Low Voltage Video Amplifier with Y/C MIX and Filter

■ GENERAL DESCRIPTION

NJM2567 is a low voltage operating video amplifier included LPF,BPF In Y and C system.

Output with 75ohm driver optimize the TV monitor system.

The NJM2567 includes power saving circuit, suitable for portable video Application, camcorder and others.

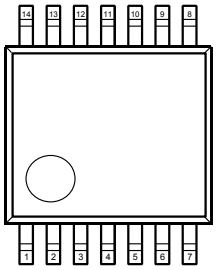
■ PACKAGE OUTLINE

NJM2567V

■ FEATURES

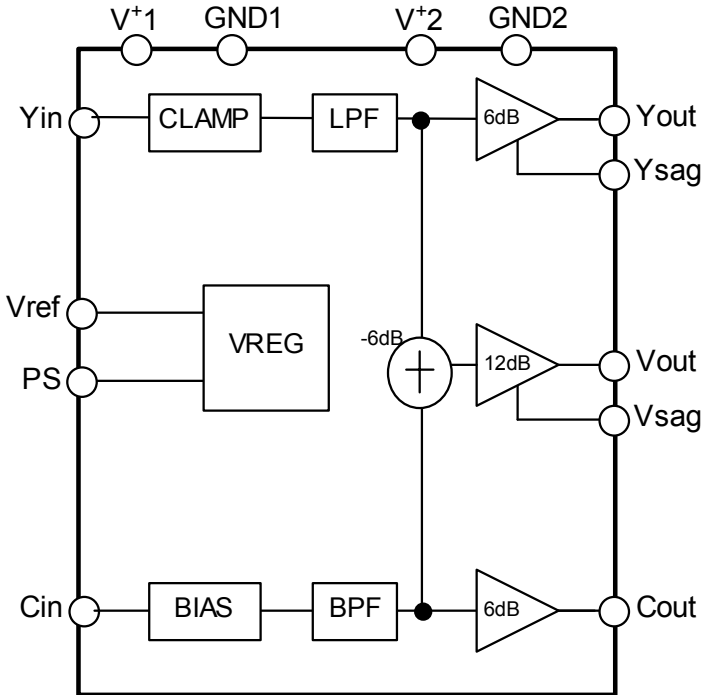
- Operating Voltage 2.8 to 5.5V
- Internal 6dB Amp. and 75ohm Driver
- Internal LPF(Y),BPF(C)
- Bipolar technology
- Package Outline SSOP14

■ PIN CONFIGURATION



1. V+1	8. Cout
2. NC	9. GND2
3. Yin	10. Vsag
4. Vref	11. Vout
5. Cin	12. V+2
6. GND1	13. Ysag
7. Power Save	14. Yout

■ BLOCK DIAGLAM



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

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V^+	7.0	V
Power Dissipation	P_D	300	mW
Operating Temperature Range	Topr	-40 to +85	°C
Storage Temperature Range	Tstg	-40 to +125	°C

■ **RECOMMENDED OPEARATING CONDITION**(Ta=25°C)

PARAMETER	SYMBOL	RATINGS	MIN.	TYP.	MAX.	UNIT
Operating Voltage 1	Vopr1	V^+1	2.8	-	5.5	V
Operating Voltage 2	Vopr2	V^+2	2.8	-	5.5	V

■ **ELECTRICAL CHARACTERISTICS** ($V^+1= V^+2=3V$, Powersave=3V, $R_L=150\Omega$, Ta=25°C at non-designation)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Operating Circuit 1	$I_{CC}1$	V^+1=5.0V, No signal	-	12.0	16.0	mA
Operating Circuit 2	$I_{CC}2$	V^+2=5.0V, No signal	-	10.0	15.0	mA
Operating Circuit 1 at Power Save	Isave1	V^+1=5.0V, Power Save Mode	-	40	80	μA
Operating Circuit 2 at Power Save	Isave2	V^+2=5.0V, Power Save Mode	-	0	5	μA
Voltage Gain (Y Signal)	Gvy	Yin=100kHz,1.0Vpp Input Sin Signal	6.1	6.5	6.9	dB
Voltage Gain (C Signal)	Gvc	Yin=4.43MHz,0.3Vpp Input Sin Signal	6.1	6.5	6.9	dB
Voltage Gain (V Signal)	Gvv	Yin=100kHz,1.0Vpp Input Sin Signal	6.1	6.5	6.9	dB
Frequency Characteristics	Gfy1	Yin=6MHz/100kHz, 1.0Vpp Input Sin Signal	-0.5	0	+0.5	dB
	Gfy2	Yin=20MHz/100kHz, 1.0Vpp Input Sin Signal	-	-25	-	
	Gfc1	Cin=±1MHz/4.43MHz, 0.3Vpp Input Sin Signal	-0.5	0	+0.5	
	Gfc2	Cin=20MHz/4.43MHz 0.3Vpp Input Sin Signal	-	-25	-	
Group Delay Characteristic (Y Signal)	TdY	Yin=4.43MHz, Sin Signal	-	60	-	ns
Group Delay Characteristic (C Signal)	TdC	Cin=4.43MHz, Sin Signal	-	60		ns
Maximum Output Voltage Swing (Y Signal)	Voym	Yin=100kHz, Sin Signal, THD=1%, R_L=75Ω	1.1	1.2	-	Vp-p
Maximum Output Voltage Swing (C Signal)	Vocm	Cin=4.43MHz, Sin Signal, THD=1%, R_L=75Ω	0.7	1.1	-	Vp-p
Maximum Output Voltage Swing (V Signal)	Vovm	Yin=100kHz, Sin Signal, THD=1%, R_L=75Ω	1.1	1.2	-	Vp-p
Differential Gain(Y Signal)	DGy	Yin=1.0Vpp,10Step video signal, measure the Yout.	-	0.3	-	%
Differential Phase(Y Signal)	DPy	Yin=1.0Vpp,10Step video signal, measure the Yout.	-	0.3	-	deg
Differential Gain(V Signal)	DGv	Yin=1.0Vpp,Cin=0.3Vpp, 10Step video signal,measure the Vout.	-	0.3	-	%
Differential Phase(V Signal)	DPv	Yin=1.0Vpp,Cin=0.3Vpp 10Step video signal,measure the Vout.	-	0.3	-	deg
SW Change Voltage High Level for Power Save	V_{CH}	Active	1.4	-	V^+	V
SW Change Voltage Low Level for Power Save	V_{CL}	Non-active	0	-	0.6	V

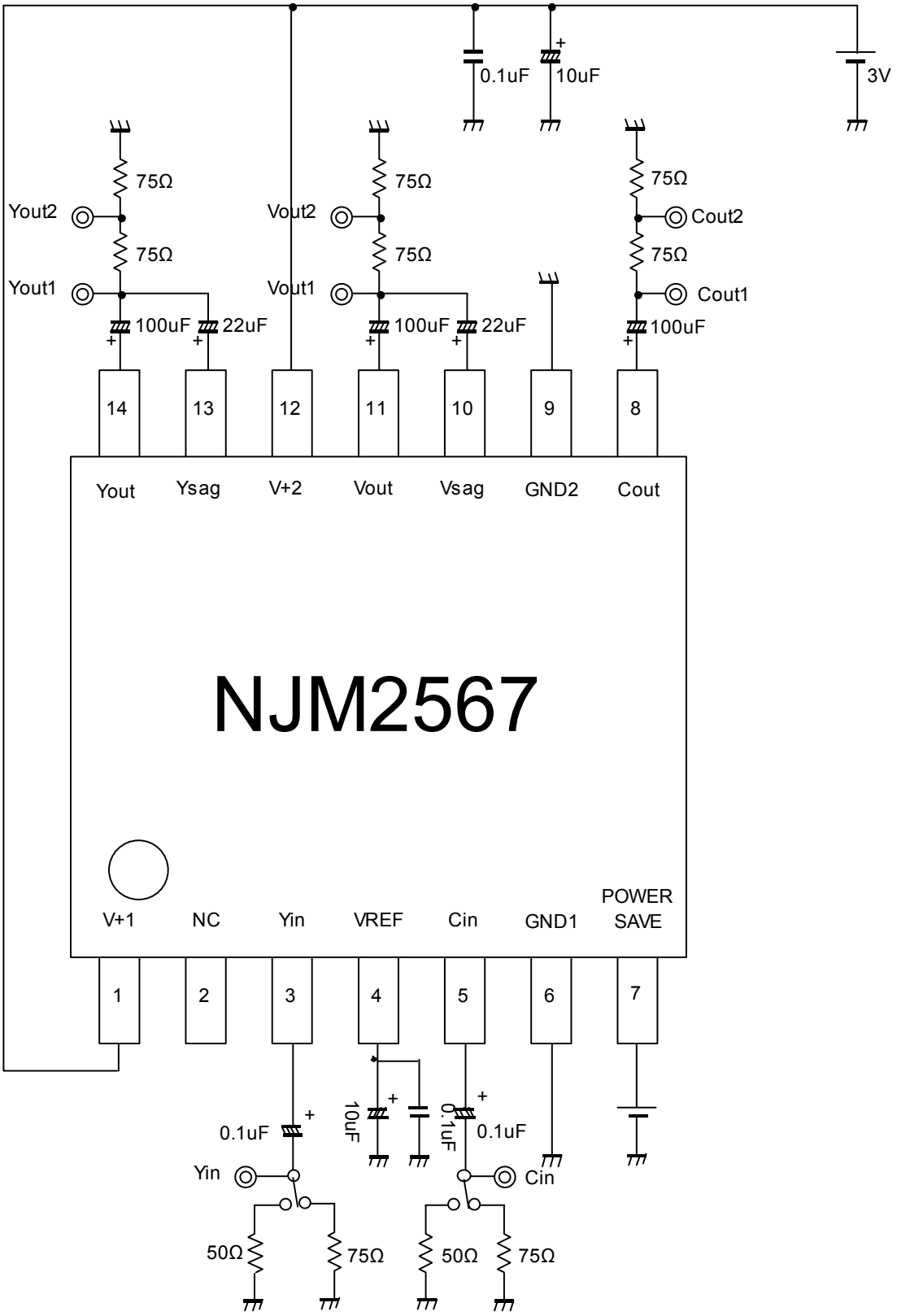
■ **ELECTRICAL CHARACTERISTICS** ($V^+1 = V^+2 = 3V$, Powersave=3V, $R_L = 150\Omega$, Ta=25°C at non-designation)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Crosstalk 1(Yin to Cout)	CTyc	Yin to Cout=20log(Cout/Yout) Yin=4.43MHz,1.0Vpp Sin Signal, Cin=AC GND	-	-50	-	dB
Crosstalk 2(Cin to Yout)	CTcy	Cin to Yout=20log(Yout/Cout) Cin=4.43MHz,0.3Vpp Sin Signal, Yin=AC GND	-	-50	-	dB
S/N1(Y Signal)	SNy	Yin=100% White Video Signal, R_L=75Ω at Yout Bandwidth 100kHz to 6MHz	-	60	-	dB
S/N2(C Signal)	SNc1	Cin=100% Red Field Video Signal, R_L=75Ω at Cout, AM Noise Bandwidth 100KHz to 500kHz	-	60	-	dB
S/N3(C Signal)	SNc2	Cin=100% Red Field Video Signal, R_L=75Ω at Cout, PM Noise Bandwidth 100KHz to 500kHz	-	60	-	dB
S/N4 (V Signal)	SNv	Yin=100% White Video Signal, R_L=75Ω at Vout Bandwidth 100kHz to 6MHz	-	60	-	dB
2nd. Distortion 1 (Y Signal)	Hy	Yin=1MHz,1.0Vpp Input Sin Signal	-	-50	-	dB
2nd. Distortion 2 (C Signal)	Hc	Cin=4.43MHz, 0.3Vpp Input Sin Signal	-	-50	-	dB
2nd. Distortion 3 (V Signal)	Hv	Yin=1MHz,1.0Vpp Input Sin Signal	-	-50	-	dB

■ **CONTROL TERMINAL**

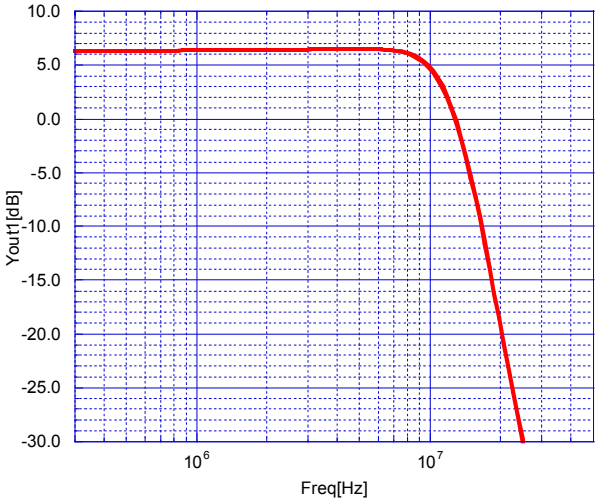
PARAMETER	CONTROL	NOTES
Power Save	H	Power Save: OFF
	L	Power Save: ON
	OPEN	Power Save: ON

■ TEST CIRCUIT



■TYPYCAL CHARACTERISTICS

Voltage Gain vs. Frequency
(Yin→Yout,Vcc=3V,Ta=25°C)



Voltage Gain vs. Frequency
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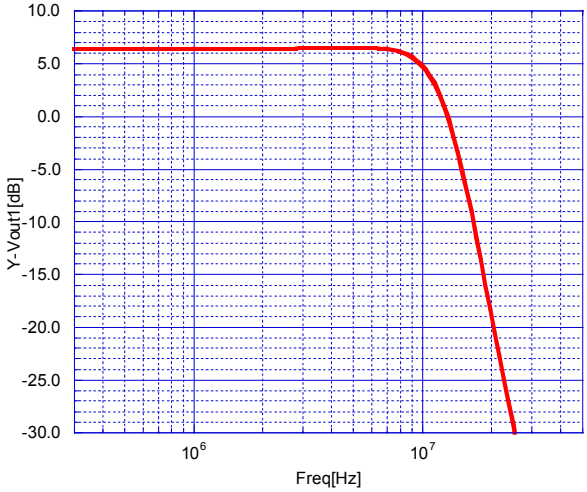

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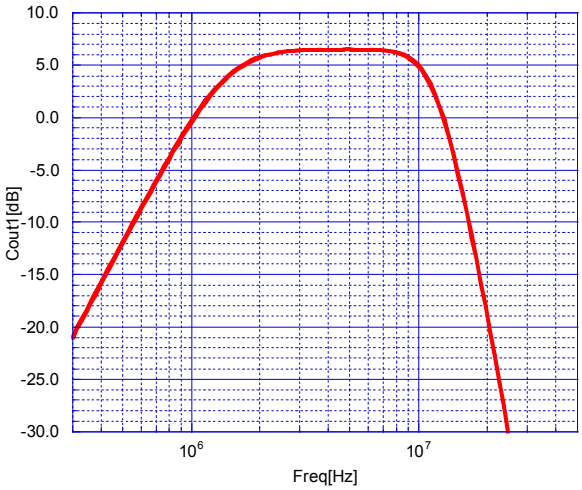
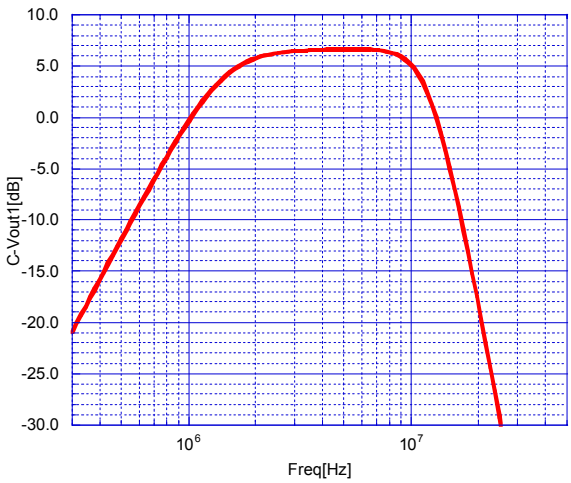
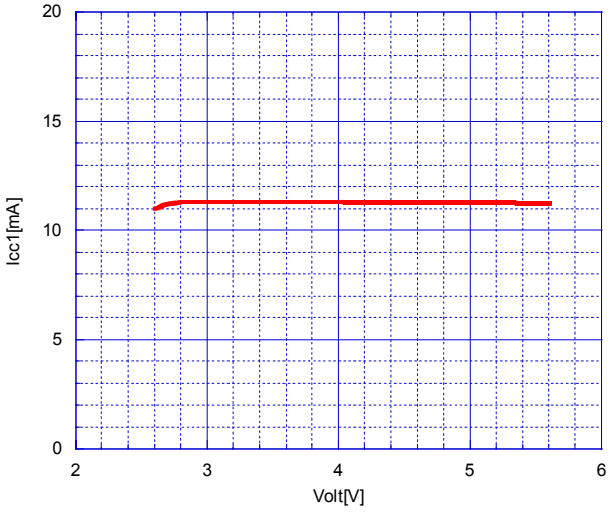


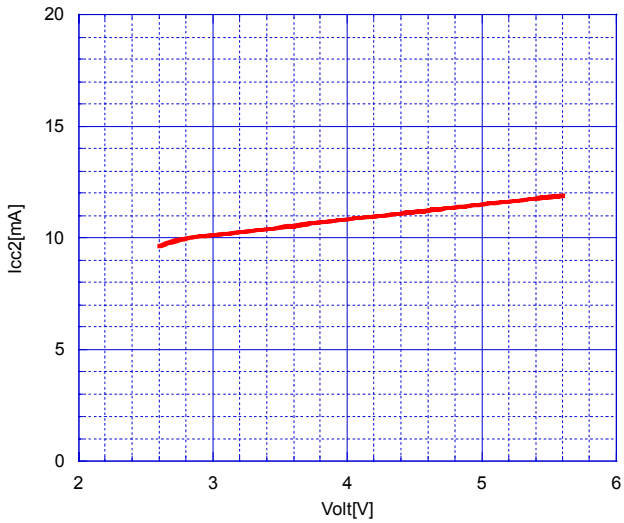
Voltage Gain vs. Frequency
(Cin→Vout,Vcc=3V,Ta=25°C)



Operating Current1 vs. Operating Voltage
(Ta=25°C)

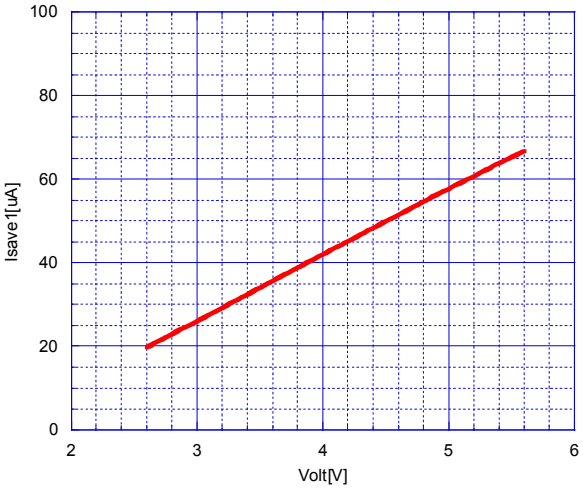


Operating Current2 vs. Operating Voltage
(Ta=25°C)

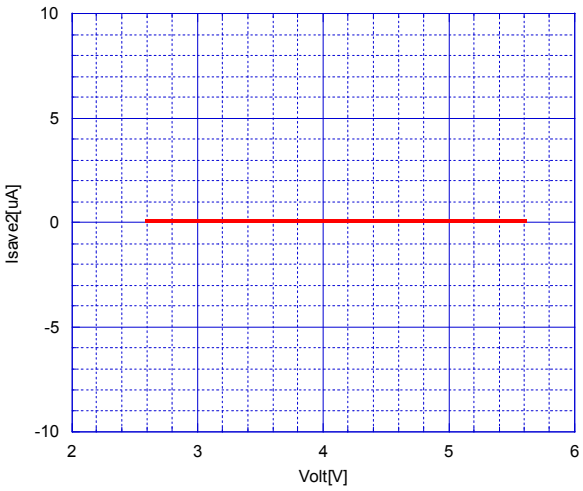


■TYPYCAL CHARACTERISTICS

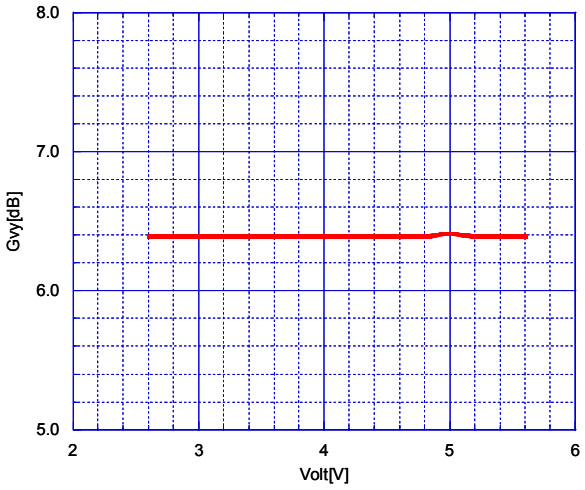
Operating Current at Power Save Mode1 vs. Operating Voltage (Ta=25°C)



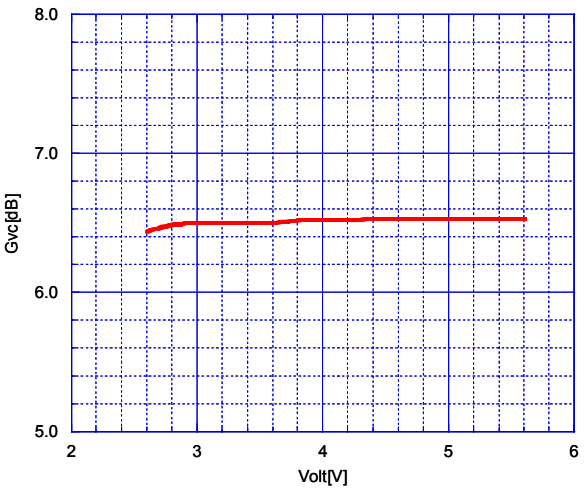
Operating Current at Power Save Mode2 vs. Operating Voltage (Ta=25°C)



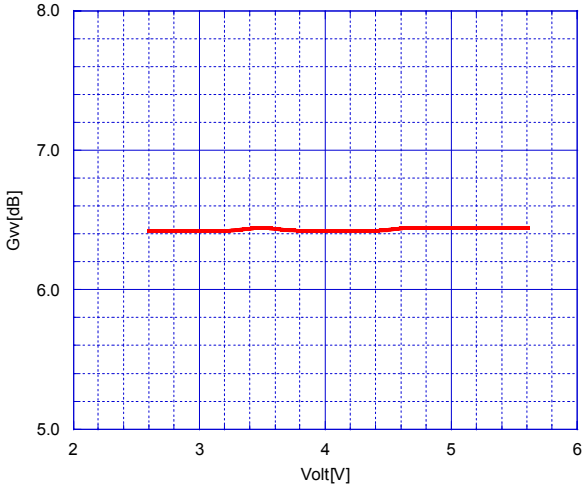
Voltage Gain(Y mode) vs. Operating Voltage (Ta=25°C)



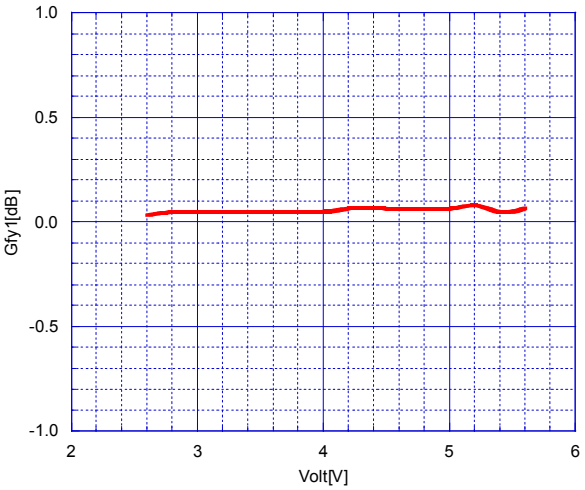
Voltage Gain(C mode) vs. Operating Voltage (Ta=25°C)



Voltage Gain(V mode) vs. Operating Voltage (Ta=25°C)

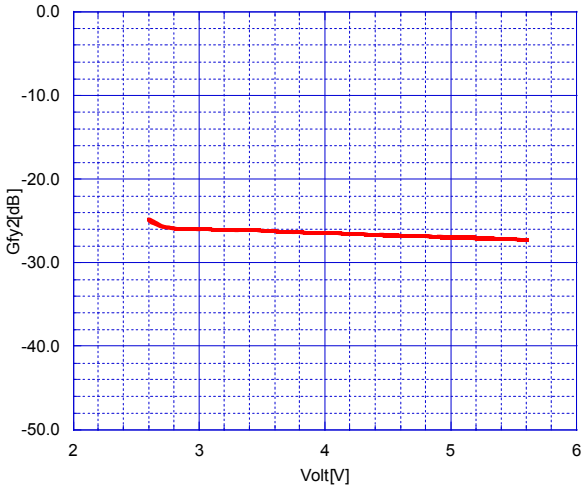


Frequency vs. Operating Voltage (Yin=6MHz/100kHz,1Vpp,Ta=25°C)

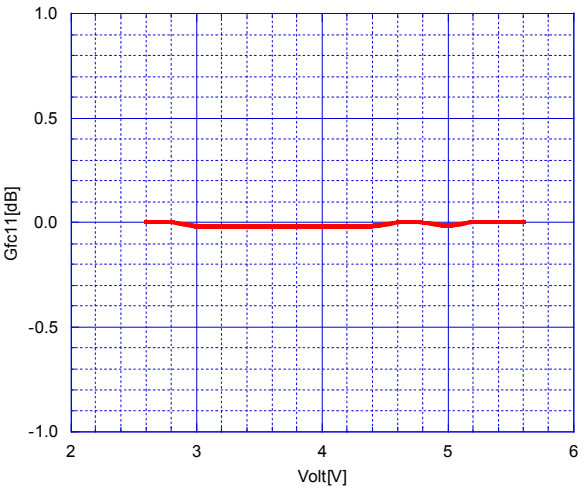


■TYPYCAL CHARACTERISTICS

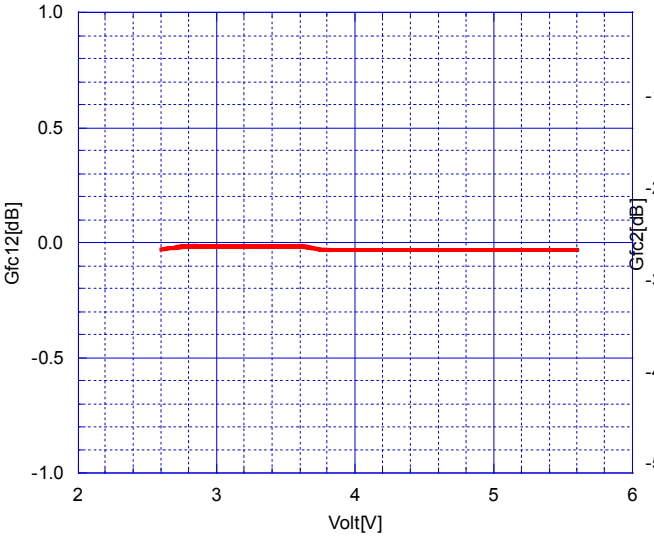
Frequency vs. Operating Voltage
(Yin=20MHz/100kHz,1Vpp, Ta=25°C)



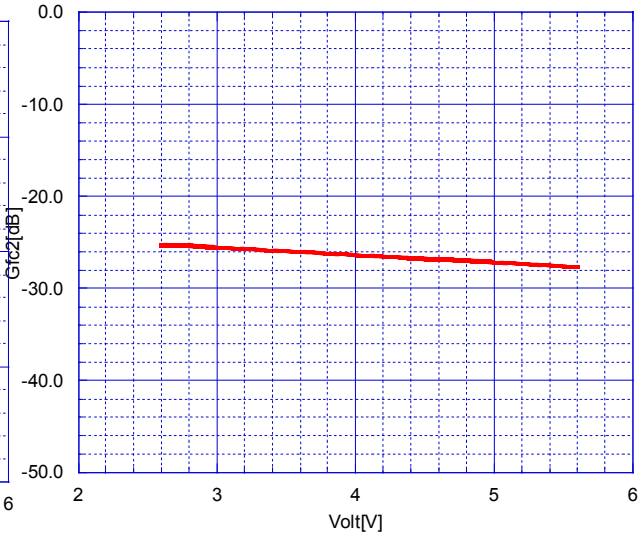
Frequency vs. Operating Voltage
(Cin=3.43MHz/4.43MHz,0.3Vpp, Ta=25°C)



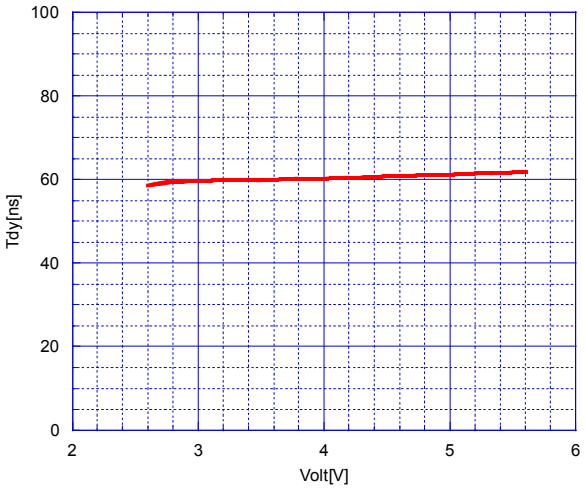
Frequency vs. Operating Voltage
(Cin=5.43MHz/4.43MHz,0.3Vpp, Ta=25°C)



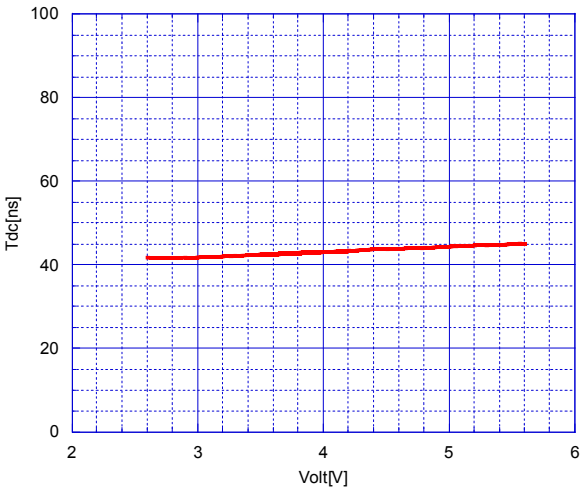
Frequency vs. Operating Voltage
(Cin=20MHz/4.43MHz,0.3Vpp, Ta=25°C)



Group Delay(Y mode) vs. Operating Voltage
(Ta=25°C)

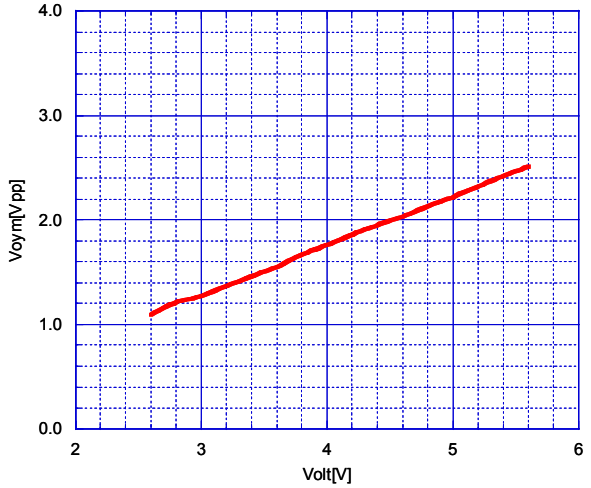


Group Delay(C mode) vs. Operating Voltage
(Ta=25°C)

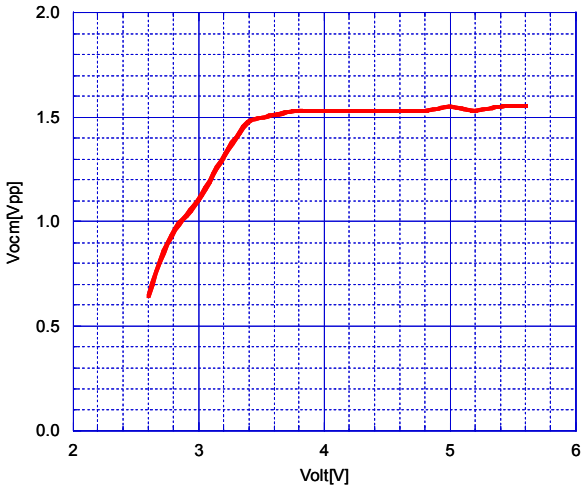


■TYPYCAL CHARACTERISTICS

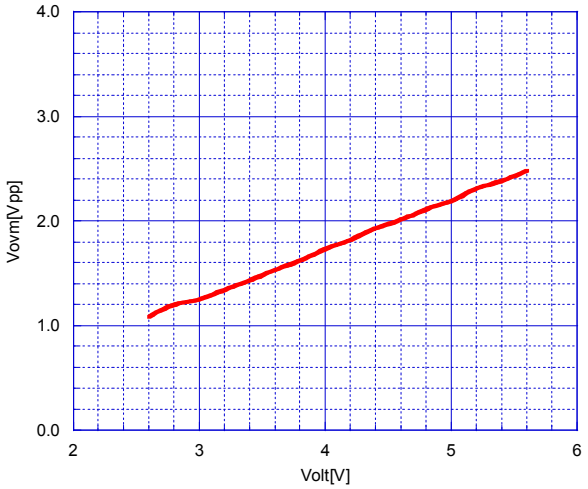
Maximum Output Voltage vs. Operating Voltage
(Yin→Yout,Ta=25°C)



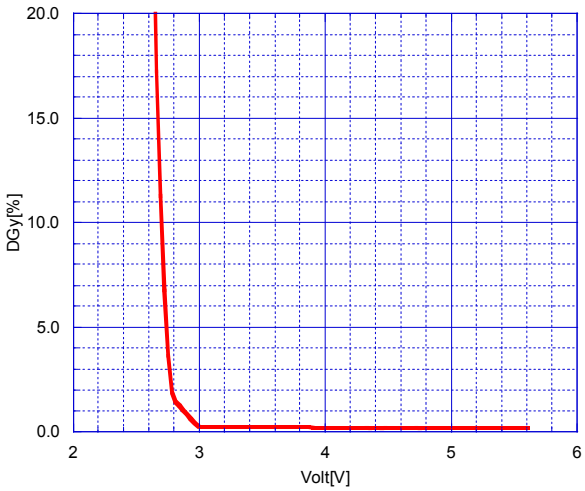
Maximum Output Voltage vs. Operating Voltage
(Cin→Cout,Ta=25°C)



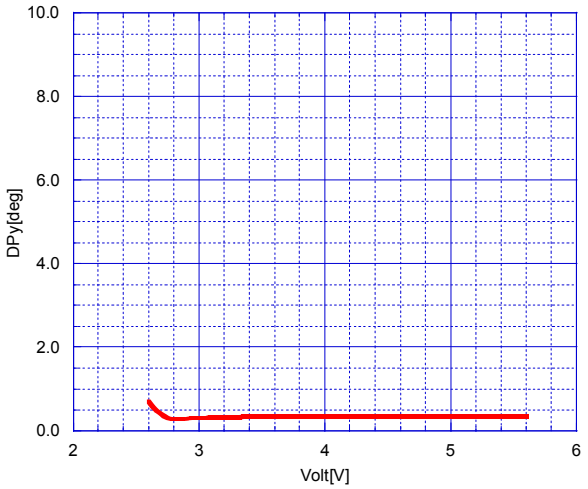
Maximum Output Voltage vs. Operating Voltage
(Yin→Vout,Ta=25°C)



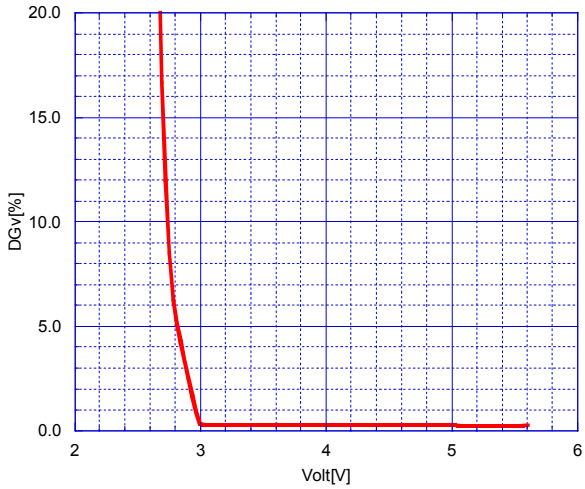
Differential Gain vs. Operating Voltage
(Yin→Yout,Ta=25°C)



Differential Phage vs. Operating Voltage
(Yin→Yout,Ta=25°C)

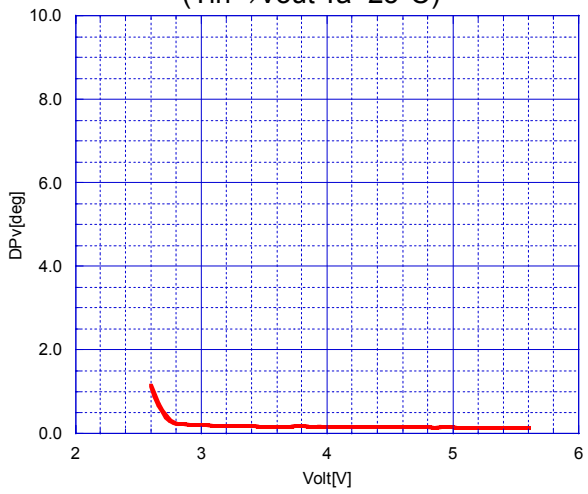


Differential Gain vs. Operating Voltage
(Yin→Vout,Ta=25°C)

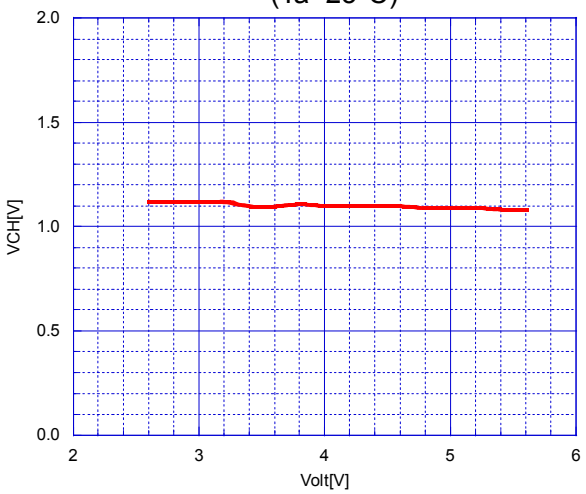


■TYPYCAL CHARACTERISTICS

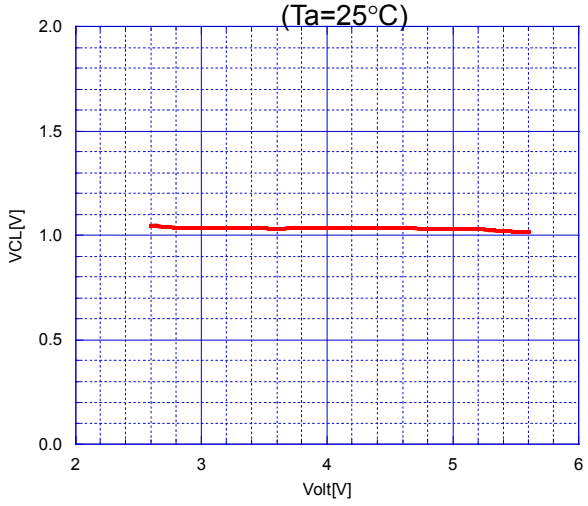
Differential Phase vs. Operating Voltage
(Yin→Vout Ta=25°C)



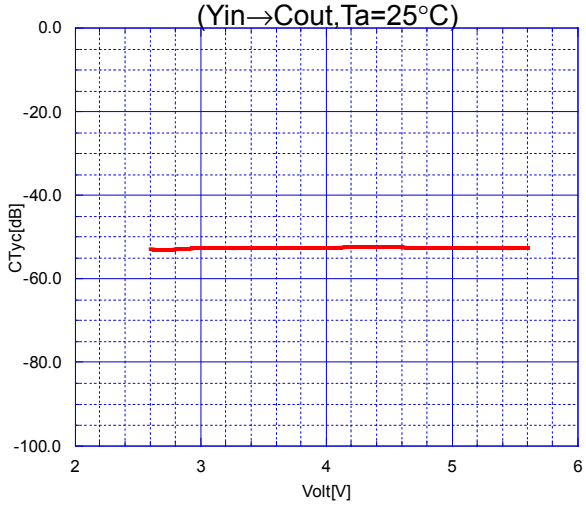
SW Threshold Voltage(High) vs. Operating Voltage
(Ta=25°C)



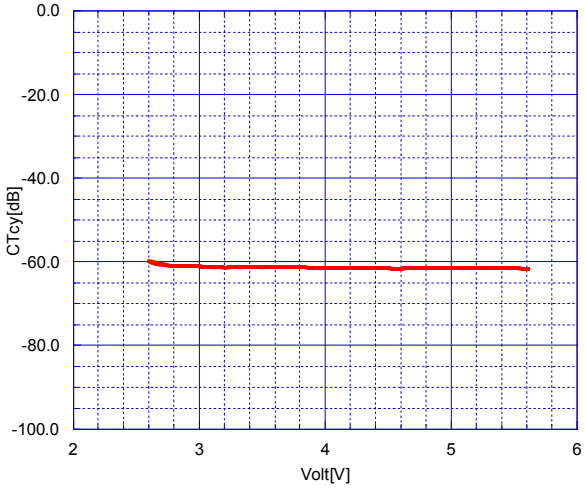
SW Threshold Voltage(Low) vs. Operating Voltage
(Ta=25°C)



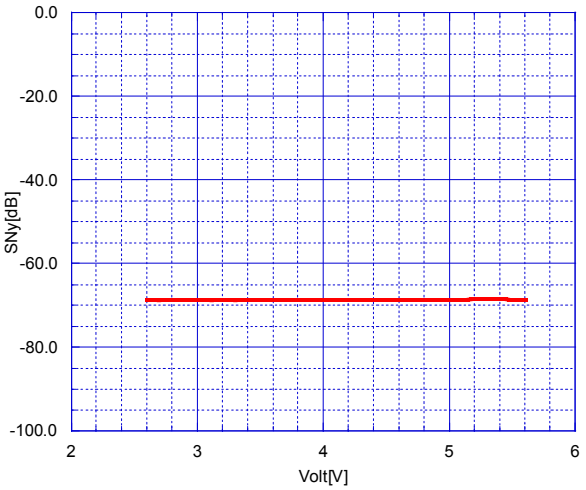
Closstalk vs. Operating Voltage
(Yin→Cout,Ta=25°C)



Closstalk vs. Operating Voltage
(Cin→Yout Ta=25°C)

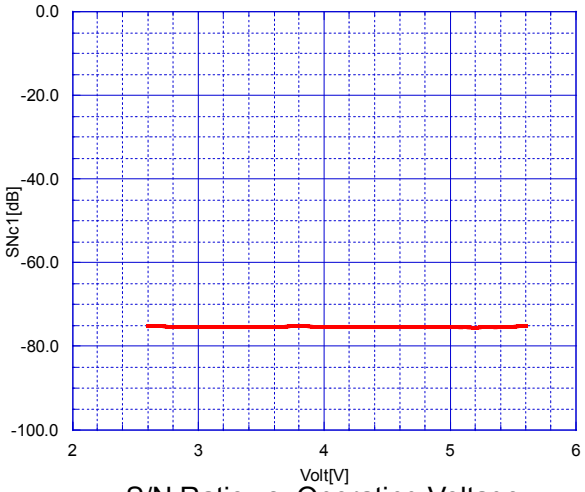


S/N Ratio vs. Operating Voltage
(Ysignal,Ta=25°C)

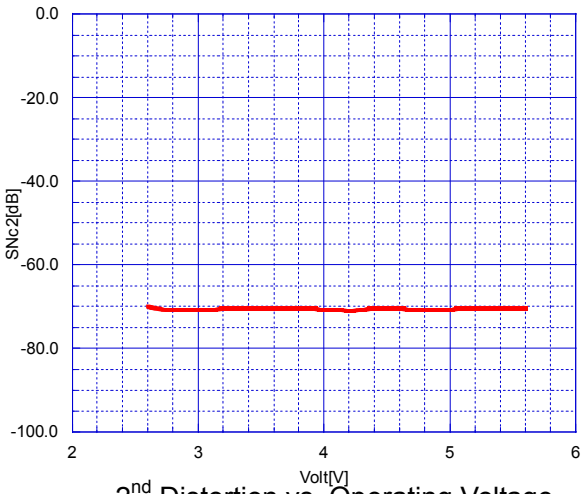


■TYPYCAL CHARACTERISTICS

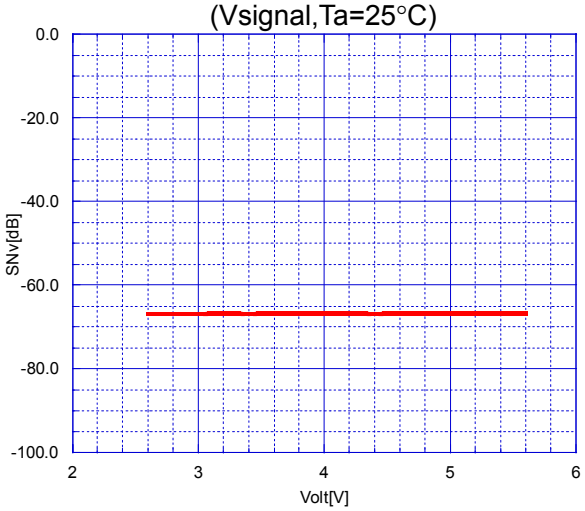
S/N Ratio vs. Operating Voltage
(Csignal AM,Ta=25°C)



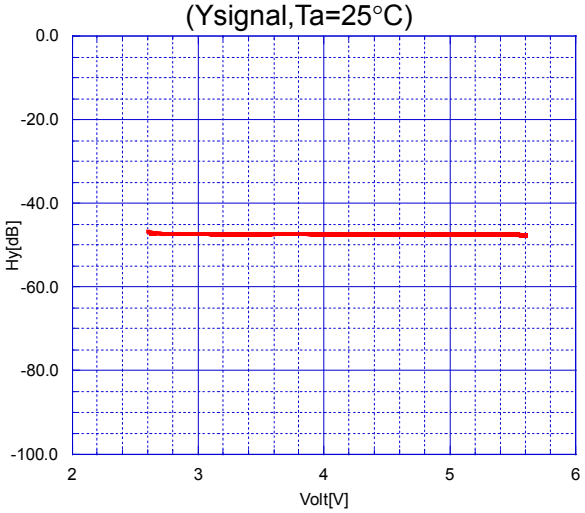
S/N Ratio Operating Voltage
(Csignal PM,Ta=25°C)



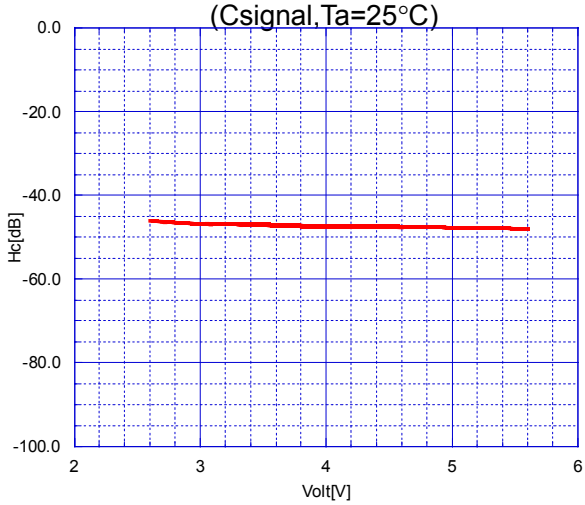
S/N Ratio vs. Operating Voltage
(Vsignal,Ta=25°C)



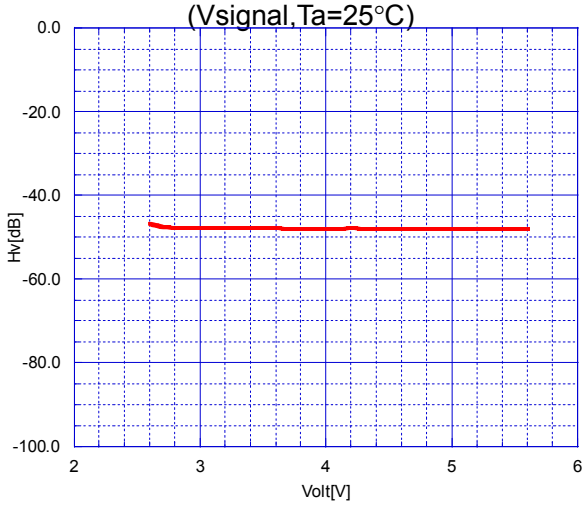
2nd Distortion vs. Operating Voltage
(Ysignal,Ta=25°C)



2nd Distortion vs. Operating Voltage
(Csignal,Ta=25°C)

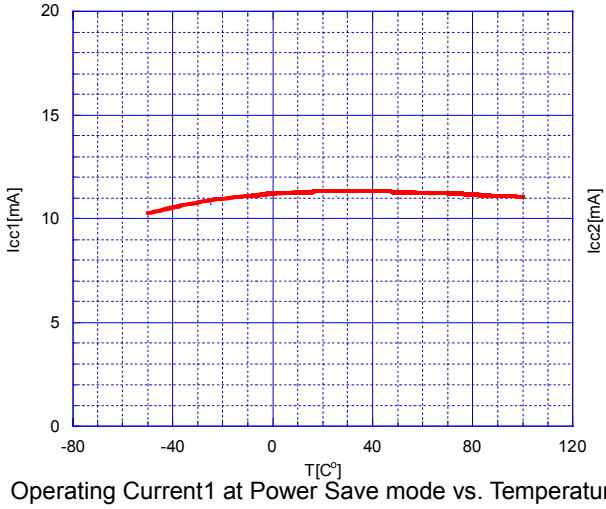


2nd Distortion vs. Operating Voltage
(Vsignal,Ta=25°C)

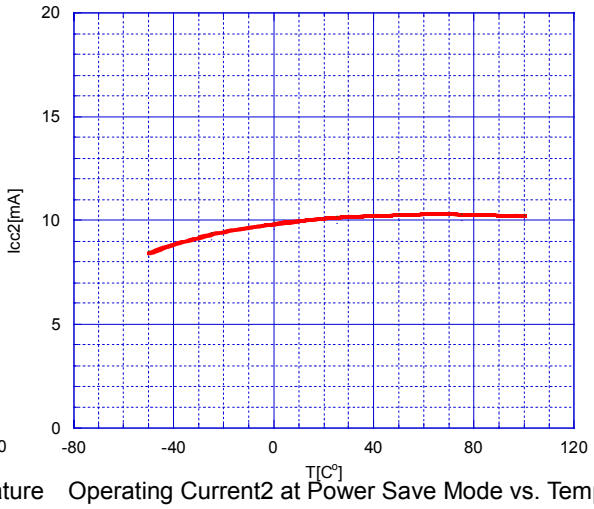


■TYPYCAL CHARACTERISTICS

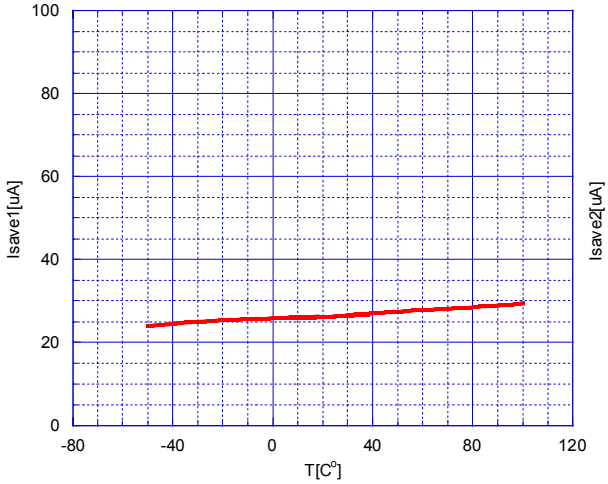
Operating Current1 vs. Temperature
(Vcc=3V)



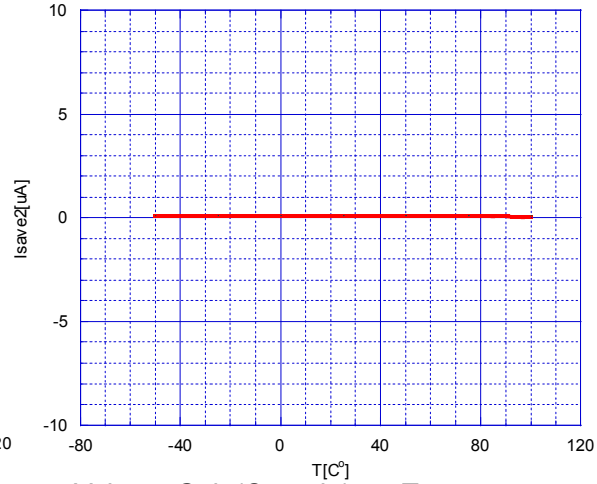
Operating Current2 vs. Temperature
(Vcc=3V)



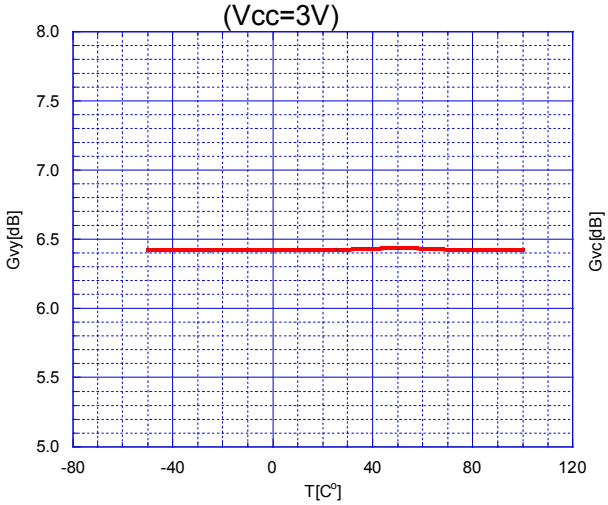
Operating Current1 at Power Save mode vs. Temperature
(Vcc=3V)



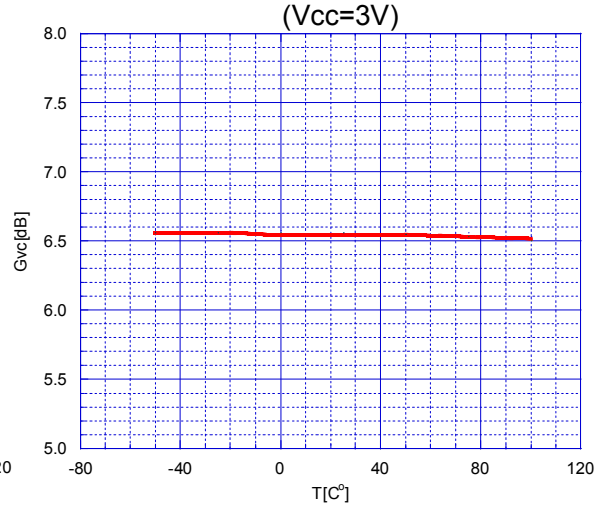
Operating Current2 at Power Save Mode vs. Temperature
(Vcc=3V)



Voltage Gain(Y mode) vs. Temperature
(Vcc=3V)

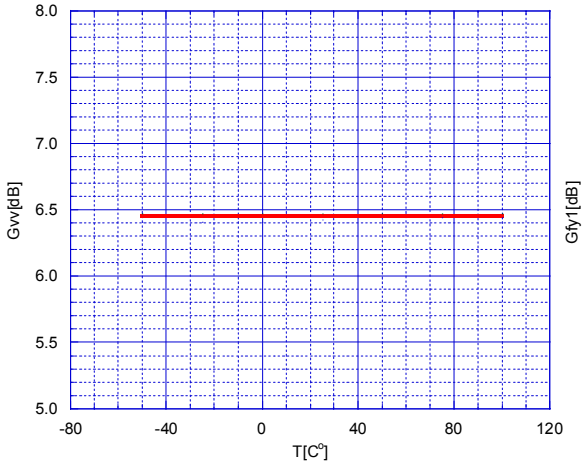


Voltage Gain(C mode) vs. Temperature
(Vcc=3V)

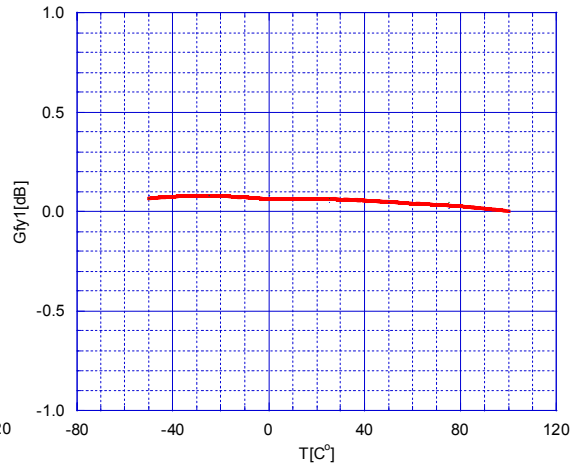


■TYPYCAL CHARACTERISTICS

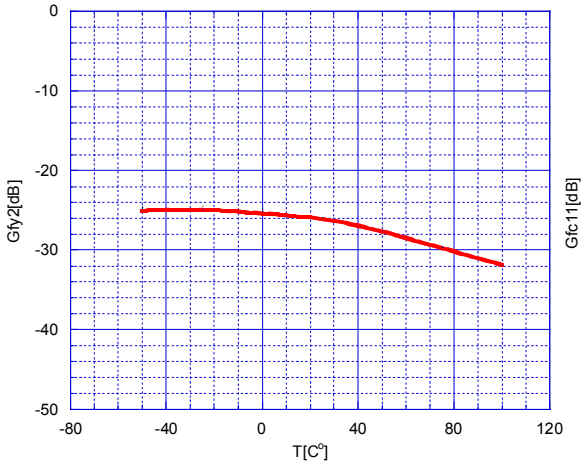
Voltage Gain(V mode) vs. Temperature
(Vcc=3V)



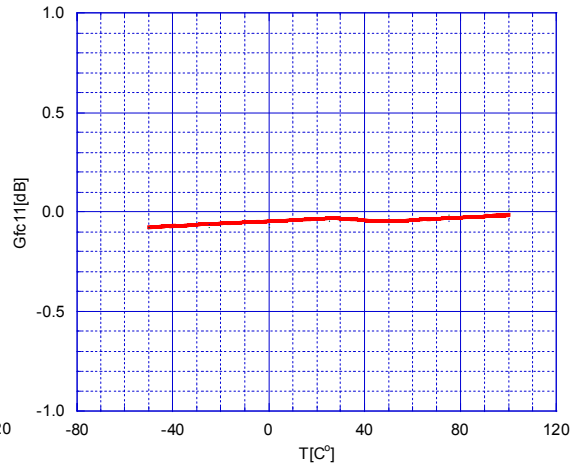
Frequency vs. Temperature
(Vcc=3V,Yin=4.5MHz/100kHz)



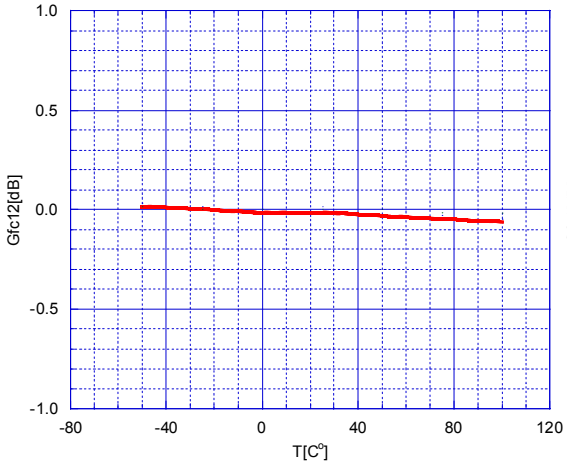
Frequency vs. Temperature
(Vcc=3V,Yin=20MHz/100kHz)



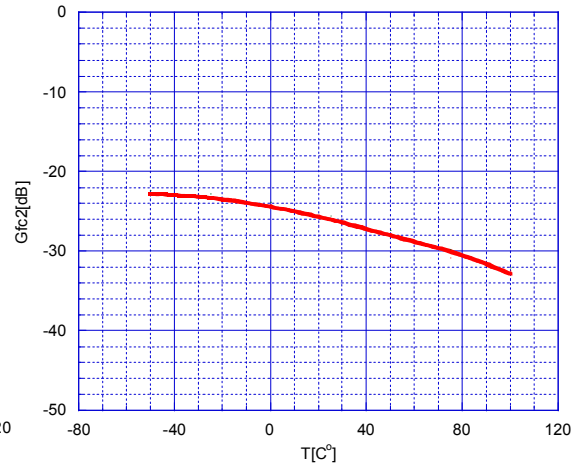
Frequency vs. Temperature
(Vcc=3V,Cin=3.43MHz/4.43MHz)



Frequency vs. Temperature
(Vcc=3V,Cin=5.43MHz/4.43MHz)

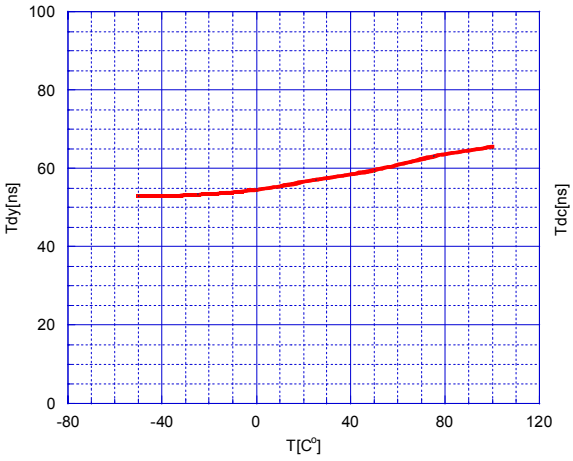


Frequency vs. Temperature
(Vcc=3V,Cin=20MHz/4.43MHz)

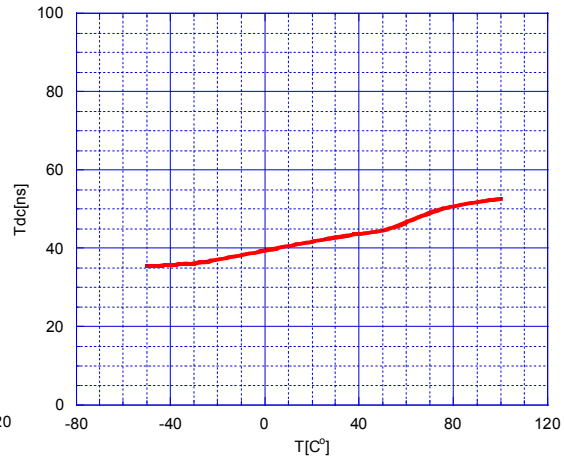


■TYPYCAL CHARACTERISTICS

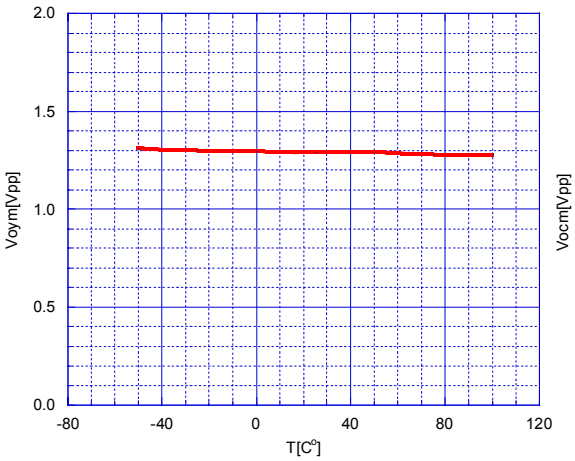
Group Delay (Y mode) vs. Temperature
(Vcc=3V)



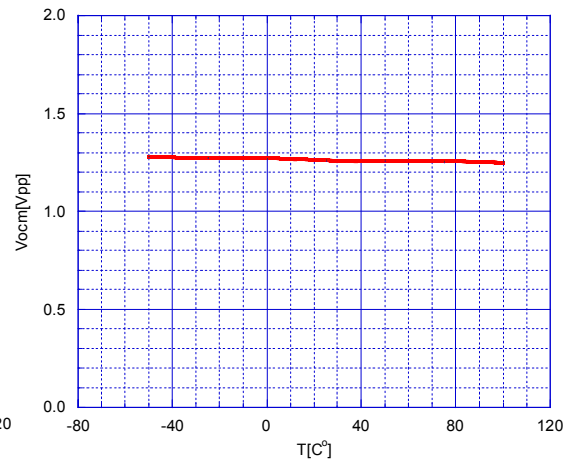
Group Delay(C mode) vs. Temparature
(Vcc=3V)



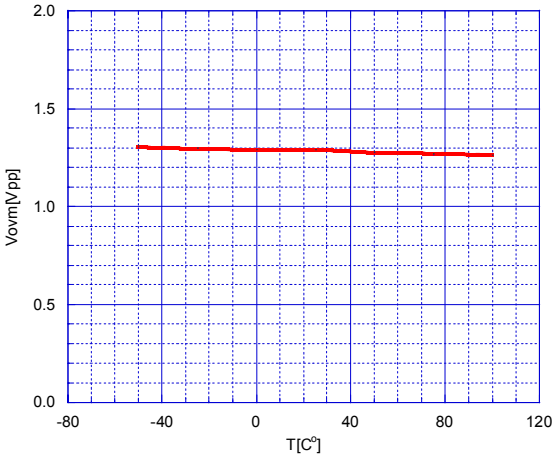
Maximum Output Voltage(Y mode) vs. Temperature
(Vcc=3V)



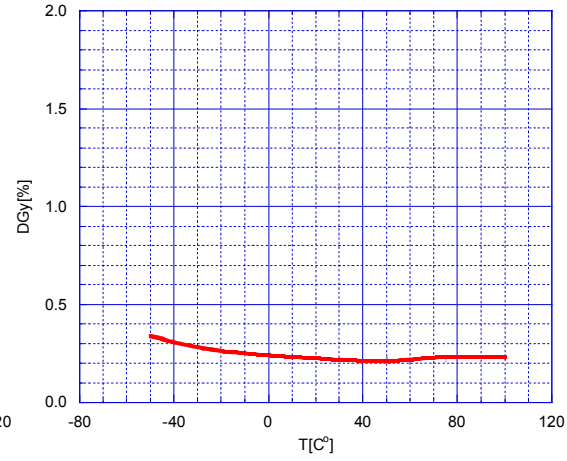
Maximum Output Voltage(Y mode) vs. Temperature
(Vcc=3V)



Maximum Output Voltage(V mode) vs. Temperature
(Vcc=3V)

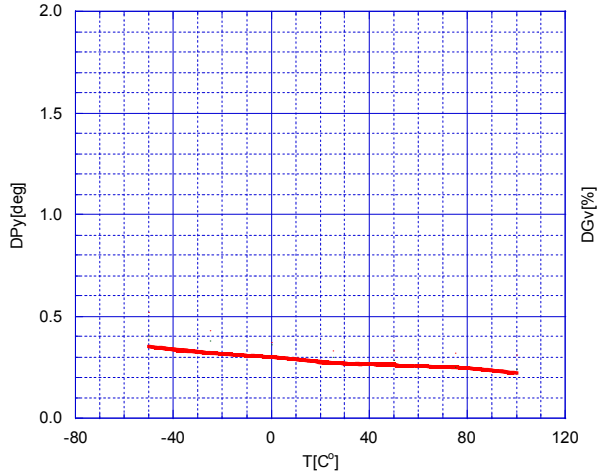


Differential Gain(Y mode)vs. Temperature
(Vcc=3V)

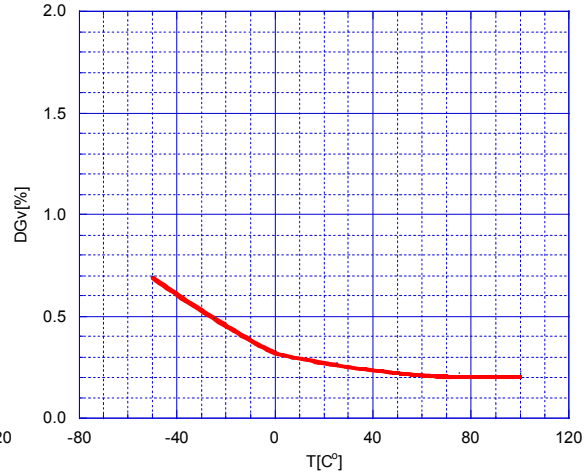


■TYPYCAL CHARACTERISTICS

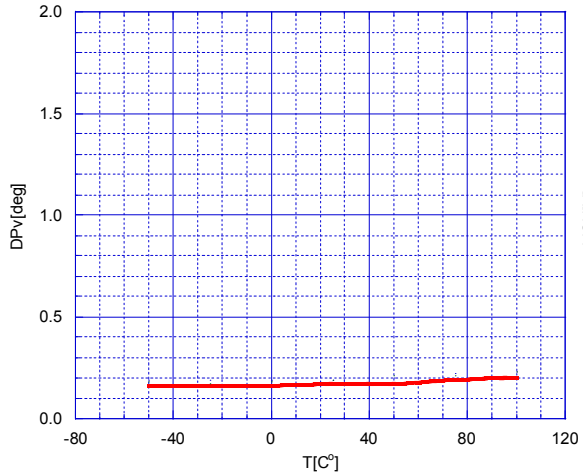
Differential Phase(Y mode) vs. Temperature
(Vcc=3V)



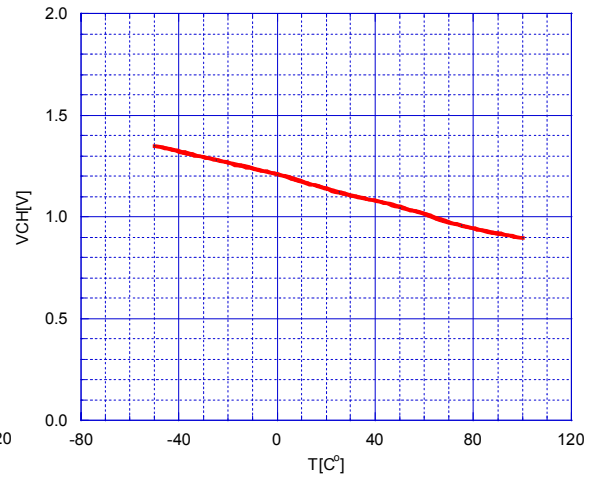
Differential Gain(V mode) vs. Temperature
(Vcc=3V)



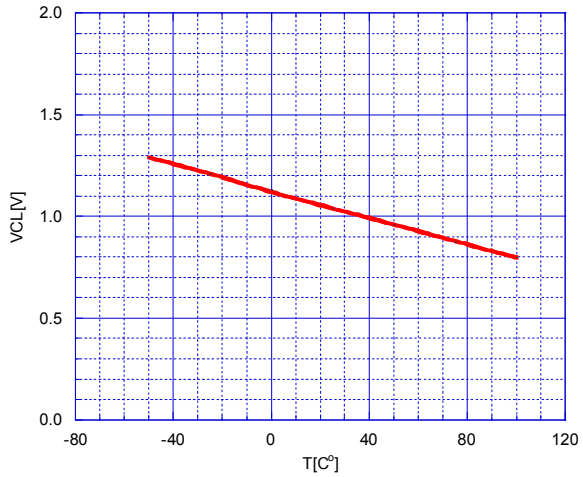
Differential Phase(V mode) vs. Temperature
(Vcc=3V)



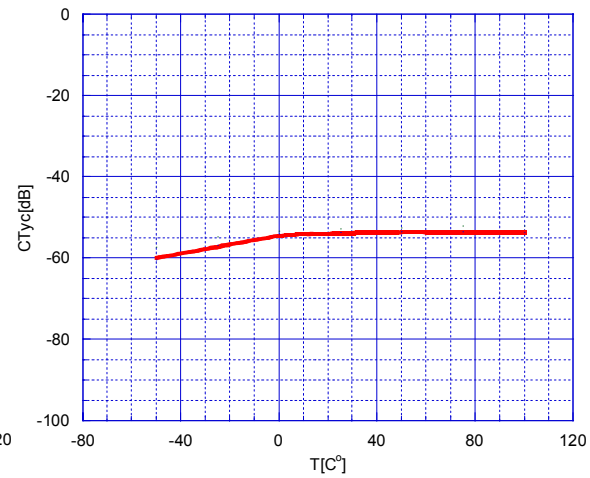
SW Threshold Voltage(High) vs. Temperature
(Vcc=3V)



SW Threshold(Low) vs. Temperature
(Vcc=3V)

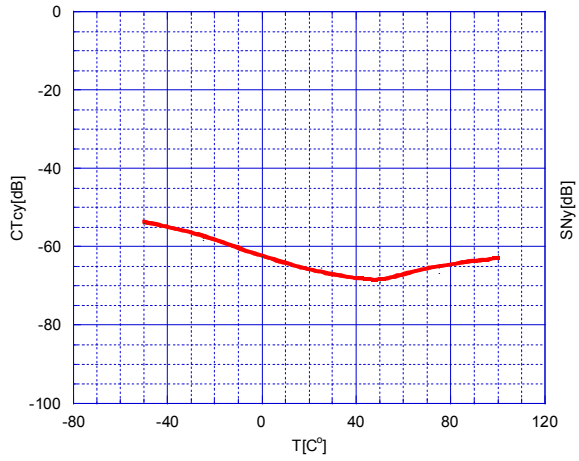


Closstalk vs. Temperature
(Vcc=3V,Yin→Cout)

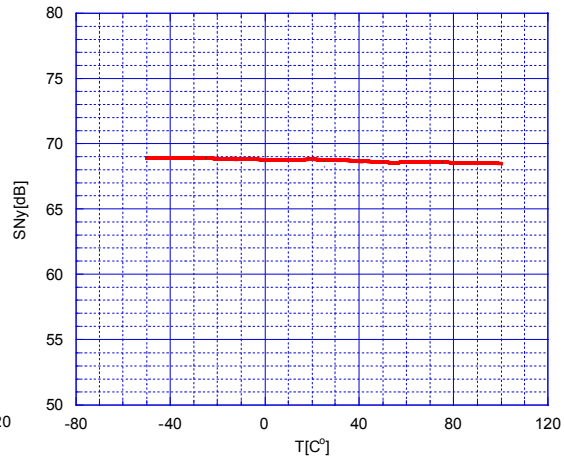


■TYPYCAL CHARACTERISTICS

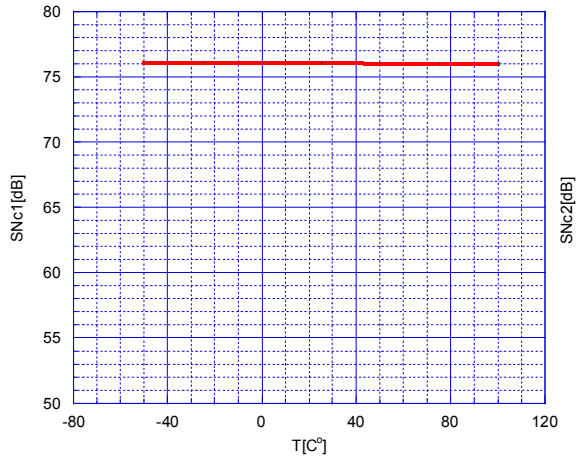
Closstalk vs. Temperature
(Vcc=3V,Cin→Yout)



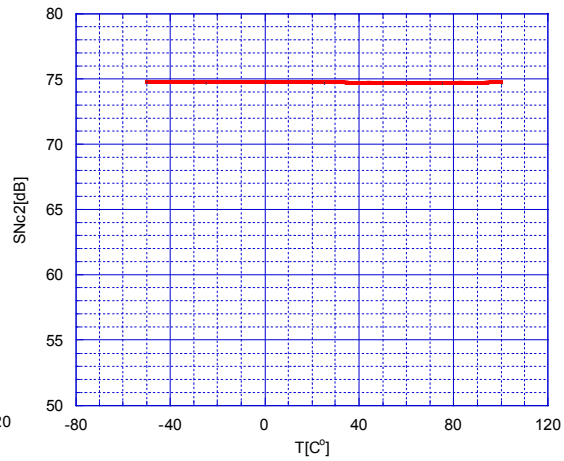
S/N Ratio vs. Temperature
(Vcc=3V,Ysignal)



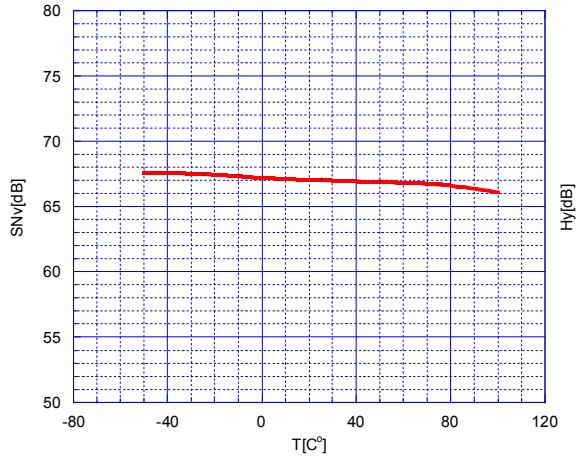
S/N Ratio vs. Temperature
(Vcc=3V,Csignal AM)



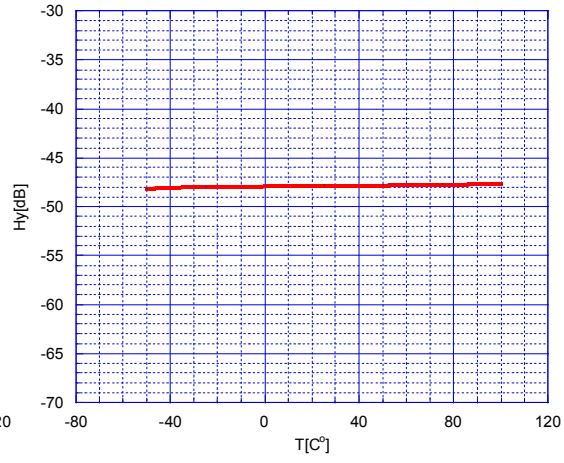
S/N Ratio vs. Temparature
(Vcc=3V,Csignal PM)



S/N Ratio vs. Temperature
(Vcc=3V,Vsignal)

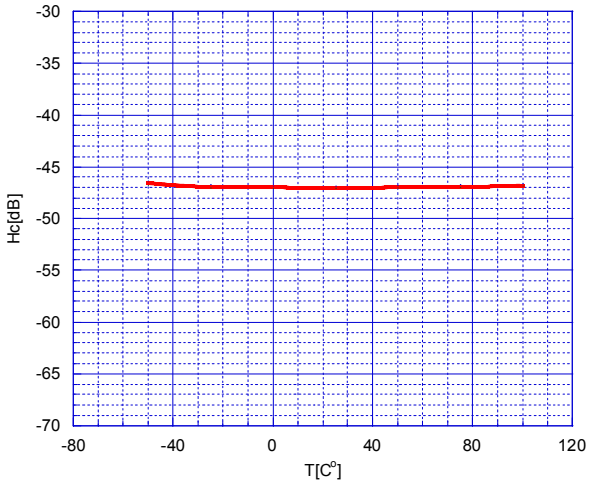


2nd Distortion vs. Temperature
(Vcc=3V,Ysignal)



■TYPYCAL CHARACTERISTICS

2nd Distortion vs. Temperature
(Vcc=3V,Csignal)



2nd Distortion vs. Temperature
(Vcc=3V,Vsignal)