

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

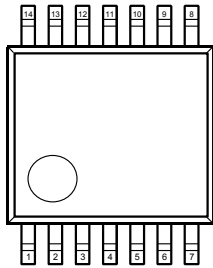


NJM2567V

■ FEATURES

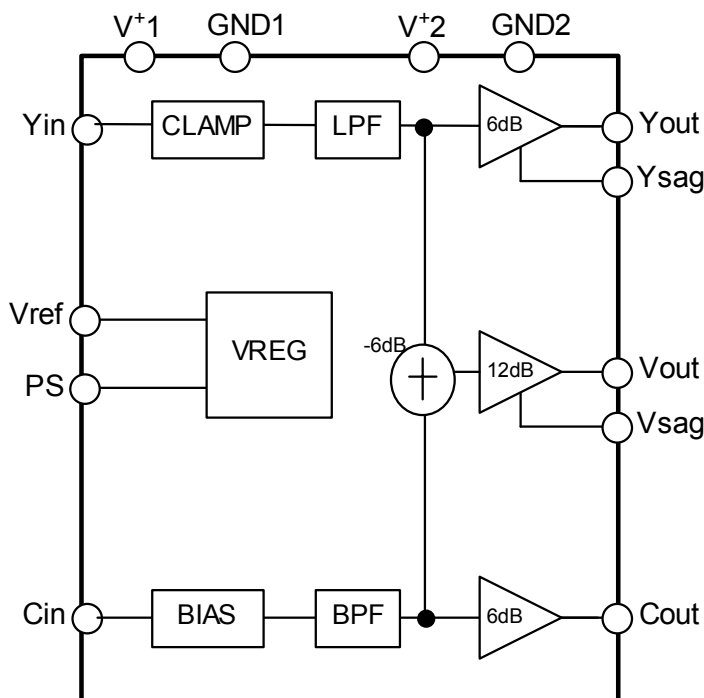
- Operating Voltage 2.8 to 5.5V
- Internal 6dB Amp. and 75ohm Driver
- Internal LPF(Y),BPF(C)
- Bipolar technology
- Package Outline SSOP14

■ 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



NJM2567

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■ 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	T _{opr}	-40 to +85	°C
Storage Temperature Range	T _{stg}	-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, $R_L=150\Omega$, $T_a=25^\circ C$ at non-designation)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Operating Circuit 1	I_{CC1}	$V^+1=5.0V$, No signal	-	12.0	16.0	mA
Operating Circuit 2	I_{CC2}	$V^+2=5.0V$, No signal	-	10.0	15.0	mA
Operating Circuit 1 at Power Save	I_{save1}	$V^+1=5.0V$, Power Save Mode	-	40	80	μA
Operating Circuit 2 at Power Save	I_{save2}	$V^+2=5.0V$, Power Save Mode	-	0	5	μA
Voltage Gain (Y Signal)	G_{vy}	$Y_{in}=100kHz$, 1.0Vpp Input Sin Signal	6.1	6.5	6.9	dB
Voltage Gain (C Signal)	G_{vc}	$Y_{in}=4.43MHz$, 0.3Vpp Input Sin Signal	6.1	6.5	6.9	dB
Voltage Gain (V Signal)	G_{vv}	$Y_{in}=100kHz$, 1.0Vpp Input Sin Signal	6.1	6.5	6.9	dB
Frequency Characteristics	G_{fy1}	$Y_{in}=6MHz/100kHz$, 1.0Vpp Input Sin Signal	-0.5	0	+0.5	dB
	G_{fy2}	$Y_{in}=20MHz/100kHz$, 1.0Vpp Input Sin Signal	-	-25	-	
	G_{fc1}	$C_{in}=\pm 1MHz/4.43MHz$, 0.3Vpp Input Sin Signal	-0.5	0	+0.5	
	G_{fc2}	$C_{in}=20MHz/4.43MHz$, 0.3Vpp Input Sin Signal	-	-25	-	
Group Delay Characteristic (Y Signal)	T_{dY}	$Y_{in}=4.43MHz$, Sin Signal	-	60	-	ns
Group Delay Characteristic (C Signal)	T_{dC}	$C_{in}=4.43MHz$, Sin Signal	-	60	-	ns
Maximum Output Voltage Swing (Y Signal)	V_{oym}	$Y_{in}=100kHz$, Sin Signal, THD=1%, $R_L=75\Omega$	1.1	1.2	-	Vp-p
Maximum Output Voltage Swing (C Signal)	V_{ocm}	$C_{in}=4.43MHz$, Sin Signal, THD=1%, $R_L=75\Omega$	0.7	1.1	-	Vp-p
Maximum Output Voltage Swing (V Signal)	V_{ovm}	$Y_{in}=100kHz$, Sin Signal, THD=1%, $R_L=75\Omega$	1.1	1.2	-	Vp-p
Differential Gain(Y Signal)	DG_y	$Y_{in}=1.0Vpp$, 10Step video signal, measure the Y_{out} .	-	0.3	-	%
Differential Phase(Y Signal)	DP_y	$Y_{in}=1.0Vpp$, 10Step video signal, measure the Y_{out} .	-	0.3	-	deg
Differential Gain(V Signal)	DG_v	$Y_{in}=1.0Vpp$, $C_{in}=0.3Vpp$, 10Step video signal, measure the V_{out} .	-	0.3	-	%
Differential Phase(V Signal)	DP_v	$Y_{in}=1.0Vpp$, $C_{in}=0.3Vpp$, 10Step video signal, measure the V_{out} .	-	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

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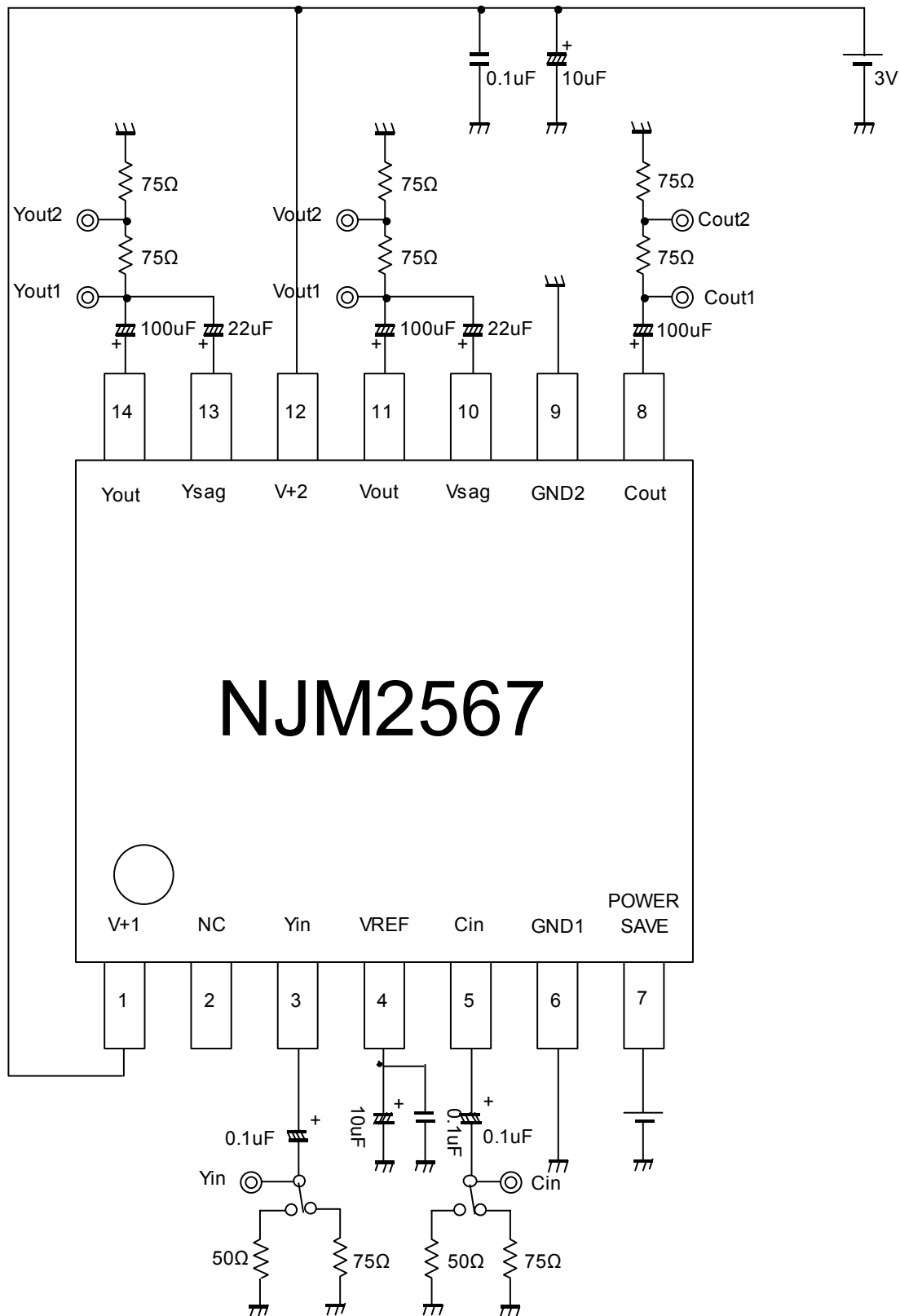
■ ELECTRICAL CHARACTERISTICS (V⁺1=V⁺2=3V, Powersave=3V, R_L=150Ω, Ta=25°C at non-designation)

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

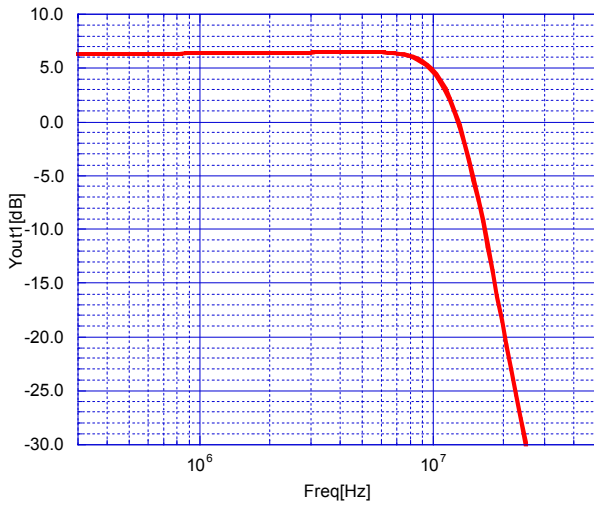
PARAMETER	CONTROL	NOTES
Power Save	H	Power Save: OFF
	L	Power Save: ON
	OPEN	Power Save: ON

TEST CIRCUIT

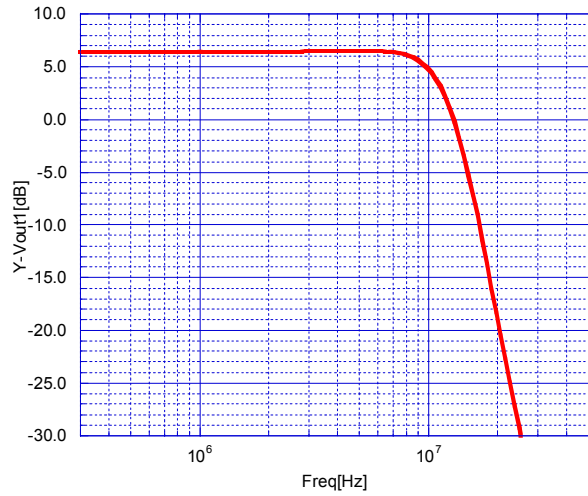


TYPICAL CHARACTERISTICS

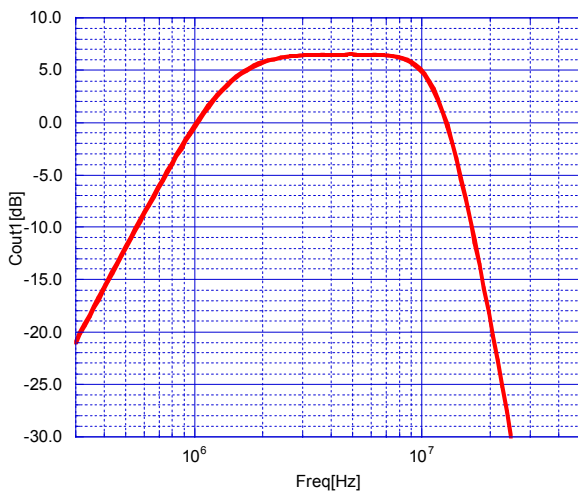
Voltage Gain vs. Frequency
($Y_{in} \rightarrow Y_{out}, V_{cc}=3V, T_a=25^\circ C$)



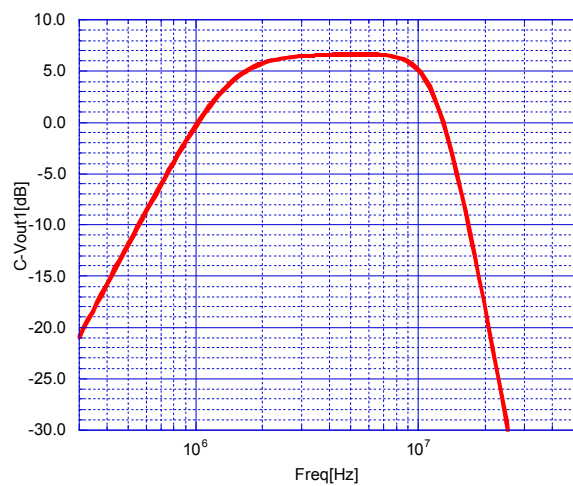
Voltage Gain vs. Frequency
($Y_{in} \rightarrow V_{out}, V_{cc}=3V, T_a=25^\circ C$)



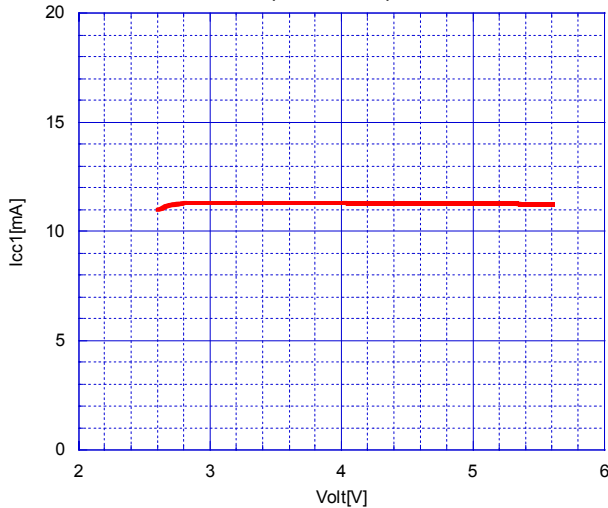
Voltage Gain vs. Frequency
($C_{in} \rightarrow Y_{out}, V_{cc}=3V, T_a=25^\circ C$)



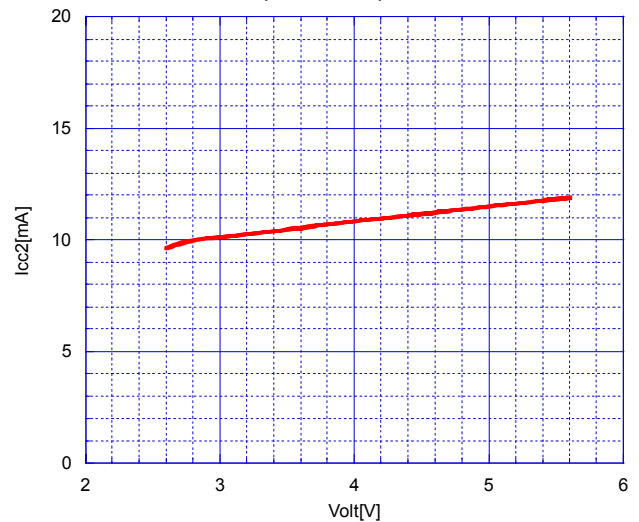
Voltage Gain vs. Frequency
($C_{in} \rightarrow V_{out}, V_{cc}=3V, T_a=25^\circ C$)



Operating Current1 vs. Operating Voltage
($T_a=25^\circ C$)

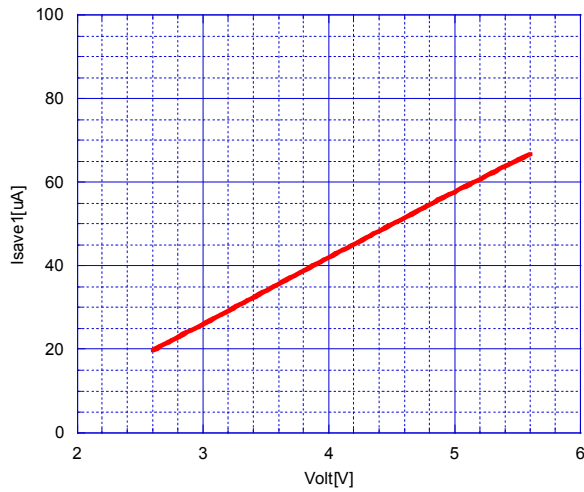


Operating Current2 vs. Operating Voltage
($T_a=25^\circ C$)

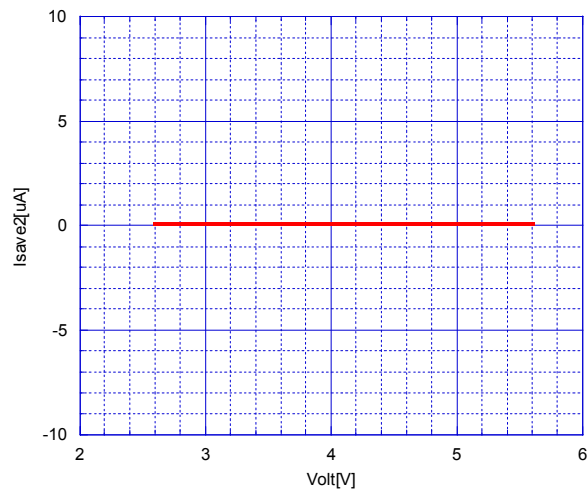


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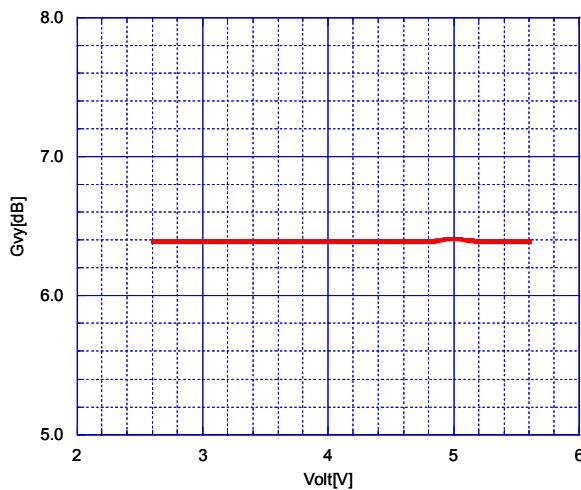
Operating Current at Power Save Mode1 vs. Operating Voltage (Ta=25°C)



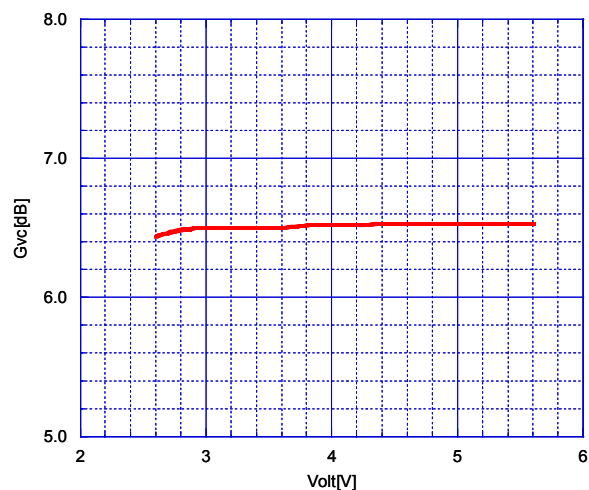
Operating Current at Power Save Mode2 vs. Operating Voltage (Ta=25°C)



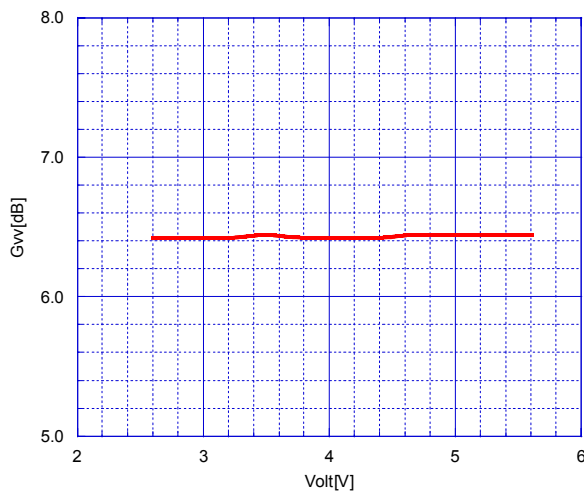
Voltage Gain(Y mode) vs. Operating Voltage (Ta=25°C)



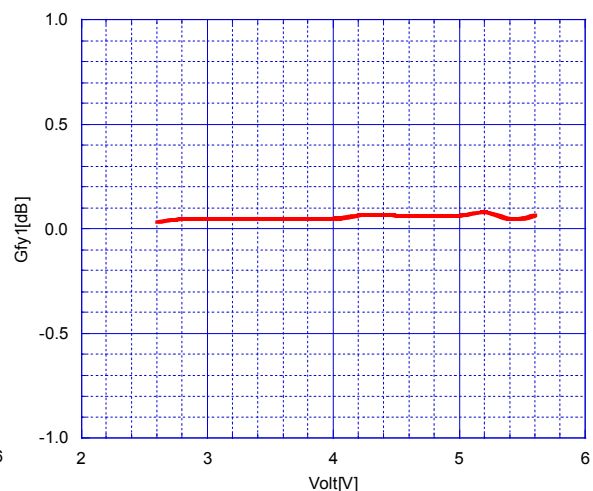
Voltage Gain(C mode) vs. Operating Voltage (Ta=25°C)



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

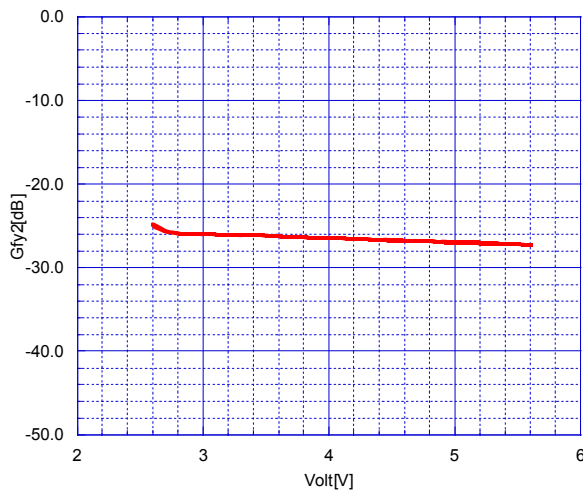


Frequency vs. Operating Voltage (Yin=6MHz/100kHz, 1Vpp, Ta=25°C)

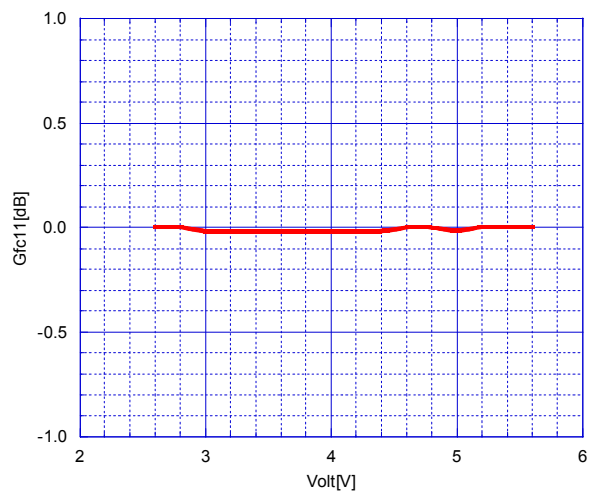


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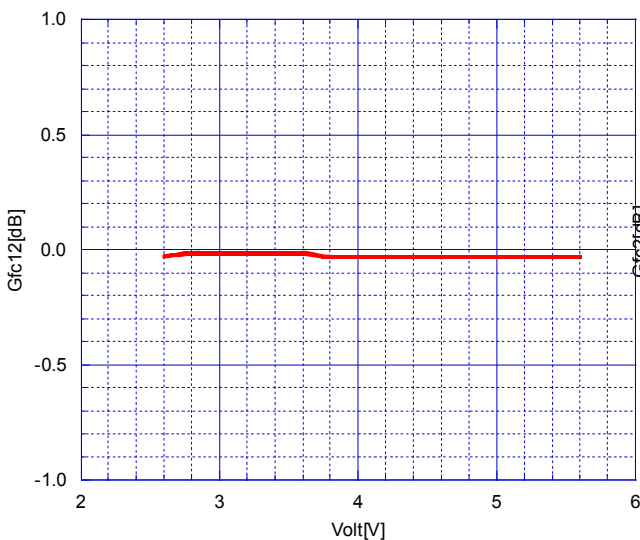
Frequency vs. Operating Voltage
($Y_{in}=20\text{MHz}/100\text{kHz}, 1\text{Vpp}, T_a=25^\circ\text{C}$)



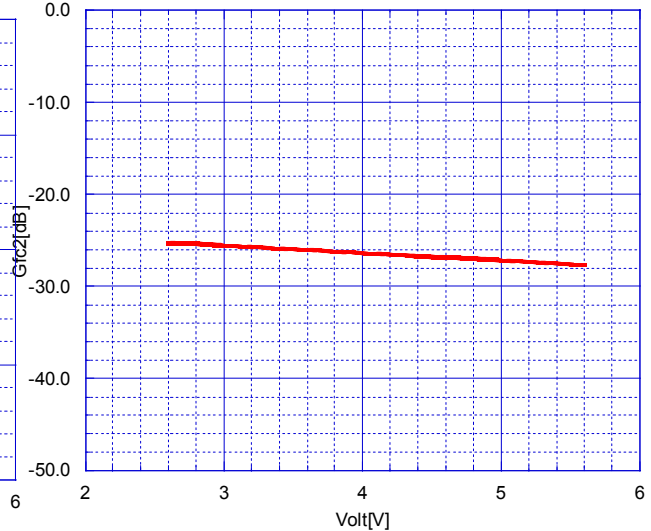
Frequency vs. Operating Voltage
($C_{in}=3.43\text{MHz}/4.43\text{MHz}, 0.3\text{Vpp}, T_a=25^\circ\text{C}$)



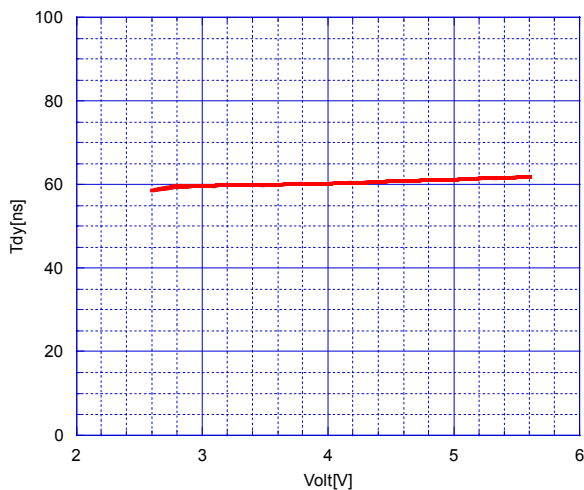
Frequency vs. Operating Voltage
($C_{in}=5.43\text{MHz}/4.43\text{MHz}, 0.3\text{Vpp}, T_a=25^\circ\text{C}$)



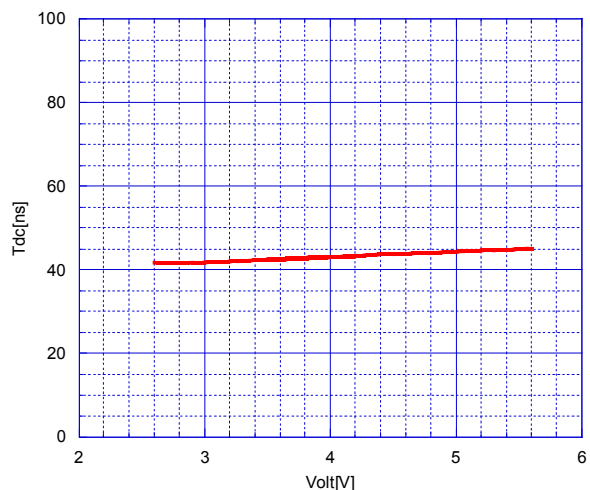
Frequency vs. Operating Voltage
($C_{in}=20\text{MHz}/4.43\text{MHz}, 0.3\text{Vpp}, T_a=25^\circ\text{C}$)



Group Delay(Y mode) vs. Operating Voltage
($T_a=25^\circ\text{C}$)

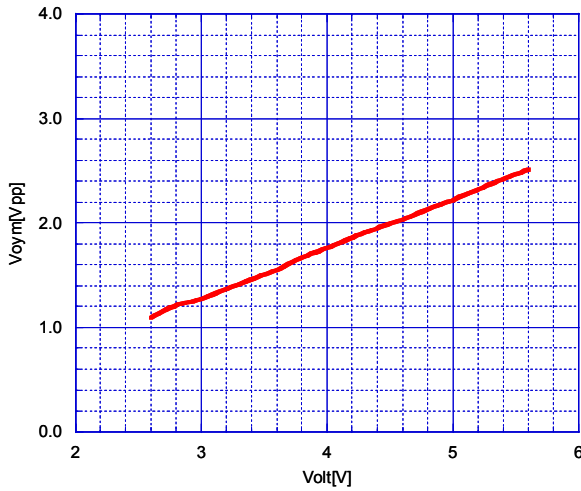


Group Delay(C mode) vs. Operating Voltage
($T_a=25^\circ\text{C}$)

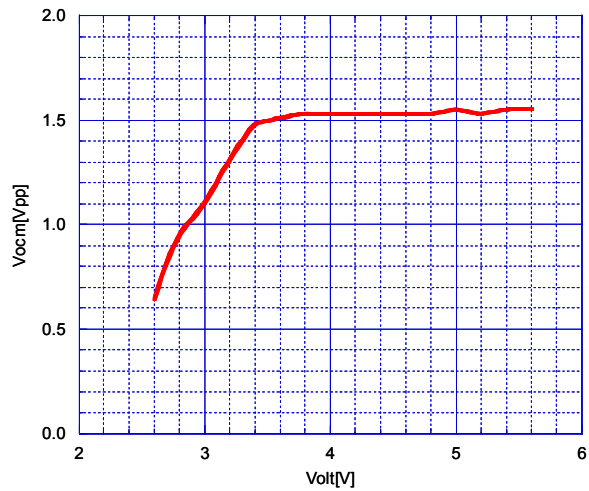


TYPICAL CHARACTERISTICS

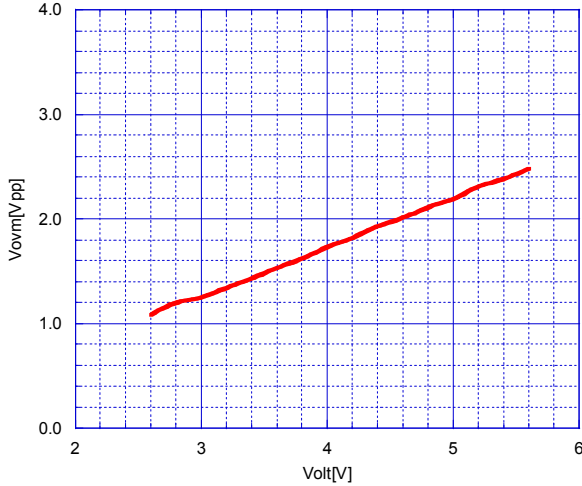
Maximum Output Voltage vs. Operating Voltage
(Yin→Yout, Ta=25°C)



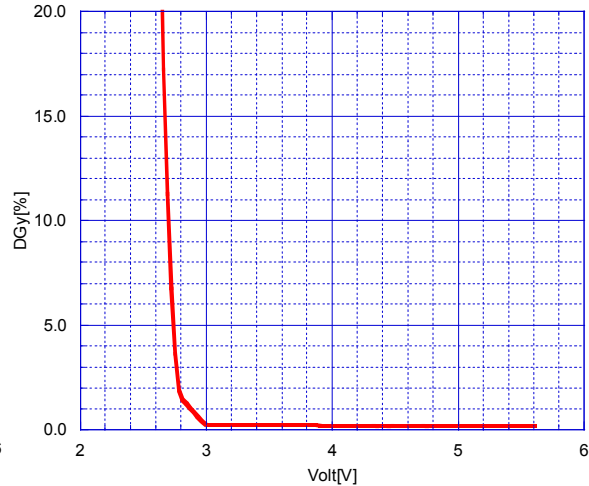
Maximum Output Voltage vs. Operating Voltage
(Cin→Cout, Ta=25°C)



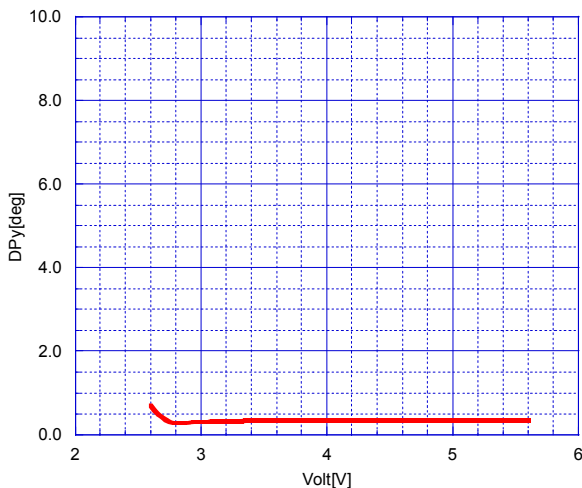
Maximum Output Voltage vs. Operating Voltage
(Yin→Vout, Ta=25°C)



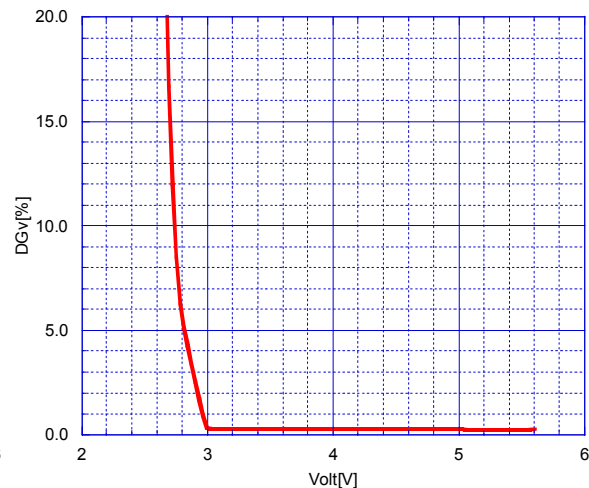
Differential Gain vs. Operating Voltage
(Yin→Yout, Ta=25°C)



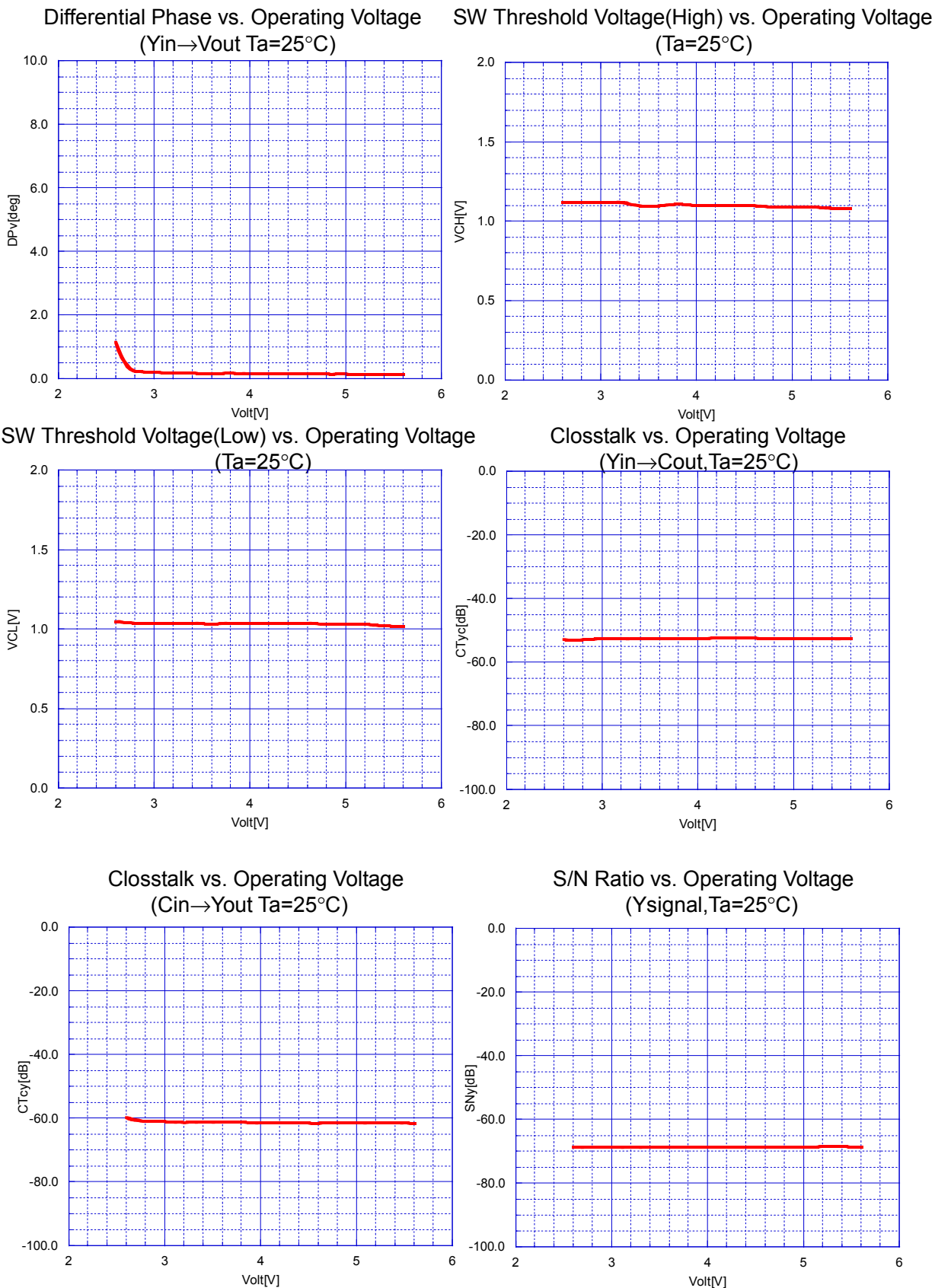
Differential Phase vs. Operating Voltage
(Yin→Yout, Ta=25°C)



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

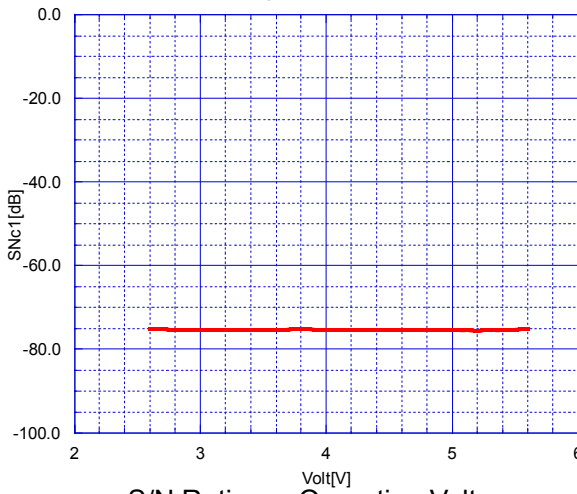


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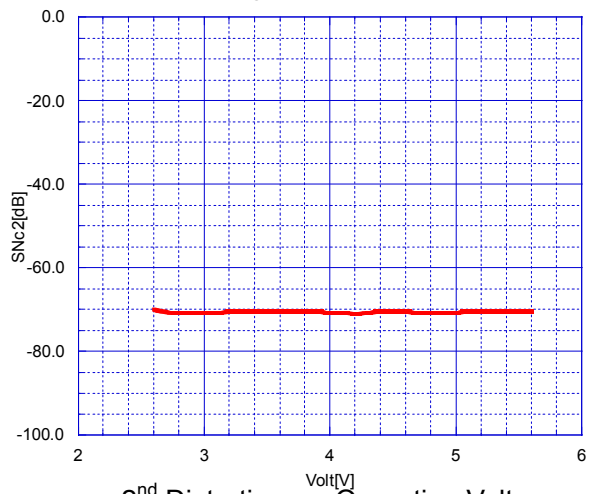


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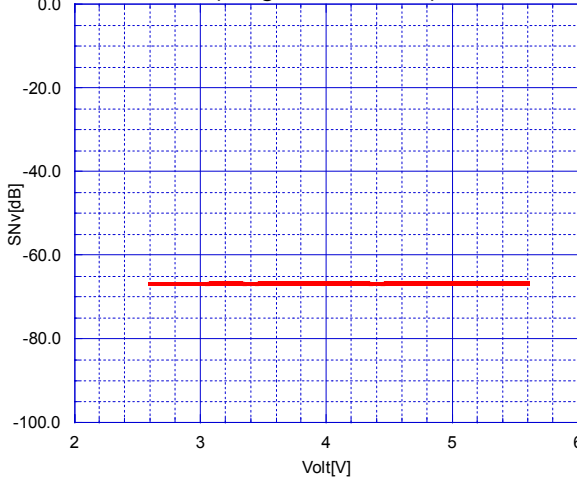
S/N Ratio vs. Operating Voltage
(Csignal AM, Ta=25°C)



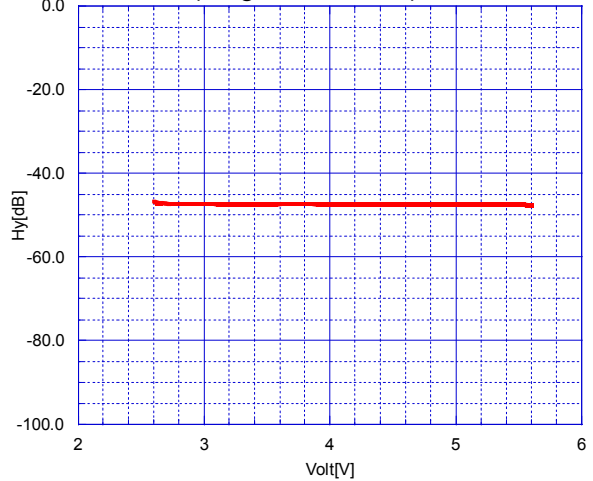
S/N Ratio Operating Voltage
(Csignal PM, Ta=25°C)



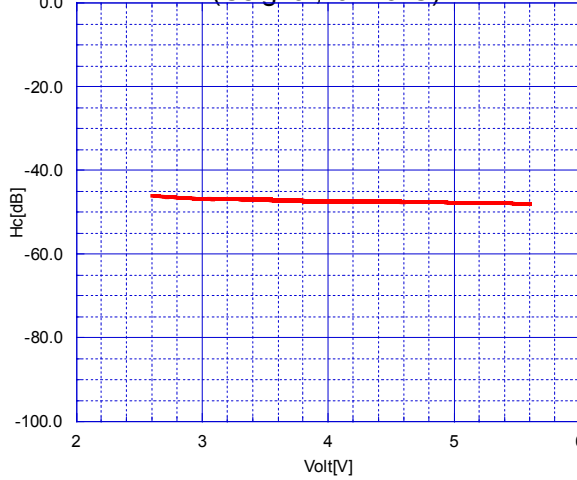
S/N Ratio vs. Operating Voltage
(Vsignal, Ta=25°C)



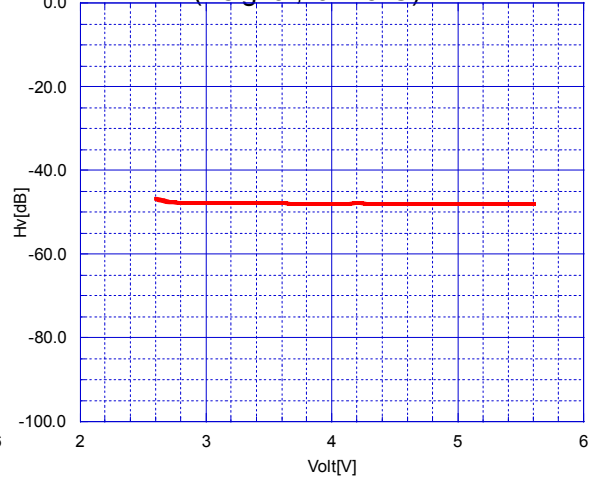
2nd Distortion vs. Operating Voltage
(Ysignal, Ta=25°C)



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

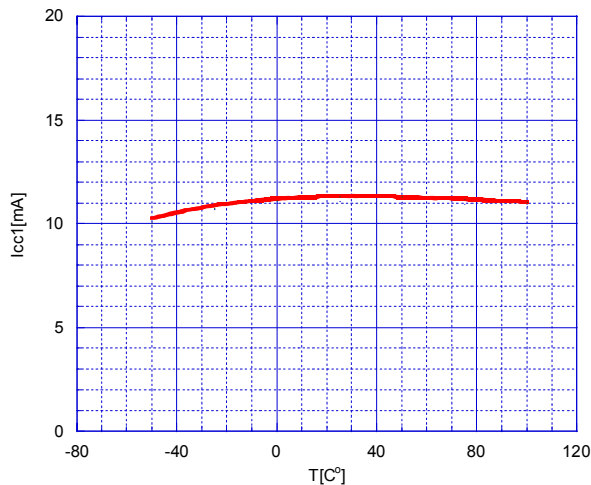


2nd Distortion vs. Operating Voltage
(Vsignal, Ta=25°C)

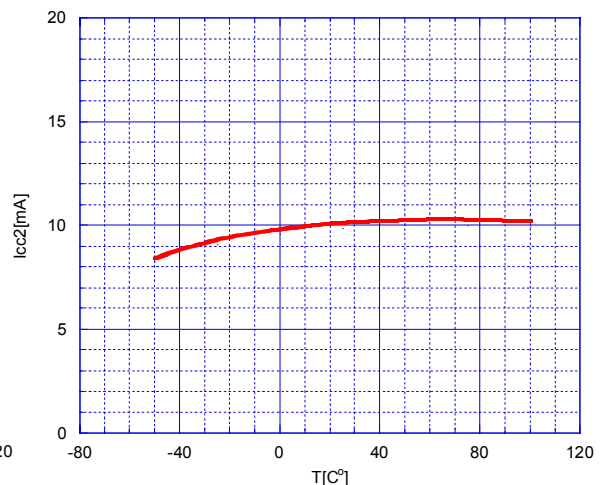


TYPICAL CHARACTERISTICS

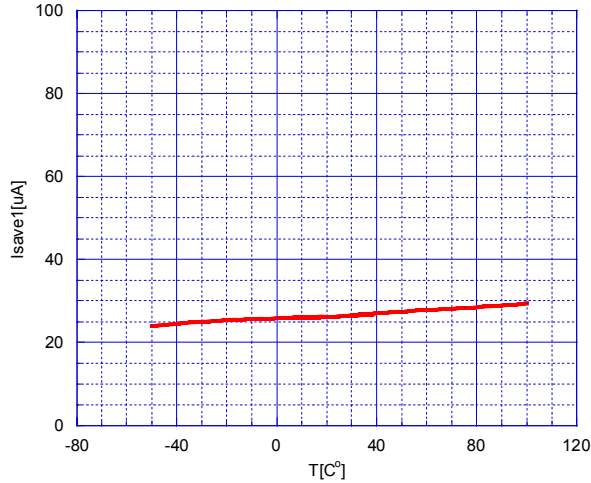
Operating Current1 vs. Temperature
(Vcc=3V)



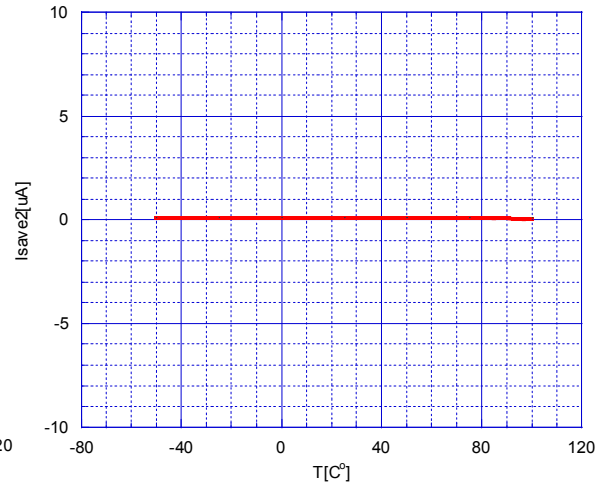
Operating Current2 vs. Temperature
(Vcc=3V)



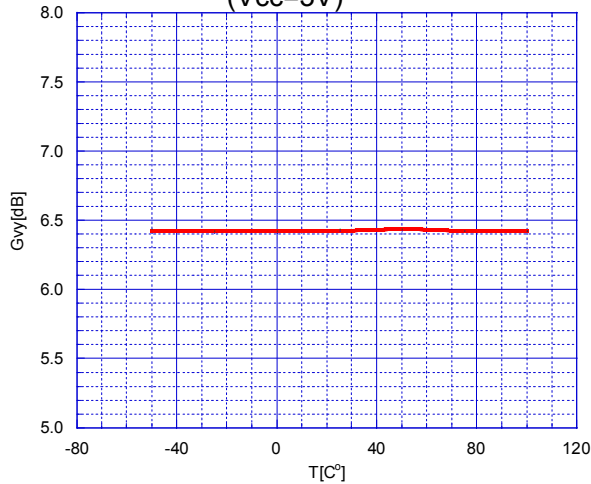
Operating Current1 at Power Save mode vs. Temperature
(Vcc=3V)



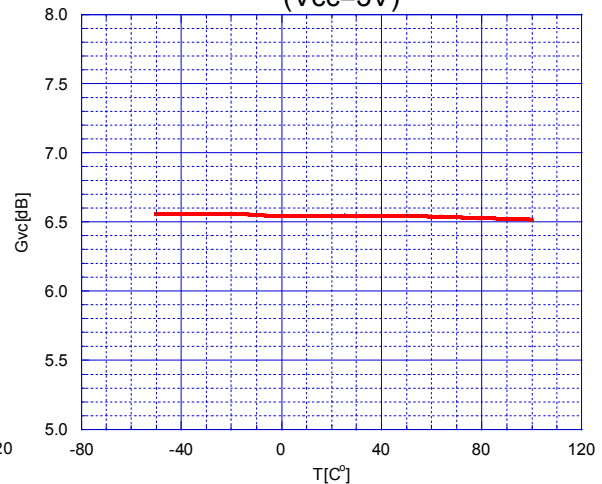
Operating Current2 at Power Save Mode vs. Temperature
(Vcc=3V)



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

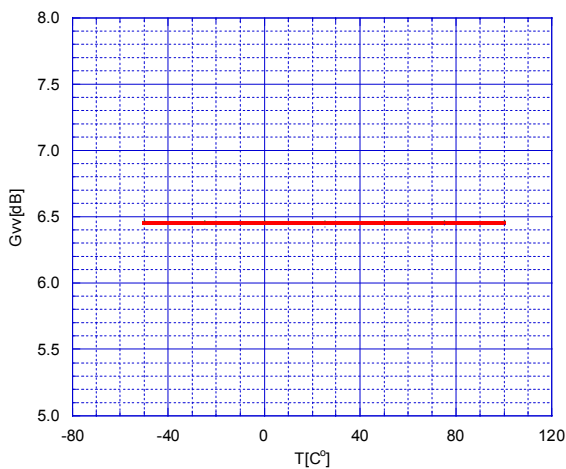


Voltage Gain(C mode) vs. Temperature
(Vcc=3V)

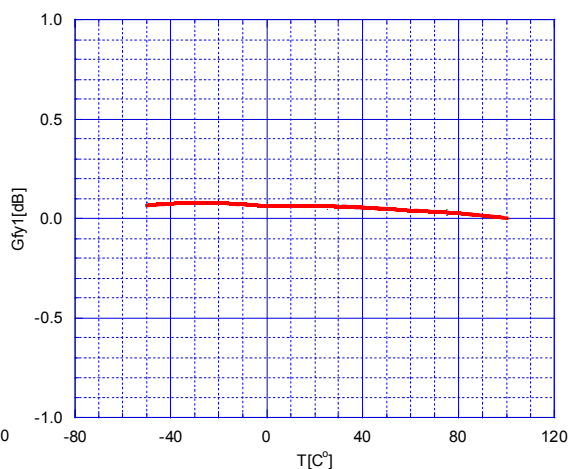


TYPICAL CHARACTERISTICS

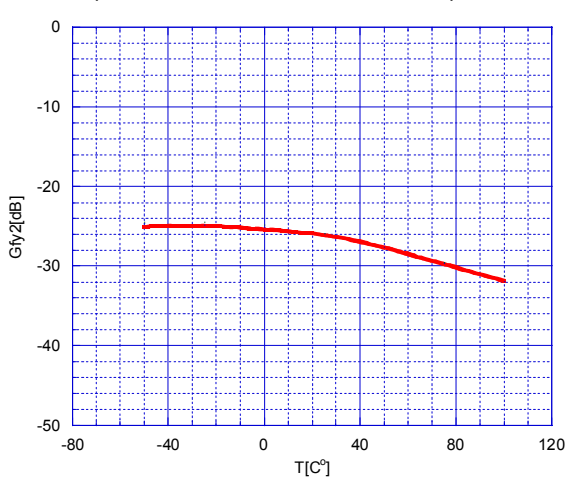
Voltage Gain(V mode) vs. Temperature
(Vcc=3V)



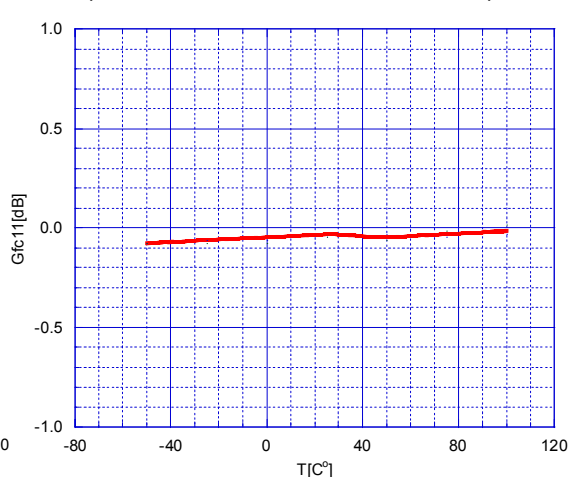
Frequency vs. Temperature
(Vcc=3V, Yin=4.5MHz/100kHz)



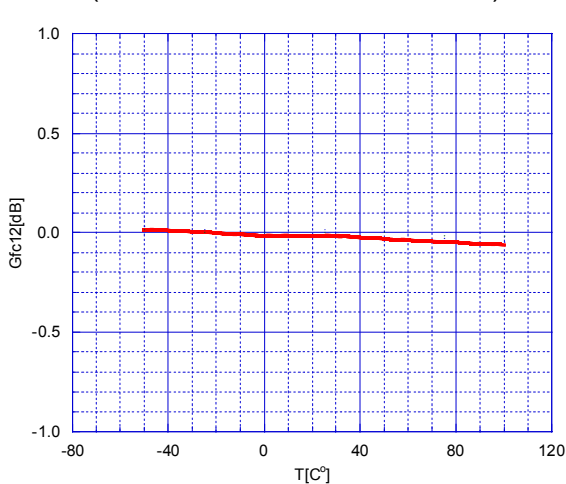
Frequency vs. Temperature
(Vcc=3V, Yin=20MHz/100kHz)



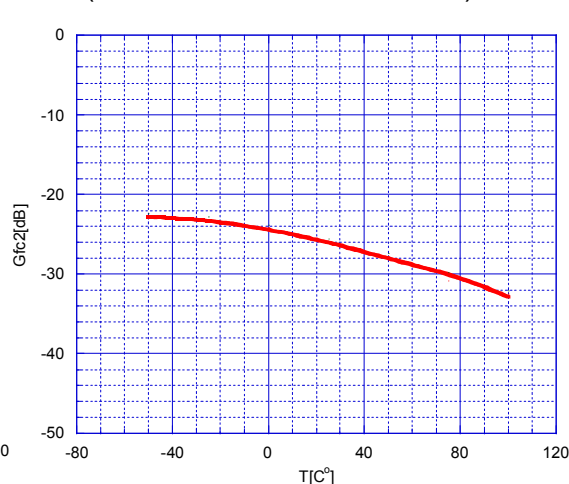
Frequency vs. Temperature
(Vcc=3V, Cin=3.43MHz/4.43MHz)



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

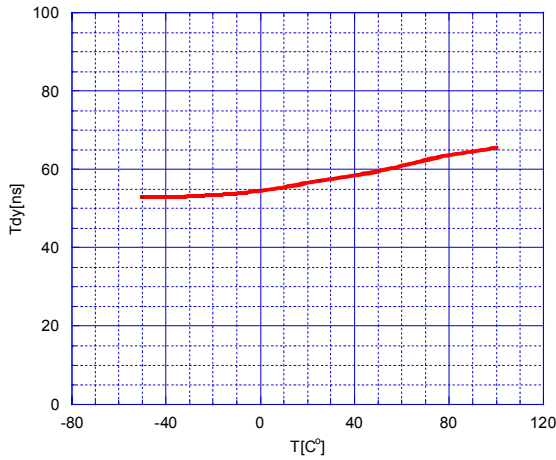


Frequency vs. Temperature
(Vcc=3V, Cin=20MHz/4.43MHz)

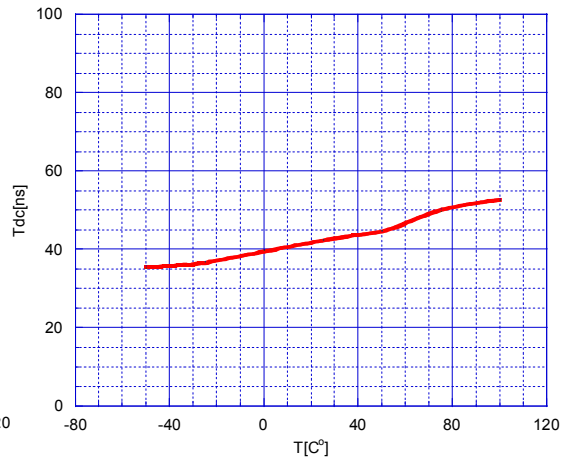


TYPICAL CHARACTERISTICS

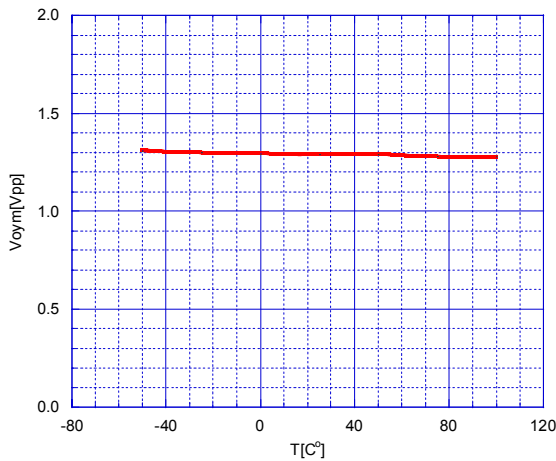
Group Delay (Y mode) vs. Temperature
(Vcc=3V)



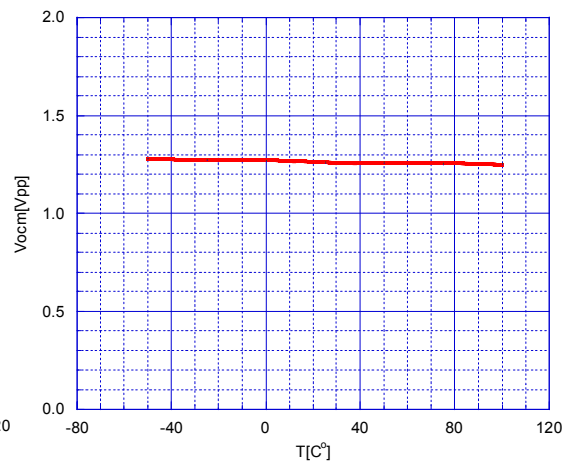
Group Delay (C mode) vs. Temperature
(Vcc=3V)



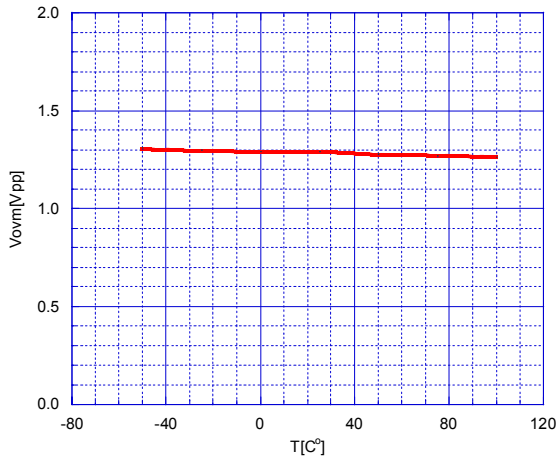
Maximum Output Voltage (Y mode) vs. Temperature
(Vcc=3V)



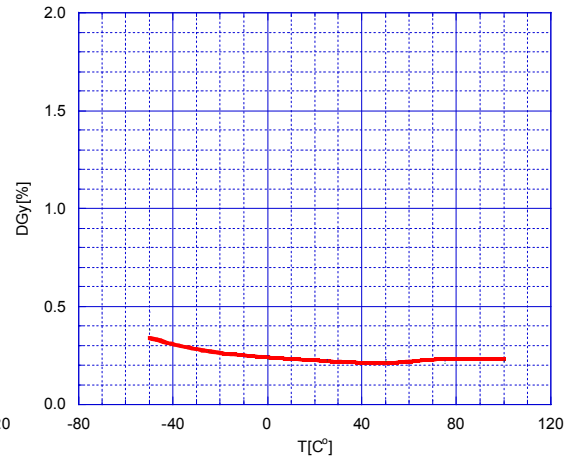
Maximum Output Voltage (C mode) vs. Temperature
(Vcc=3V)



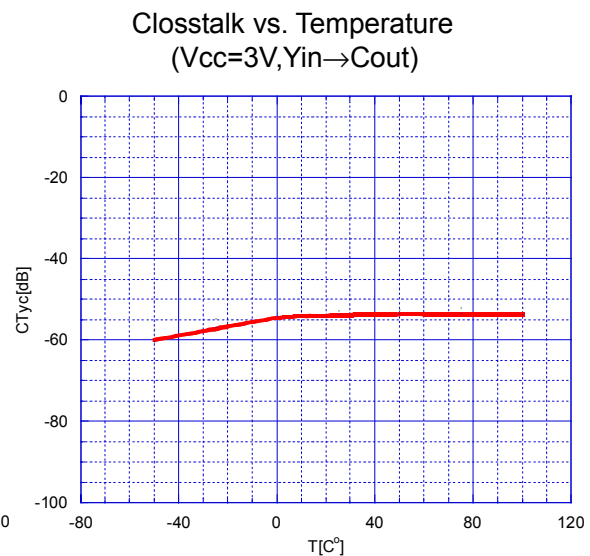
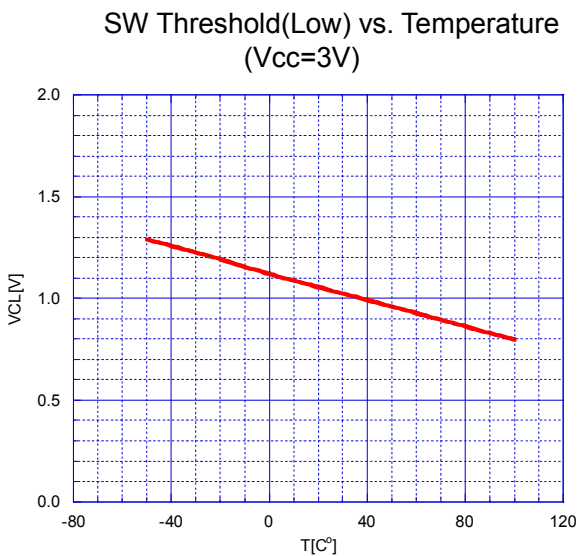
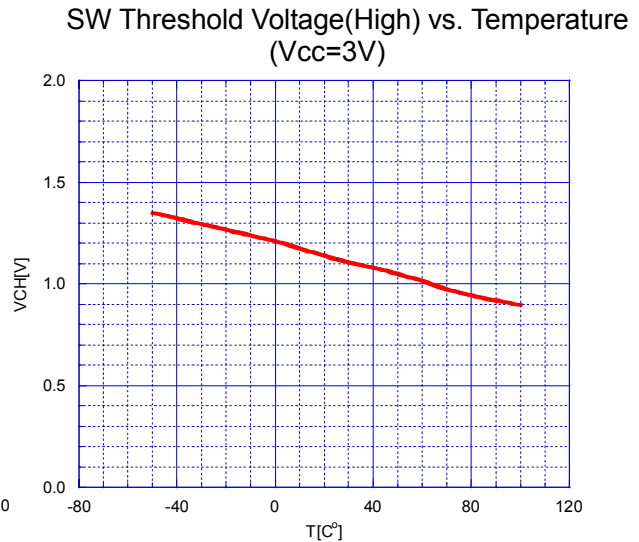
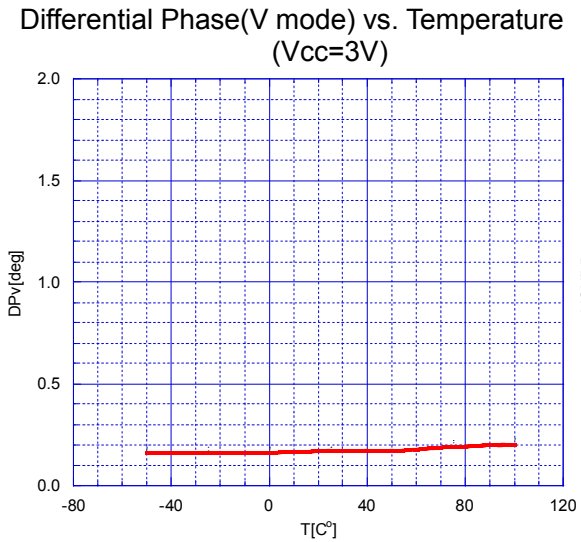
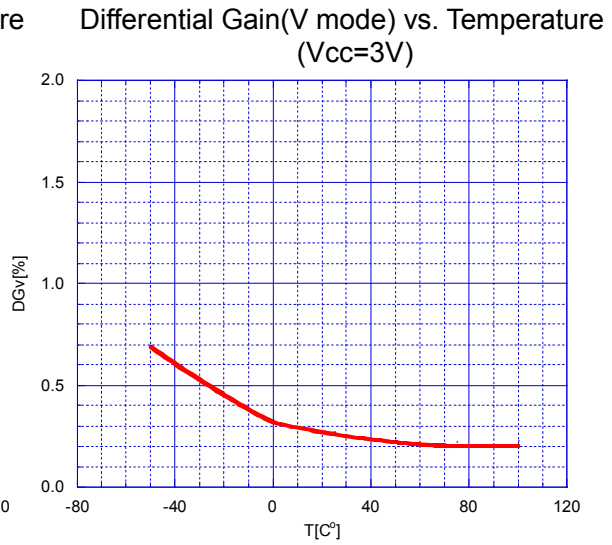
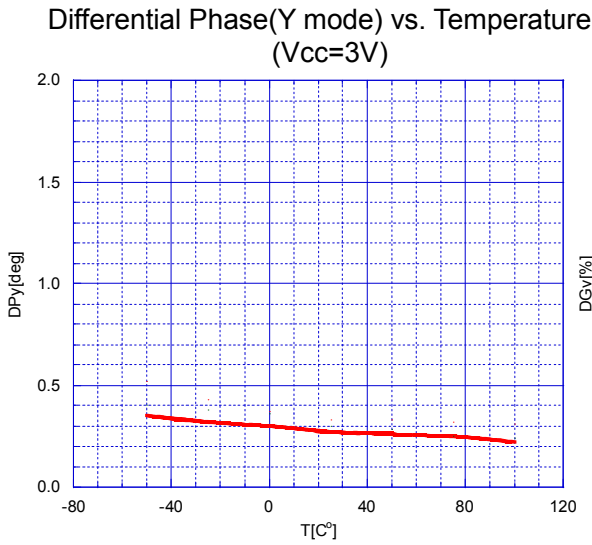
Maximum Output Voltage (V mode) vs. Temperature
(Vcc=3V)



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

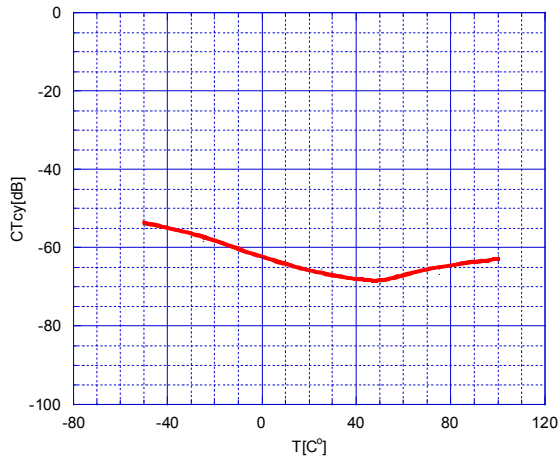


TYPICAL CHARACTERISTICS

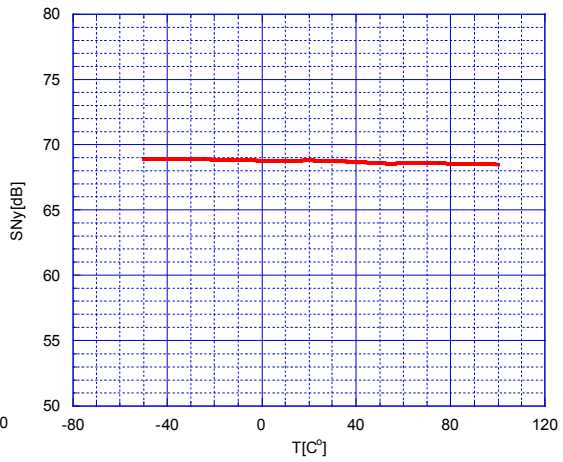


TYPICAL CHARACTERISTICS

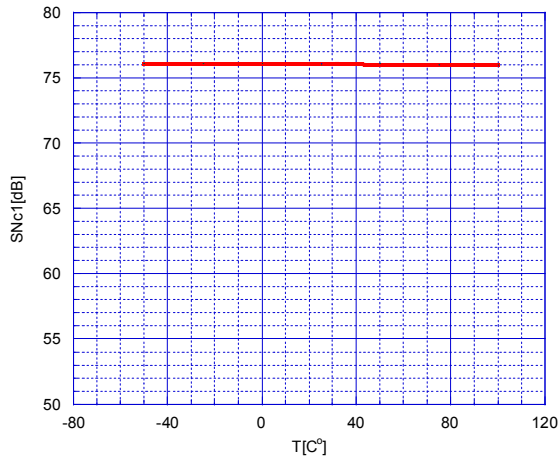
Crosstalk vs. Temperature
(Vcc=3V, Cin→Yout)



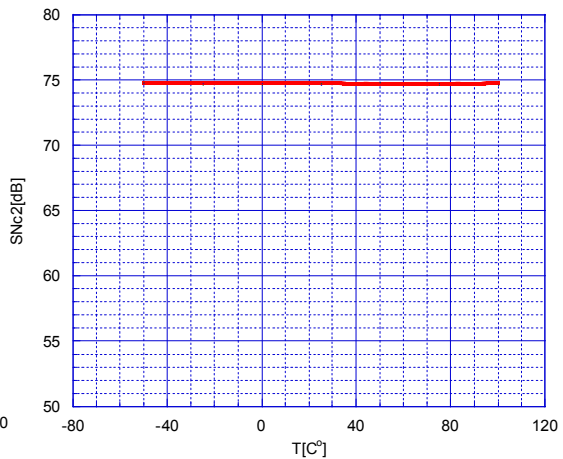
S/N Ratio vs. Temperature
(Vcc=3V, Ysignal)



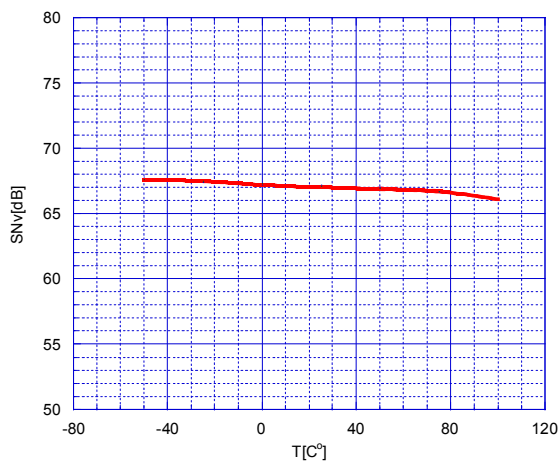
S/N Ratio vs. Temperature
(Vcc=3V, Csignal AM)



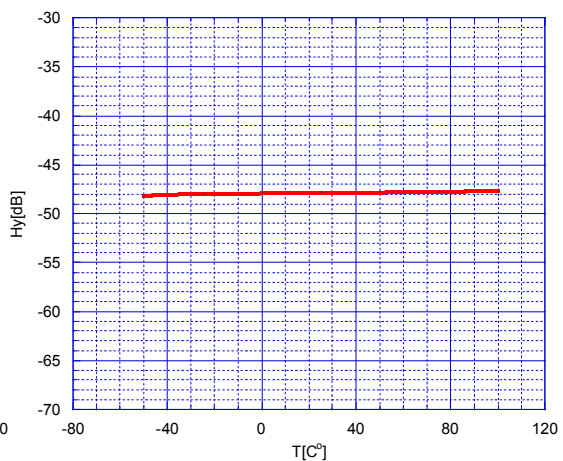
S/N Ratio vs. Temperature
(Vcc=3V, Csignal PM)



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

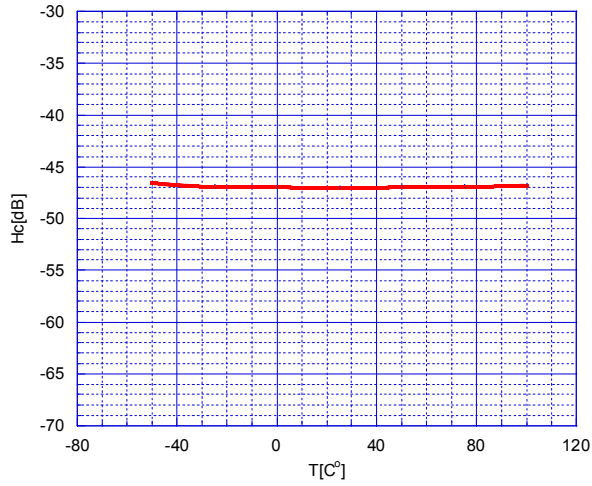


2nd Distortion vs. Temperature
(Vcc=3V, Ysignal)

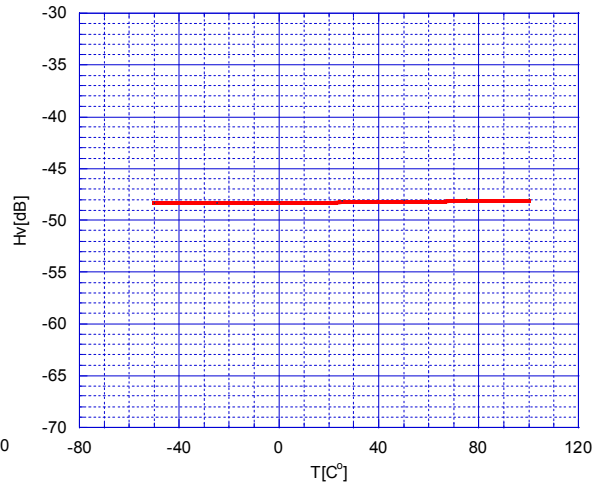


TYPICAL CHARACTERISTICS

2nd Distortion vs. Temperature
(V_{cc}=3V, C_{signal})



2nd Distortion vs. Temperature
(V_{cc}=3V, V_{signal})



[CAUTION]

The specifications on this databook are only given for information, without any guarantee as regards either mistakes or omissions. The application circuits in this databook are described only to show representative usages of the product and not intended for the guarantee or permission of any right including the industrial rights.