

## LOW VOLTAGE VIDEO AMPLIFIER WITH LPF

### ■GENERAL DESCRIPTION

The **NJM2561** is a Low Voltage Video Amplifier contained LPF circuit. Internal 75Ω driver is easy to connect TV monitor directly.

The **NJM2561** features low power and small package, and is suitable for low power design on downsizing of DSC and DVC.

### ■PACKAGE OUTLINE

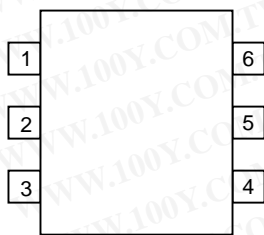


**NJM2561F1**

### ■FEATURES

- Operating Voltage 2.8 to 5.5V
- 6<sup>th</sup> Order LPF -33dB at 19MHz typ.
- 6dB Amplifier
- 75Ω Driver Circuit
- Power Save Circuit
- Bipolar Technology
- Package Outline SOT-23-6 (MTP6)

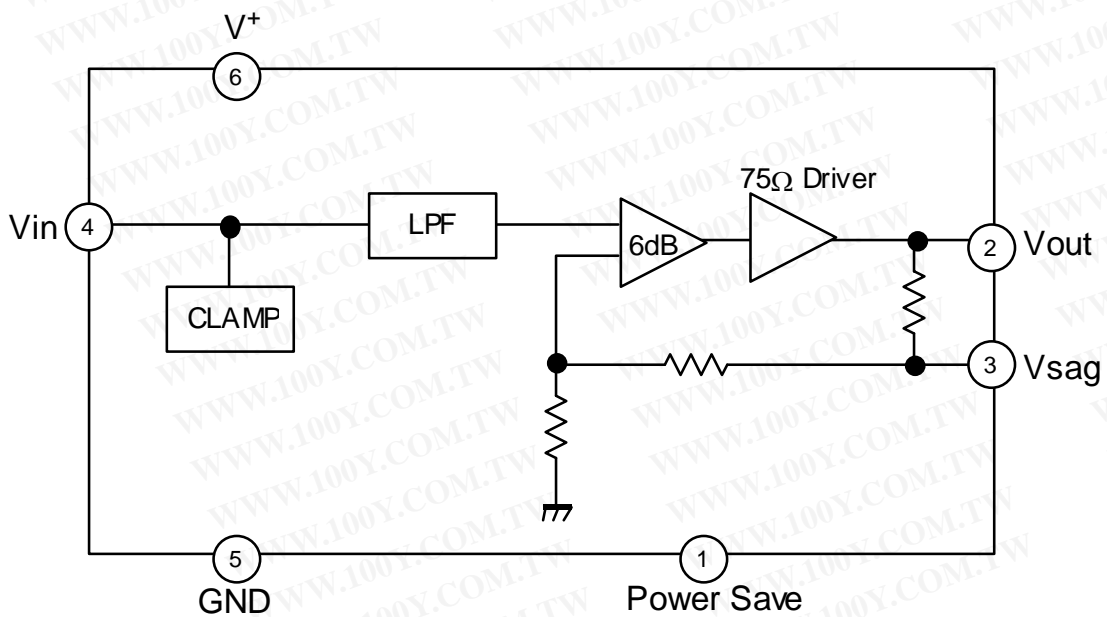
### ■PIN CONFIGURATION



1. Power Save
2. Vout
3. Vsag
4. Vin
5. GND
6. V<sup>+</sup>

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### ■BLOCK DIAGRAM



# NJM2561

## ■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)

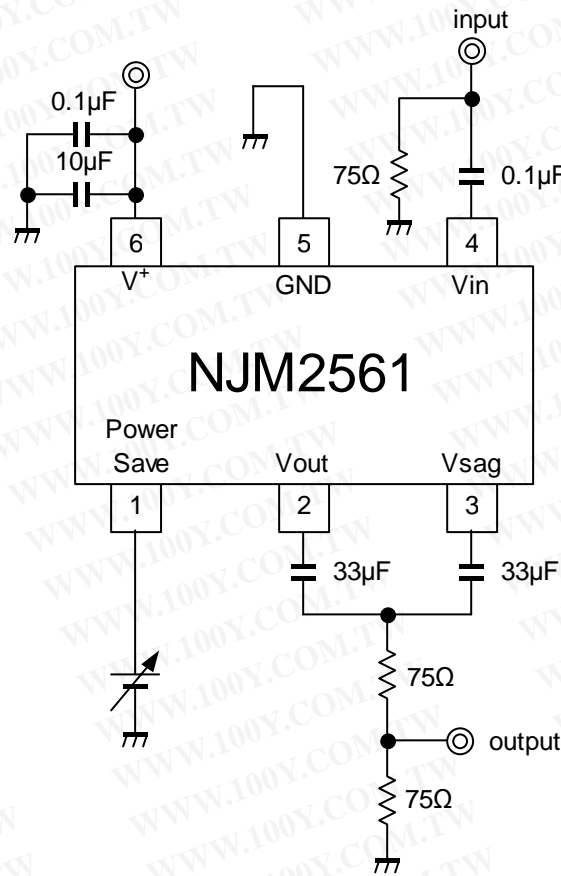
PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Operating Current	I <sub>CC</sub>	No Signal	-	8.0	12.0	mA
Operating Current at Power Save	I <sub>save</sub>	No Signal, Power Save Mode	-	30	50	μA
Maximum Output Voltage Swing	V <sub>om</sub>	f=100kHz, THD=1%	2.2	2.5	-	Vp-p
Voltage Gain	G <sub>v</sub>	V <sub>in</sub> =100kHz, 1.0Vp-p, Input Sine Signal	6.1	6.5	6.9	dB
Low Pass Filter Characteristic	G <sub>fy</sub> 4.5M	V <sub>in</sub> =4.5MHz/100kHz, 1.0Vp-p	-0.6	-0.1	0.4	dB
	G <sub>fy</sub> 19M	V <sub>in</sub> =19MHz/100kHz, 1.0Vp-p	-	-33	-23	
Differential Gain	DG	V <sub>in</sub> =1.0Vp-p, 10step Video Signal	-	0.5	-	%
Differential Phase	DP	V <sub>in</sub> =1.0Vp-p, 10step Video Signal	-	0.5	-	deg
S/N Ratio	SN <sub>v</sub>	V <sub>in</sub> =1.0Vp-p, R <sub>L</sub> =75Ω 100% White Video Signal, 100KHz to 6MHz	-	+60	-	dB
2nd. Distortion	H <sub>v</sub>	V <sub>in</sub> =1.0Vp-p, 3.58MHz, Sine Signal R <sub>L</sub> =75Ω	-	-50	-	dB
SW Change Voltage High Level	V <sub>thPH</sub>	Active	1.8	-	V <sup>+</sup>	V
SW Change Voltage Low Level	V <sub>thPL</sub>	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)

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## TEST CIRCUIT

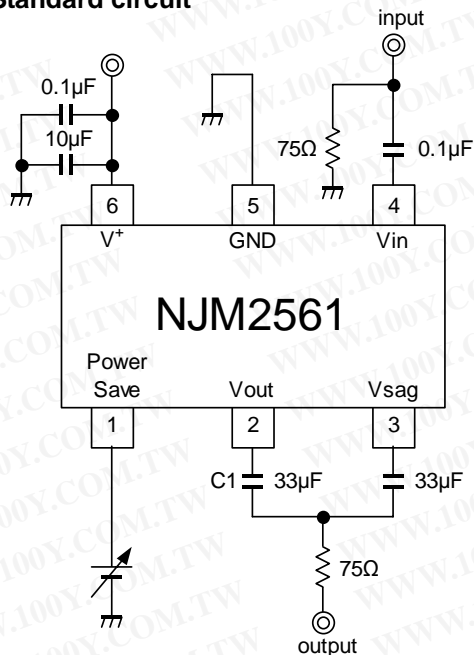


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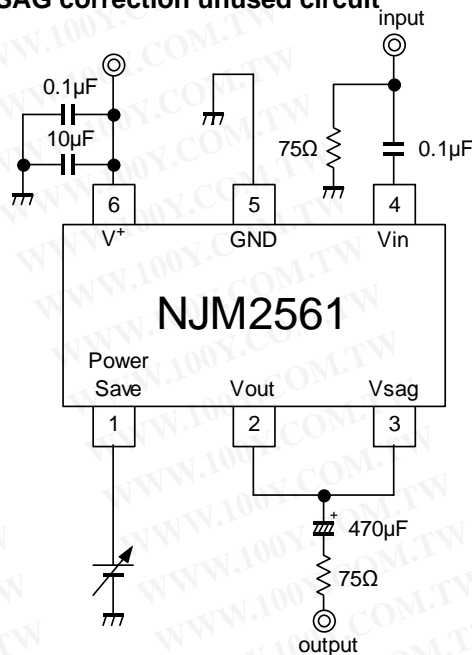
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## APPLICATION CIRCUIT

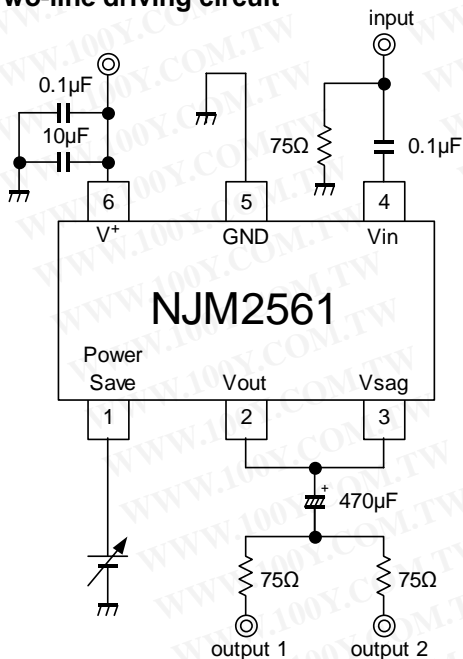
### (1) Standard circuit



### (2) SAG correction unused circuit



### (3) Two-line driving circuit



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#### (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.

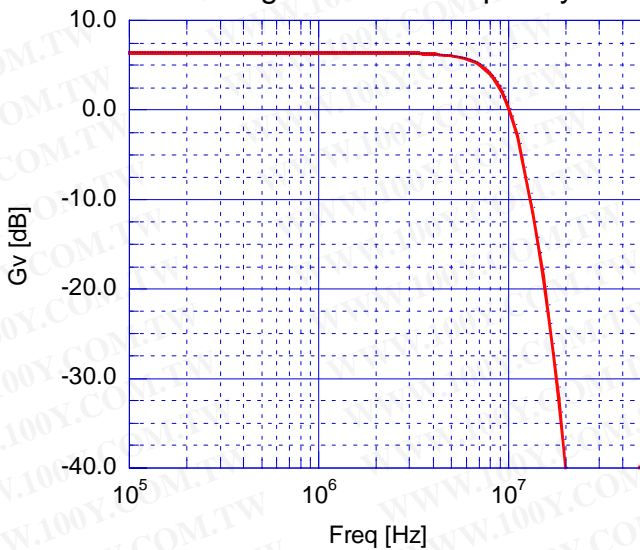
## ■ TERMINAL DESCRIPTION

No.	SYMBOL	VOLTAGE	EQUIVALENT CIRCUIT
1	Power Save	-	
2	Vout	0.33V	
3	Vsag	-	
4	Vin	1.10V	
5	GND	-	
6	V+	3V	

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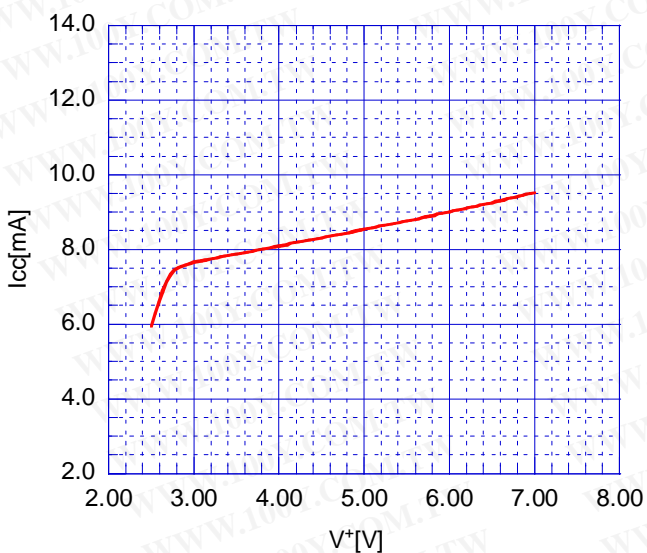
## TYPICAL CHARACTERISTICS

Voltage Gain vs Frequency

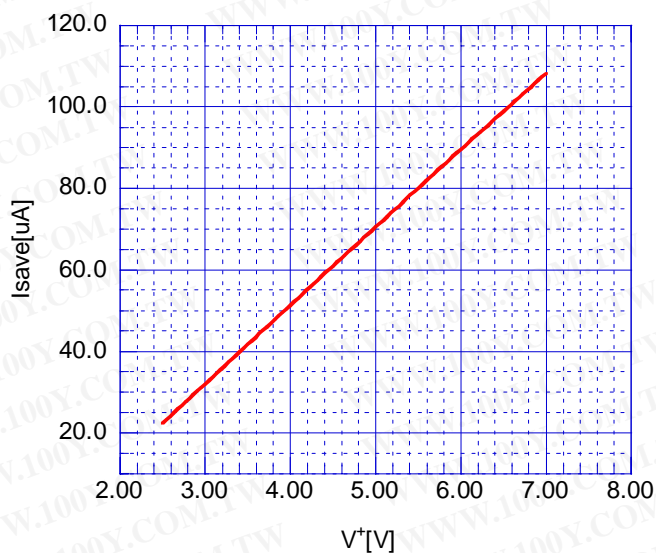


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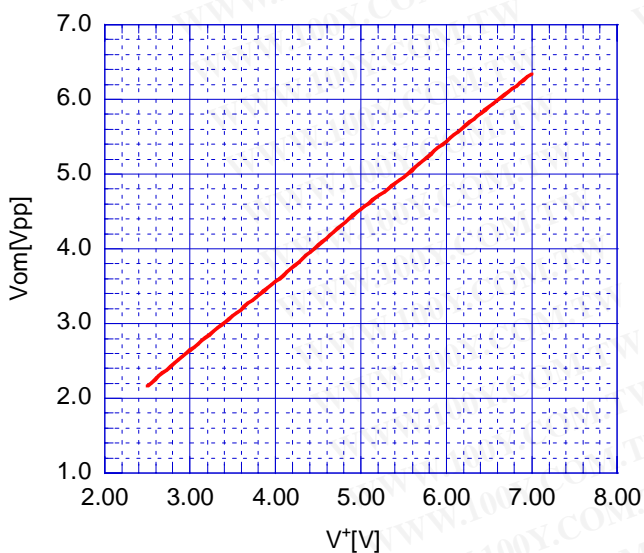
Icc vs V<sup>+</sup>



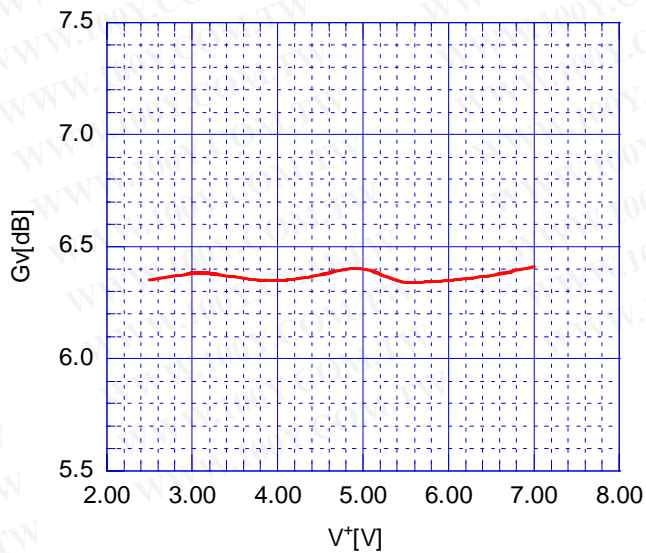
Isave vs V<sup>+</sup>



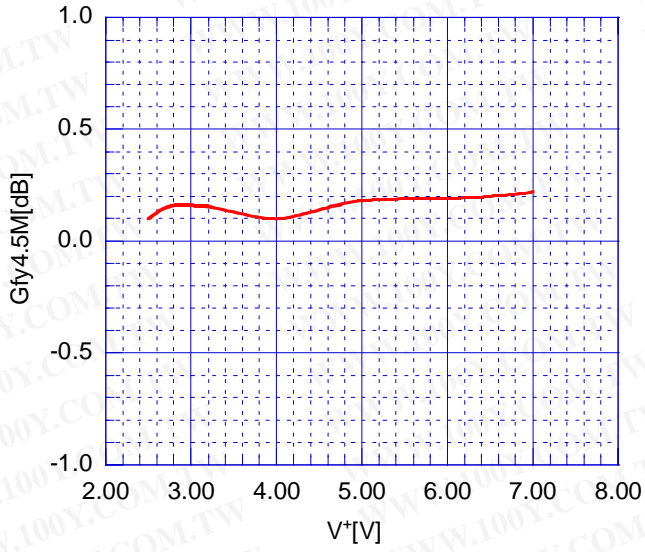
Vom vs V<sup>+</sup>



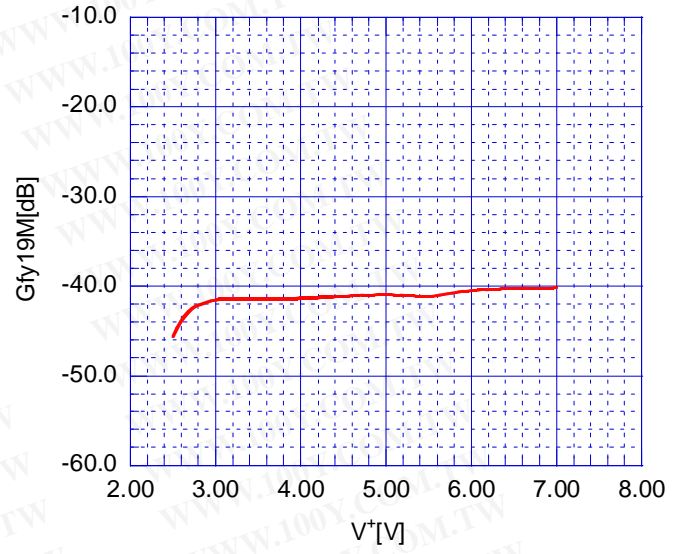
Gv vs V<sup>+</sup>



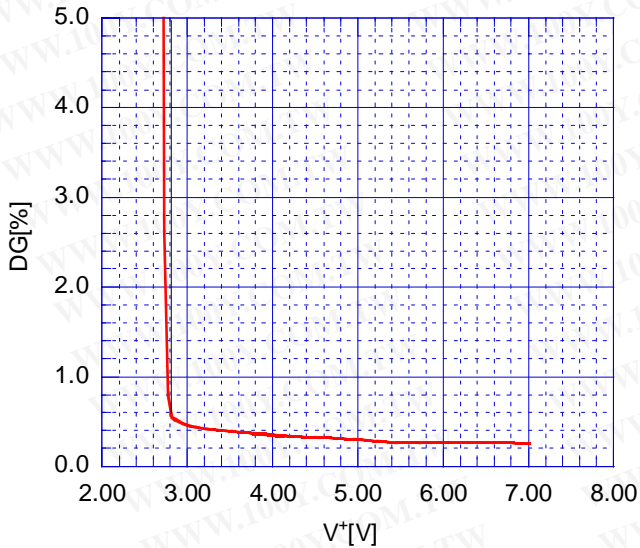
Gfy4.5M vs V<sup>+</sup>



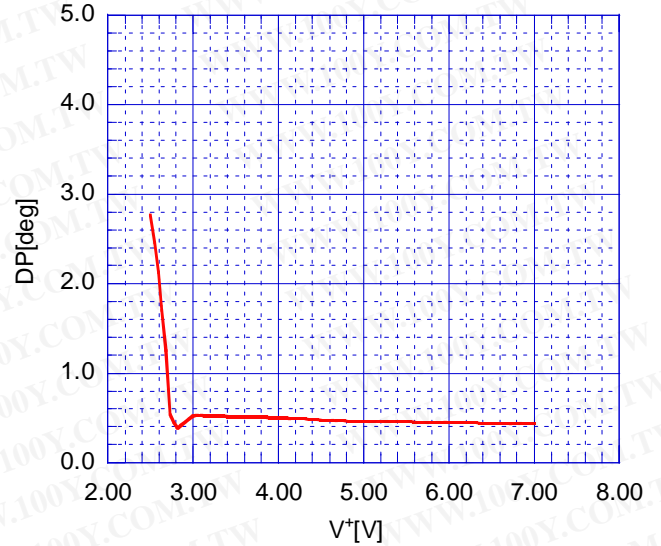
Gfy19M vs V<sup>+</sup>



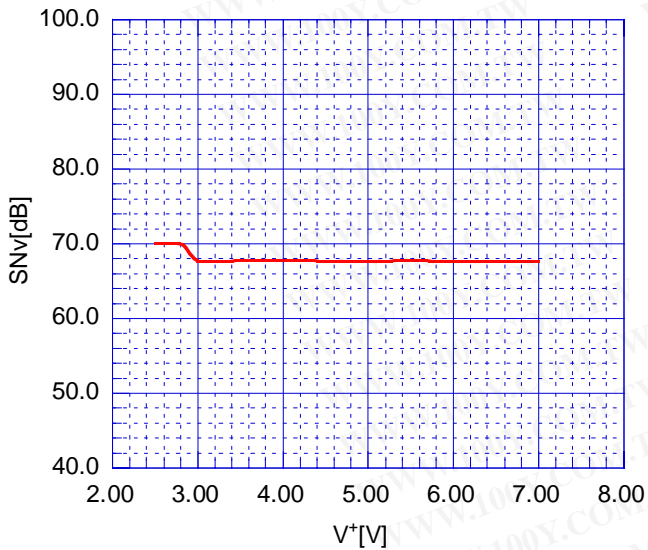
DG vs V<sup>+</sup>



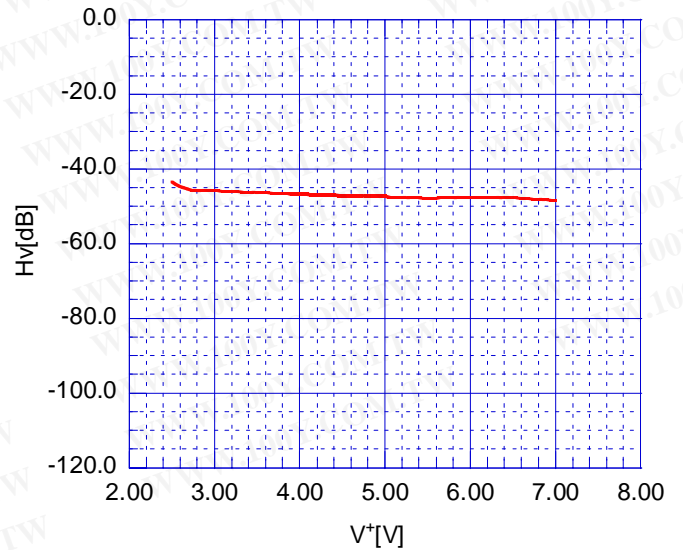
DP vs V<sup>+</sup>



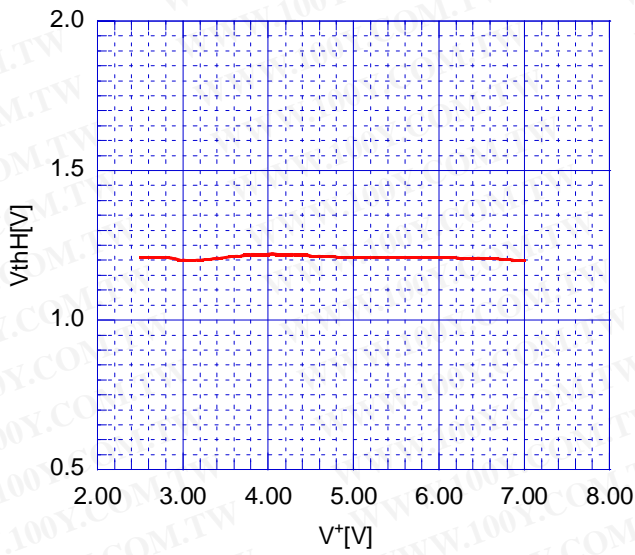
SNv vs V<sup>+</sup>



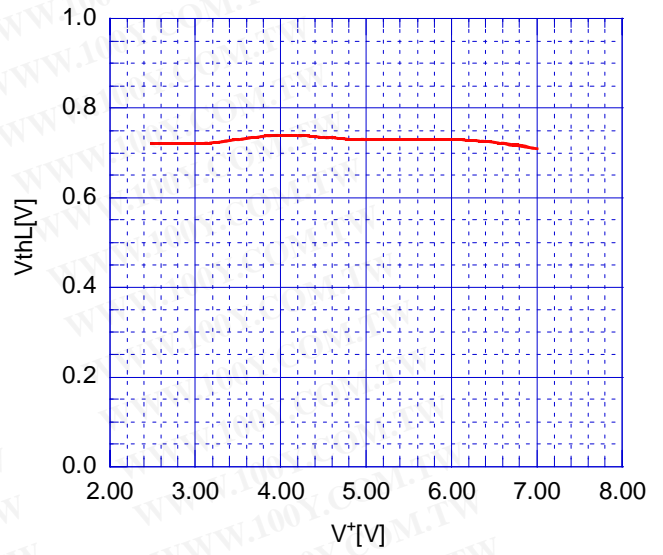
Hv vs V<sup>+</sup>



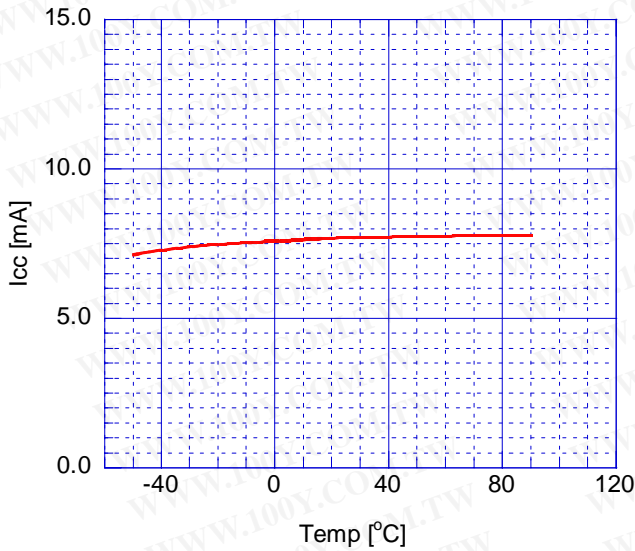
VthH vs V<sup>+</sup>



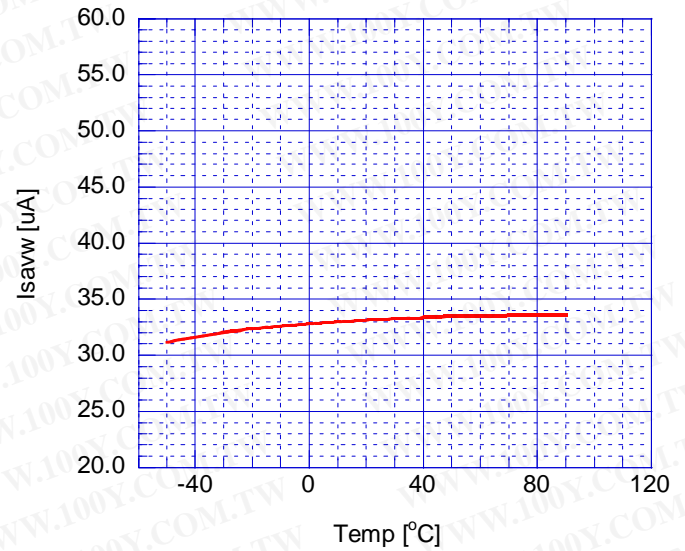
VthL vs V<sup>+</sup>



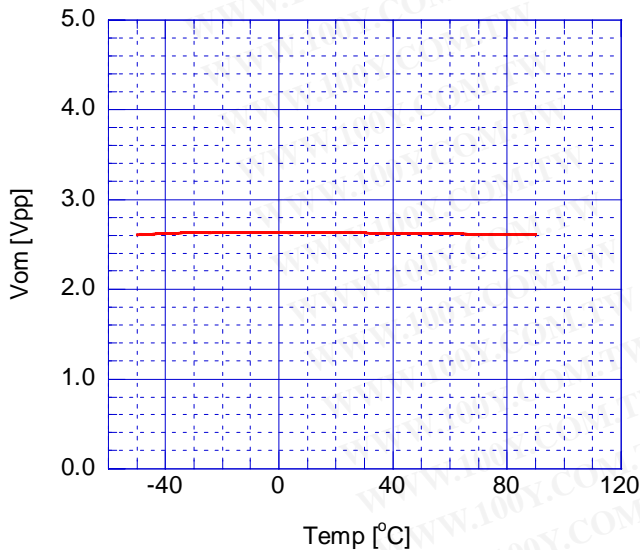
Icc vs Temp.



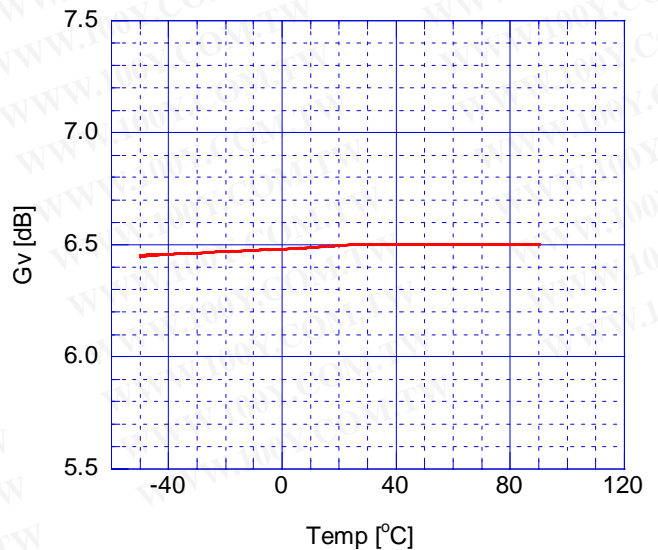
Isavw vs Temp.



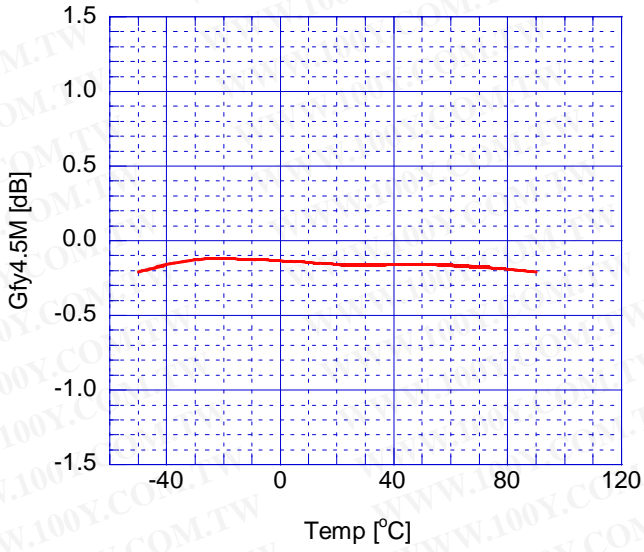
Vom vs Temp.



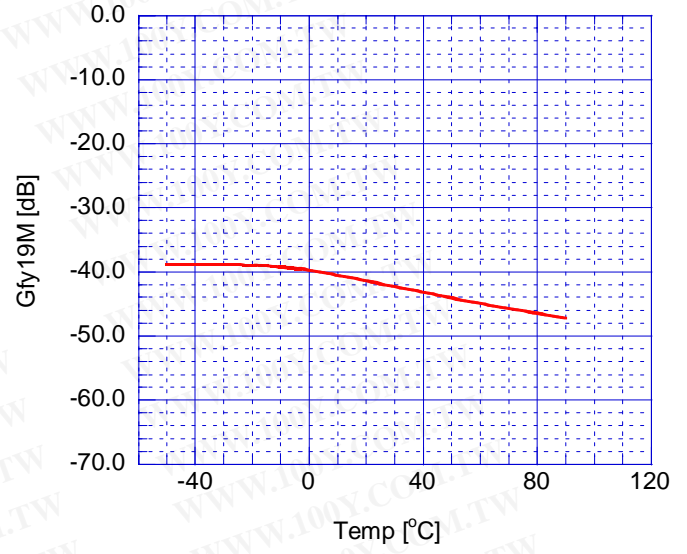
Gv vs Temp.



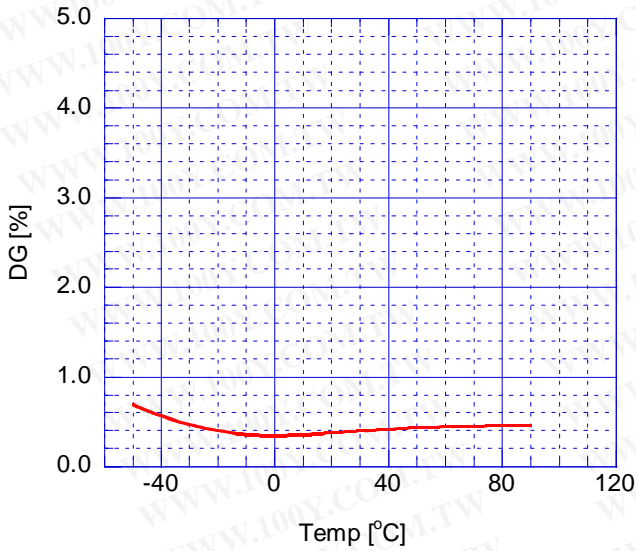
LPF4.5M vs Temp.



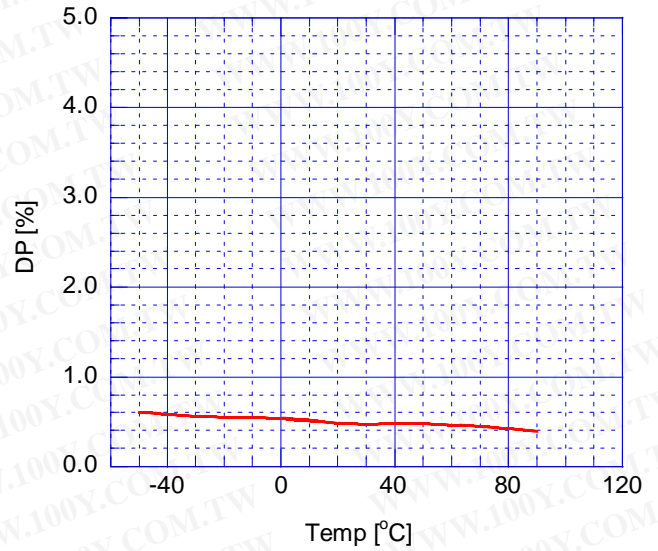
LPF19M vs Temp.



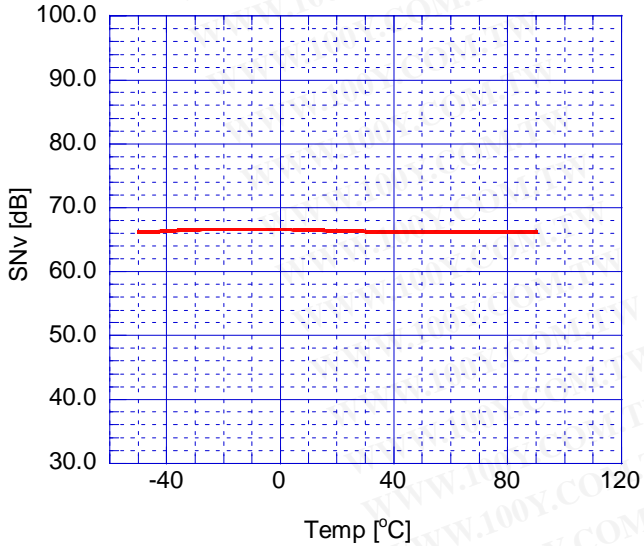
DG vs Temp.



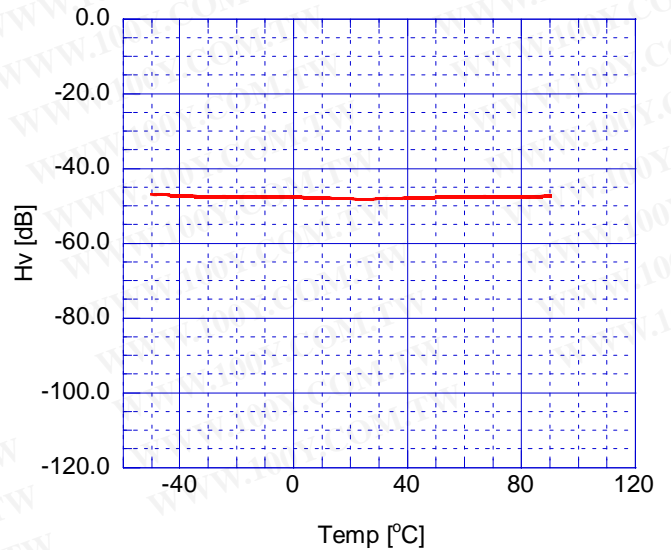
DP vs Temp.



SNv vs Temp.

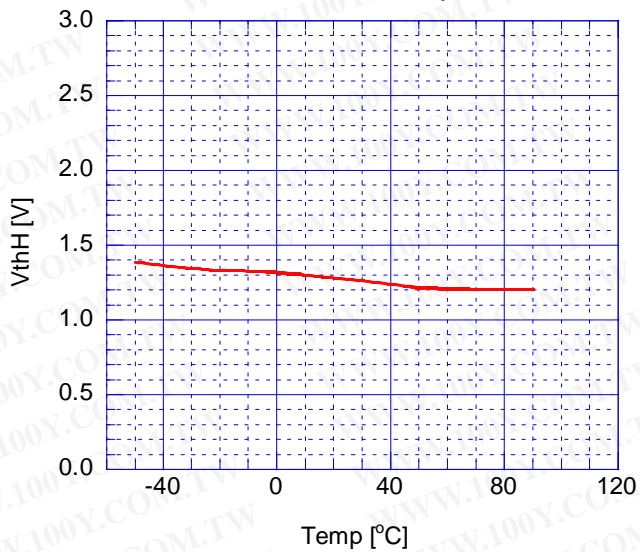


Hv vs Temp.

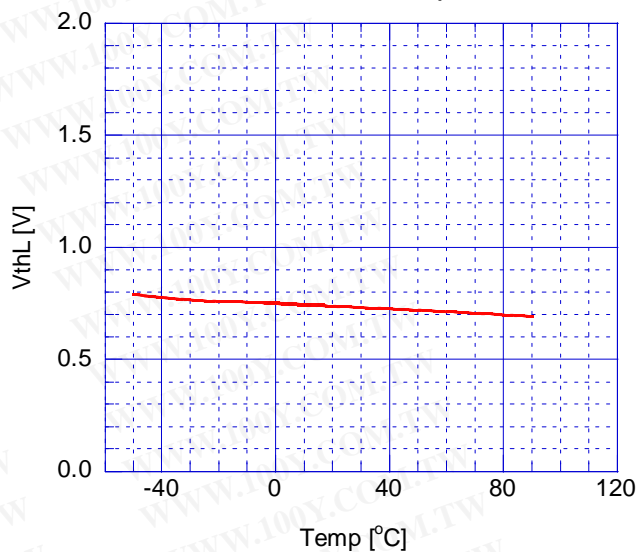


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VthH vs Temp.



VthL vs Temp.



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