Low Voltage Video Amplifier with Y/C MIX and Filter

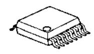
■ GENERAL DESCRIPTION

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

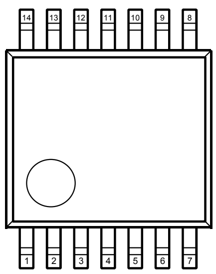


NJM2567V

■ FEATURES

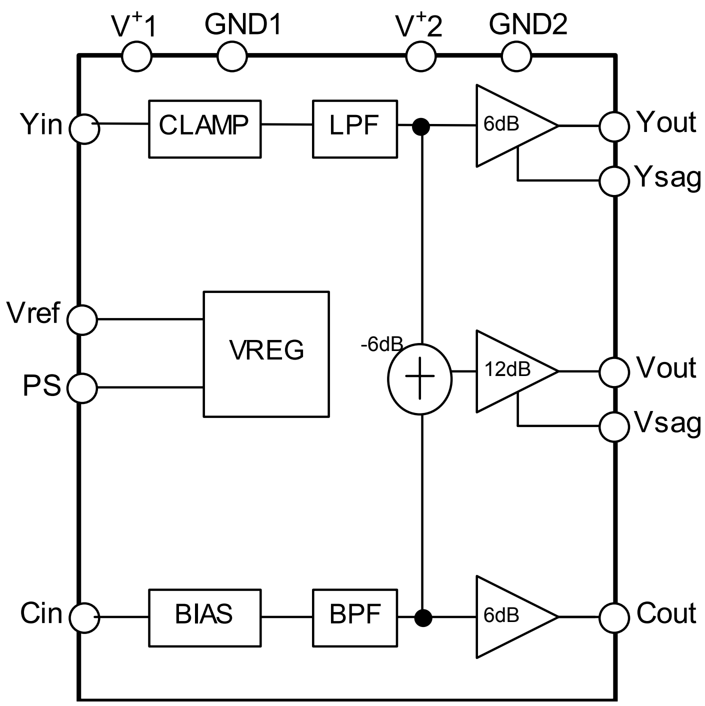
- Operating Voltage 2.8 to 5.5V
- Internal 6dB Amp. and 75ohm Driver
- Internal LPF(Y),BPF(C)
- Bipolar technology
- Package Outline SSOP14

■ 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



Ver.11.1

■ 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%, $R_L=75\Omega$	1.1	1.2	-	Vp-p
Maximum Output Voltage Swing (C Signal)	Vocm	Cin=4.43MHz, Sin Signal, THD=1%, $R_L=75\Omega$	0.7	1.1	-	Vp-p
Maximum Output Voltage Swing (V Signal)	Vovm	Yin=100kHz, Sin Signal, THD=1%, $R_L=75\Omega$	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

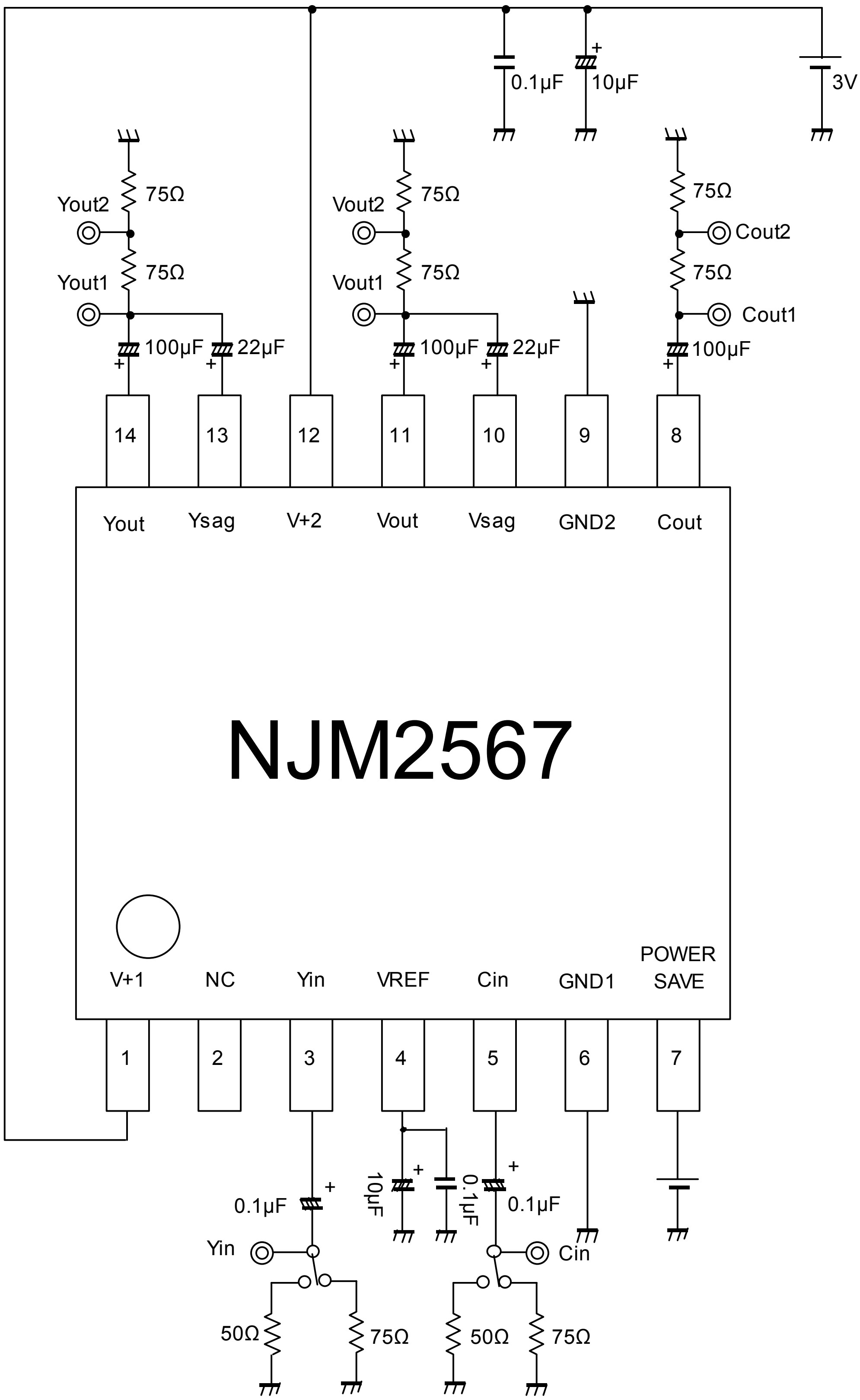
■ **ELECTRICAL CHARACTERISTICS** ($V^+1= V^+2=3V$, Powersave=3V, $R_L=150\Omega$, Ta=25°C at non-designation)

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, $R_L=75\Omega$ at Yout Bandwidth 100kHz to 6MHz	-	60	-	dB
S/N2(C Signal)	SNc1	Cin=100% Red Field Video Signal, $R_L=75\Omega$ at Cout, AM Noise Bandwidth 100KHz to 500kHz	-	60	-	dB
S/N3(C Signal)	SNc2	Cin=100% Red Field Video Signal, $R_L=75\Omega$ at Cout, PM Noise Bandwidth 100KHz to 500kHz	-	60	-	dB
S/N4 (V Signal)	SNv	Yin=100% White Video Signal, $R_L=75\Omega$ 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**

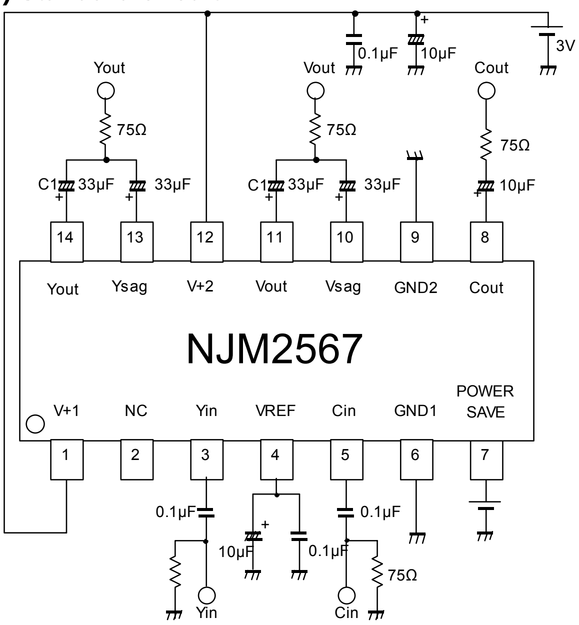
PARAMETER	CONTROL	NOTES
Power Save	H	Power Save: OFF
	L	Power Save: ON
	OPEN	Power Save: ON

■ TEST CIRCUIT

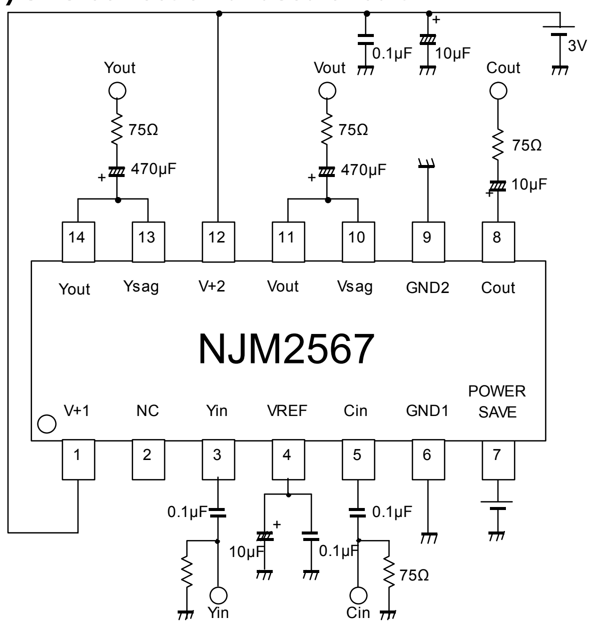


■APPLICATION CIRCUIT

(1) Standard circuit



(2) SAG correction unused circuit



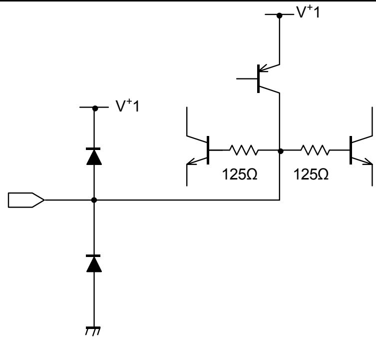
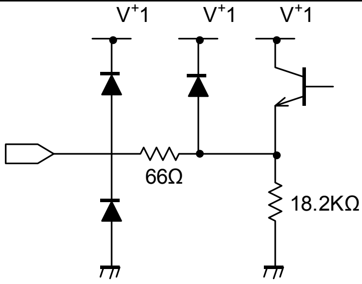
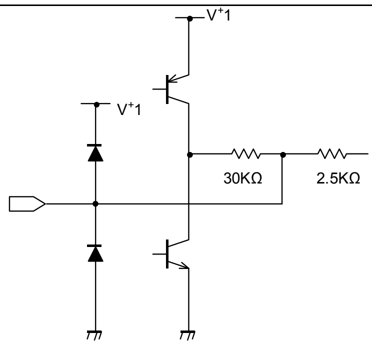
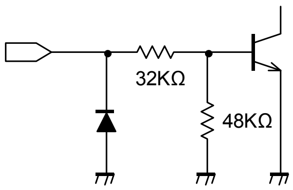
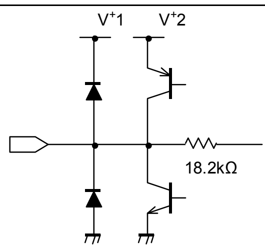
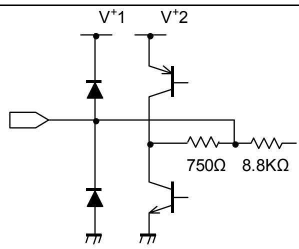
(1) Standard circuit

The SAG correction reduces output coupling capacitor values.
The capacitor of C1 (33µF) is recommended for the portable application.
However, the 33µF capacitor may deteriorate SAG, and lose synchronization by luminance fluctuation.
Adjust the C1 value, checking the waveform containing a lot of low frequency components like a bounce waveform (In case of worst condition). Change the capacitor of C1 into a large value to improve SAG.

(2) SAG correction unused circuit

Cancel the SAG correction to improve lost synchronization.
Connect the coupling capacitor after connecting the Vout pin and Vsag pin. The recommended value is 470µF or more.

■ TERMINAL DESCRIPTION

Pin No.	SYMBOL	EQIVARENT CIRCUIT
3	Yin	
4	Vref	
5	Cin	
7	Power save	
8	Cin	
10 11 13 14	Vsag Vout Ysag Yout	

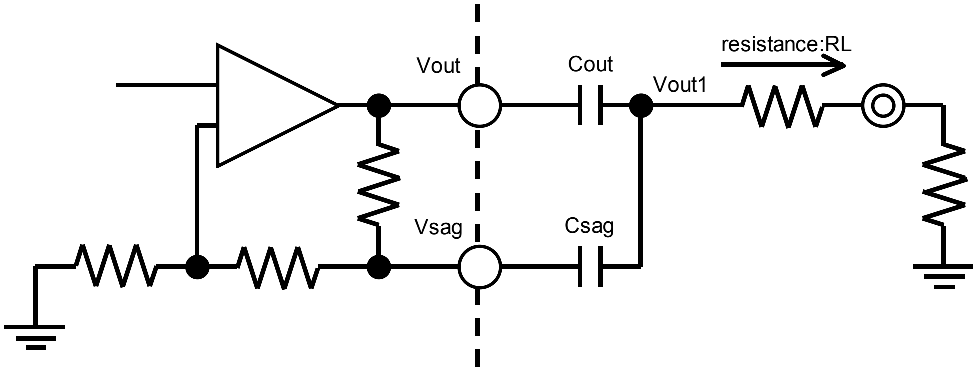
■ APPLICATION

♦ SAG correction circuit

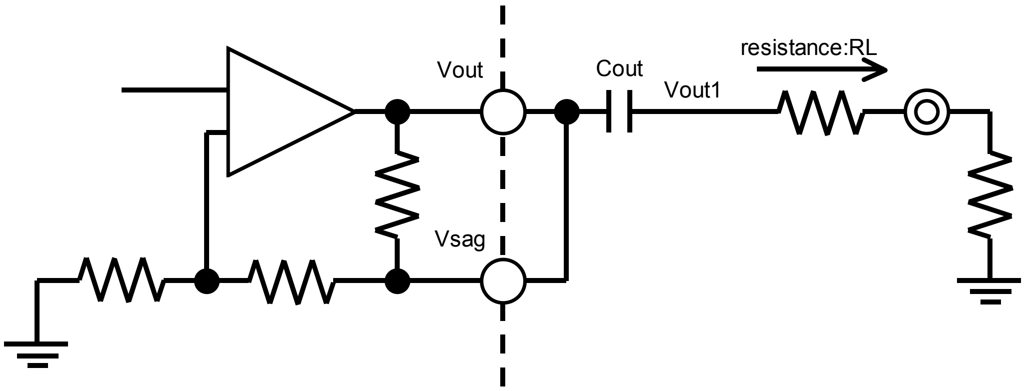
SAG correction circuit is a circuit to correct for low-frequency attenuation by high-pass filter consisting of the output coupling capacitance and load resistance. Low-frequency attenuation raises the sag in the vertical period of the video signal.

Capacitor for Vsag (Csag) is connected to the negative feedback of the amplifier. This Csag increase the low frequency gain to correct for the attenuation of low frequency gain.

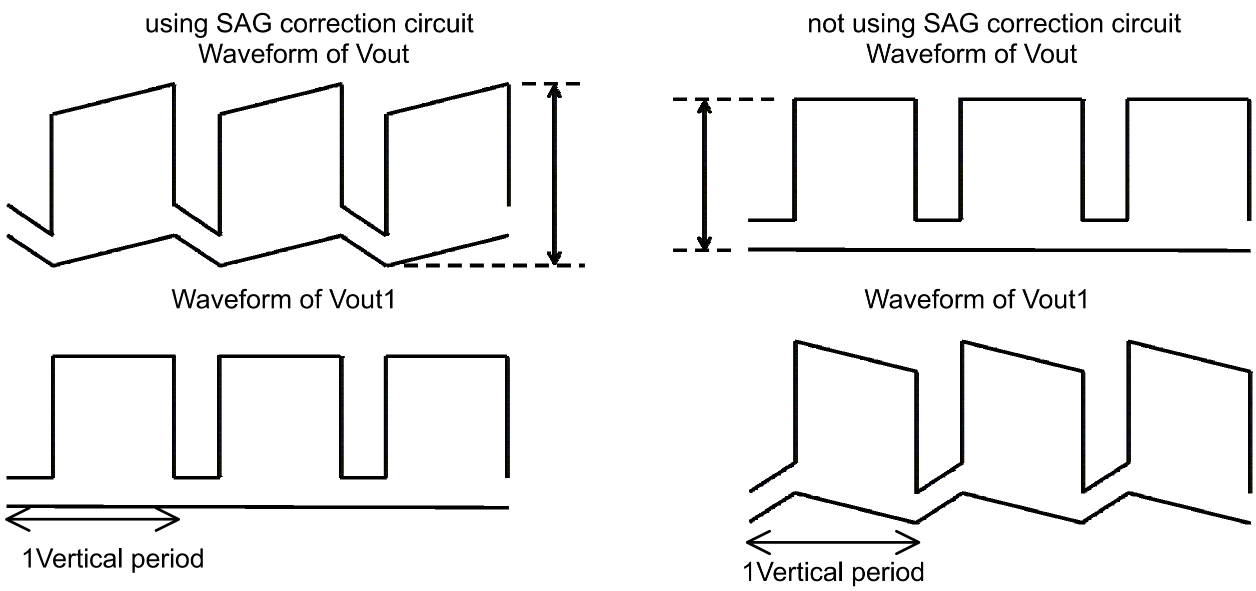
Example SAG collection circuit



Example of not using sag compensation circuit

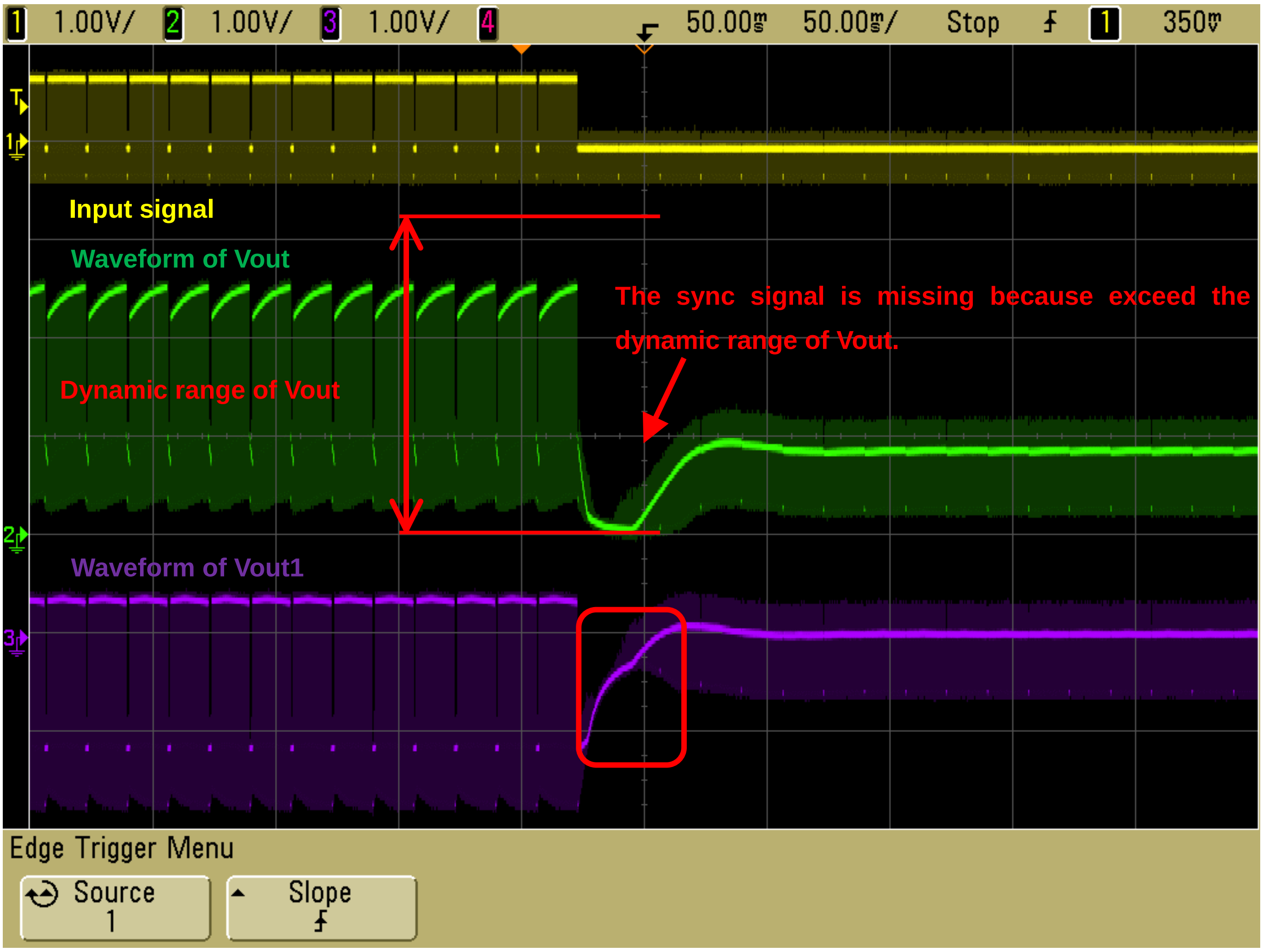


Waveform of Vout terminal and Vout1 terminal



SAG correction circuit generates a low frequency component signal amplified to Vout terminal.
Changes of the luminance signal will be low-frequency components, if you want to output a large signal luminance changes. Therefore, generate correction signal of change of a luminance signal to Vout pin.
At this time, signal is over the dynamic range of Vout pin. This may cause a lack of sync signal, and waveform distortion.

Please see diagram below (green waveform), if you want to output large changes of a signal luminance, such as 100% white video signal and black signal. Thus, output signal exceed dynamic range of Vout pin and may be the signal lack.



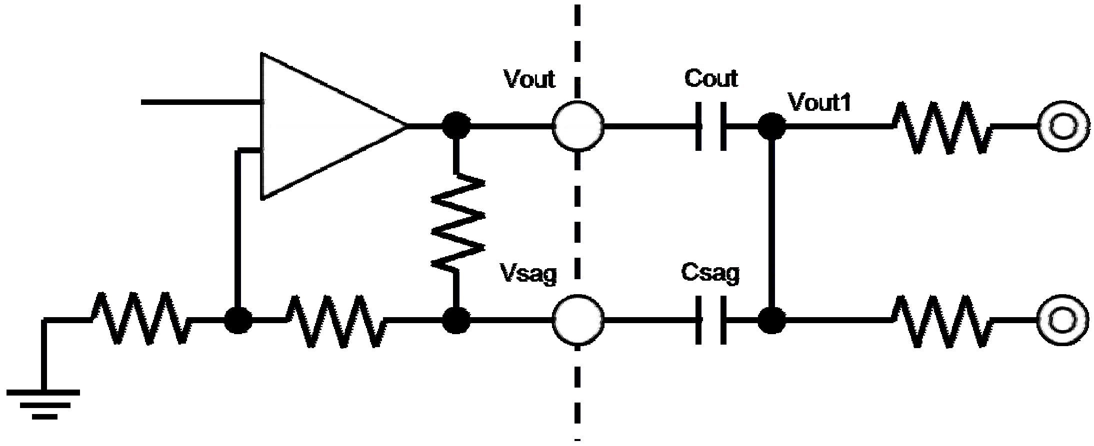
< Countermeasure for waveform distortion >

1. Please using small value the Sag compensation capacitor (VSAG).
It can ensure the dynamic range by using small value the capacitor (VSAG). It because of low-frequency variation of Vout pin is smaller. However, the output (VOUT) must be use large capacitor for this reason sag characteristics become exacerbated.

2. Please do not use the sag correction circuit.
Signal can output within dynamic range for reason it does not change the DC level of the output terminal.
However, the output (VOUT) must be use large capacitor for this reason sag characteristics become exacerbated.

< Dual drive at using SAG correction circuit >

Using sag correction circuit at dual drive circuit is below. Dual drives are less load resistance. Thus, the cut-off frequency of HPF that is composed of the output capacitor and load resistance will be small. Therefore, the sag characteristics deteriorate.
Please size up to the output capacitor (Vout) for not to deteriorate the sag characteristics.



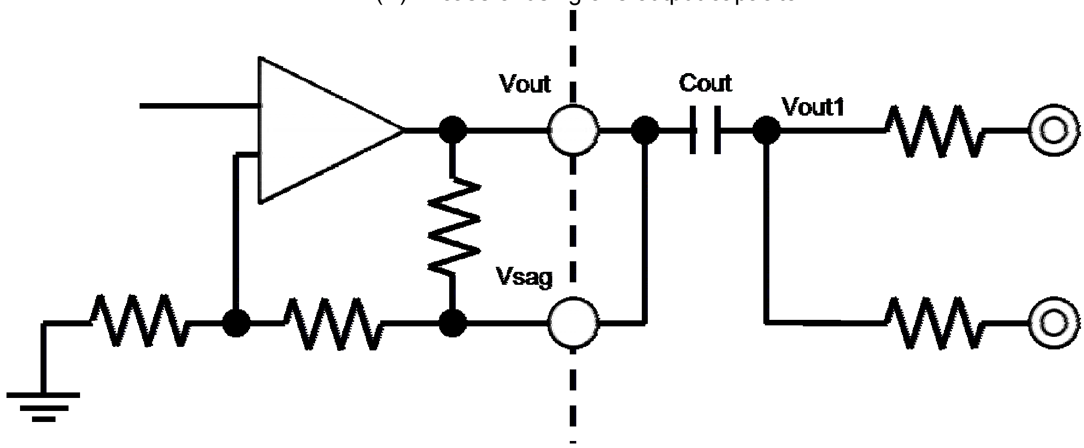
< Dual drive at not using SAG correction circuit >

We recommended two-example dual drive circuit with not use sag correction circuit. Please change the configuration to be used according to the situation. Please configure to meet the following conditions. Then you can adjust the characteristics of each configuration.

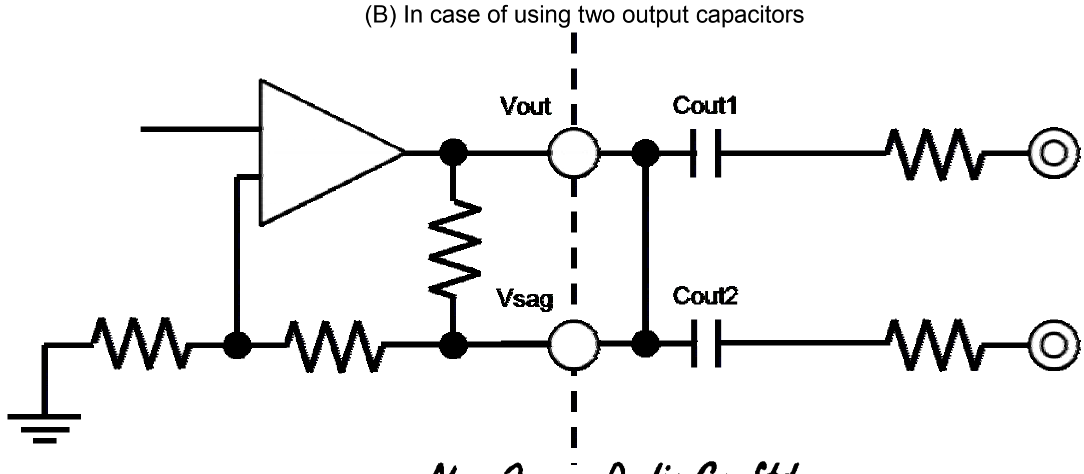
$$Cout = Cout1 + Cout2$$

$$Cout1 = Cout2$$

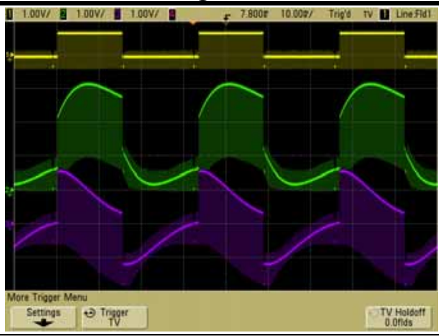
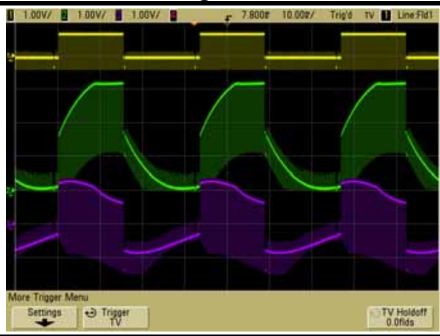
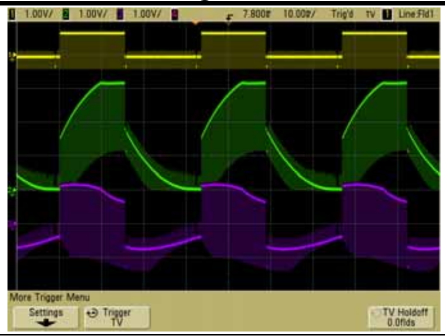
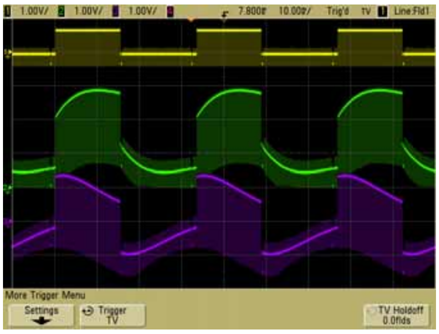
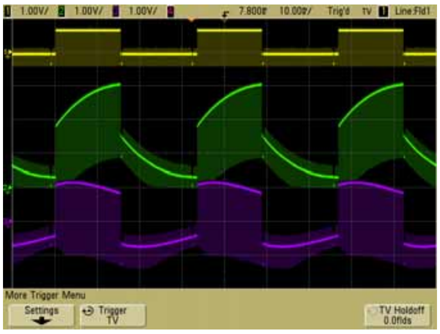
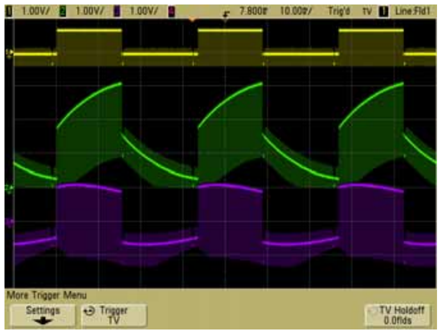
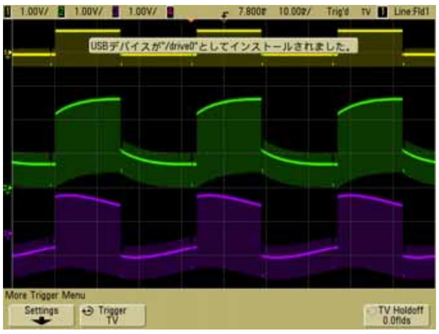
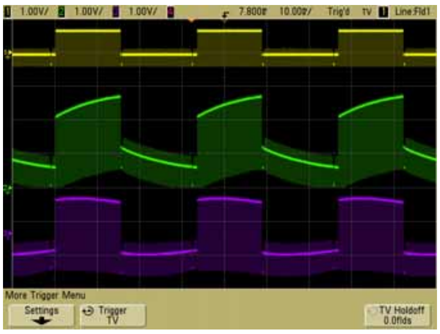
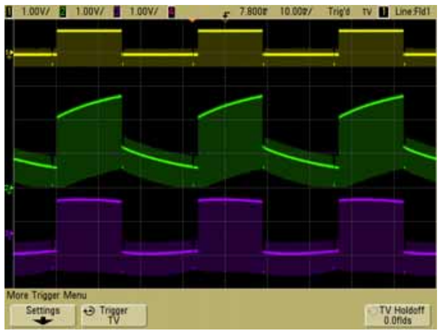
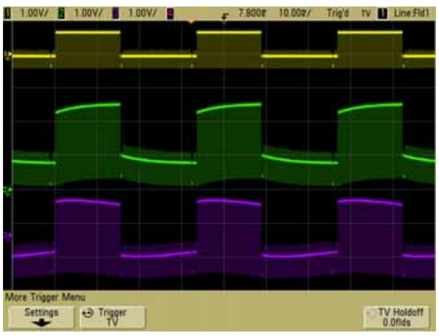
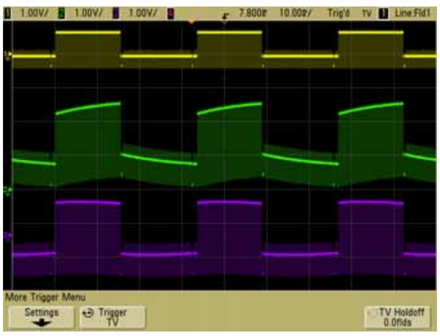
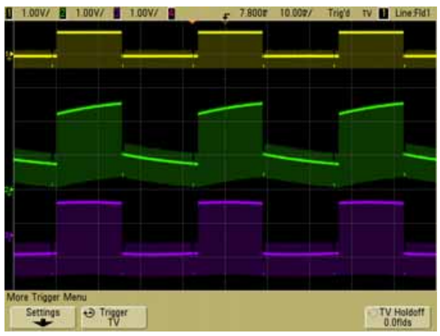
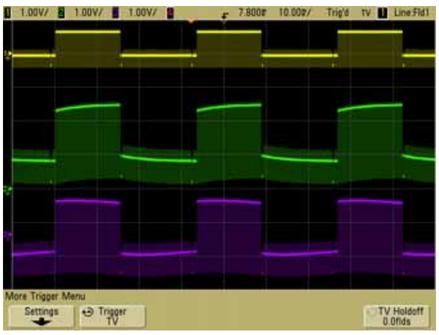
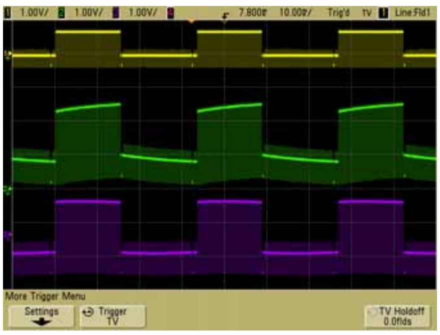
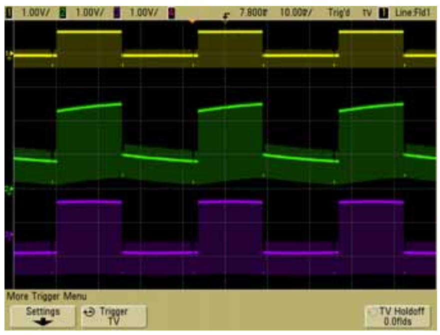
(A) In case of using one output capacitor



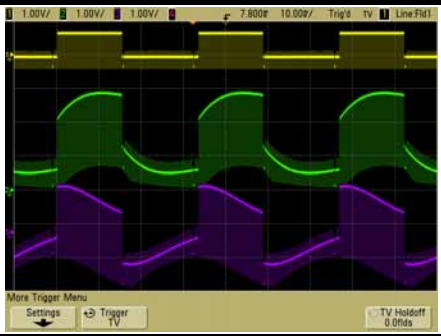
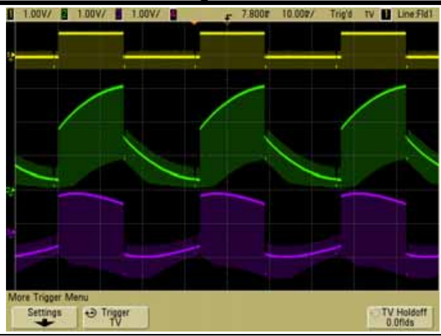
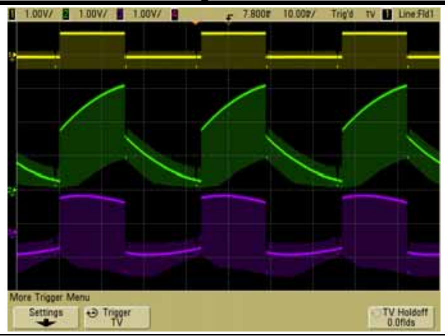
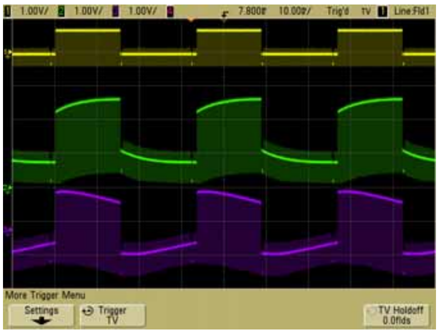
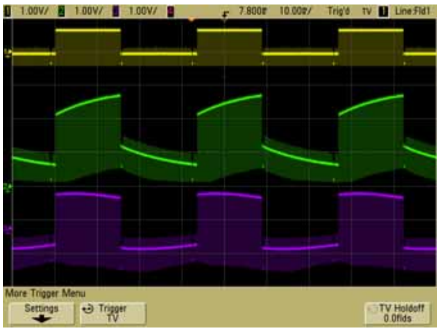
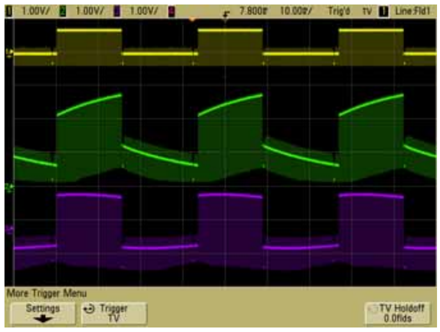
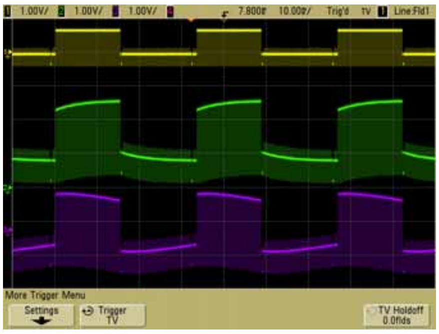
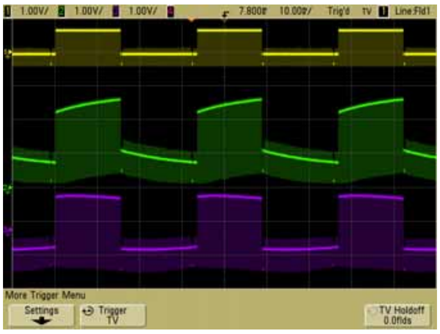
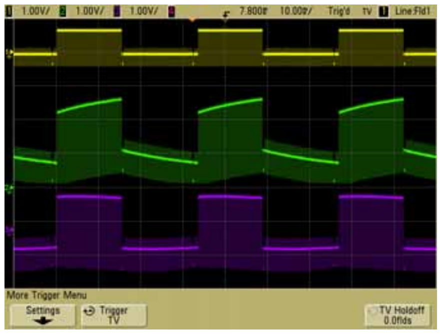
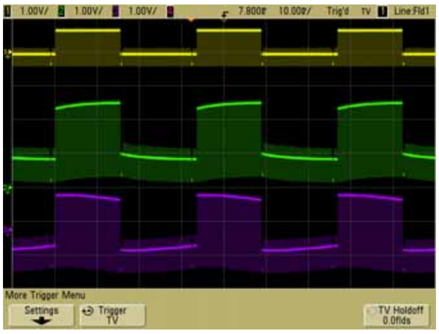
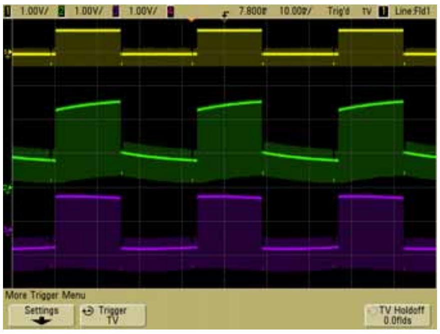
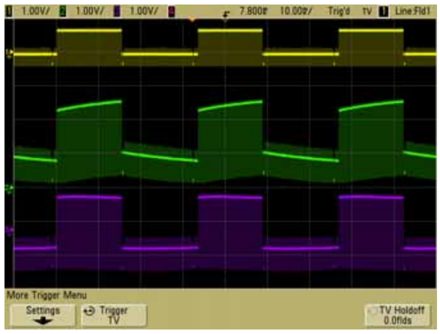
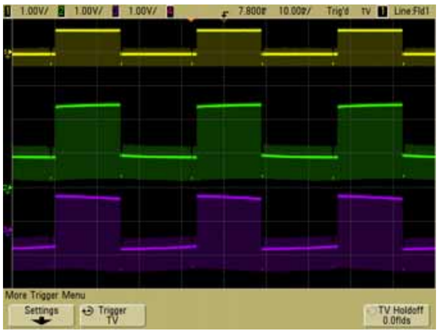
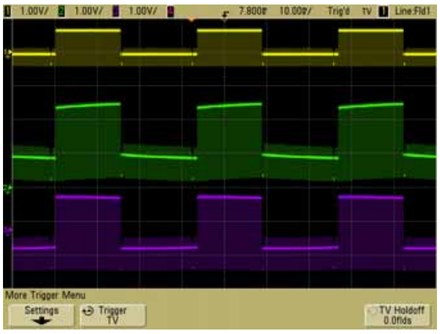
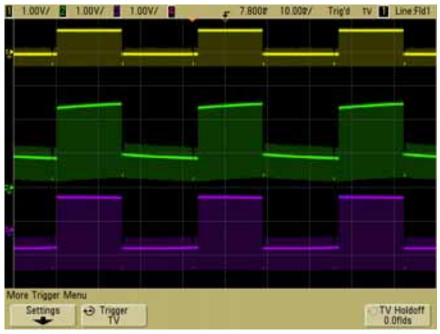
(B) In case of using two output capacitors



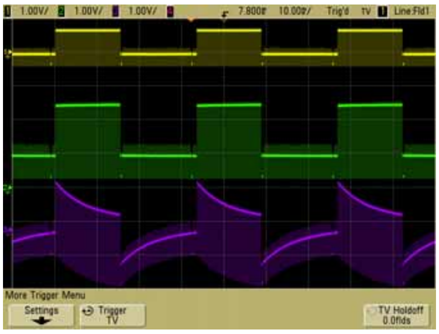
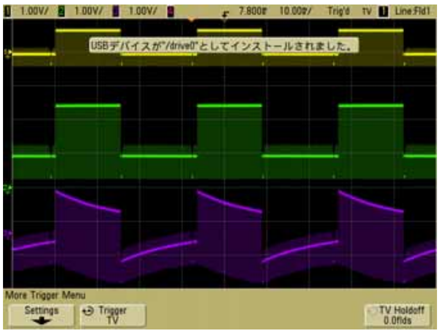
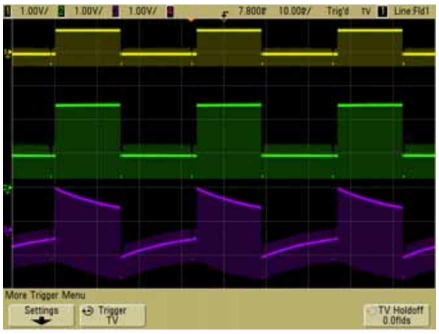
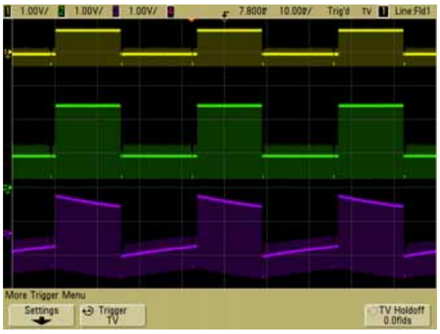
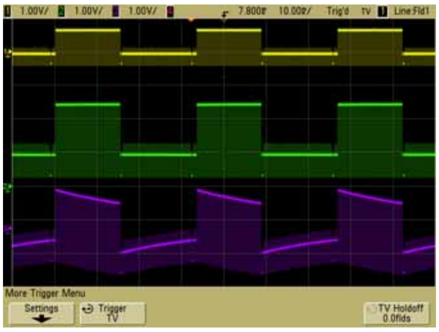
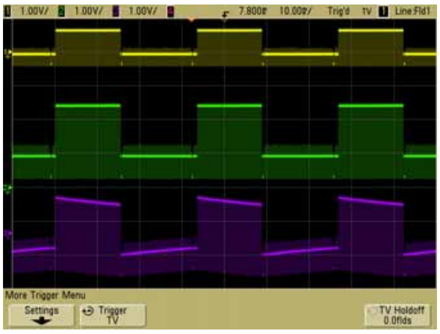
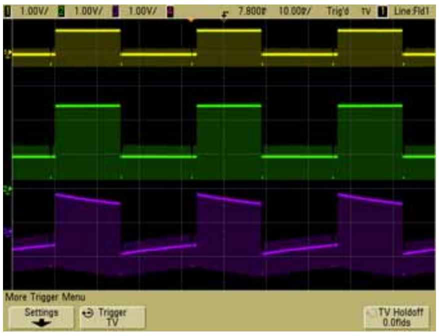
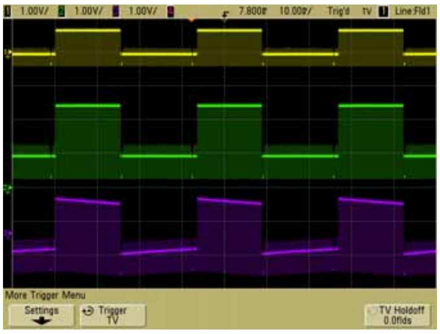
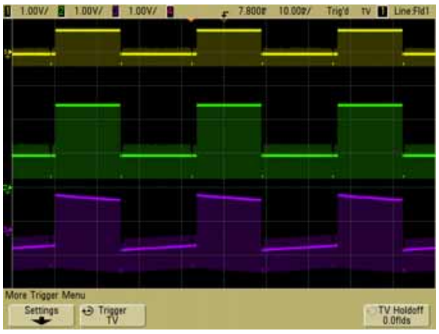
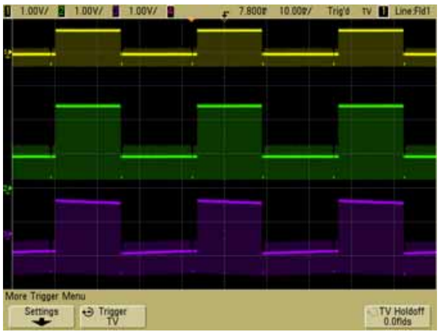
< Using SAG correction circuit >
Input signal: bounce signal (IRE0%, IRE100%, 30Hz), resistance=150Ω
Waveform: yellow: input signal, green: Vout signal, purple: Vout1signal

	Csag=10uF	Csag=22uF	Csag=33uF
Cout=33uF			
Cout=47uF			
Cout=100uF			
Cout=220uF			
Cout=330uF			

Input signal: bounce signal (IRE0%, IRE100%, 30Hz), resistance=75Ω
Waveform: yellow: input signal, green: Vout signal, purple: Vout1signal

	Csag=10uF	Csag=22uF	Csag=33uF
Cout=100uF			
Cout=220uF			
Cout=330uF			
Cout=470uF			
Cout=1000uF			

< Not using SAG correction circuit >
Input signal: bounce signal (IRE0%, IRE100%, 30Hz), resistance=150Ω
Waveform: yellow: input signal, green: Vout signal, purple: Vout1signal

	RL=75Ω	RL=150Ω
Cout=100uF		
Cout=220uF		
Cout=330uF		
Cout=470uF		
Cout=1000uF		

< Using SAG correction circuit >
Input signal: Black to White100%, resistance150Ω
Waveform: yellow: input signal, green: Vout signal, purple: Vout1signal

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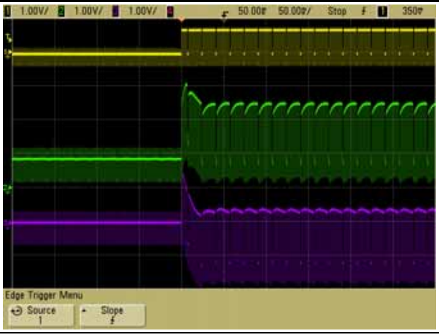
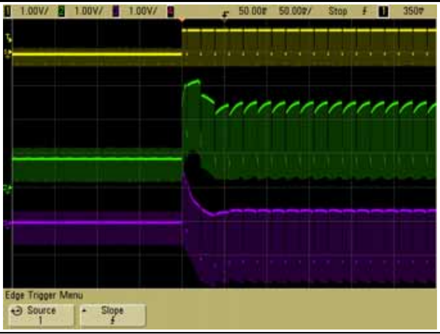
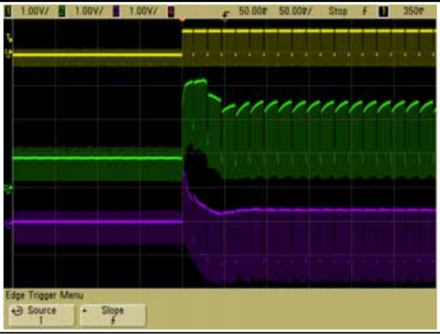
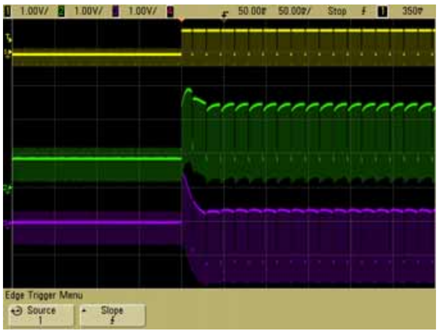
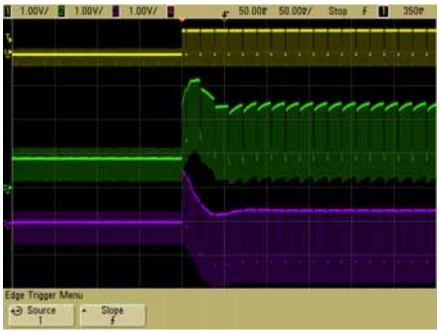
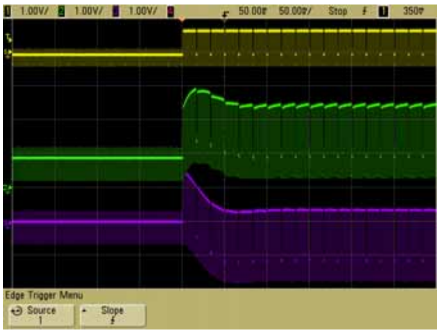
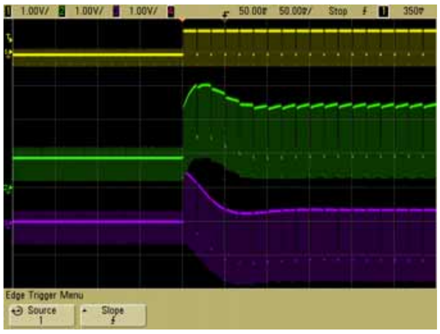
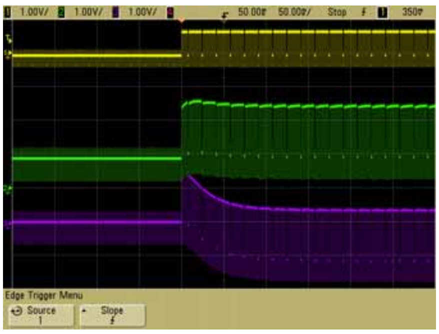
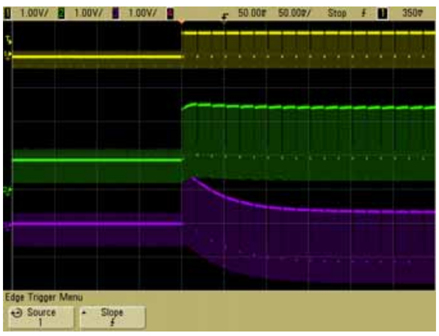
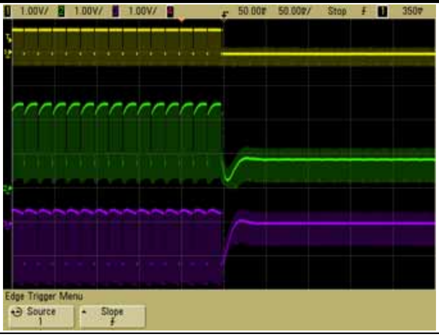
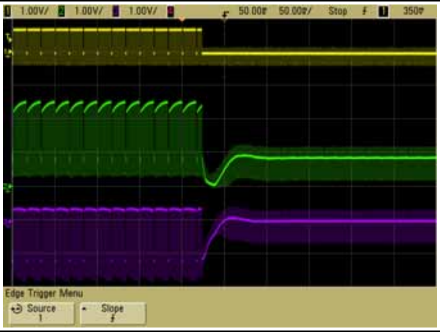
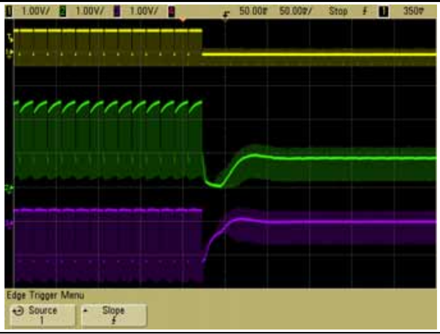
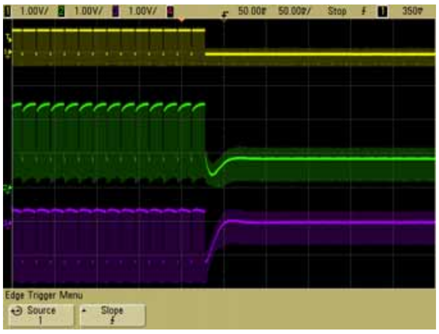
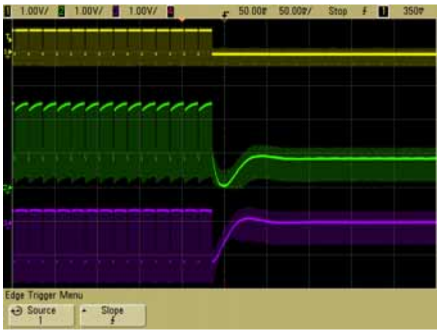
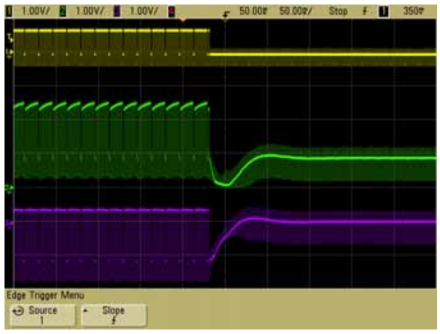
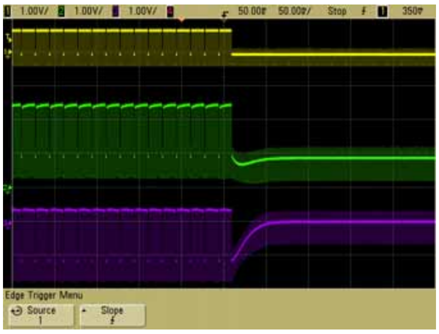
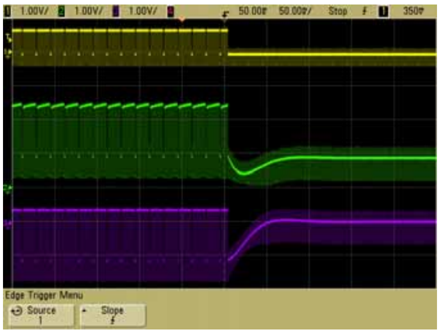
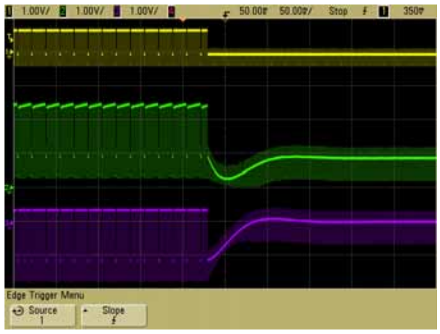
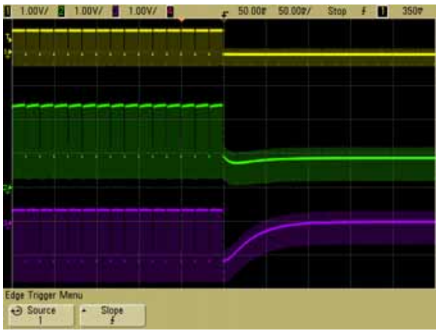
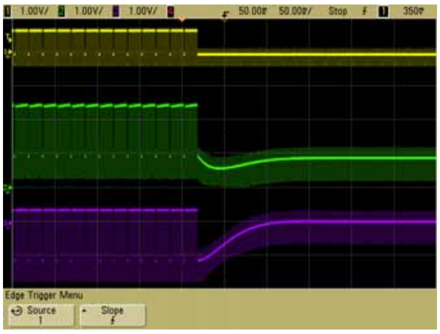
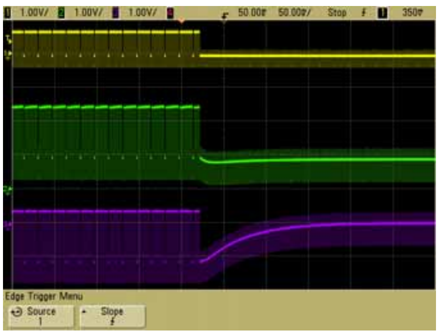
Cout=33uF			
Cout=47uF			
Cout=100uF			
Cout=220uF			
Cout=330uF			

Input signal: White100% to Black, resistance150Ω
Waveform: yellow: input signal, green: Vout signal, purple: Vout1signal

	Csag=10uF	Csag=22uF	Csag=33uF
Cout=33uF			
Cout=47uF			
Cout=100uF			
Cout=220uF			
Cout=330uF			

< Using SAG correction circuit >
Input signal: Black to White100%, resistance=75Ω
Waveform: yellow: input signal, green: Vout signal, purple: Vout1signal

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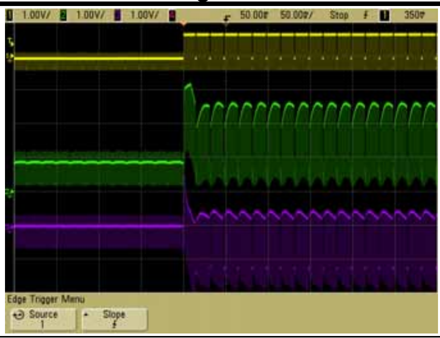
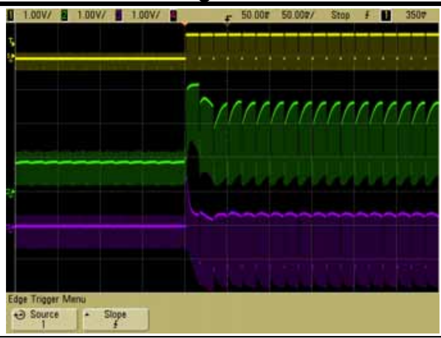
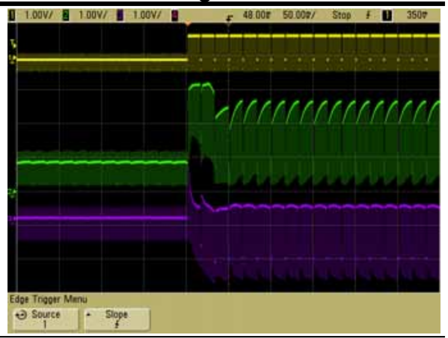
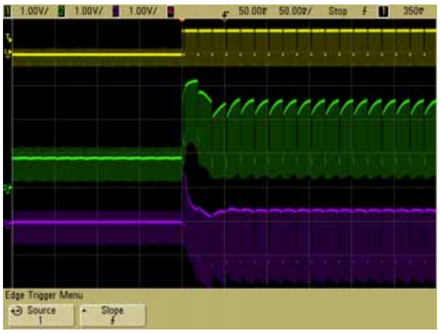
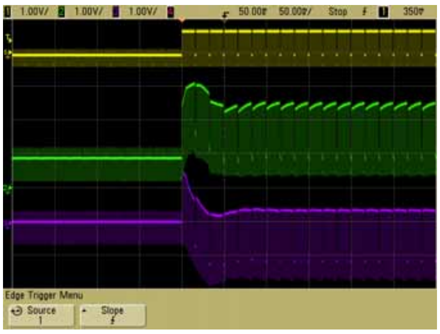
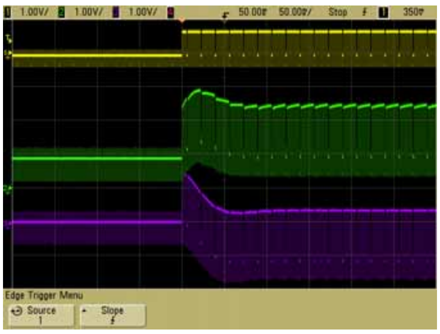
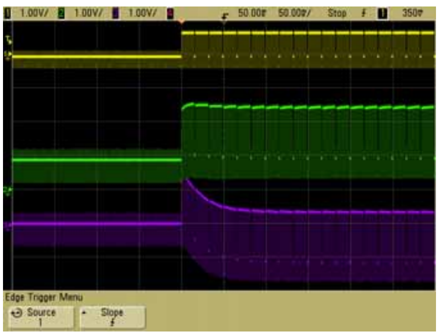
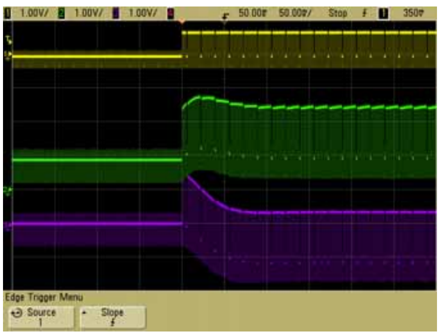
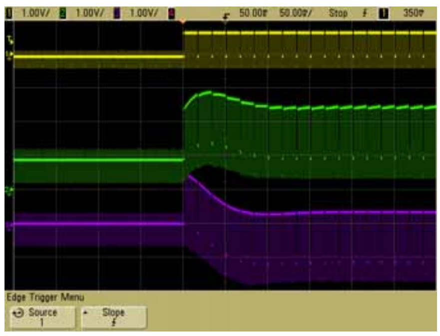
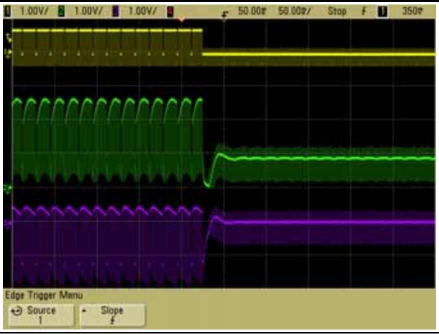
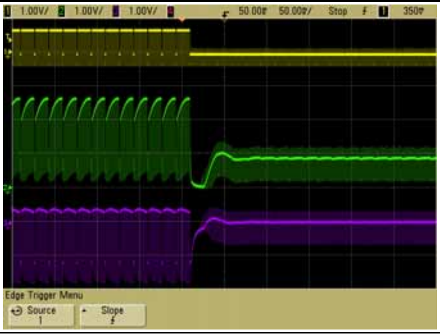
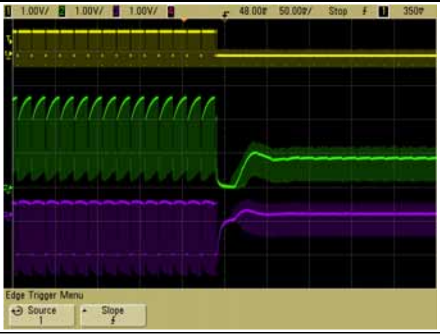
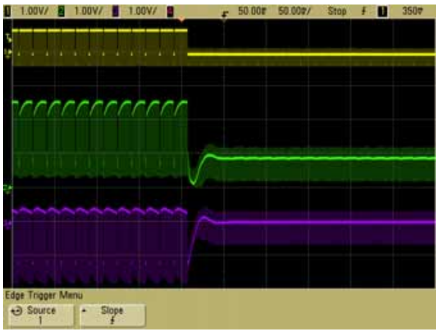
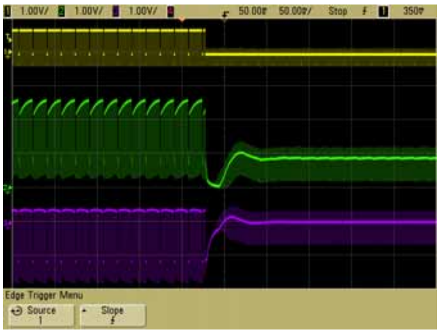
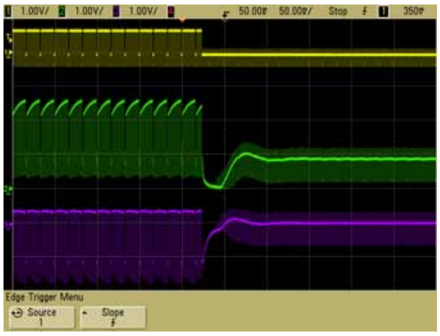
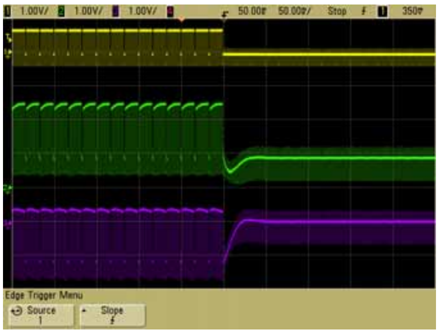
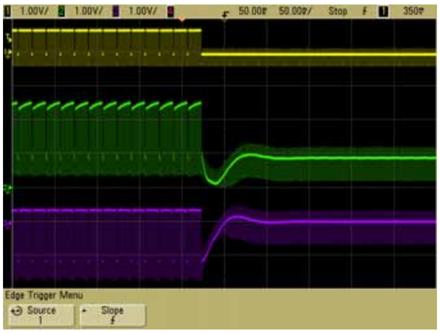
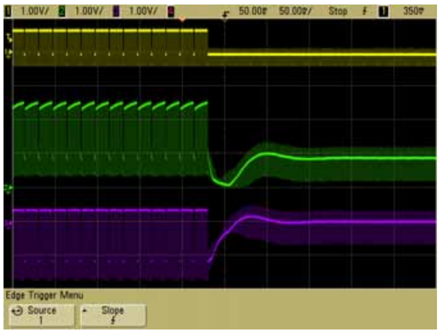
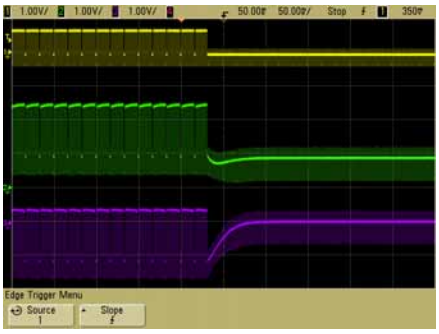
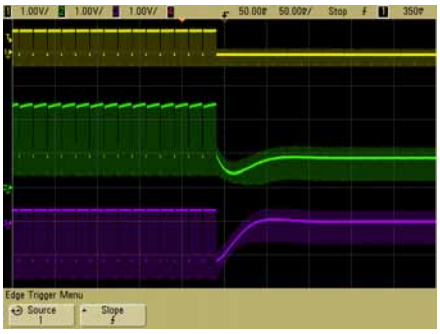
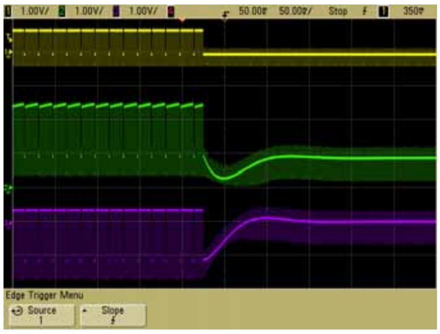
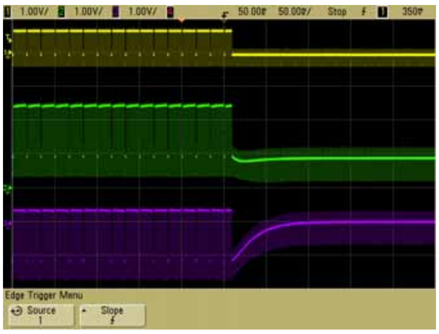
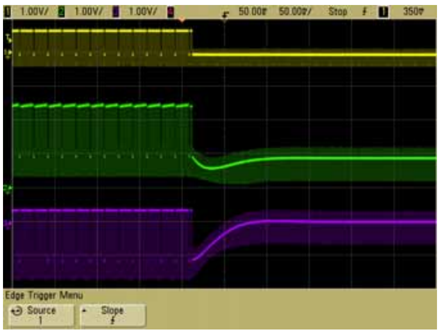
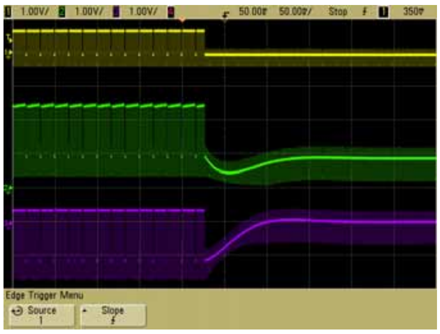
Cout=33uF			
Cout=47uF			
Cout=100uF			
Cout=220uF			
Cout=330uF			

Input signal: White100% to Black, resistance=75Ω
Waveform: yellow: input signal, green: Vout signal, purple: Vout1signal

	Csag=10uF	Csag=22uF	Csag=33uF
Cout=33uF			
Cout=47uF			
Cout=100uF			
Cout=220uF			
Cout=330uF			

◆**Clamp circuit**

1. Operation of Sync-tip-clamp

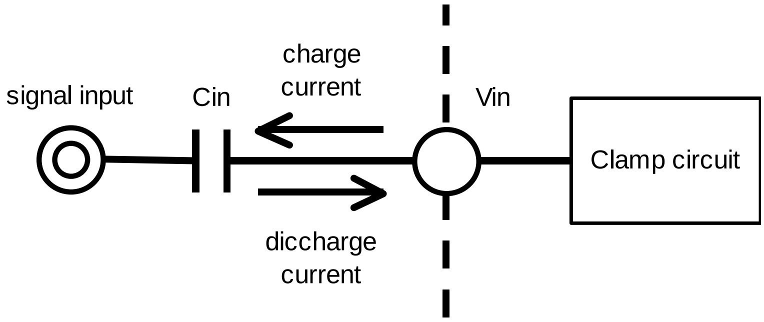
Input circuit will be explained. Sync-tip clamp circuit (below the clamp circuit) operates to keep a sync tip of the minimum potential of the video signal. Clamp circuit is a circuit of the capacitor charging and discharging of the external input Cin. It is charged to the capacitor to the external input Cin at sync tip of the video signal. Therefore, the potential of the sync tip is fixed.

And it is discharged charge by capacitor Cin at period other than the video signal sync tip. This is due to a small discharge current to the IC.

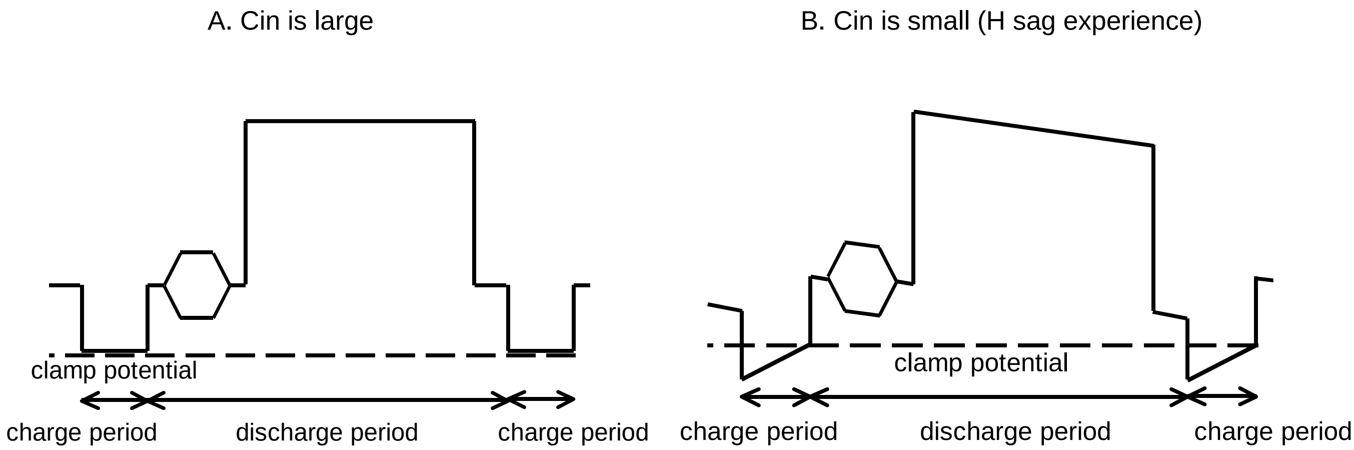
In this way, this clamp circuit is fixed sync tip of video signal to a constant potential from charging of Cin and discharging of Cin at every one horizontal period of the video signal.

The minute current be discharged an electrical charge from the input capacitor at the period other than the sync tip of video signals. Decrease of voltage on discharge is dependent on the size of the input capacitor Cin.

If you decrease the value of the input capacitor, will cause distortion, called the H sag. Therefore, the input capacitor recommend on more than 0.1uF.



< Clamp circuit >



< Waveform of input terminal >

2. Input impedance

The input impedance of the clamp circuit is different at the capacitor discharge period and the charge period.

The input impedance of the charging period is a few kΩ. On the other hand, the input impedance of the discharge period is several MΩ. Because is a small discharge-current through to the IC.

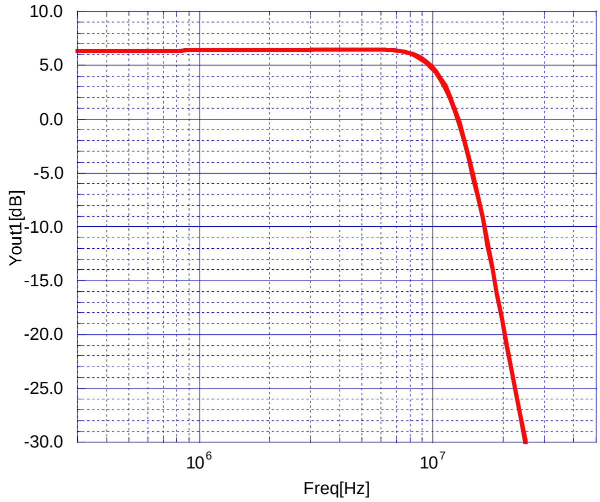
Thus the input impedance will vary depending on the operating state of the clamp circuit.

3. Impedance of signal source

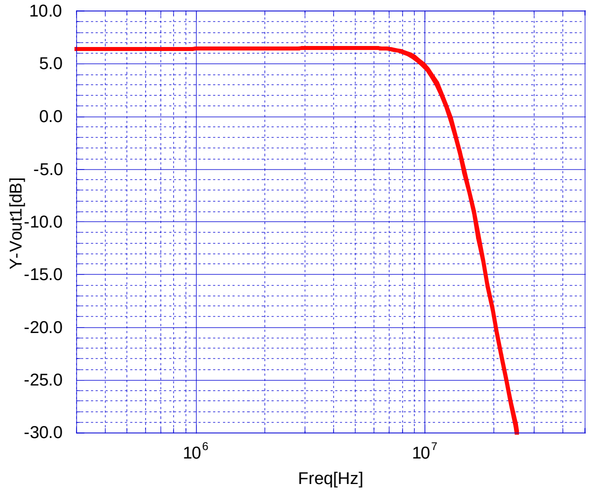
Source impedance to the input terminal, please lower than 200Ω. A high source impedance, the signal may be distorted. If so, please to connect a buffer for impedance conversion.

■TYPYCAL CHARACTERISTICS

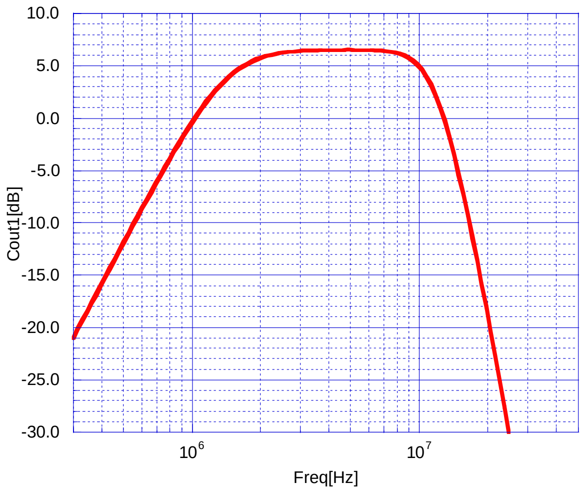
Voltage Gain vs. Frequency
(Yin→Yout,Vcc=3V,Ta=25°C)



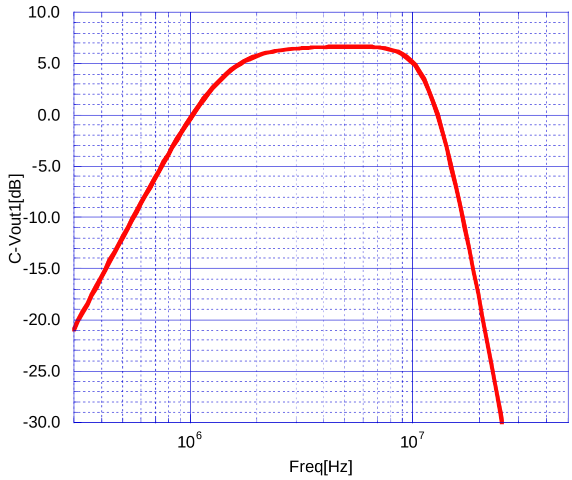
Voltage Gain vs. Frequency
(Yin→Vout,Vcc=3V,Ta=25°C)



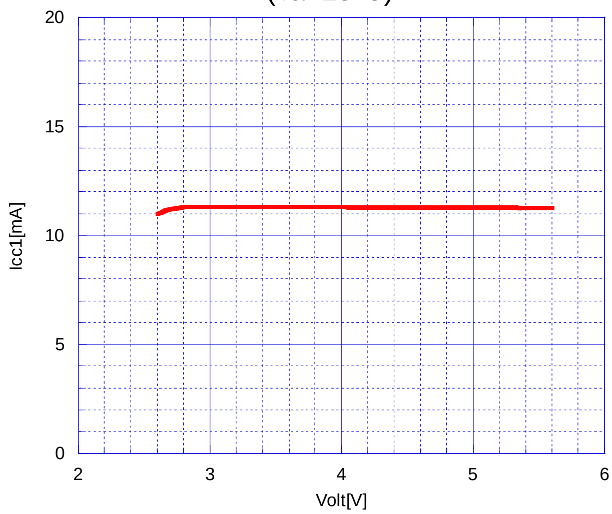
Voltage Gain vs. Frequency
(Cin→Cout, Vcc=3V,Ta=25°C)



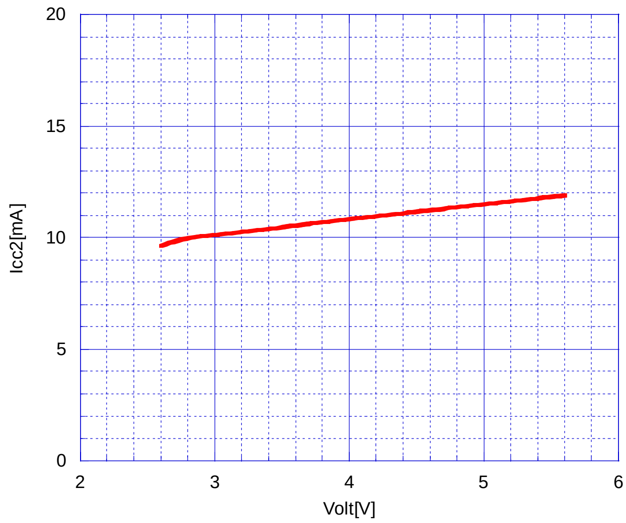
Voltage Gain vs. Frequency
(Cin→Vout,Vcc=3V,Ta=25°C)



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

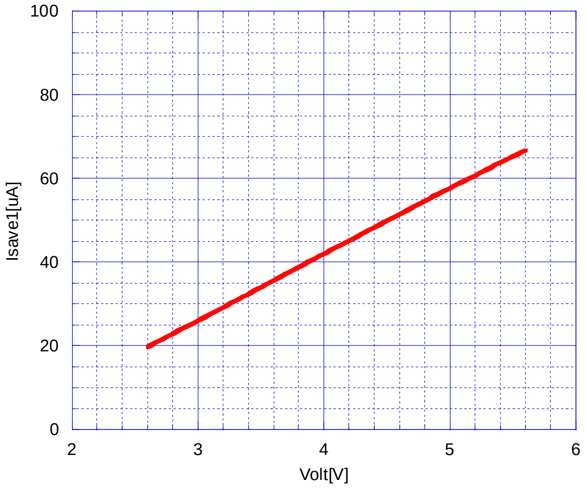


Operating Current2 vs. Operating Voltage
(Ta=25°C)

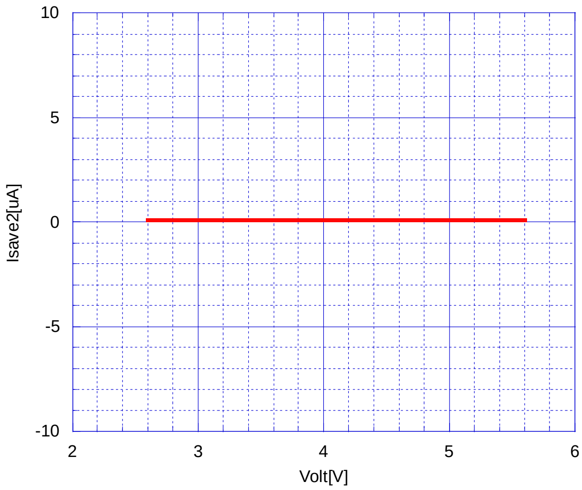


■TYPYCAL CHARACTERISTICS

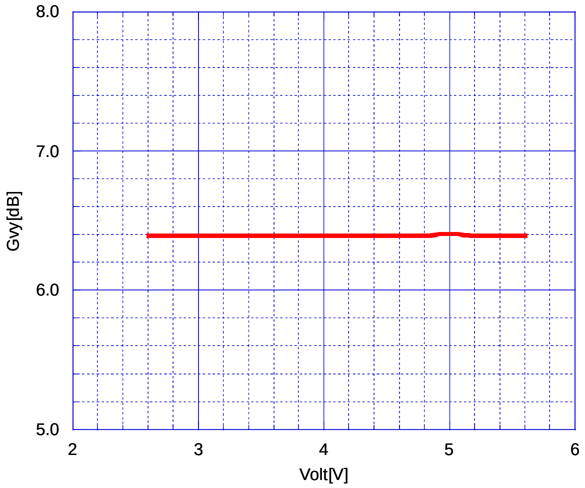
Operating Current at Power Save Mode1.
vs. Operating Voltage (Ta=25°C)



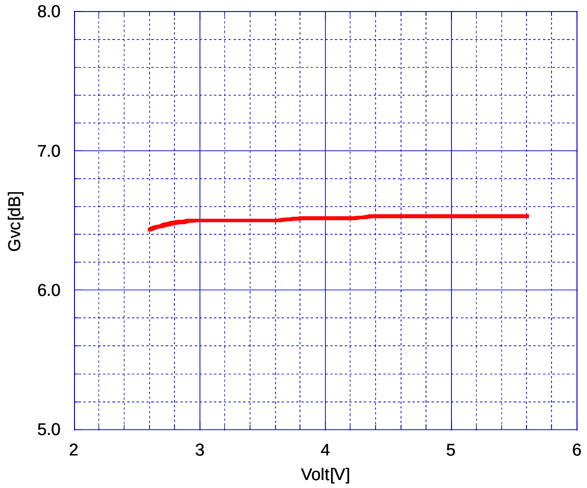
Operating Current at Power Save Mode2
vs. Operating Voltage (Ta=25°C)



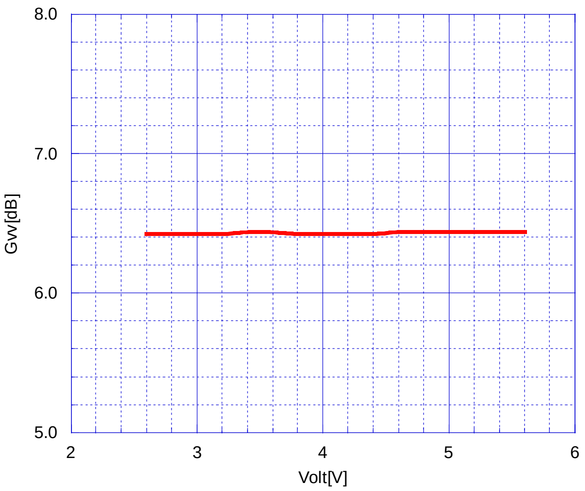
Voltage Gain(Y mode) vs. Operating Voltage
(Ta=25°C)



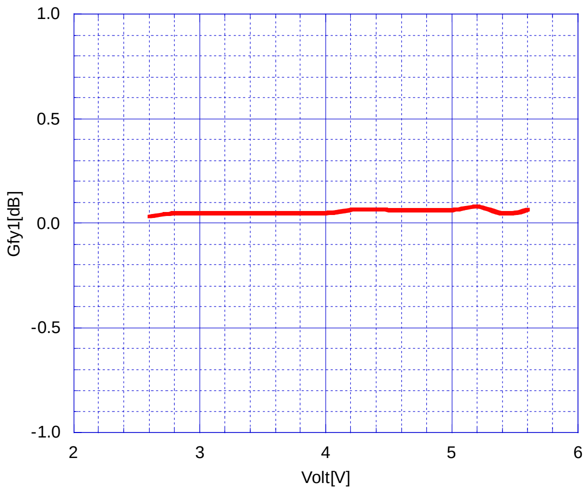
Voltage Gain(C mode) vs. Operating Voltage
(Ta=25°C)



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

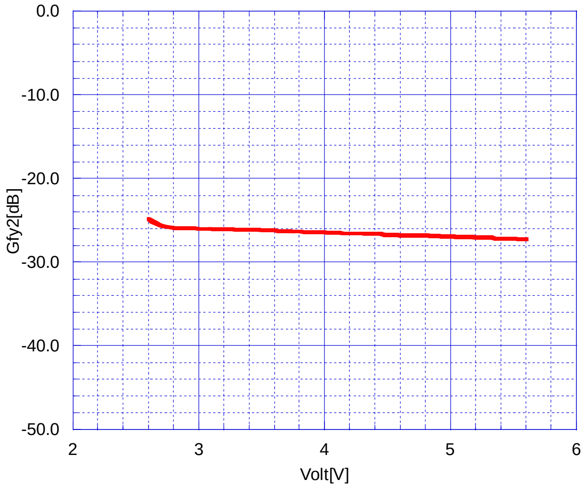


Frequency vs. Operating Voltage
(Yin=6MHz/100kHz,1Vpp,Ta=25°C)

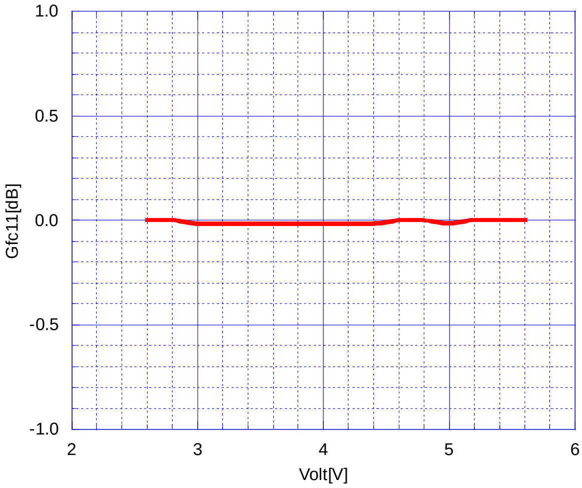


■TYPYCAL CHARACTERISTICS

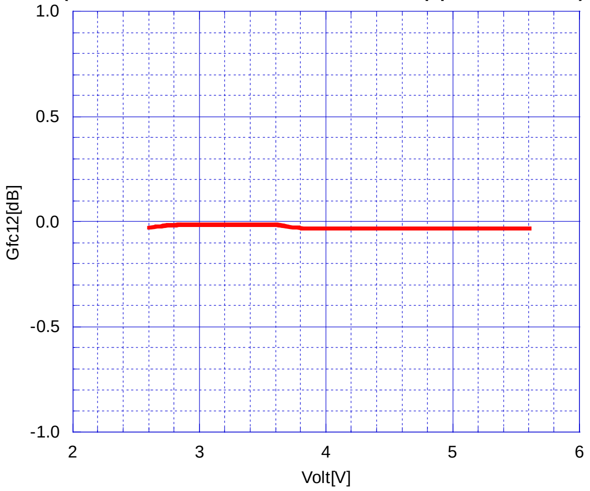
Frequency vs. Operating Voltage
(Yin=20MHz/100kHz,1Vpp, Ta=25°C)



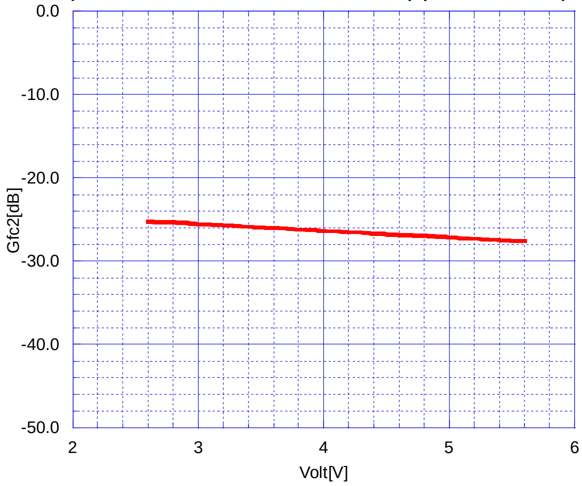
Frequency vs. Operating Voltage
(Cin=3.43MHz/4.43MHz,0.3Vpp, Ta=25°C)



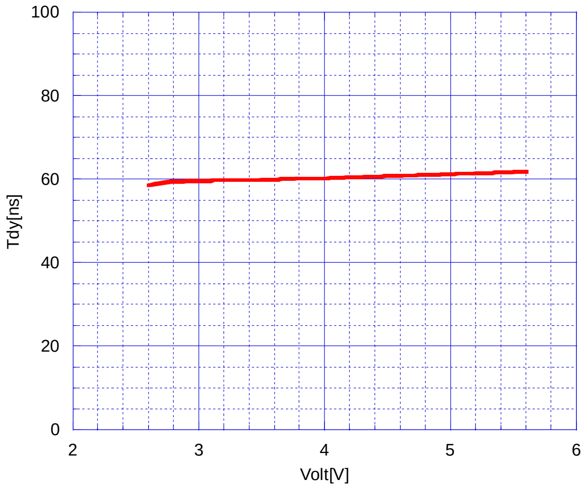
Frequency vs. Operating Voltage
(Cin=5.43MHz/4.43MHz,0.3Vpp, Ta=25°C)



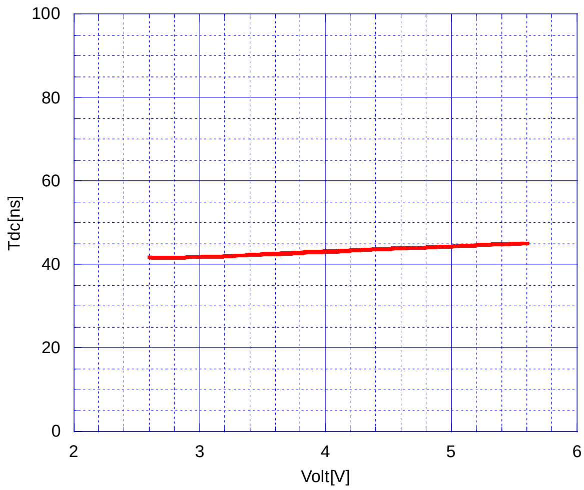
Frequency vs. Operating Voltage
(Cin=20MHz/4.43MHz,0.3Vpp, Ta=25°C)



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

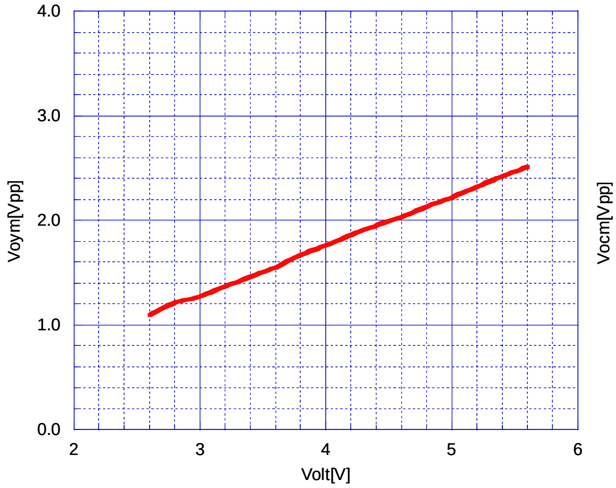


Group Delay(C mode) vs. Operating Voltage
(Ta=25°C)

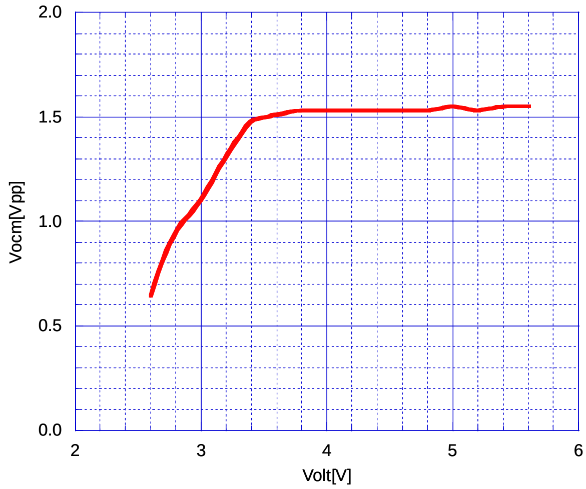


■TYPYCAL CHARACTERISTICS

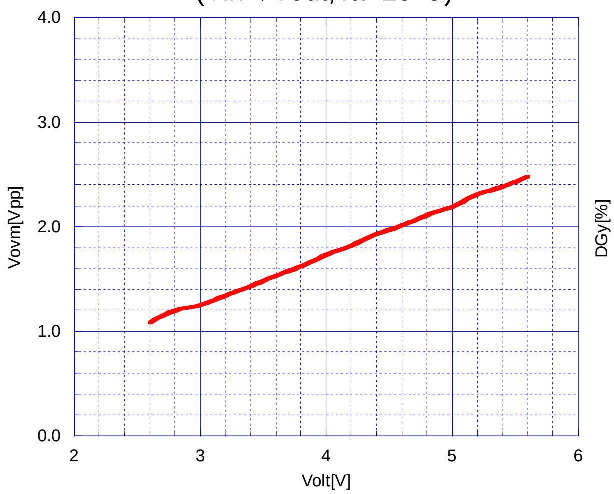
Maximum Output Voltage vs. Operating Voltage
(Yin→Yout,Ta=25°C)



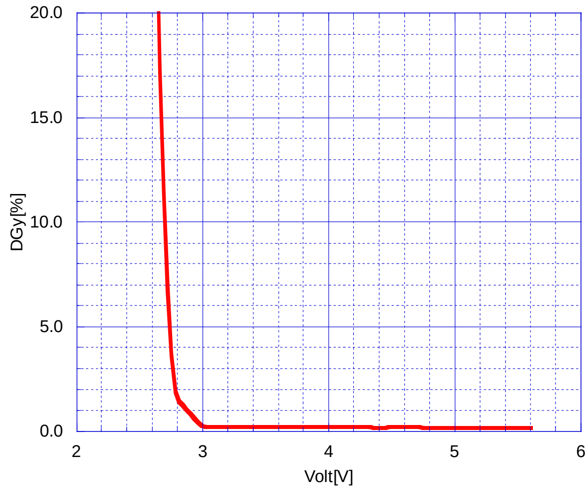
Maximum Output Voltage vs. Operating Voltage
(Cin→Cout,Ta=25°C)



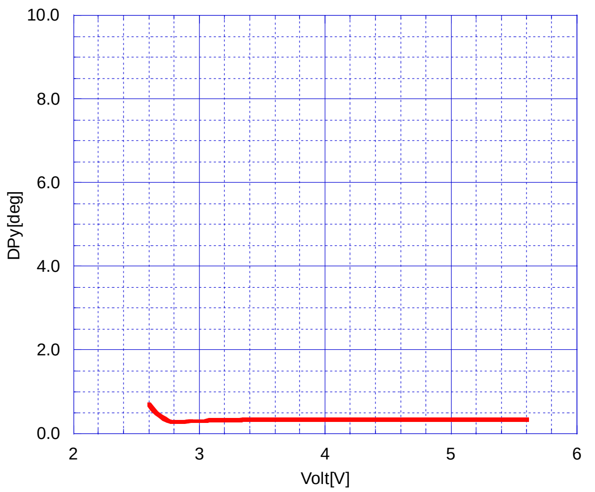
Maximum Output Voltage vs. Operating Voltage
(Yin→Vout,Ta=25°C)



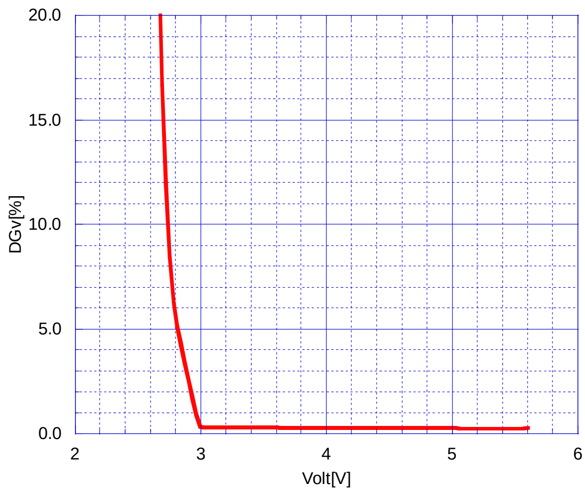
Differential Gain vs. Operating Voltage
(Yin→Yout,Ta=25°C)



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

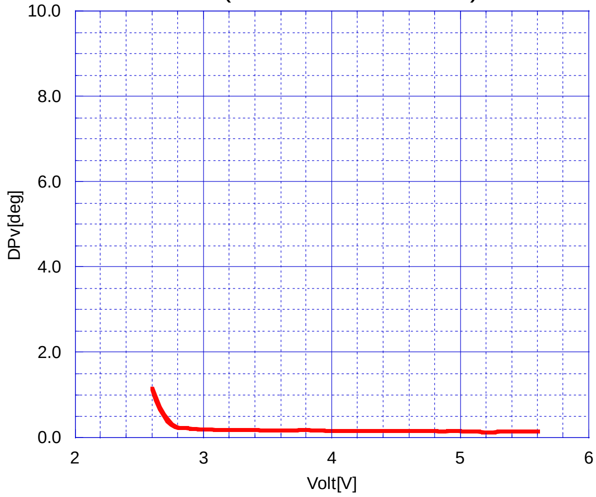


Differential Gain vs. Operating Voltage
(Yin→Vout,Ta=25°C)

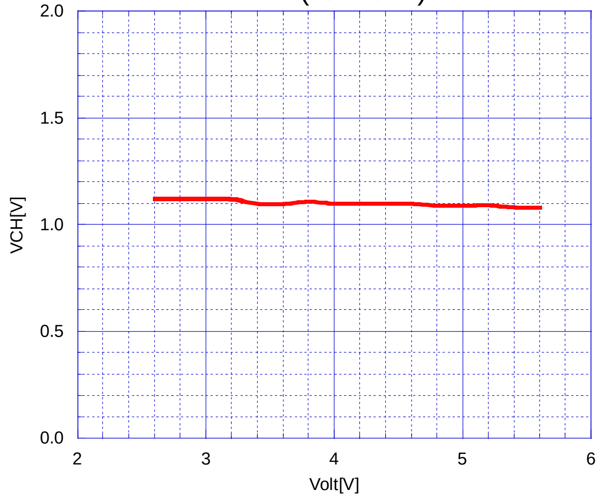


■TYPYCAL CHARACTERISTICS

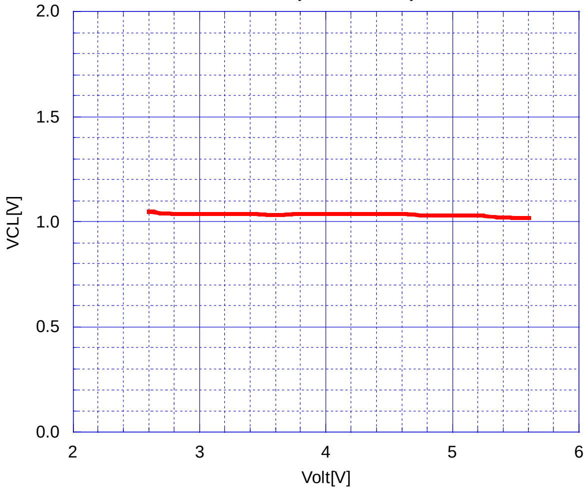
Differential Phase vs. Operating Voltage
(Yin→Vout Ta=25°C)



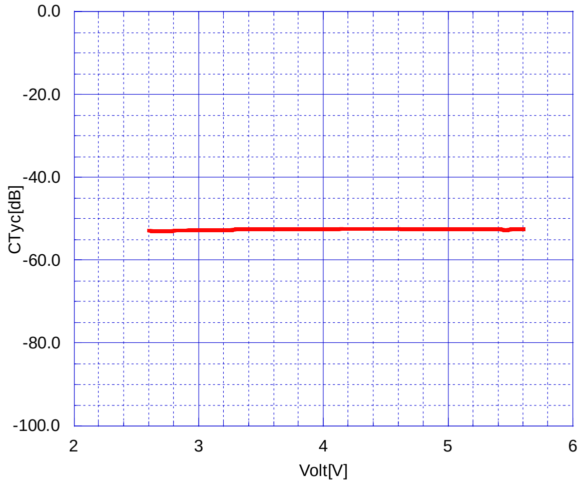
SW Threshold Voltage(High) vs. Operating Voltage
(Ta=25°C)



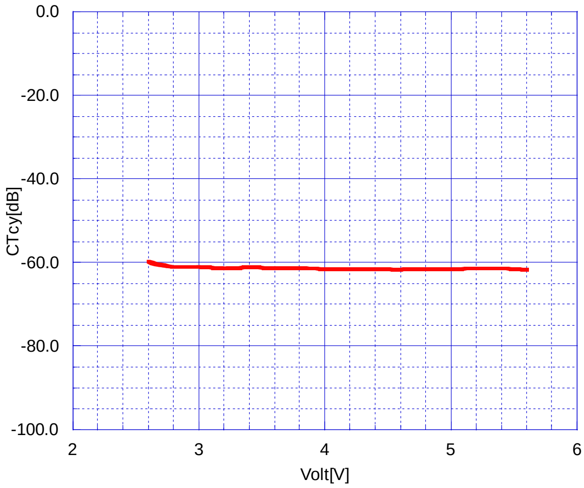
SW Threshold Voltage(Low) vs. Operating Voltage
(Ta=25°C)



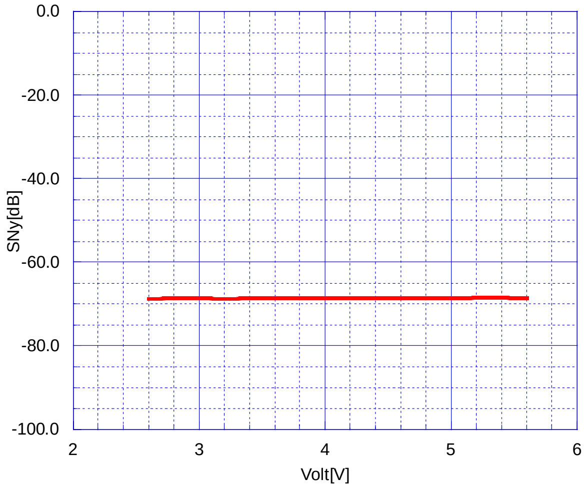
Closstalk vs. Operating Voltage
(Yin→Cout,Ta=25°C)



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

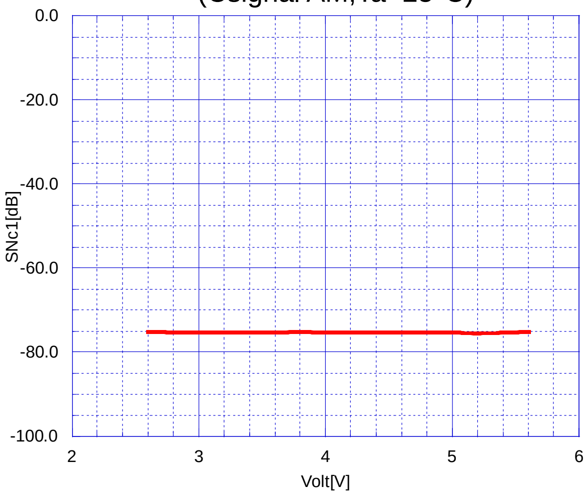


S/N Ratio vs. Operating Voltage
(Ysignal,Ta=25°C)

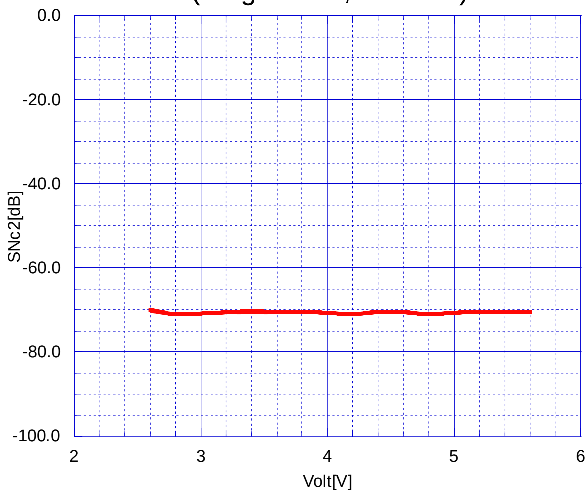


■TYPYCAL CHARACTERISTICS

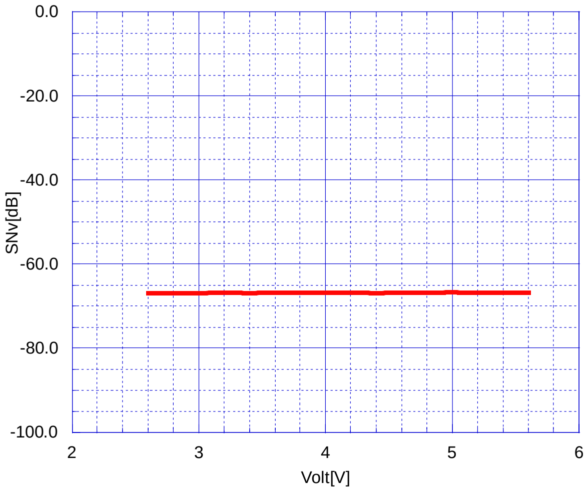
S/N Ratio vs. Operating Voltage
(Csignal AM,Ta=25°C)



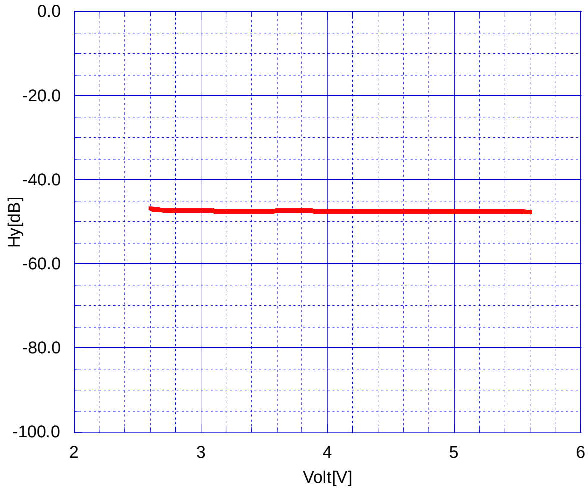
S/N Ratio Operating Voltage
(Csignal PM,Ta=25°C)



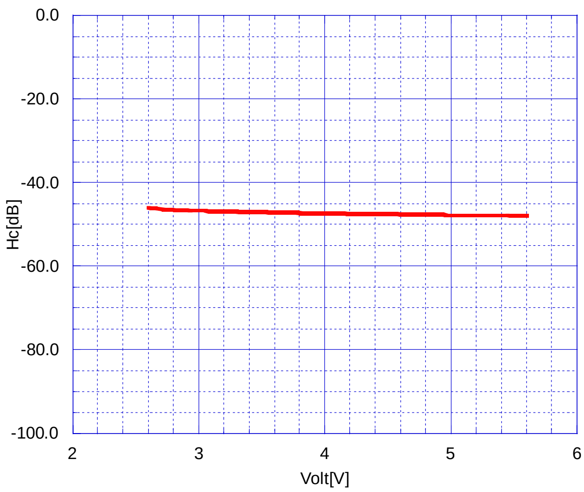
S/N Ratio vs. Operating Voltage
(Vsignal,Ta=25°C)



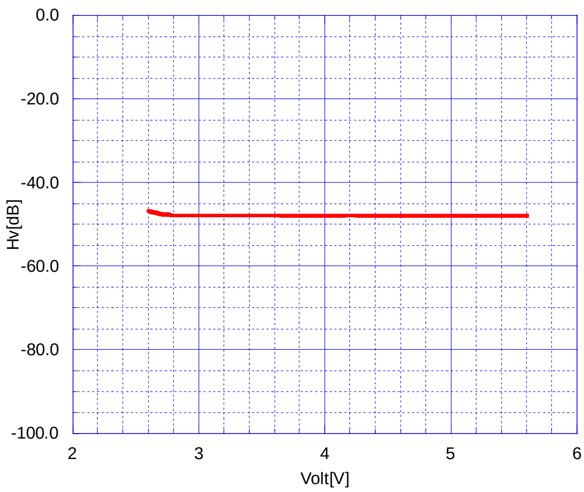
2nd Distortion vs. Operating Voltage
(Ysignal,Ta=25°C)



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

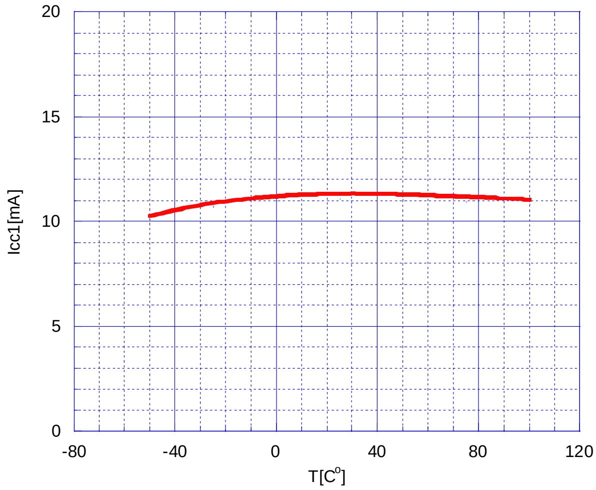


2nd Distortion vs. Operating Voltage
(Vsignal,Ta=25°C)

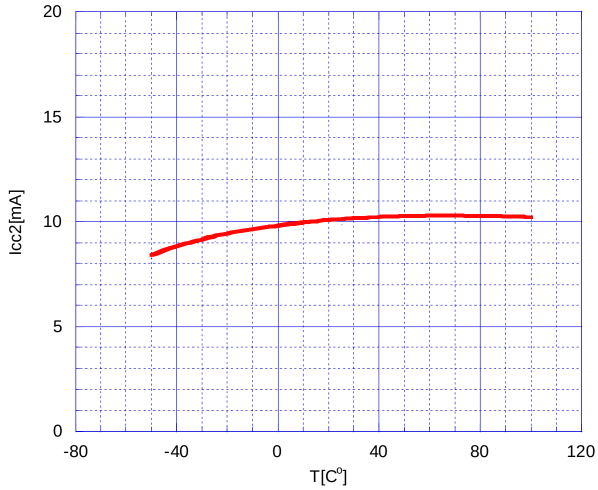


■TYPYCAL CHARACTERISTICS

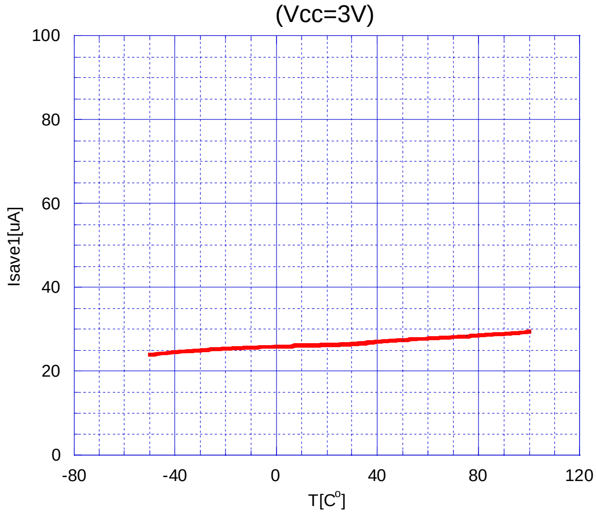
Operating Current1 vs. Temperature
(Vcc=3V)



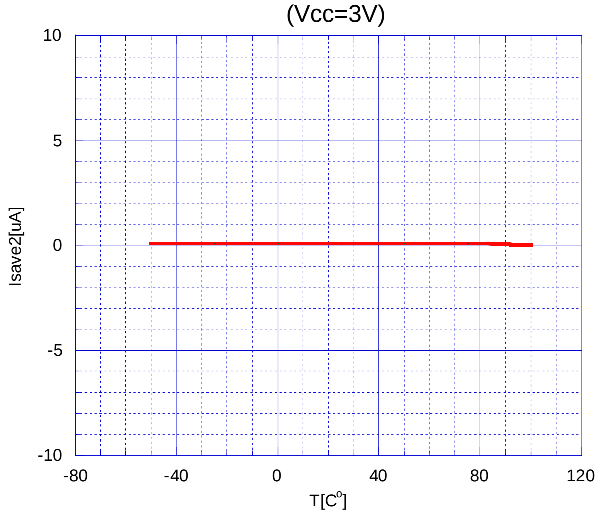
Operating Current2 vs. Temperature
(Vcc=3V)



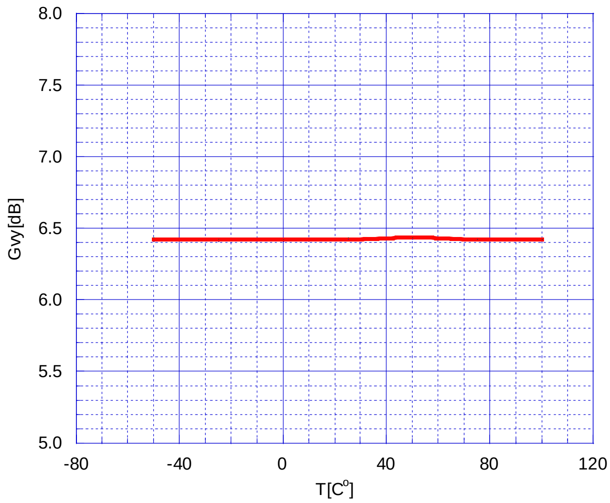
Operating Current1 at Power Save mode vs. Temperature
(Vcc=3V)



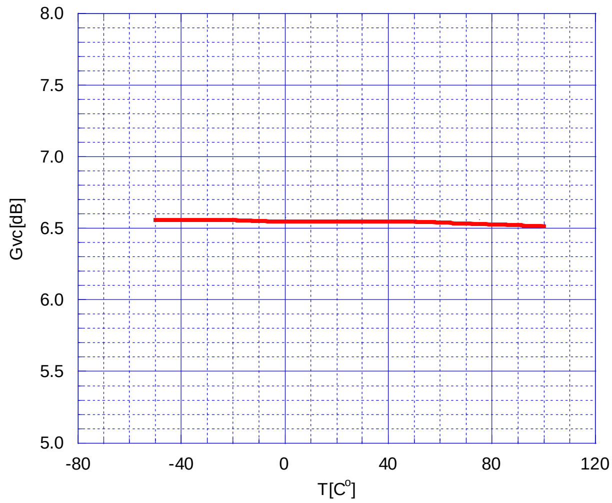
Operating Current2 at Power Save Mode vs. Temperature
(Vcc=3V)



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

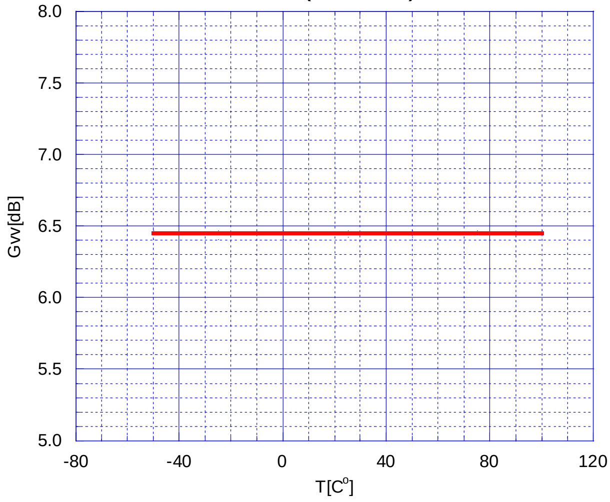


Voltage Gain(C mode) vs. Temperature
(Vcc=3V)

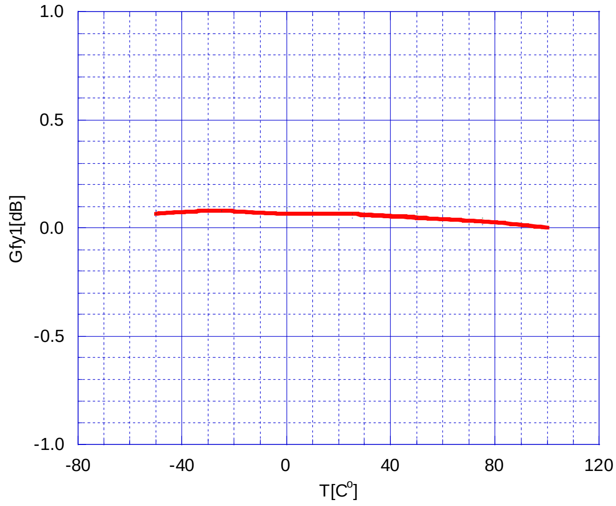


■TYPYCAL CHARACTERISTICS

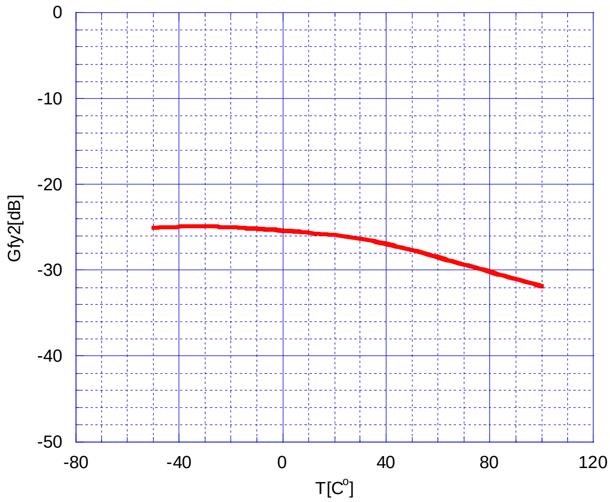
Voltage Gain(V mode) vs. Temperature
(Vcc=3V)



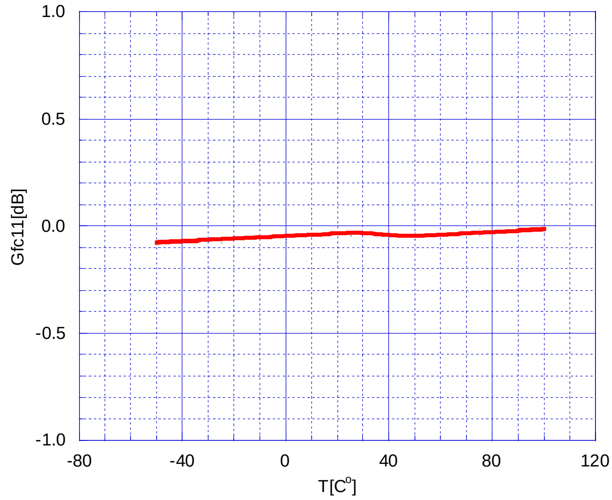
Frequency vs. Temperature
(Vcc=3V,Yin=4.5MHz/100kHz)



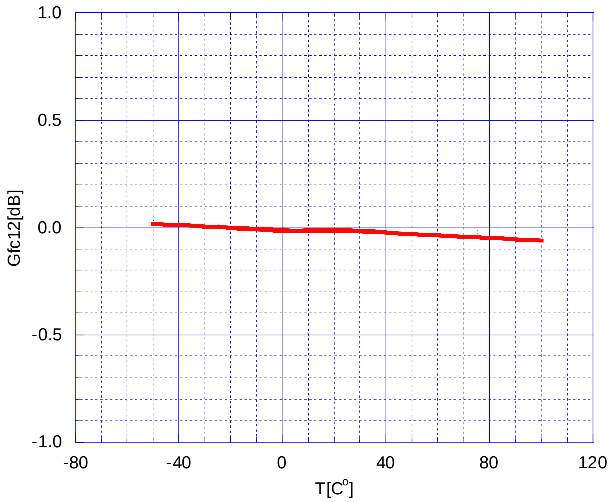
Frequency vs. Temperature
(Vcc=3V,Yin=20MHz/100kHz)



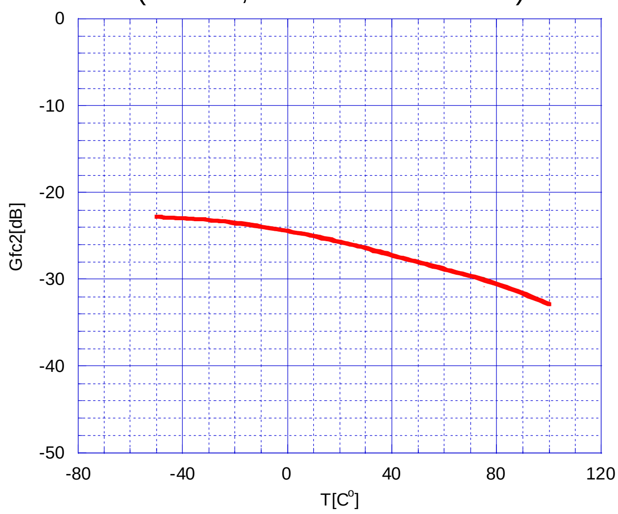
Frequency vs. Temperature
(Vcc=3V,Cin=3.43MHz/4.43MHz)



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

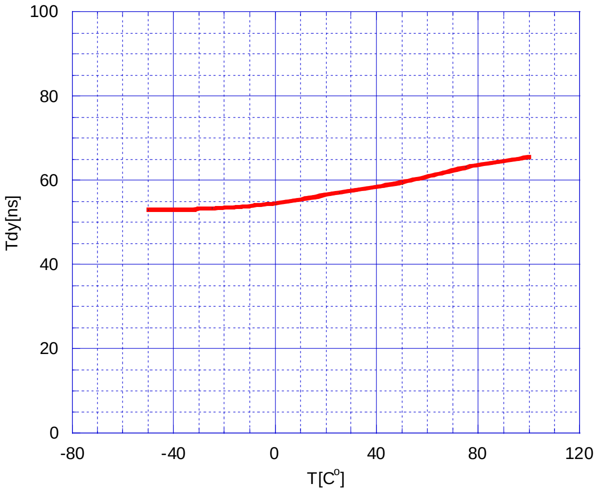


Frequency vs. Temperature
(Vcc=3V,Cin=20MHz/4.43MHz)

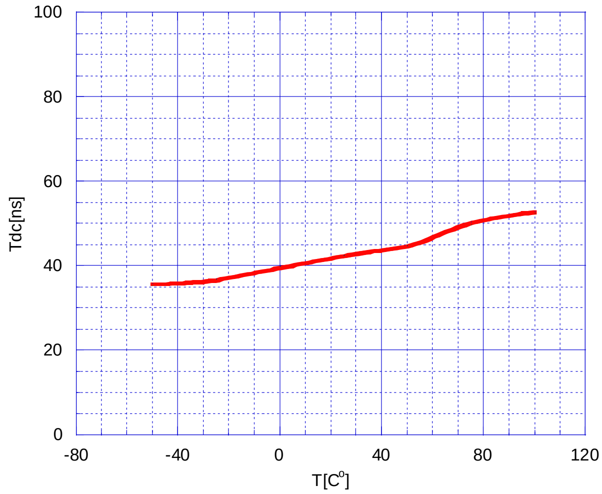


■TYPYCAL CHARACTERISTICS

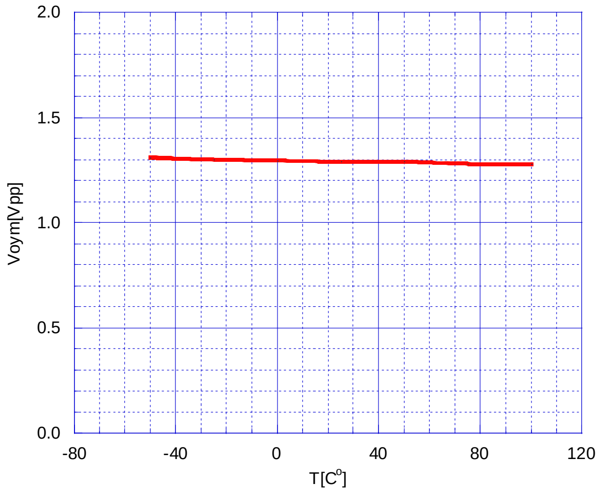
Group Delay (Y mode) vs. Temperature
(Vcc=3V)



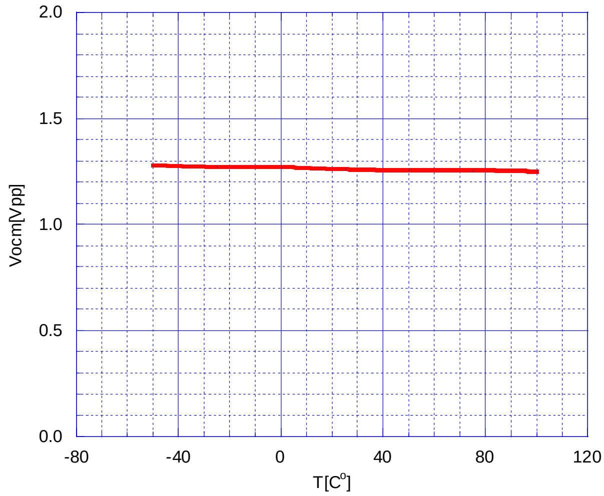
Group Delay(C mode) vs. Temparature
(Vcc=3V)



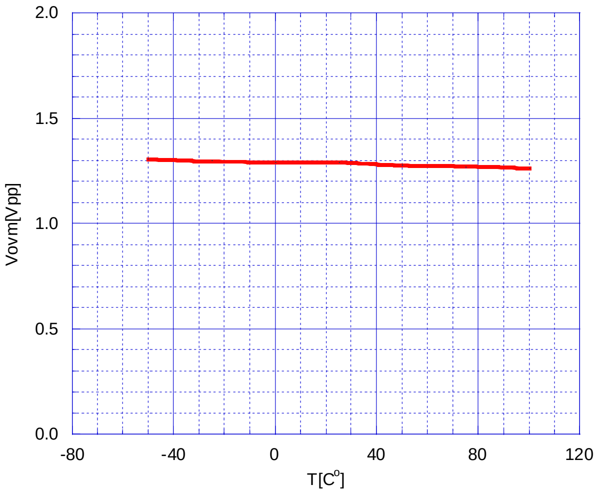
Maximum Output Voltage(Y mode) vs. Temperature
(Vcc=3V)



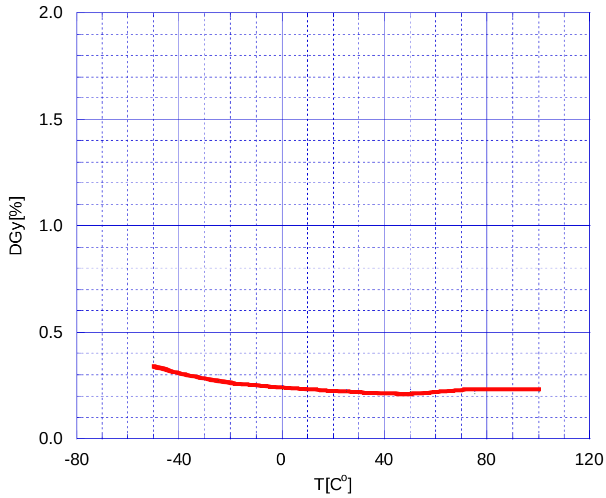
Maximum Output Voltage(Y mode) vs. Temperature
(Vcc=3V)



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

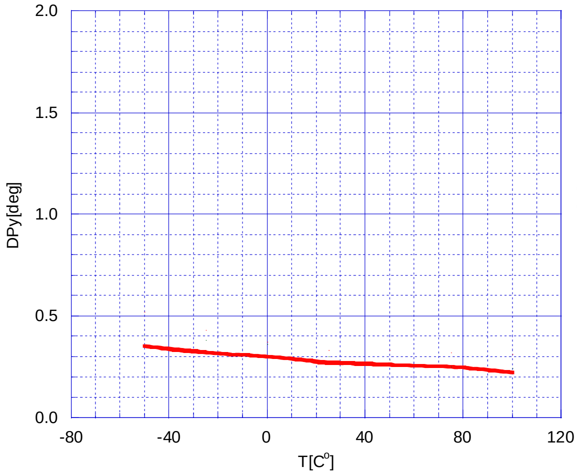


Differential Gain(Y mode)vs. Temperature
(Vcc=3V)

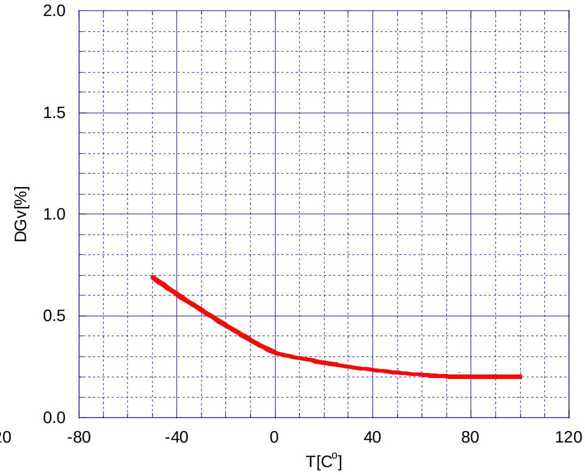


■TYPYCAL CHARACTERISTICS

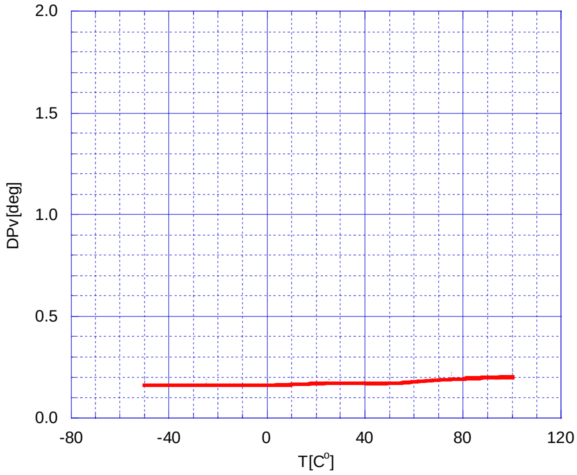
Differential Phase(Y mode) vs. Temperature
(Vcc=3V)



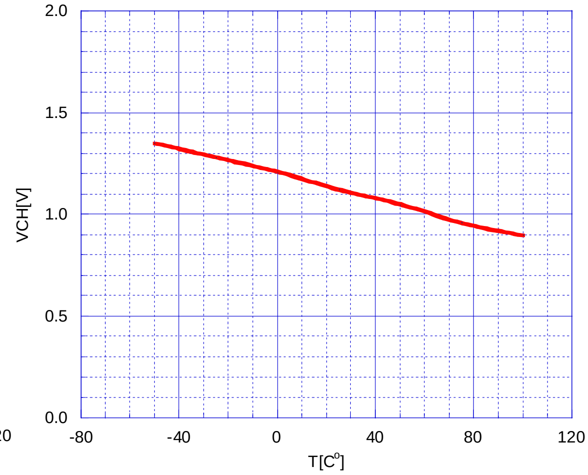
Differential Gain(V mode) vs. Temperature
(Vcc=3V)



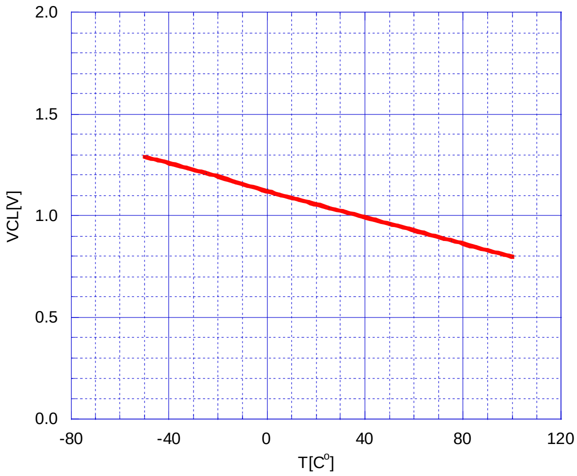
Differential Phase(V mode) vs. Temperature
(Vcc=3V)



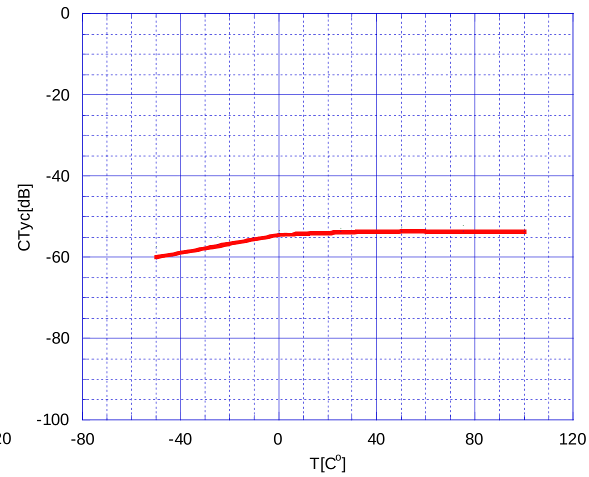
SW Threshold Voltage(High) vs. Temperature
(Vcc=3V)



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

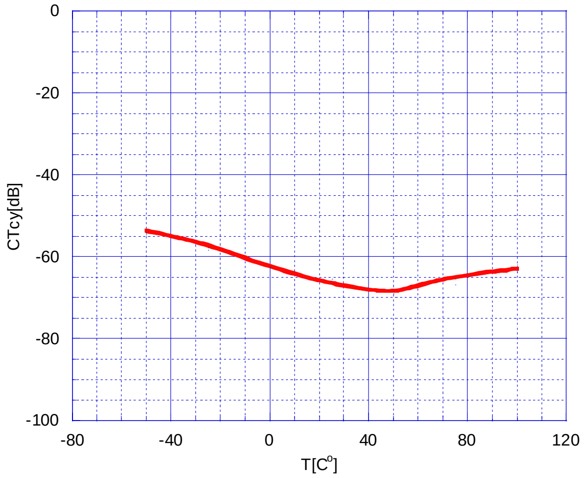


Closstalk vs. Temperature
(Vcc=3V,Yin→Cout)

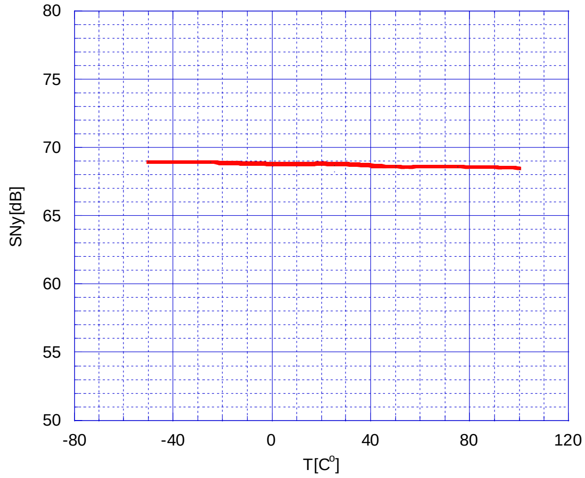


■TYPYCAL CHARACTERISTICS

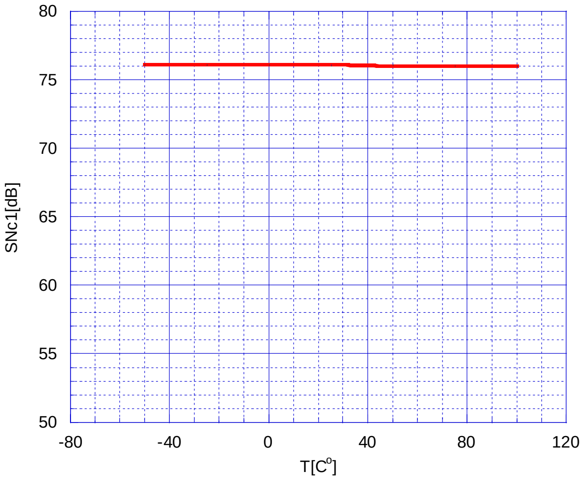
Closstalk vs. Temperature
(Vcc=3V,Cin→Yout)



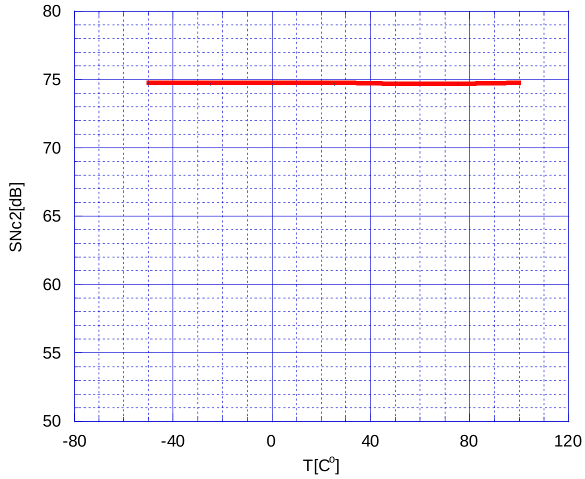
S/N Ratio vs. Temperature
(Vcc=3V,Ysignal)



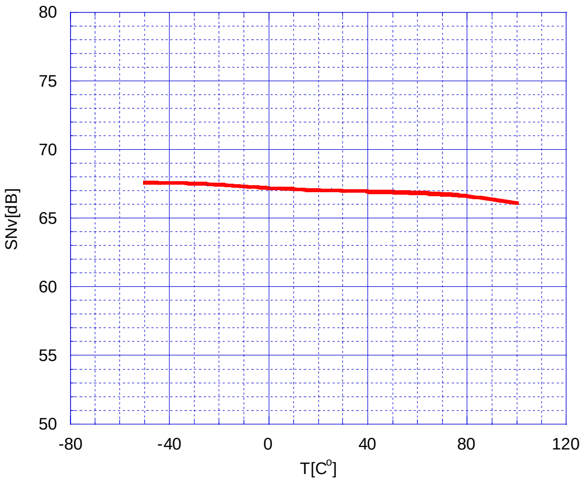
S/N Ratio vs. Temperature
(Vcc=3V,Csignal AM)



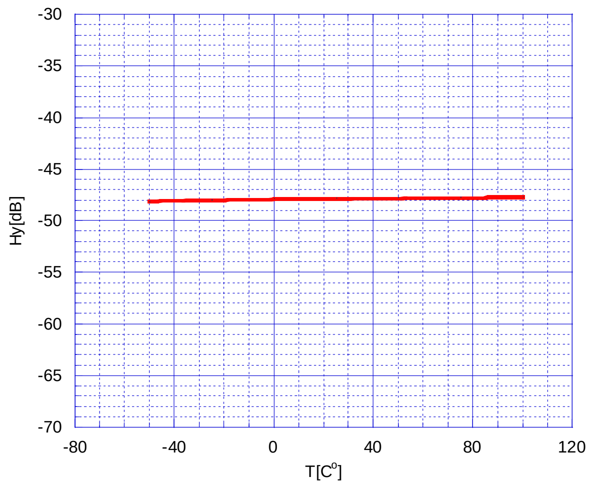
S/N Ratio vs. Temparature
(Vcc=3V,Csignal PM)



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

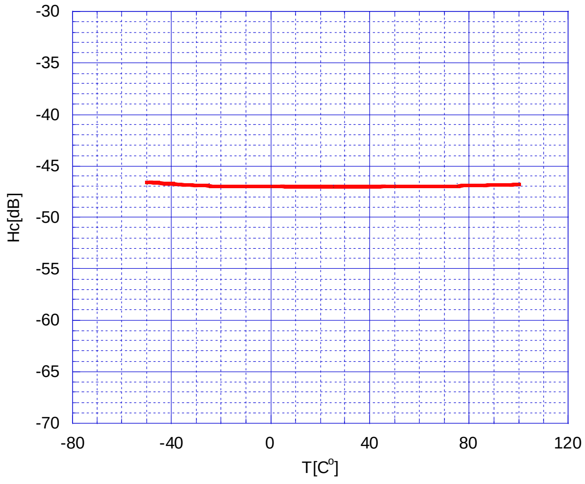


2nd Distortion vs. Temperature
(Vcc=3V,Ysignal)



■TYPYCAL CHARACTERISTICS

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



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