

## LOW VOLTAGE VIDEO AMPLIFIER WITH LPF

## ■GENERAL DESCRIPTION

The NJM2575 is a Low Voltage Video Amplifier contained LPF circuit, 75Ω driver to connect TV monitor directly.

The mute circuit with power save function is suitable for low power design. The NJM2575 is suitable for down

## ■PACKAGE OUTLINE

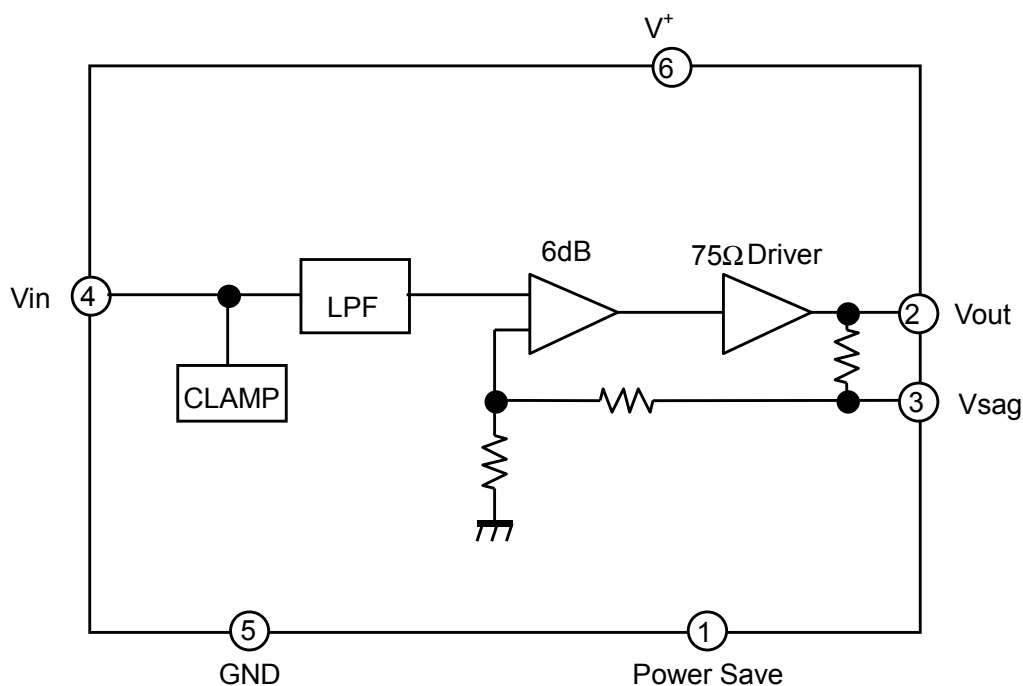


NJM2575F1

## ■FEATURES

- Operating Voltage 2.8 to 5.5V
- Input Composite Video Signal 1.0Vpp
- Internal Low Pass Filter
- Operating Current 7.0mA typ. at Vcc=3.0V
- Operating Current Power Save Mode 60uA typ.at Vcc=3.0V
- Bipolar Technology
- Package Outline MTP6

## ■BLOCK DIAGRAM



## ■ABSOLUTE MAXIMUM RATINGS

(Ta=25°C)

| PARAMETER                   | SYMBOL         | RATINGS     | UNIT |
|-----------------------------|----------------|-------------|------|
| Supply Voltage              | V <sup>+</sup> | 7.0         | V    |
| Power Dissipation           | P <sub>D</sub> | 200         | mW   |
| Operating Temperature Range | Topr           | -40 to +85  | °C   |
| Storage Temperature Range   | Tstg           | -40 to +125 | °C   |

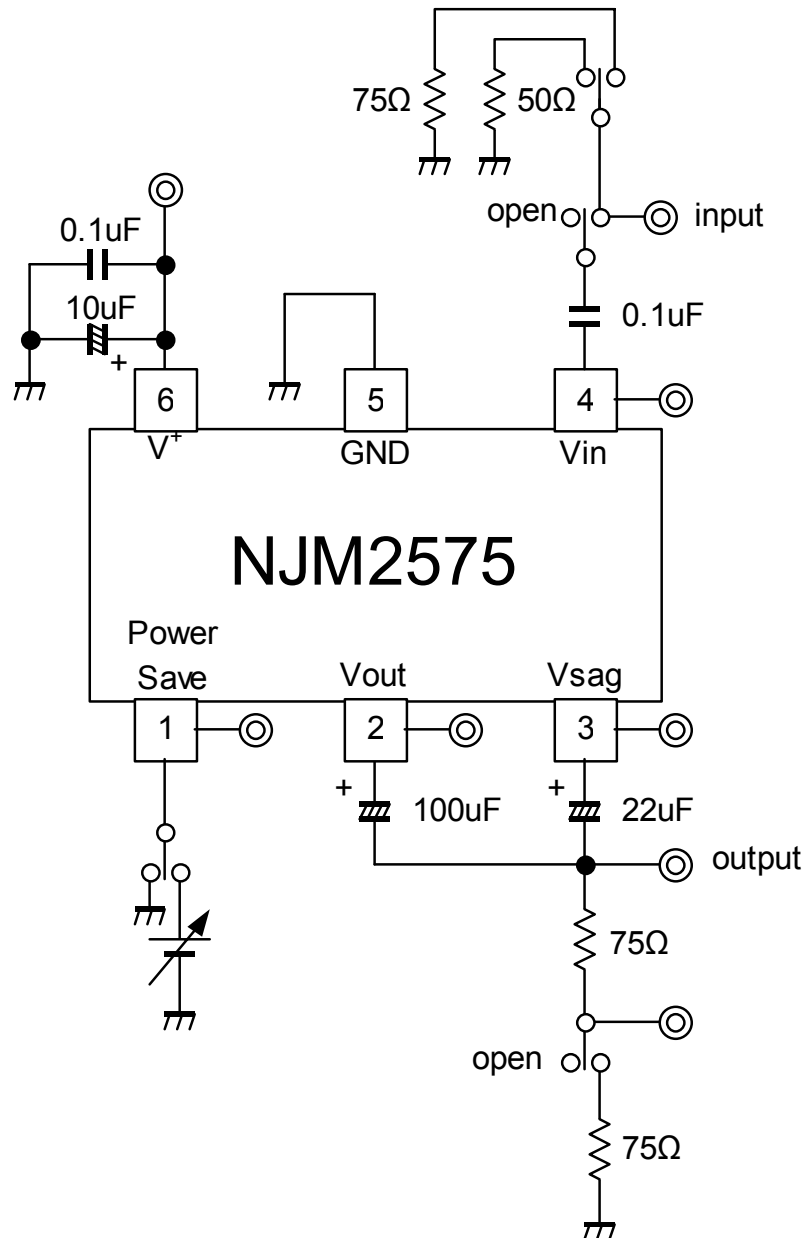
## ■ELECTRICAL CHARACTERISTICS ( V<sup>+</sup>=3.0V, R<sub>L</sub>=150Ω, Ta=25°C)

| PARAMETER                       | SYMBOL            | TEST CONDITION                                                  | MIN. | TYP.  | MAX.           | UNIT |
|---------------------------------|-------------------|-----------------------------------------------------------------|------|-------|----------------|------|
| Operating Voltage               | Vopr              |                                                                 | 2.8  | 3.0   | 5.5            | V    |
| Operating Current               | I <sub>CC</sub>   | No Signal                                                       | -    | 7.0   | 10.0           | mA   |
| Operating Current at Power Save | I <sub>save</sub> | Power Save Mode                                                 | -    | 60    | 90             | uA   |
| Maximum Output Voltage Swing    | Vom               | f=1kHz, THD=1%                                                  | 2.2  | 2.4   | -              | Vp-p |
| Voltage Gain                    | Gv                | Vin=100kHz, 1.0Vp-p,<br>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,<br>Input 10step Video Signal                       | -    | 0.2   | -              | %    |
| Differential Phase              | DP                | Vin=1.0Vp-p,<br>Input 10step Video Signal                       | -    | 0.2   | -              | deg  |
| S/N Ratio                       | SNv               | Vin=1.0Vp-p,<br>100% White Video Signal, R <sub>L</sub> =75Ω    | -    | +60   | -              | dB   |
| 2nd. Distortion                 | Hv                | Vin=1.0Vp-p, 3.58MHz,<br>Sine Video Signal, R <sub>L</sub> =75Ω | -    | -40   | -              | dB   |
| SW Change Voltage High Level    | VthPH             | active                                                          | 1.8  | -     | V <sup>+</sup> | V    |
| SW Change Voltage Low Level     | VthPL             | non-active                                                      | 0    | -     | 0.3            |      |

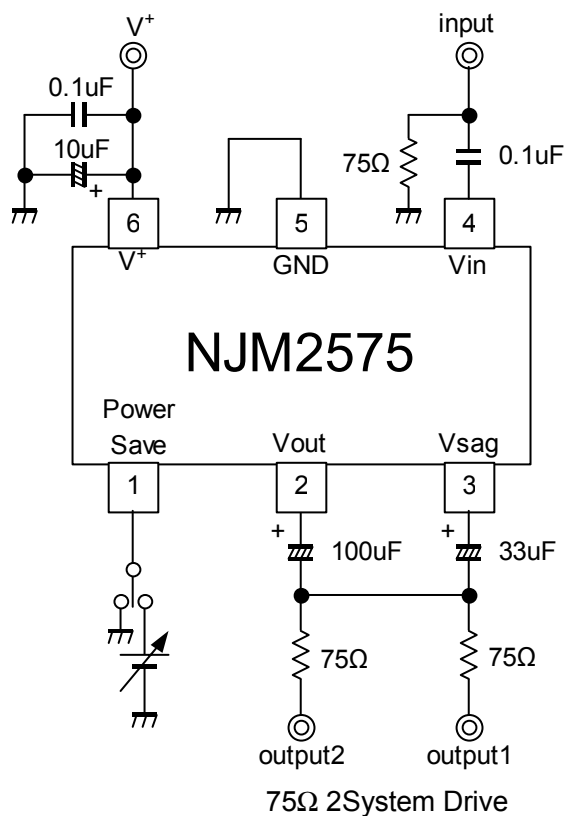
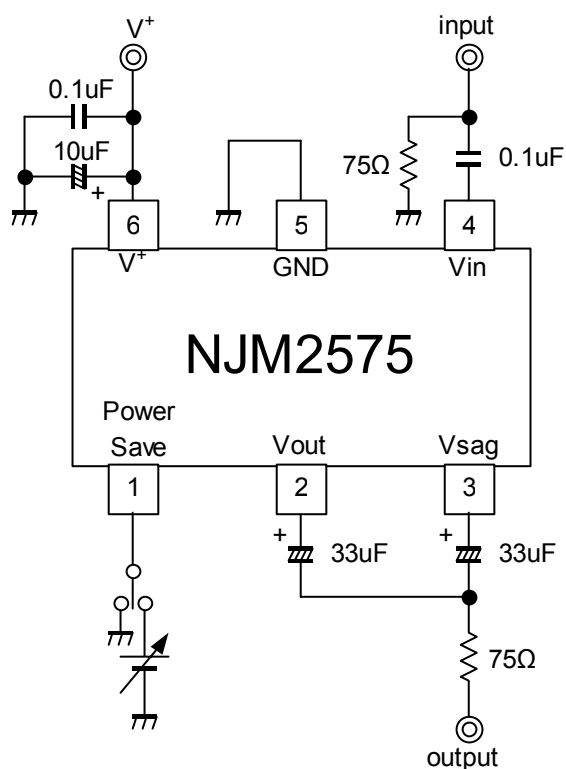
## ■CONTROL TERMINAL

| PARAMETER  | STATUS | NOTE             |
|------------|--------|------------------|
| Power Save | H      | Power Save : OFF |
|            | L      | Power Save : ON  |
|            | OPEN   | Power Save : ON  |

## ■TEST CIRCUIT



## APPLICATION CIRCUIT

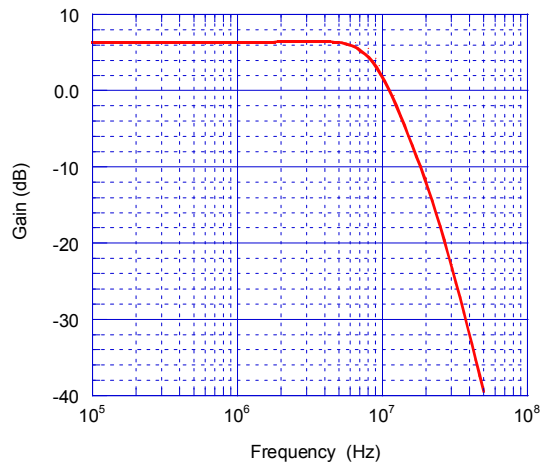


## ■ TERMINAL FUNCTION

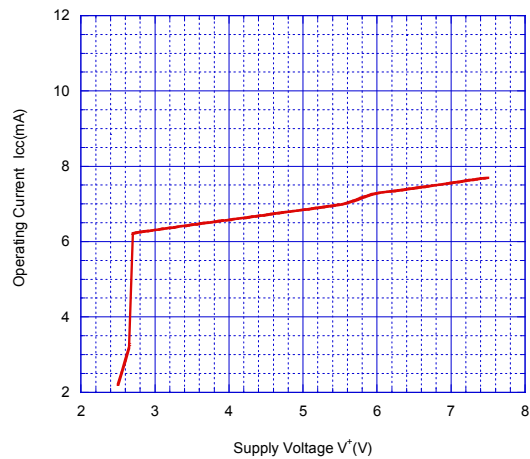
| PIN No. | PIN NAME       | DC VOLTAGE | EQUIVALENT CIRCUIT |
|---------|----------------|------------|--------------------|
| 1       | Power save     | -          |                    |
| 2       | Vout           | 0.26V      |                    |
| 3       | Vsag           | -          |       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

TYPICAL CHARACTERISTICS

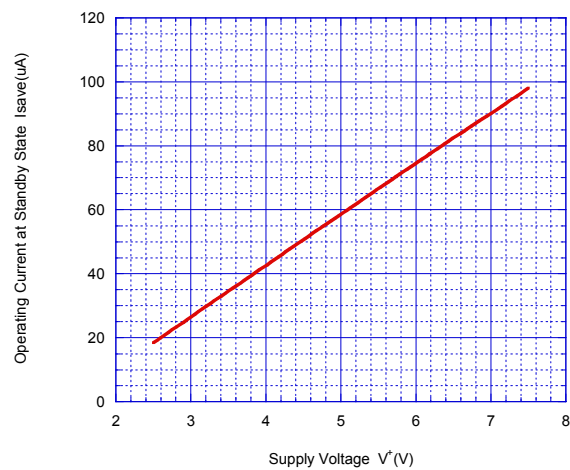
Frequency Characteristic



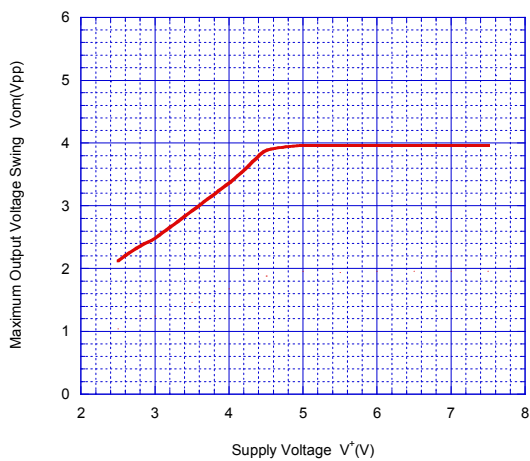
Operating Current vs. Supply Voltage



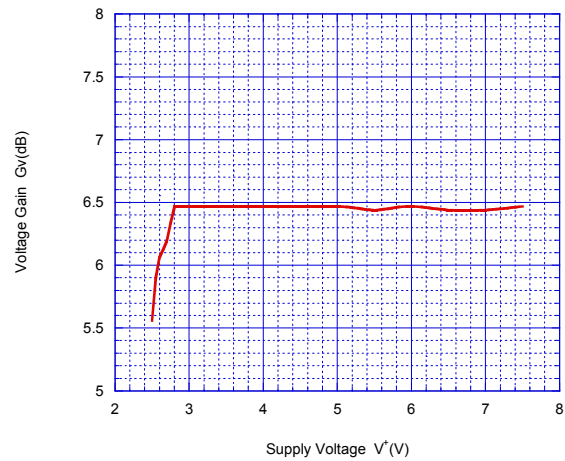
Operating Current at Standby State vs. Supply Voltage



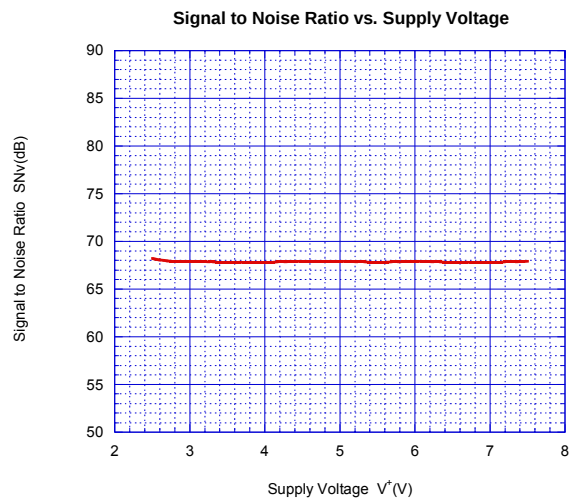
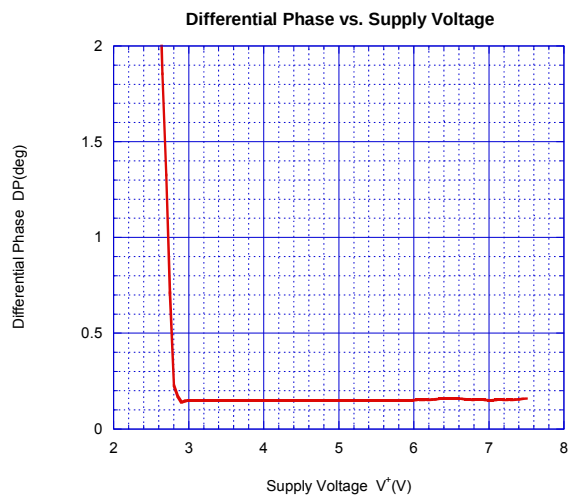
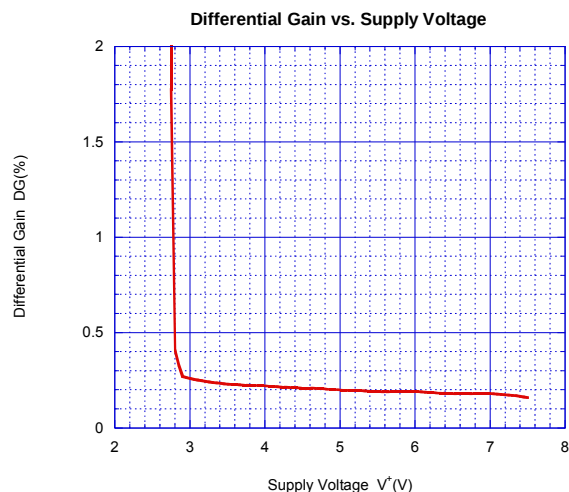
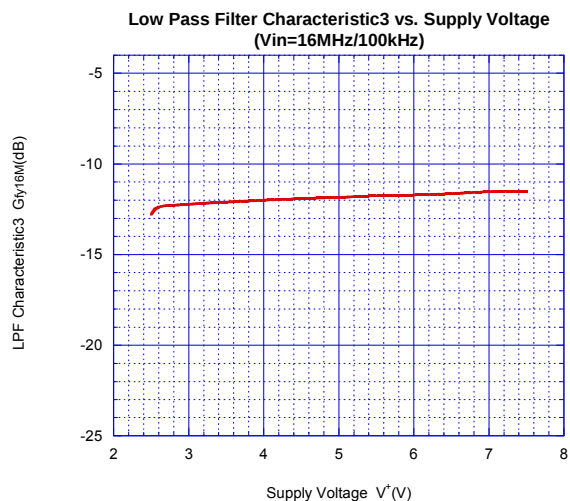
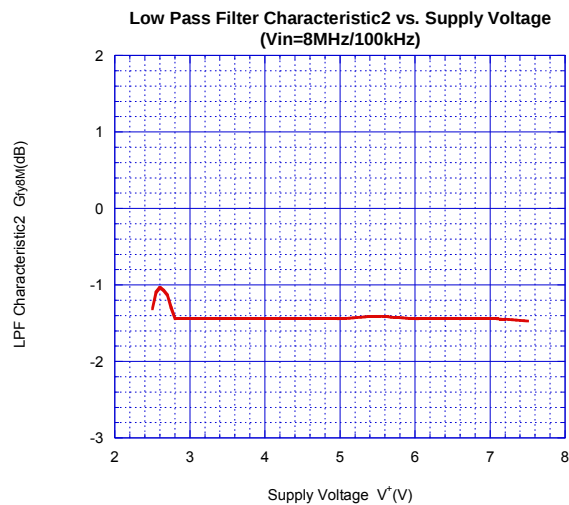
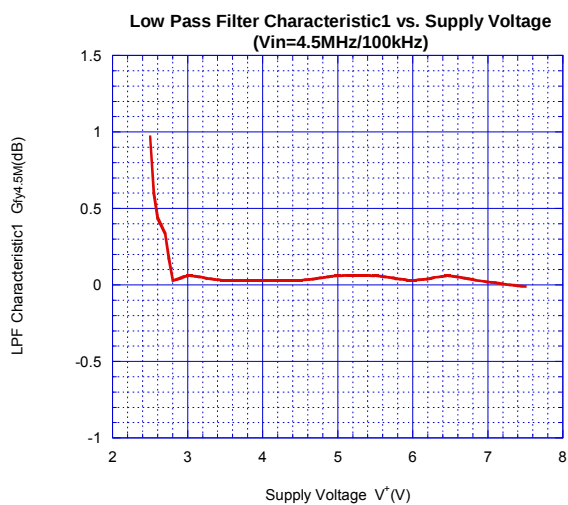
Maximum Output Voltage Swing vs. Supply Voltage



Voltage Gain vs. Supply Voltage

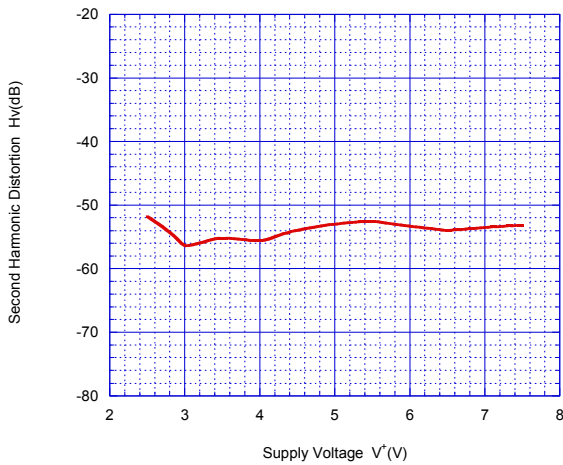


## TYPICAL CHARACTERISTICS

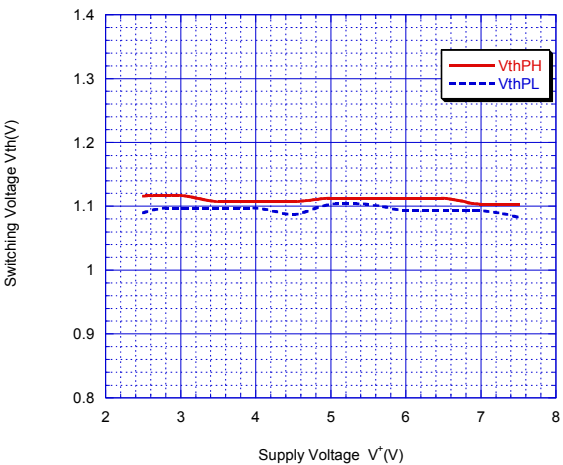


TYPICAL CHARACTERISTICS

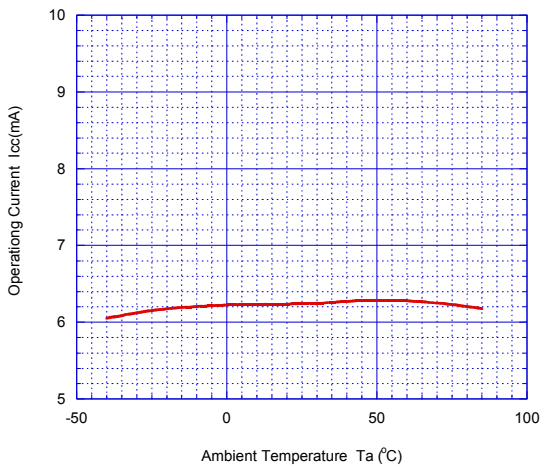
Second Harmonic Distortion vs. Supply Voltage



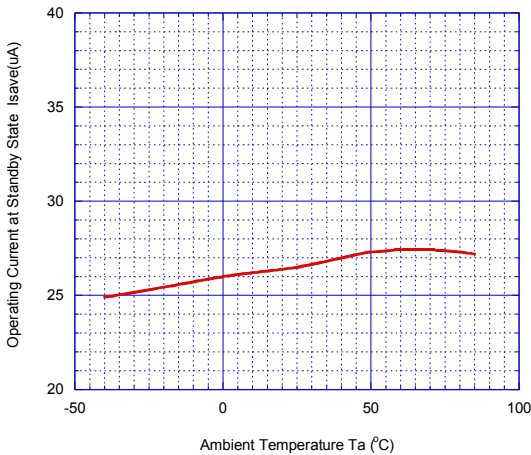
Switching Voltage vs. Supply Voltage



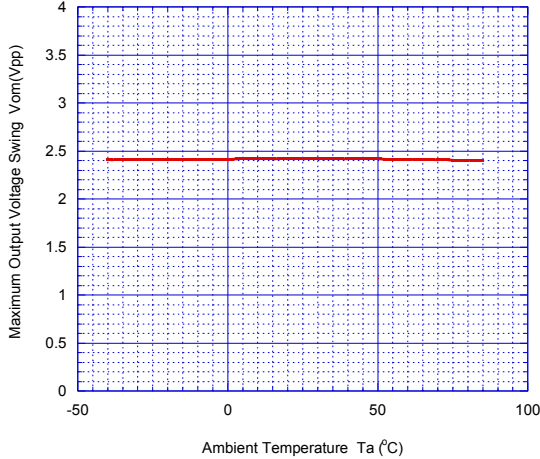
Operating Current vs. Temperature



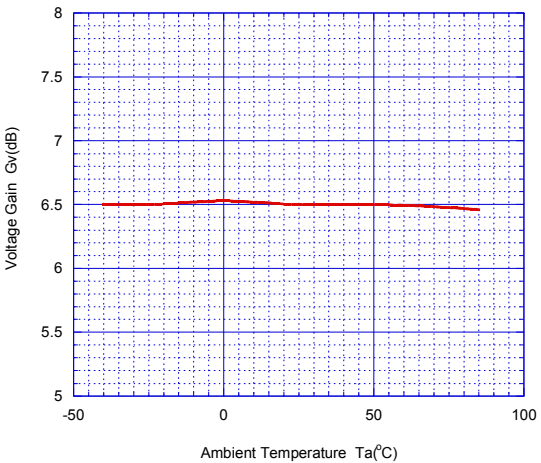
Operating Current at Standby State vs. Temperature



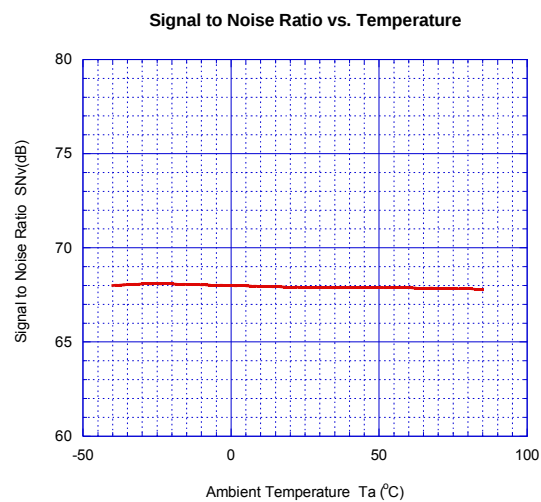
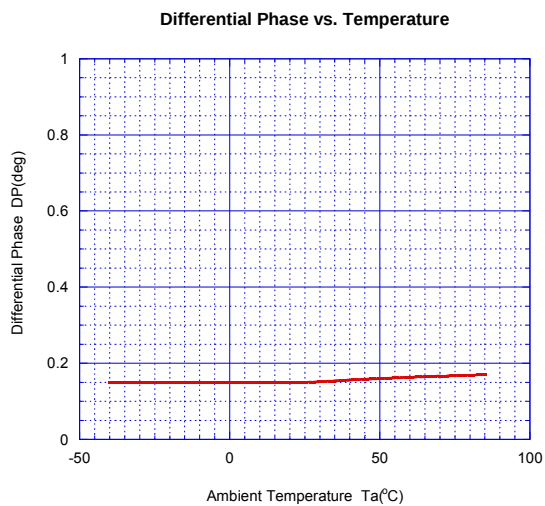
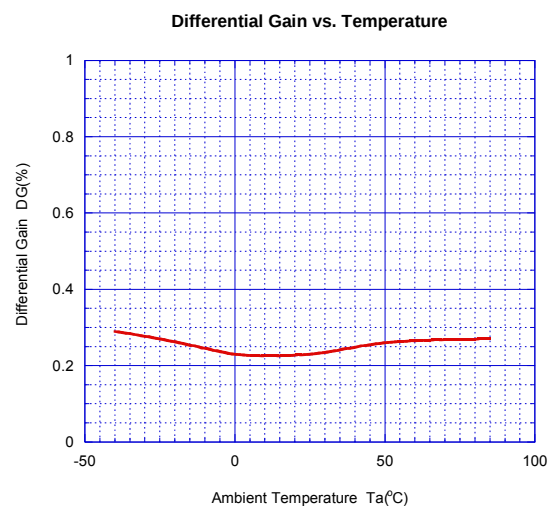
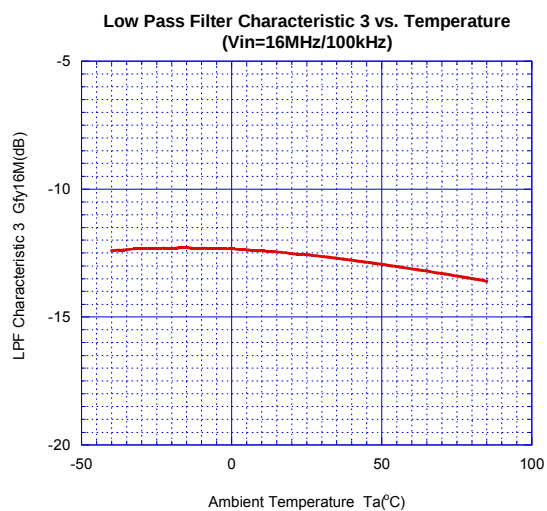
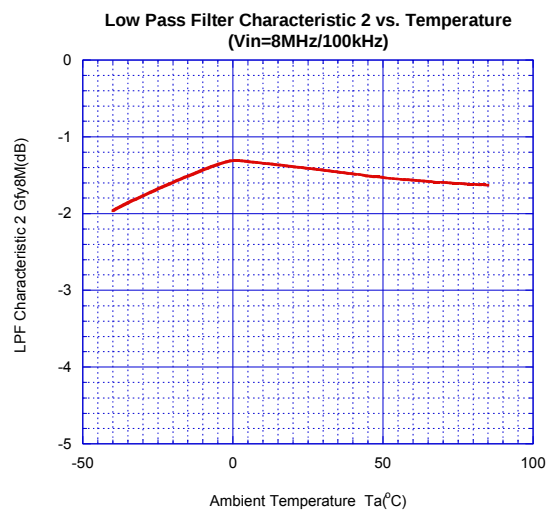
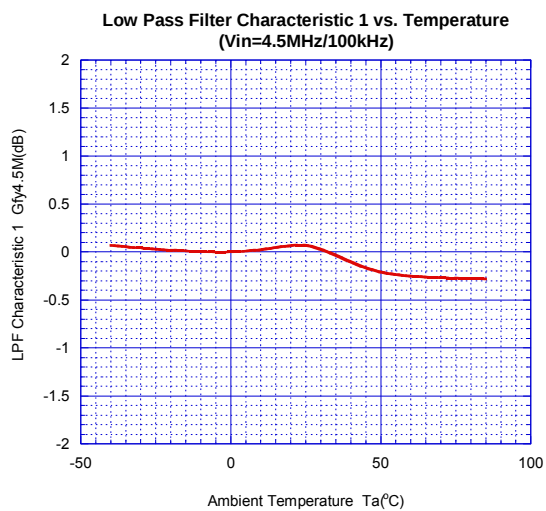
Maximum Output Voltage Swing vs. Temperature



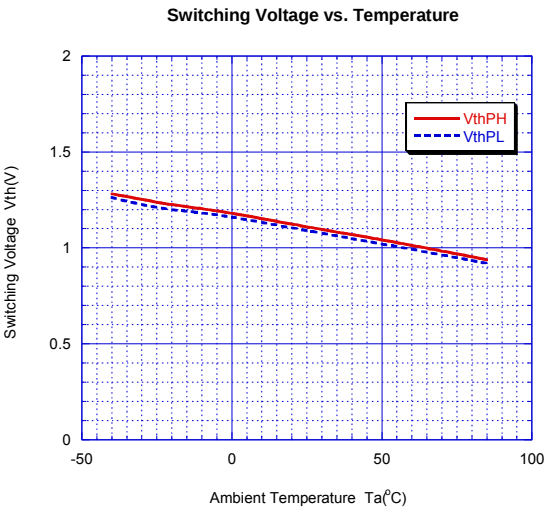
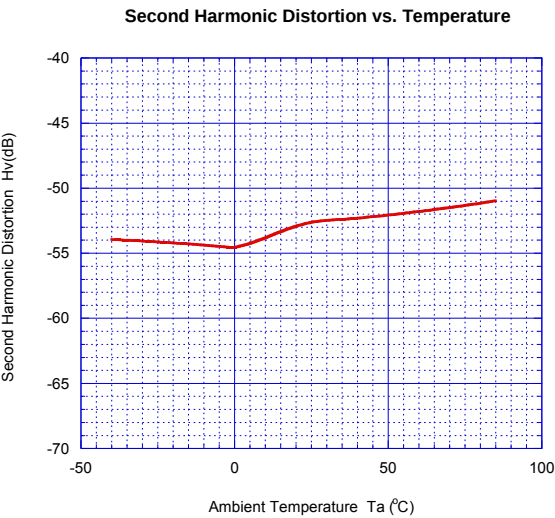
Voltage Gain vs. Temperature



## TYPICAL CHARACTERISTICS



TYPICAL CHARACTERISTICS



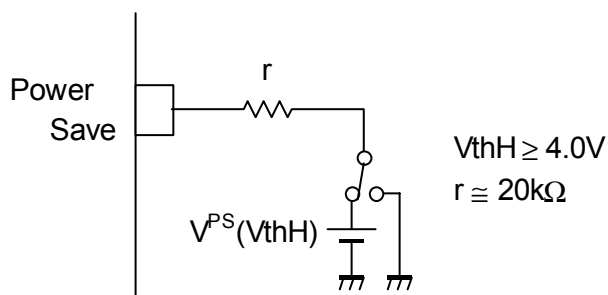
## ■ APPLICATION

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

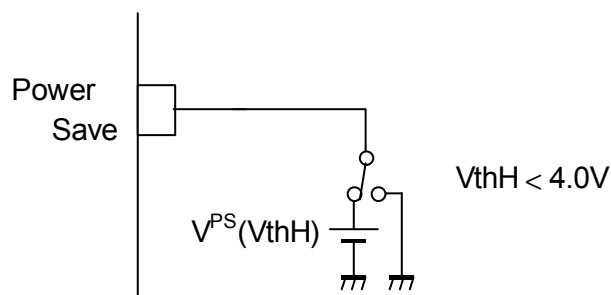
In addition, power save terminal voltage (VthH) -- in the case of below 4.0V, resistance is not required

Example)

● PS(VthH)  $\geq$  4.0V



● PS(VthH) < 4.0V



### [CAUTION]

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