

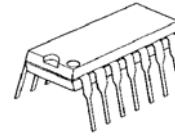
## DUAL SUPPLY WIDE BAND 3CH VIDEO AMPLIFIER

### ■ GENERAL DESCRIPTION

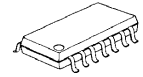
The **NJM2581** is a dual supply voltage wide band 3ch video amplifier. It is suitable for Y/Pb/Pr and RGB signal because frequency range is 50MHz.

The **NJM2581** is suitable for Set Top Box, AV amplifier, and other high quality AV systems.

### ■ PACKAGE OUTLINE



**NJM2581D**

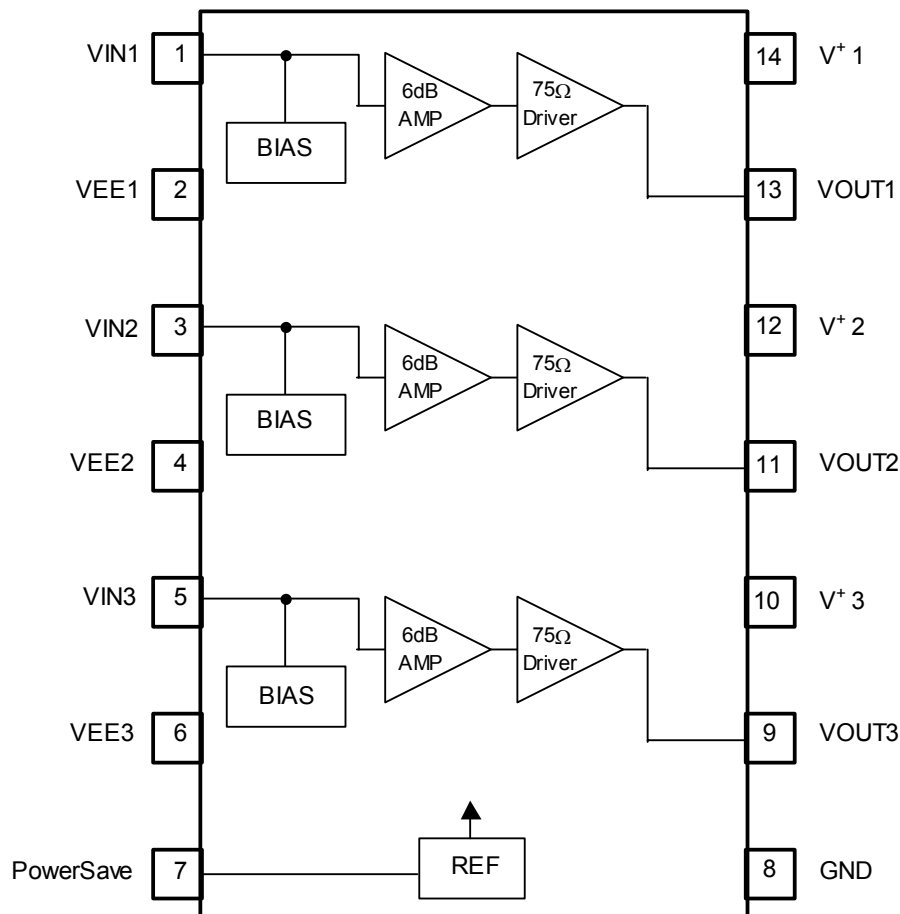


**NJM2581M**

### ■ FEATURES

- Operating Voltage                     $\pm 4.5$  to  $\pm 5.5$ V
- Wide Frequency Range            0dB at 50MHz typ.
- Internal 6dB Amplifier
- Internal 75Ω Driver Circuit
- Power Save Circuit
- Bipolar Technology
- Package Outline                    DIP14, DMP14

### ■ BLOCK DIAGRAM



# NJM2581

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

PARAMETERS	SYMBOL	RATINGS	UNIT
Supply Voltage	V <sup>+/-</sup>	±6.0	V
Power Dissipation	P <sub>D</sub>	(DIP) 500 (DMP) 350	mW
Operating Temperature Range	Topr	-40 to +85	°C
Storage Temperature Range	Tstg	-40 to +125	°C

## ■ ELECTRICAL CHARACTERISTICS (V<sup>+</sup>=±5.0V, R<sub>L</sub>=150Ω, Ta=25°C)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Operating Current	I <sub>CC</sub>	No signal	-	23.0	33.0	mA
Operating Current (Power Save)	I <sub>save</sub>	No signal, Power Save	-	-	1.2	mA
Maximum Output Voltage	V <sub>om</sub>	V <sub>in</sub> =1kHz, Sin signal, THD=1%,	7.4	8.0	-	Vp-p
Voltage Gain	G <sub>v</sub>	V <sub>in</sub> =1MHz, 1.0Vp-p Sin signal	6.0	6.4	6.8	dB
Band Width	f		-	50	-	MHz
Frequency Characteristic	G <sub>f</sub>	V <sub>in</sub> =50MHz / 1MHz, 1.0Vp-p, Sin signal	-	0	-	dB
Cross talk 1	CTB1	V <sub>in</sub> =4.43MHz, 1.0Vp-p, Sin signal	-	-60	-50	dB
Cross talk 2	CTB2	V <sub>in</sub> =50MHz, 1.0Vp-p, Sin signal	-	-40	-	dB
Differential Gain	DG	V <sub>in</sub> =1.0Vp-p 10step Video signal *1	-	0.3	-	%
Differential Phase	DP	V <sub>in</sub> =1.0Vp-p 10step Video signal *1	-	0.3	-	deg
S/N	SN <sub>v</sub>	V <sub>in</sub> =1.0Vp-p, 100% White Video signal *1	-	70	-	dB
Power Save Switch Change Voltage H Level	V <sub>thPH</sub>	IC Operating	2.0	-	V <sup>+</sup>	V
Power Save Switch Change Voltage L Level	V <sub>thPL</sub>	IC Waiting	0	-	0.6	V

\*1: Refer to TEST CIRCUIT 2.

## ■ MODE SWITCH FUNCTION

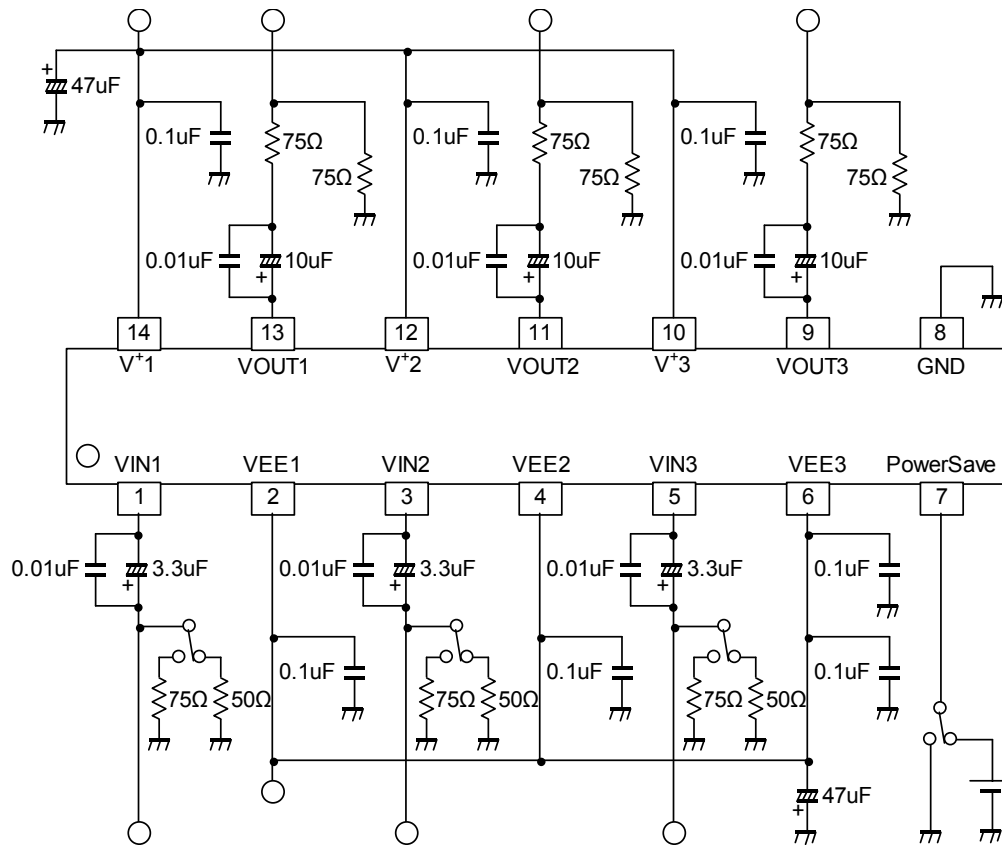
PIN	MODE	NOTES
Power Save	H	Power Save : OFF
	L	Power Save : ON (Mute)
	OPEN	Power Save : ON (Mute)

## ■ EQUIVALENT CIRCUIT

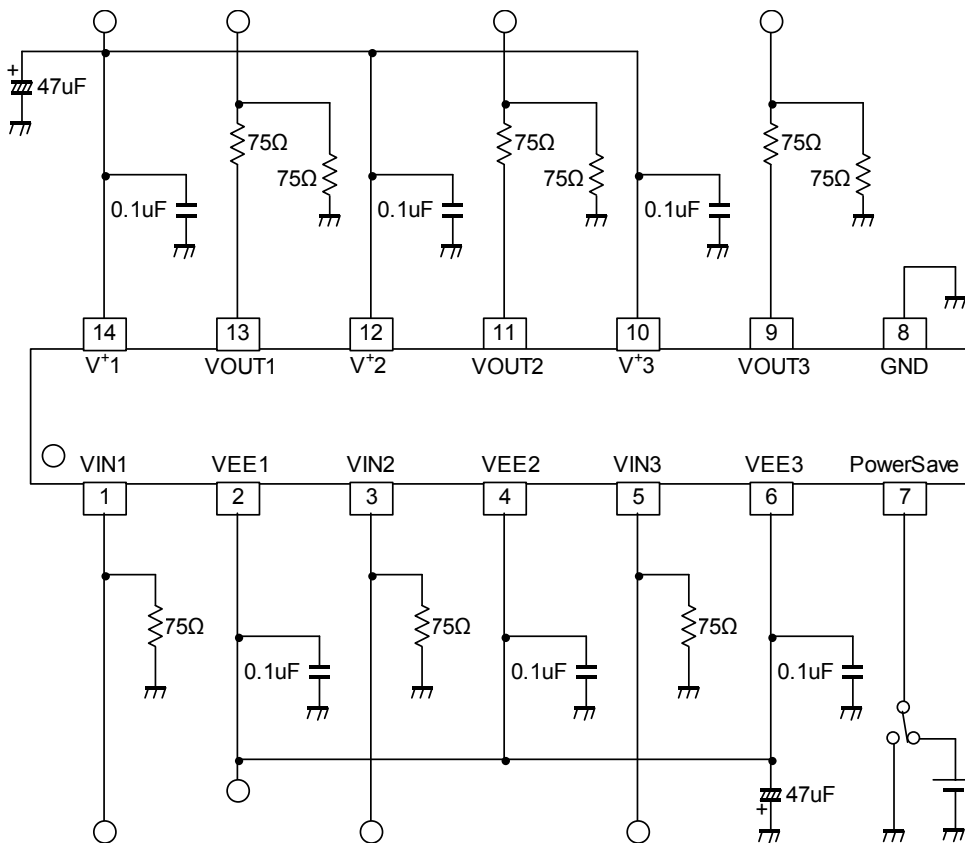
PIN No.	PIN NAME	FUNCTION	INSIDE EQUIVALENT CIRCUIT
1 3 5	VIN1 VIN2 VIN3	Input	
13 11 9	VOUT1 VOUT2 VOUT3	Output	
7	PowerSave	Power Save	
14 12 10	V <sup>+</sup> 1 V <sup>+</sup> 2 V <sup>+</sup> 3	V <sup>+</sup>	_____
2 4 6	VEE1 VEE2 VEE3	V <sup>-</sup>	_____
8	GND	GND	_____

# NJM2581

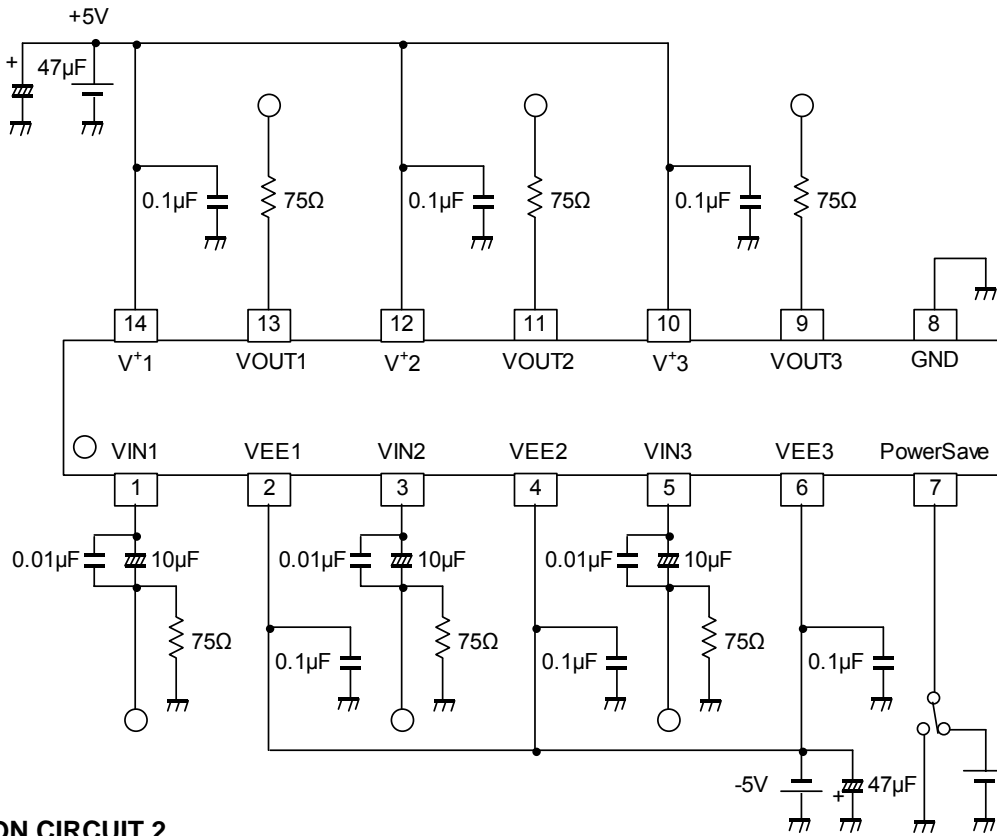
## TEST CIRCUIT 1



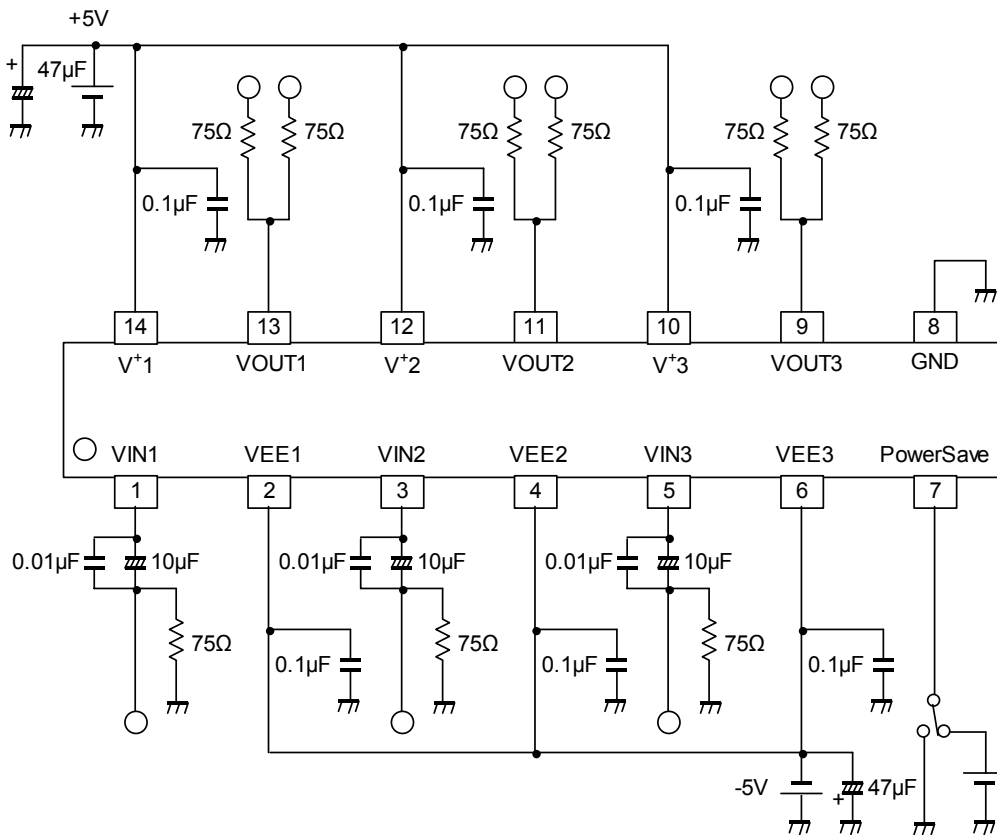
## TEST CIRCUIT 2 (DG, DP, S/N)



## APPLICATION CIRCUIT 1



## APPLICATION CIRCUIT 2

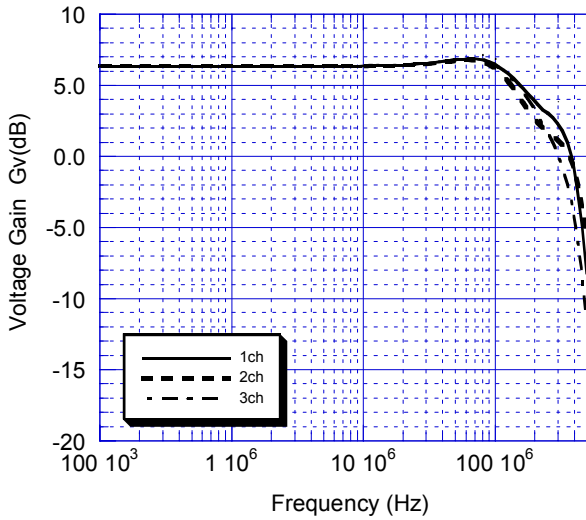


**(Note) Two-line driving circuit**

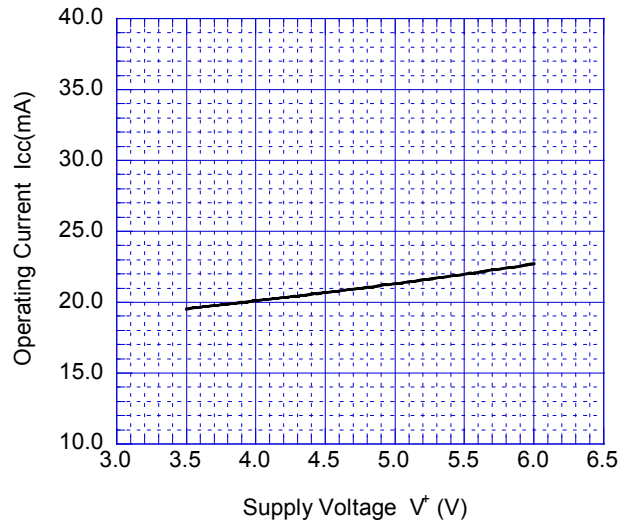
This circuit drives two-line of 150Ω. However, it may cause to lose synchronization by an input signal of large APL change (100% white signals more than 1Vp-p). Confirm the large APL change waveform (100% white signals more than 1Vp-p) and evaluate sufficiently.

## ■ TYPICAL CHARACTERISTICS

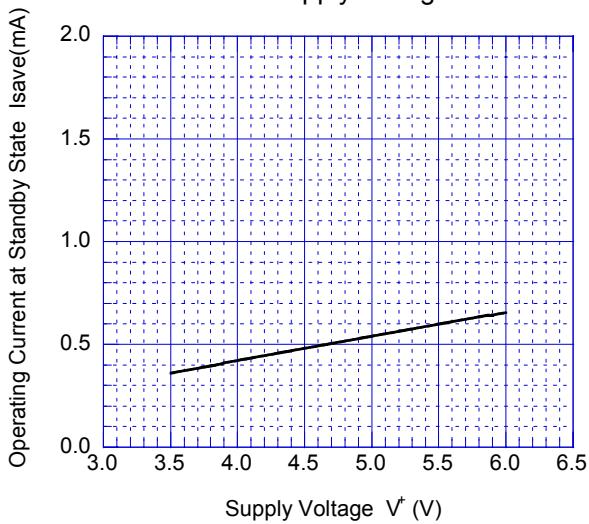
Voltage Gain vs. Frequency



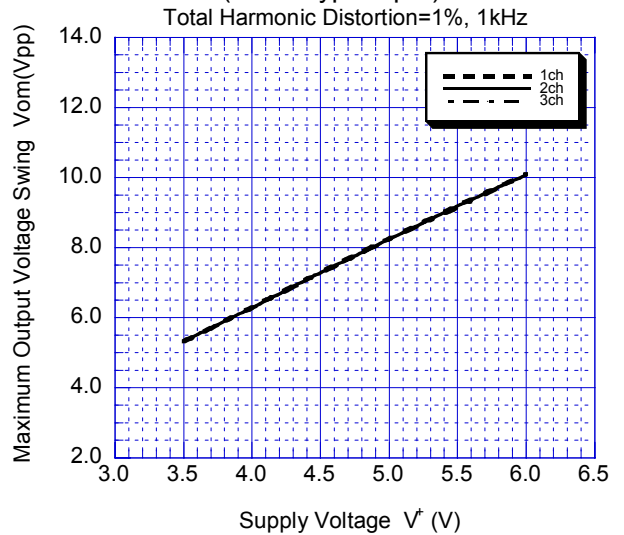
Operating Current vs. Supply Voltage



Operating Current at Standby State vs. Supply Voltage

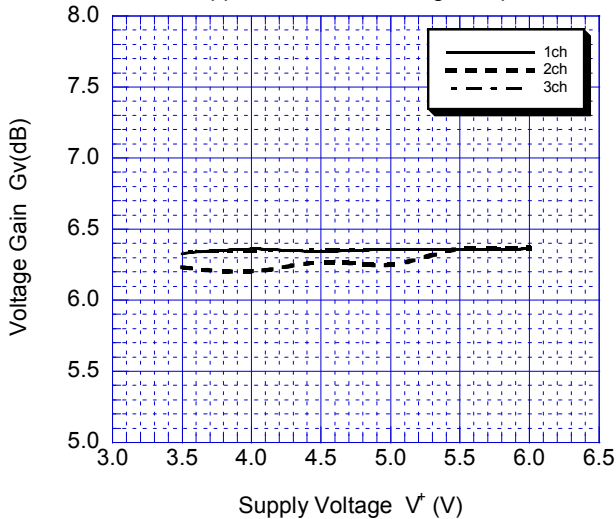


Maximum Output Voltage Swing vs. Supply Voltage (BIAS Type Input)



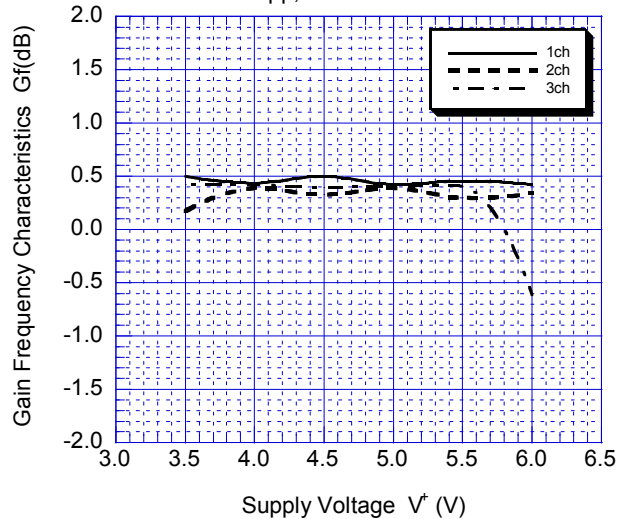
Voltage Gain vs. Supply Voltage

1Vpp, 1MHz sinewave signal input



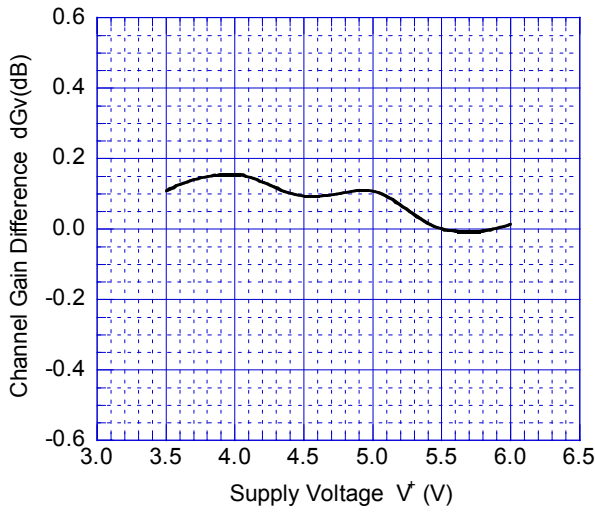
Gain Frequency Characteristics vs. Supply Voltage

1Vpp, 50MHz/1MHz

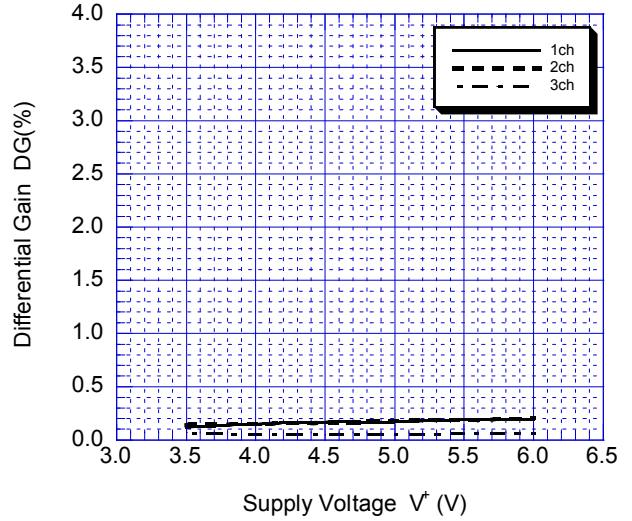


## TYPICAL CHARACTERISTICS

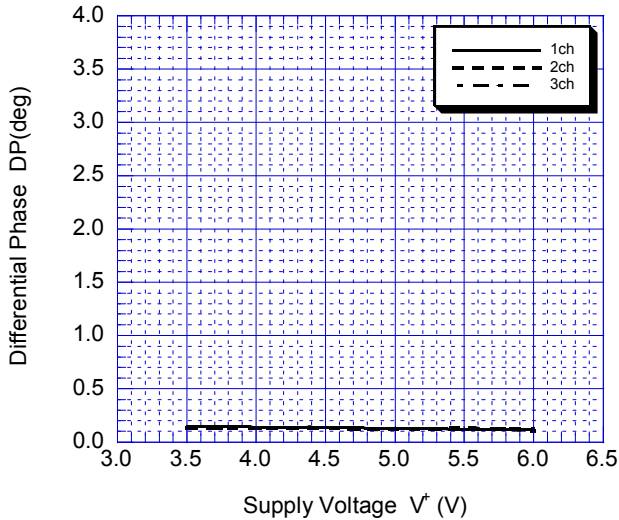
Channel Gain Difference vs. Supply Voltage



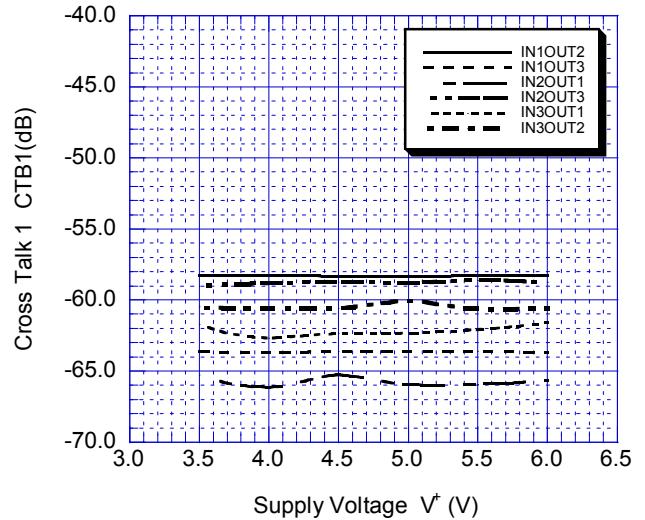
Differential Gain vs. Supply Voltage  
1Vpp, 10step video signal input



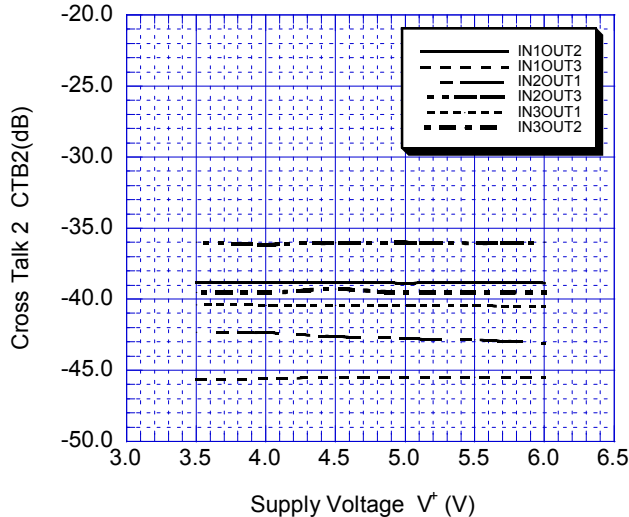
Differential Phase vs. Supply Voltage  
1Vpp, 10step video signal input



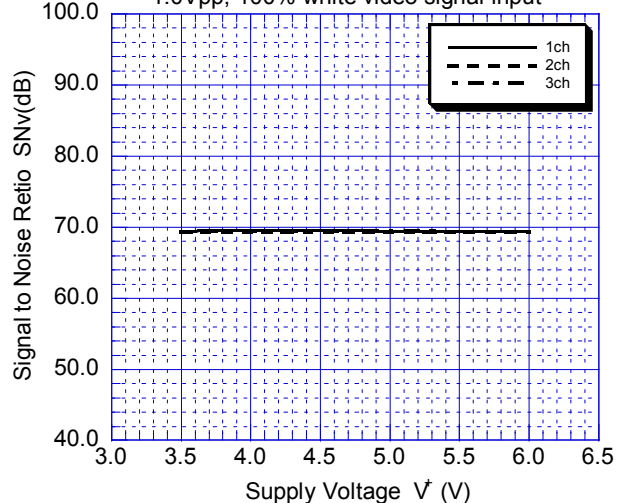
Cross Talk 1 vs. Supply Voltage  
1Vpp, 4.43MHz sinewave signal input



Cross Talk 2 vs. Supply Voltage  
1Vpp, 50MHz sinewave signal input

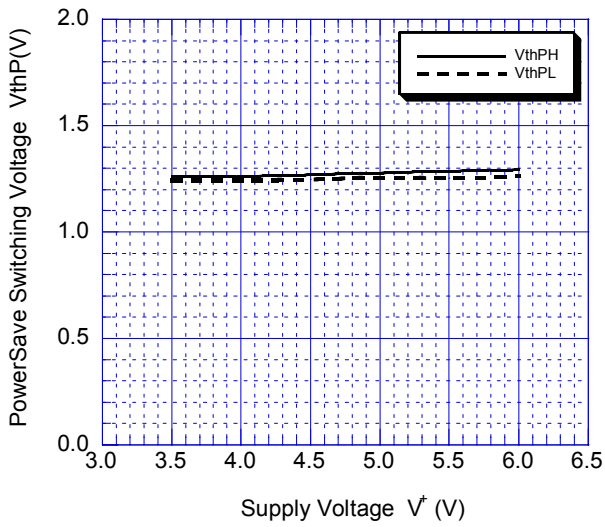


Signal to Noise Ratio vs. Supply Voltage  
1.0Vpp, 100% white video signal input



## ■ TYPICAL CHARACTERISTICS

PowerSave Switching Voltage vs. Supply Voltage



[CAUTION]  
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