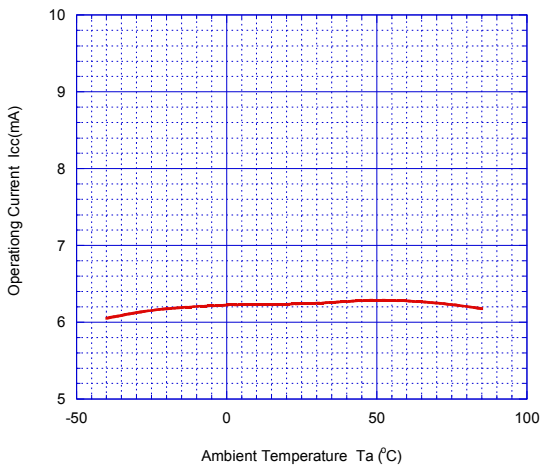
Second Harmonic Distortion vs. Supply Voltage



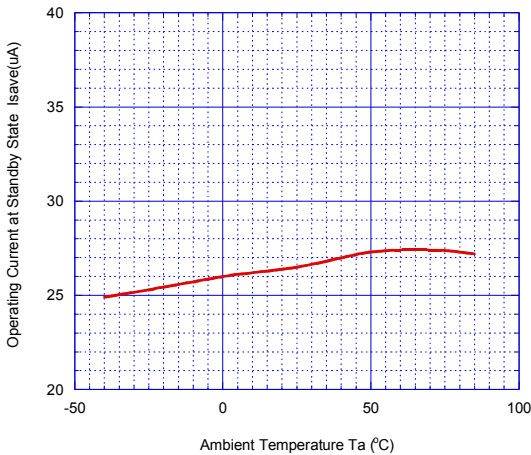
Switching Voltage vs. Supply Voltage



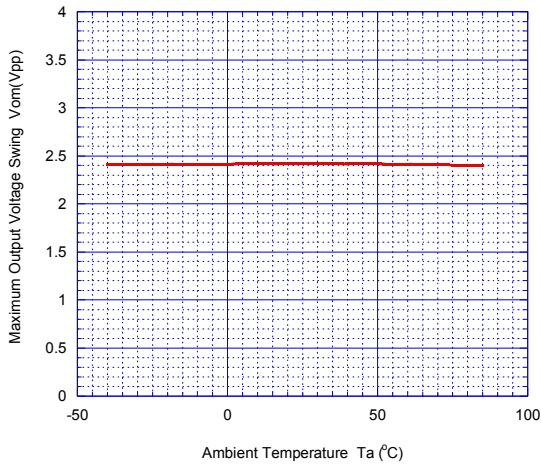
Operating Current vs. Temperature



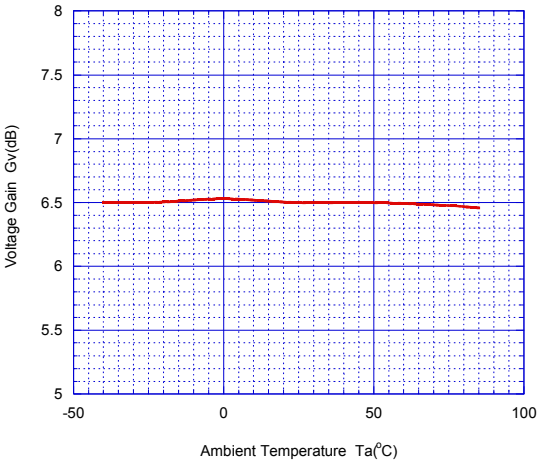
Operating Current at Standby State vs. Temperature



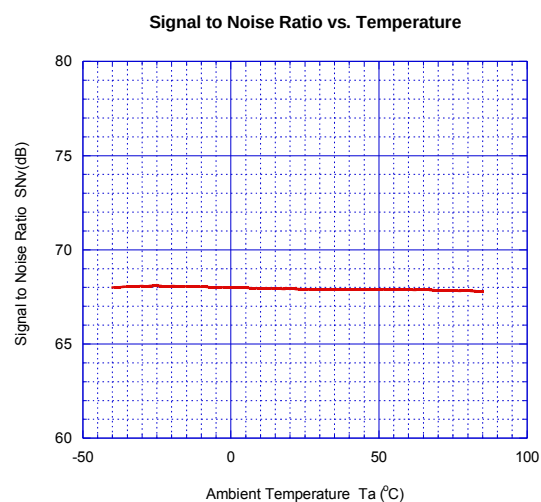
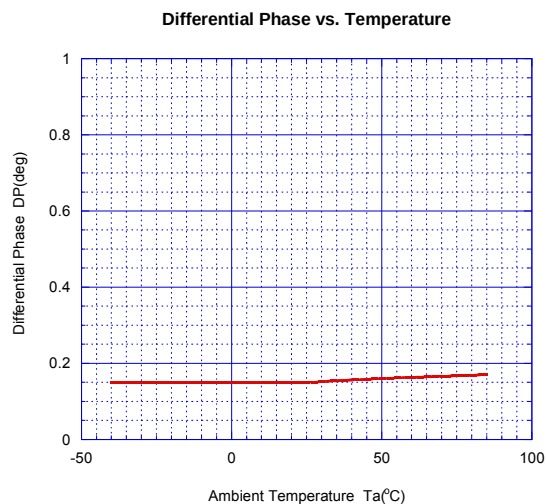
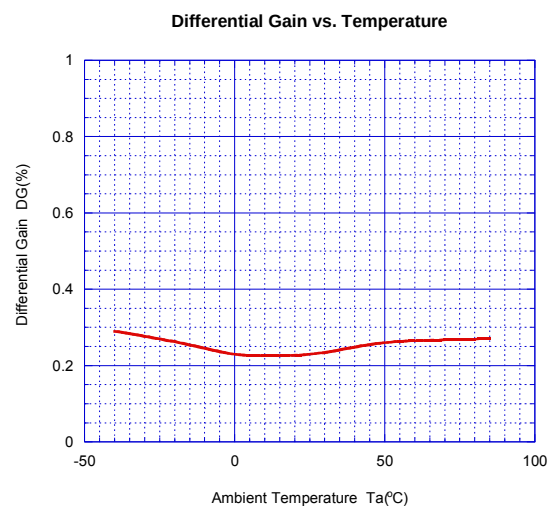
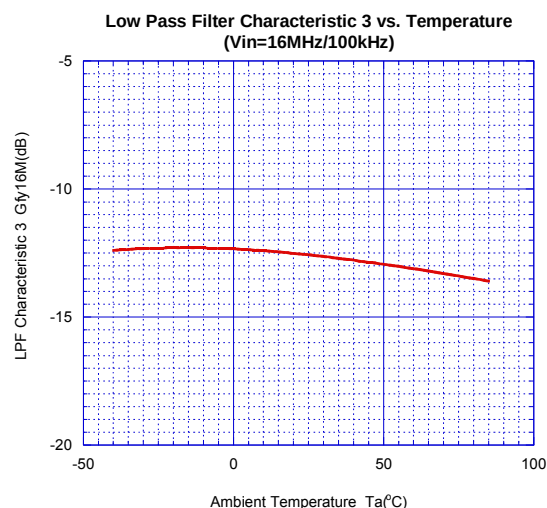
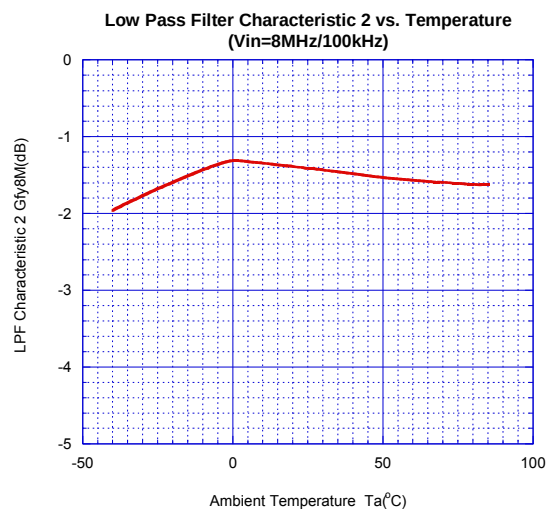
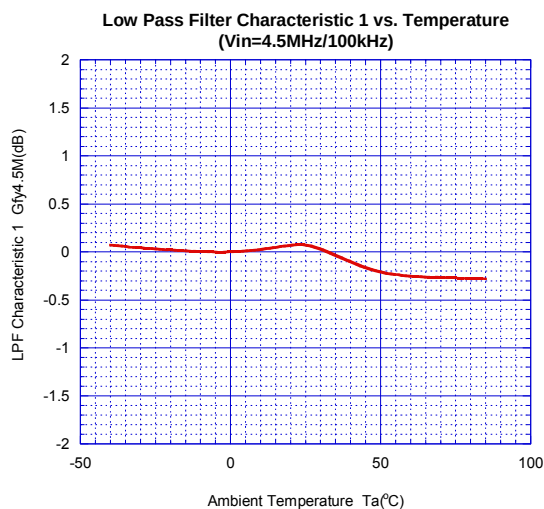
Maximum Output Voltage Swing vs. Temperature



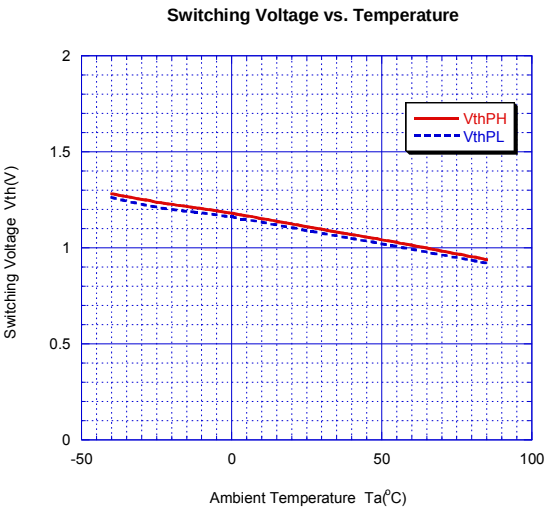
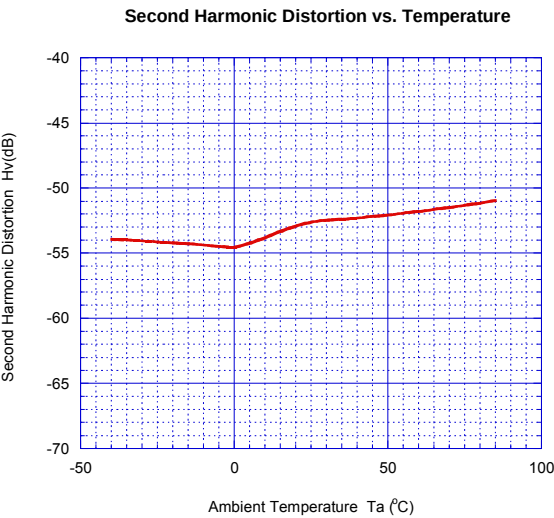
Voltage Gain vs. Temperature



TYPICAL CHARACTERISTICS



TYPICAL CHARACTERISTICS



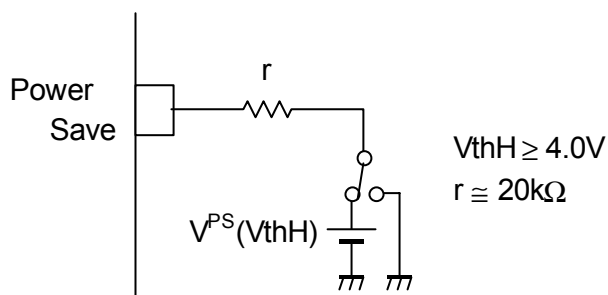
■ APPLICATION

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

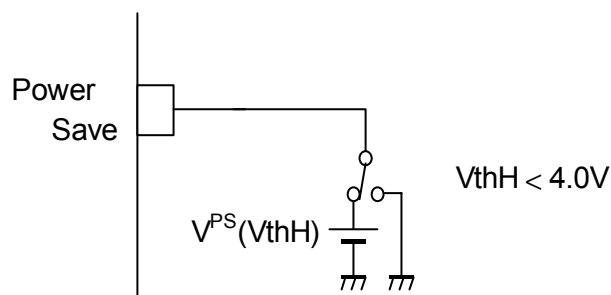
In addition, power save terminal voltage (VthH) -- in the case of below 4.0V, resistance is not required

Example)

● PS(VthH) ≥ 4.0V



● PS(VthH) < 4.0V



[CAUTION]

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