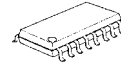# 5-INPUT 3-OUTPUT VIDEO SWITCH

■ GENERAL DESCRIPTION

The **NJM2595** is a 5-input 3-output video switch. Its switches select one from five signals received from VTR, TV, DVD, TV-GAME and others.

The NJM2595 is designed for audio items, such as AV amplifier and others.
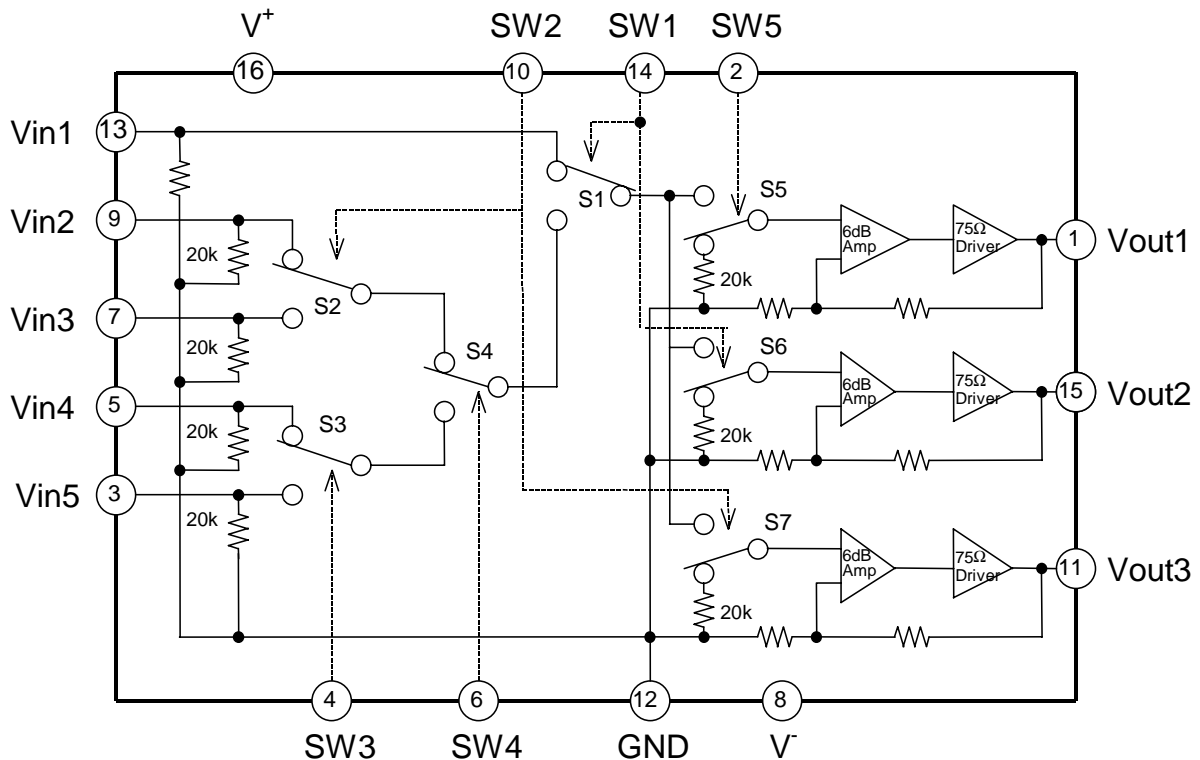
■ PACKAGE OUTLINE

NJM2595M

■ FEATURES

● 5-input 3-output
● Operating Voltage ± 4.0 to ± 6.5V
● Operating current ± 15mAtyp. at Vcc=± 5V
● Crosstalk -65dBtyp.
● Internal 6dB Amplifier
● Internal 75Ω Driver
● Bipolar Technology
● Package Outline DMP16

■ PIN CONFIGURATION and BLOCK DIAGRAM

NJM2595

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

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	$V^{+/-}$	±7.0	V
Power Dissipation	P_D	350	mW
Operating Temperature Range	Topr	-40 to +85	°C
Storage Temperature Range	Tstg	-40 to +125	°C

■ **ELECTRICAL CHARACTERISTICS** ($V^+/V^-=\pm5V, R_L=150\Omega, Ta=25°C$)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Positive Operating Current	Icc	No signal	-	15	22	mA
Negative Operating Current	Iee	No signal	-22	-15	-	mA
Voltage Gain	Gv	Vin=1.0Vpp,f=100kHz	6.0	6.3	6.8	dB
Frequency Characteristic	Gf	Vin=1.0Vpp,f=5MHz/100kHz	-1.0	0.0	+1.0	dB
Differential Gain	DG	Vin=1.0Vpp,Typical stair-case signal	-	0.2	-	%
Differential Phase	DP	Vin=1.0Vpp, Typical stair-case signal	-	0.2	-	deg
Output Offset Voltage 1	Vos1	No signal, between Vin2 and Vin3	-40	0.0	+40	mV
Output Offset Voltage 2	Vos2	No signal, between Vin1 and Vin2, between Vin1 and Vin3	-60	0.0	+60	
Between Input Crosstalk	CT	Vin=1.0Vpp,f=4.43MHz,Vo/Vin	-	-65	-	dB
Crosstalk at Mute	CTm	Vin=1.0Vpp,f=4.43MHz,Vo/Vin	-	-55	-	dB
Total Harmonic Distortion	THD	Vin=1.25Vpp,f=1kHz	-	0.1	-	%
Switch Select Voltage at High	Vch		2.0	-	V^+	V
Switch Select Voltage at Low	Vcl		0	-	0.8	
Input Impedance	Rin		-	20	-	KΩ

■ **Control Signal vs. Output Signal** (L=V_{CL},H=V_{CH}, X=L or H)

SW1	SW2	SW3	SW4	SW5	Vout1	Vout2	Vout3
L	H	X	X	H	Vin1	MUTE	Vin1
	L			H	Vin1	MUTE	MUTE
	H			L	MUTE	MUTE	Vin1
H	L	X	L	H	Vin2	Vin2	MUTE
				L	MUTE	Vin2	MUTE
H	H	X	L	H	Vin3	Vin3	Vin3
				L	MUTE	Vin3	Vin3
H	H	L	H	H	Vin4	Vin4	Vin4
	H			L	MUTE	Vin4	Vin4
	L			H	Vin4	Vin4	MUTE
	L			L	MUTE	Vin4	MUTE
H	H	H	H	H	Vin5	Vin5	Vin5
	H			L	MUTE	Vin5	Vin5
	L			H	Vin5	Vin5	MUTE
	L			L	MUTE	Vin5	MUTE
L	L	X	X	L	MUTE	MUTE	MUTE

■ **EQUIVALENT CIRCUIT**

PIN No.	PIN NAME	INSIDE EQUIVALENT CIRCUIT	VOLTAGE
16	V$^+$		5V
8	V$^-$		-5V
12	GND		-
13 9 7 5 3	Vin1 Vin2 Vin3 Vin4 Vin5	Vcc Vin 260 20k Gnd Vee	0V
1 15 11	Vout1 Vout2 Vout3	Vcc 2.1k Vout Vee	0V
4 6 2	SW3 SW4 SW5	Vcc SW 16k 20k 8k Gnd 4k Vee	-

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■ EQUIVALENT CIRCUIT

PIN No.	PIN NAME	INSIDE EQUIVALENT CIRCUIT	VOLTAGE
14 10	SW1 SW2		-

■ TEST CIRCUIT
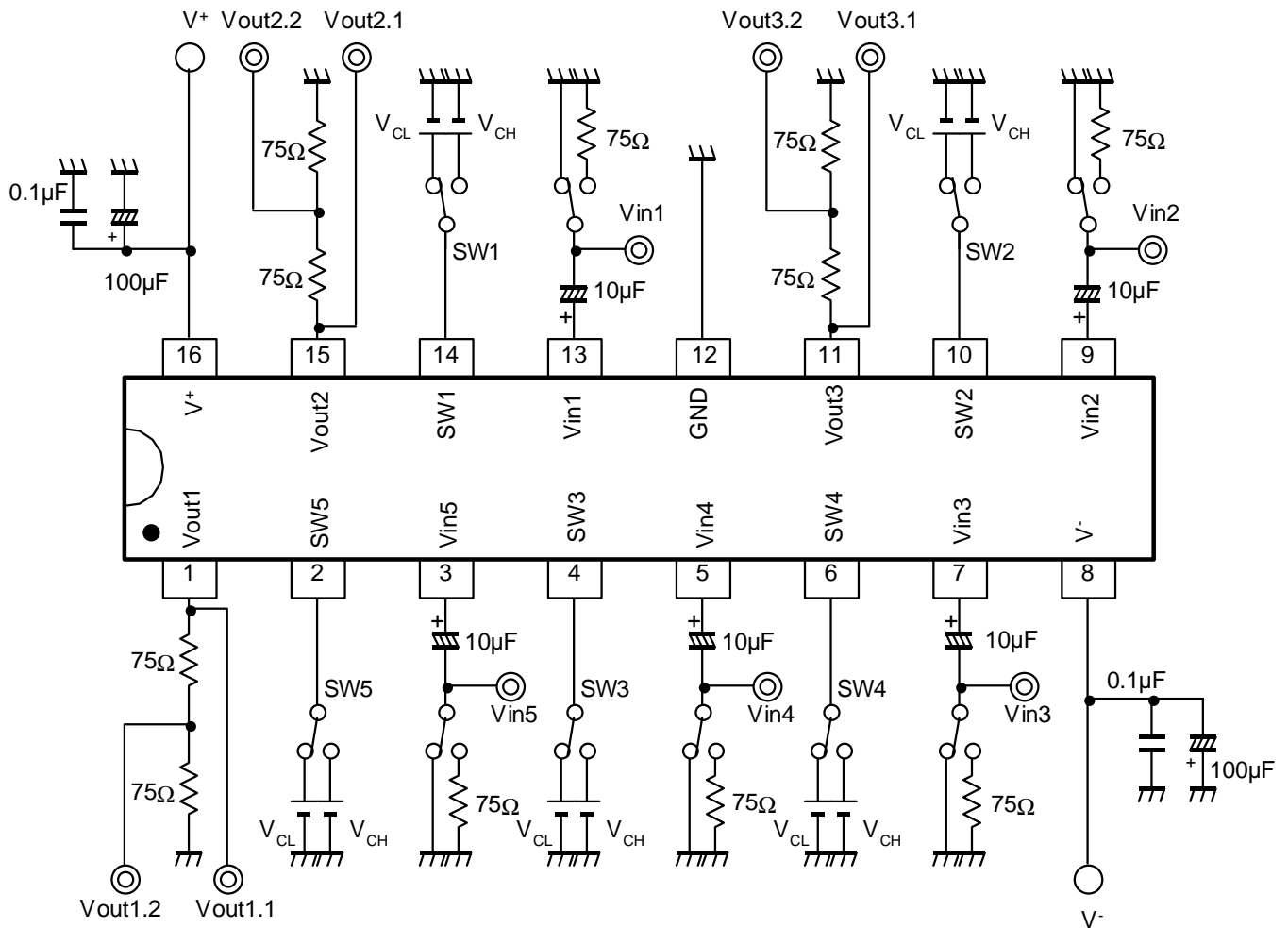
■ **APPLICATION CIRCUIT**

NJM2595
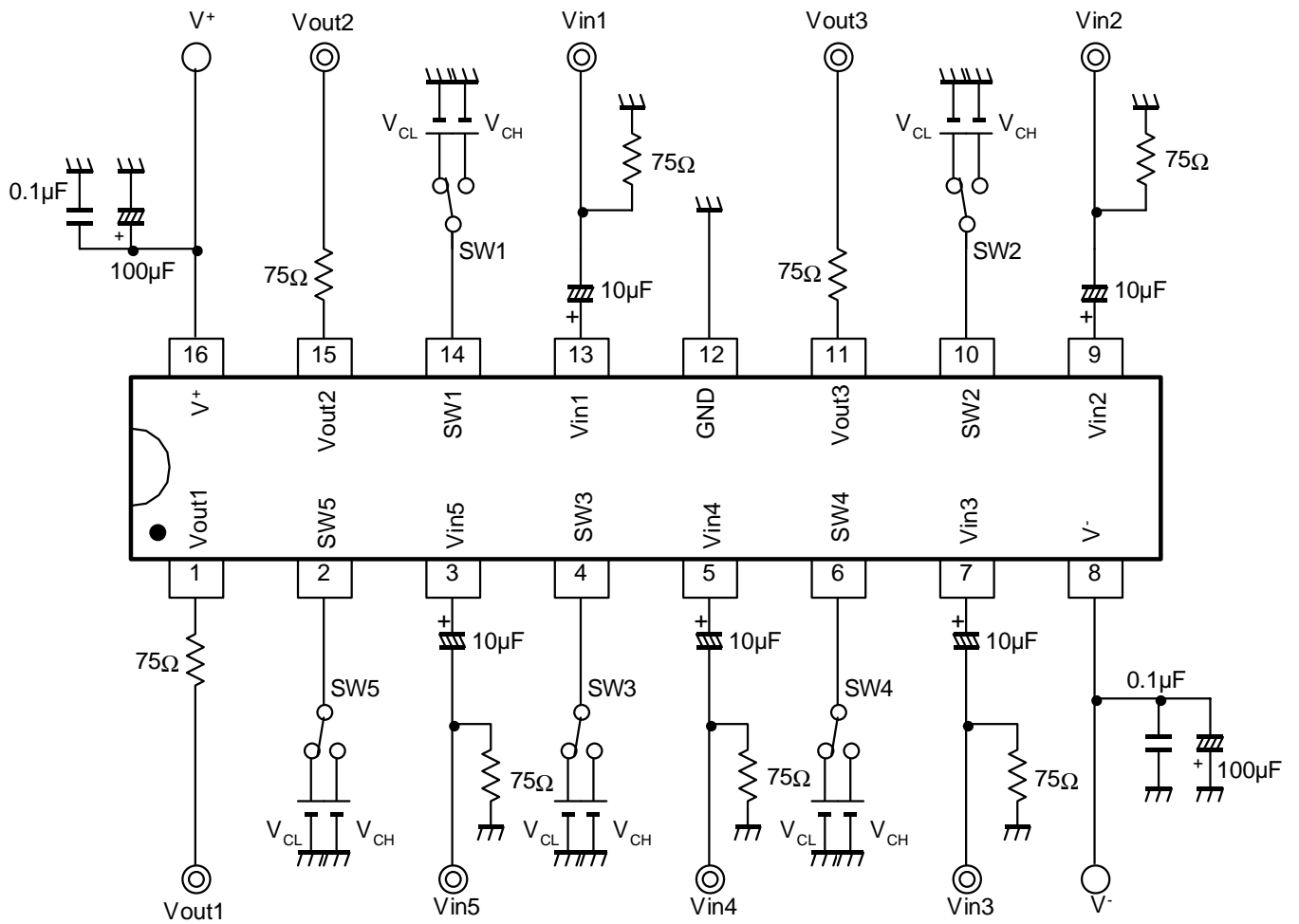
■ **TYPICAL CHARACTERISTICS**

Voltage Gain vs. Frequency
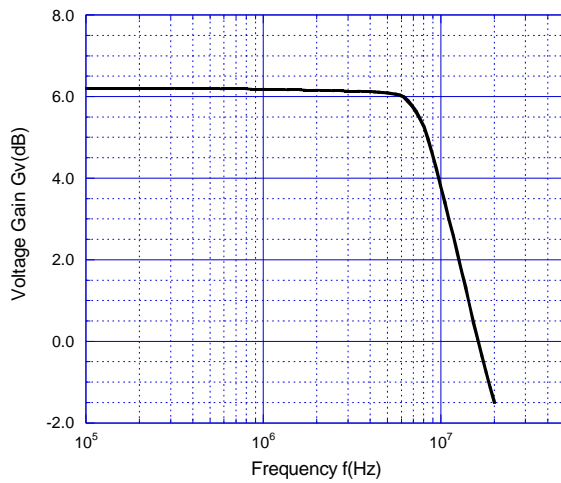
Maximum Output Voltage Swing vs. Supply Voltage
Total Harmonic Distortion=1%, 100kHz
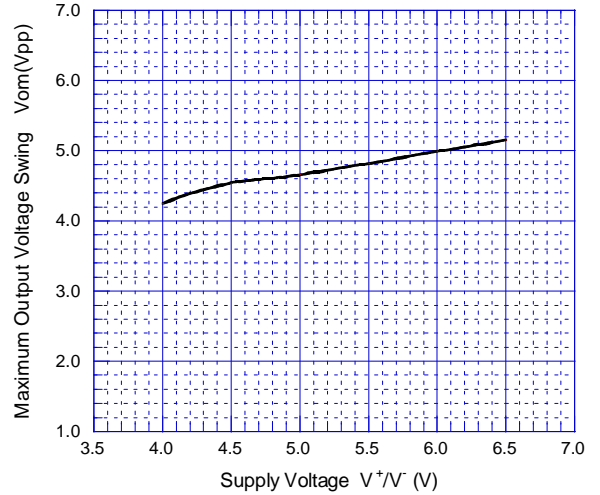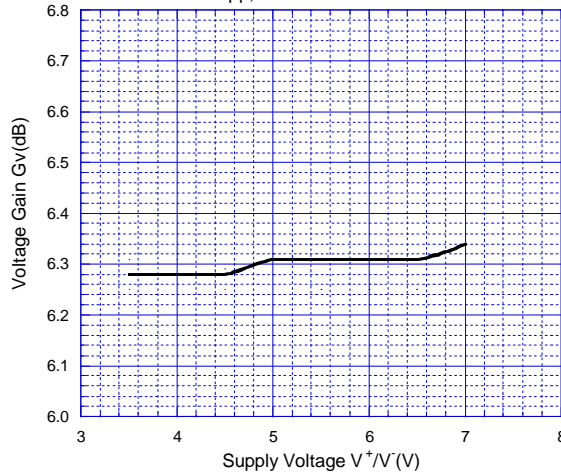

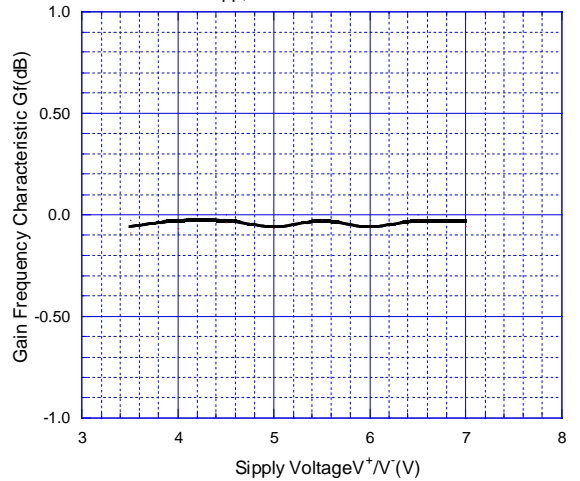### Operating Current vs. Supply Voltage
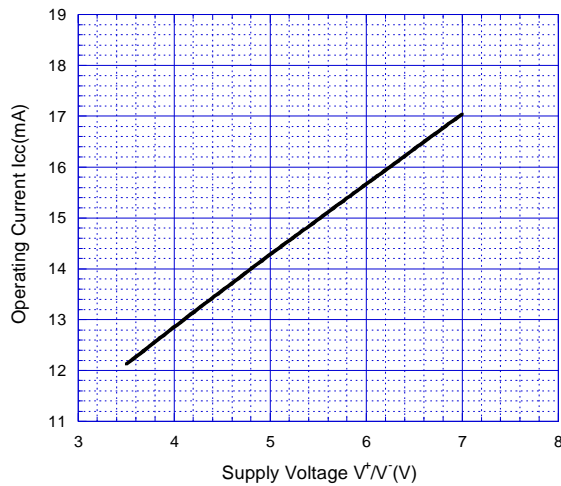
Operating Current vs. Supply Voltage
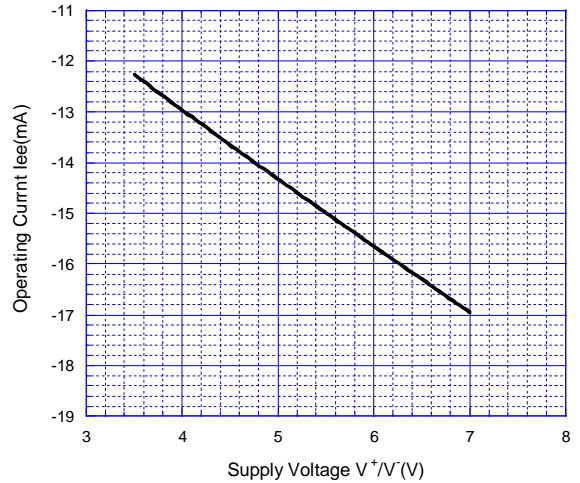
Voltage Gain vs. Supply Voltage
1Vpp,100kHz SinWave

Gain Frequency Characteristic vs. Supply Voltage
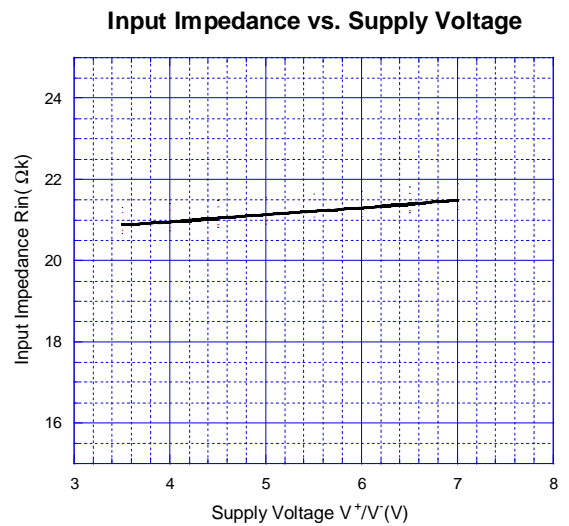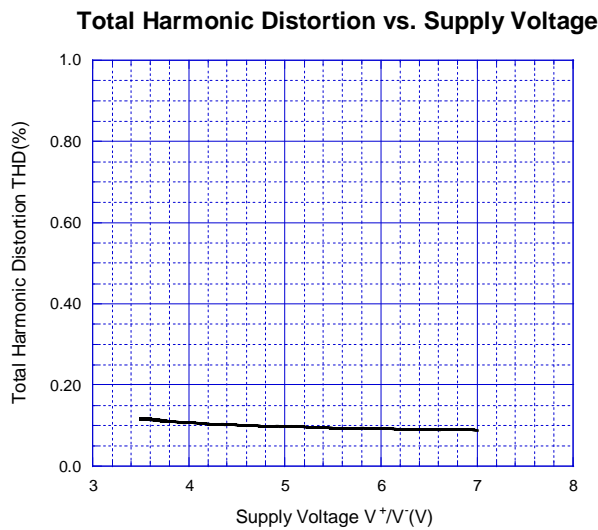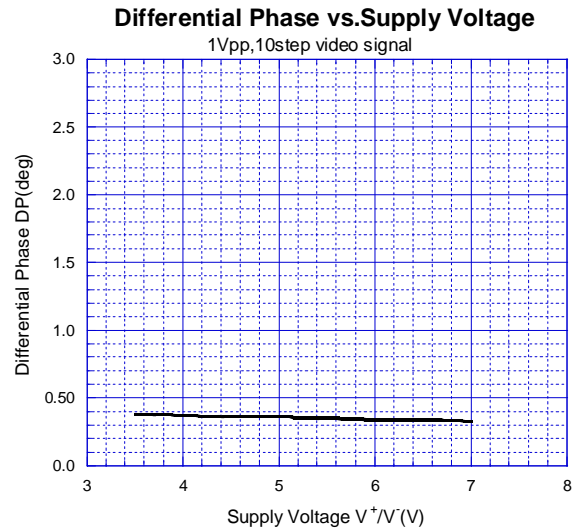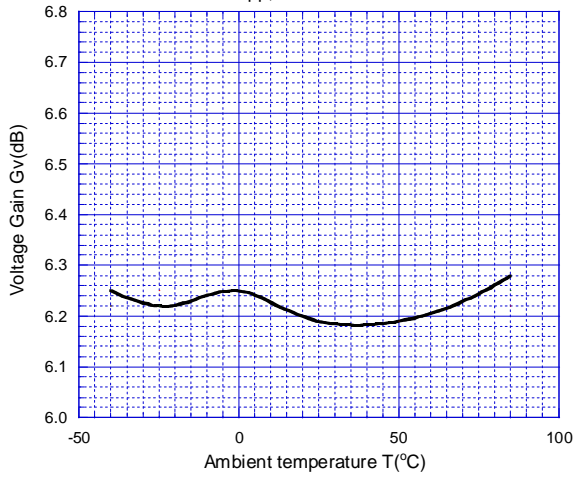1Vpp,5MHz/100KHz SinWave

■ TYPICAL CHARACTERISTICS

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

Y-axis: Differential Gain DG(%) — 0.0 to 3.0
X-axis: Supply Voltage V^+/V^-(V) — 3 to 8

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

Y-axis: Differential Phase DP(deg) — 0.0 to 3.0
X-axis: Supply Voltage V^+/V^-(V) — 3 to 8

Total Harmonic Distortion vs. Supply Voltage

Y-axis: Total Harmonic Distortion THD(%) — 0.0 to 1.0
X-axis: Supply Voltage V^+/V^-(V) — 3 to 8

Input Impedance vs. Supply Voltage

Y-axis: Input Impedance Rin(Ωk)
X-axis: Supply Voltage V^+/V^-(V) — 3 to 8

Operating Current(Icc) vs. Temperature

Y-axis: Operating Current Icc(mA) — 11 to 19
X-axis: Ambient Temperature T(^{o}C) — -50 to 100

Operating Current(Iee) vs. Temperature

Y-axis: Operating Currnt Iee(mA) — -19 to -11
X-axis: Ambient Temperature T(^{o}C) — -50 to 100
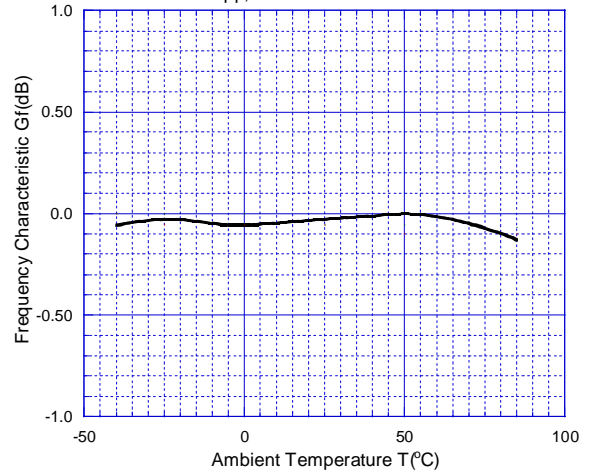
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■ **TYPICAL CHARACTERISTICS**

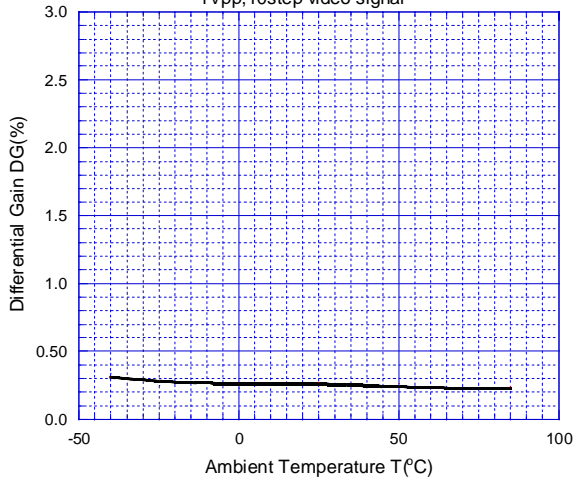### Voltage Gain vs. Temperature
1Vpp,100kHz SinWave

Gain Frequency Characteristic vs. Temperature
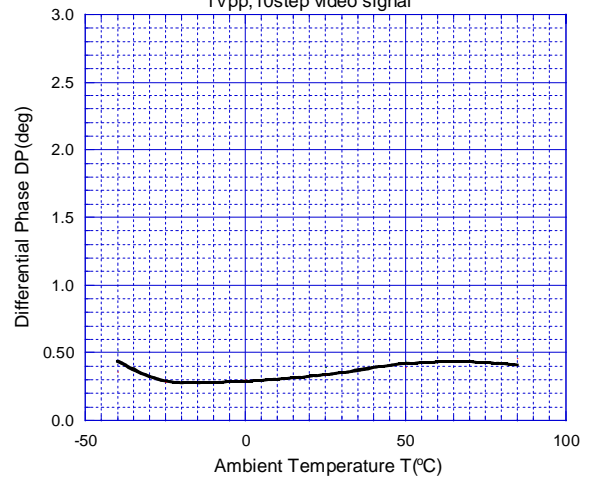1Vpp,5MHz/100kHz SinWave

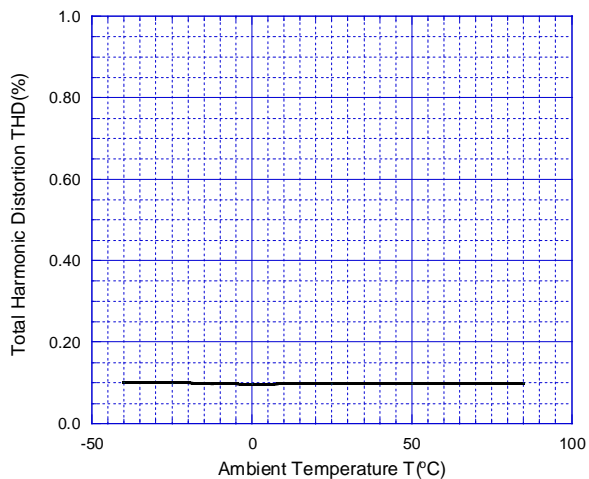### Differential Gain vs. Temperature
1Vpp,10step video signal
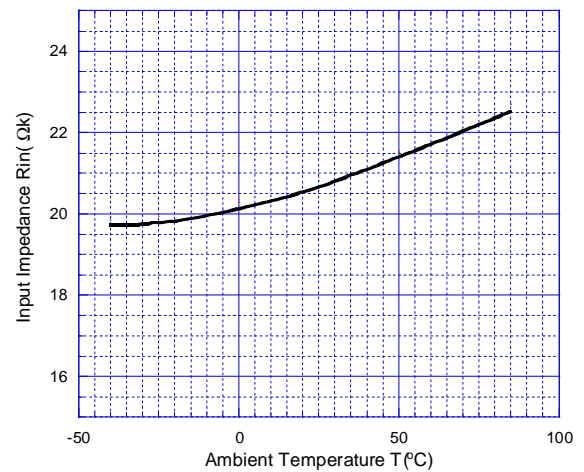
Differential Phase vs. Temperature
1Vpp,10step video signal

Total Harmonic Distortion vs. Temperature

Input Impedance vs. Temperature

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