

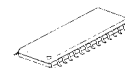
6CH VIDEO AMPLIFIER WITH SD/ HD LPF

■ GENERAL DESCRIPTION

The NJM2566A is a single supply voltage 6ch Video amplifier. It includes LPF, Y/C MIX circuit and SDC interface. LPF for the component signal can select SD/HD.

The NJM2566A is suitable for DVD recorder, set top box and the high quality AV systems with the SD/HD output.

■ PACKAGE OUTLINE

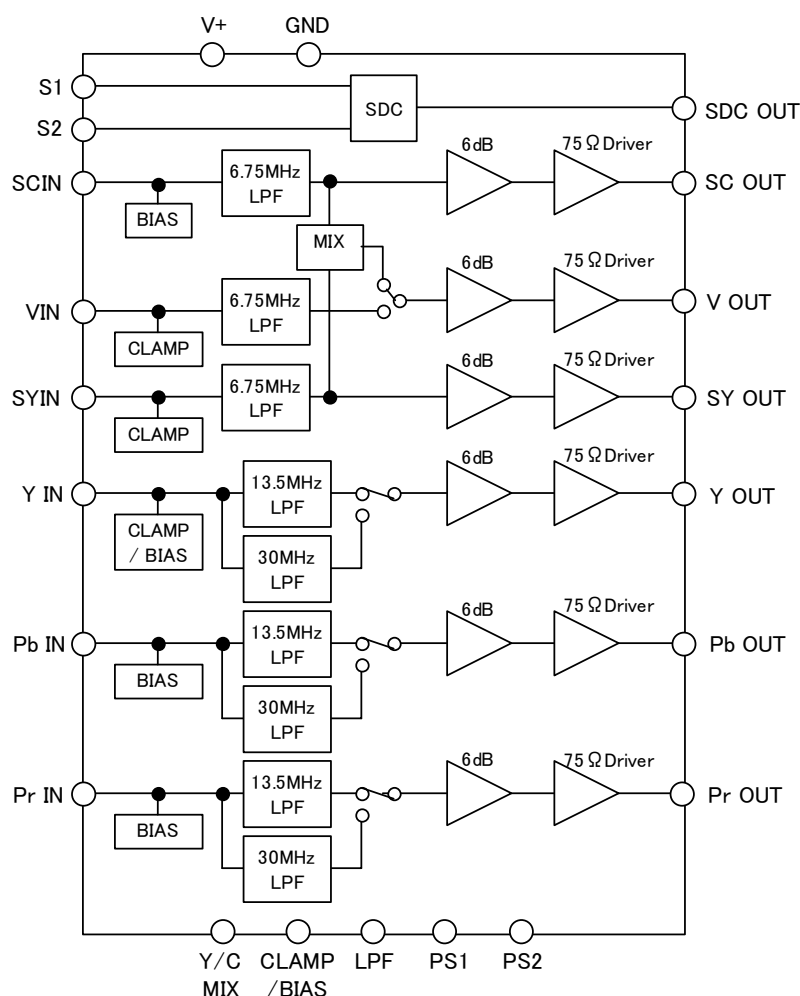


NJM2566AV

■ FEATURES

- Operating Voltage 4.5 to 5.5V
- 6dB amplifier
- Internal 75Ω Driver Circuit (2-system drive)
- Internal LPF V,SY,SC 6.75MHz
Y,Pb,Pr 13.5MHz (Progressive)
30MHz (HD)
- Y/C MIX Circuit
- SDC Interface (S1/ S2)
- CLAMP/ BIAS Select (Y,Pb,Pr/ RGB)
- Power Save Circuit
- Bipolar Technology
- Package Outline SSOP32

■ BLOCK DIAGRAM



■ ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V ⁺	10.0	V
Power Dissipation	P _D	1250(Note)	mW
Operating Temperature Range	T _{opr}	-40 to +85	°C
Storage Temperature Range	T _{stg}	-40 to +150	°C

(Note) At on a board of EIA/JEDEC specification. (114.3 x 76.2 x 1.6mm Two layers, FR-4)

■ RECOMMENDED OPERATING CONDITION (Ta=25°C)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Operating Voltage	V _{opr}		4.5	5.0	5.5	V

■ ELECTRICAL CHARACTERISTICS (Ta=25°C, V⁺1 to V⁺4=5V, R_L=150Ω)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Operating Current	I _{CC}	No Signal	-	60	90	mA
Operating Current at Power Save	I _{save}	No Signal, Power Save Mode	-	2.0	4.0	mA
Maximum Output Voltage Swing	V _{om}	(Note 1) Vin=100kHz, Sine Signal, THD=1%	2.4	-	-	Vp-p
Voltage Gain1	Gv1	(Note 1) Vin=1MHz, 1.0Vp-p, Sine Signal	5.6	6.0	6.4	dB
Voltage Gain2	Gv2	(Note 2) Vin=3.58MHz, 0.3Vp-p, Sine Signal	5.6	6.0	6.4	dB
Gain Difference Between channel	ΔGv1	(Note 1) Vin=1MHz, 1.0Vp-p, Sine Signal	-0.2	0.0	+0.2	dB
Low Pass Filter Characteristic 1	Gf _{y6.75M}	(Note 3) 6.75MHz/1MHz, 1.0Vp-p, Sine Signal	-1.0	0.0	1.0	dB
	Gf _{y27M}	(Note 3) 27MHz/1MHz, 1.0Vp-p, Sine Signal	-	-40.0	-24.0	dB
Low Pass Filter Characteristic 2	Gf _{c6.75M}	(Note 2) 6.75MHz/3.58MHz, 0.3Vp-p, Sine Signal	-1.0	0.0	1.0	dB
	Gf _{c27M}	(Note 2) 27MHz/3.58MHz, 0.3Vp-p, Sine Signal	-	-40.0	-24.0	dB
Low Pass Filter Characteristic 3	Gf _{p13.5M}	(Note 4) 13.5MHz/1MHz, 1.0Vp-p, Sine Signal	-1.0	0.0	1.0	dB
	Gf _{p54M}	(Note 4) 54MHz/1MHz, 1.0Vp-p, Sine Signal	-	-40.0	-24.0	dB
Low Pass Filter Characteristic 4	Gf _{h20M}	(Note 5) 20MHz/1MHz, 1.0Vp-p, Sine Signal	-1.0	0		
	Gf _{p30M}	(Note 5) 30MHz/1MHz, 1.0Vp-p, Sine Signal	-	-1.0	-	dB
	Gf _{p74M}	(Note 5) 74MHz/1MHz, 1.0Vp-p, Sine Signal	-	-40.0	-24.0	dB
Cross talk	CT	(Note 1) 4.43MHz, 1.0Vp-p, Sine Signal (Note 2) 4.43MHz, 0.3Vp-p, Sine Signal	-	-70	-	dB
Differential Gain	DG	(Note 1) Vin=1.0Vp-p, 10step Video Signal	-	0.5	-	%
Differential Phase	DP	(Note 1) Vin=1.0Vp-p, 10step Video Signal	-	0.5	-	deg
S/N Ratio1	SN1	(Note 1) Vin=1.0Vp-p, 100% White video signal, R _L =75Ω, 100KHz to 6MHz	-	80	-	dB
S/N Ratio2	SN2	(Note 1) Vin=1.0Vp-p, 100% White video signal, R _L =75Ω, 100KHz to 6MHz, Y/C MIX OUT	-	74	-	dB
SDC Output Voltage Low Level	SDCL	R _L =10kΩ+100kΩ	-	0.1	0.5	V
SDC Output Voltage Mid Level	SDCM	R _L =10kΩ+100kΩ	1.6	2.1	2.4	V
SDC Output Voltage High Level	SDCH	R _L =10kΩ+100kΩ	4.3	4.6	-	V
SW Voltage High Level	V _{thPH}	PS1, PS2	2.5	-	V ⁺	V
SW Voltage Low Level	V _{thPL}	PS1, PS2	0	-	1.0	V
Switch inflow current High Level	I _{SWH}		-	-	120	μA
Switch inflow current Low Level	I _{SWL}		-	-	8	μA

Note 1 (SYIN, VIN, YIN, PbIN, PrIN) Input

Note 2 (SCIN) Input

Note 3 (SYIN, VIN) Input

Note 4 (YIN, PbIN, PrIN) Input, 13.5MHz LPF select

Note 5 (YIN, PbIN, PrIN) Input, 30MHz LPF select

■ CONTROL TERMINAL

PARAMETER	STATUS	NOTE
PS1 (Power Save1)	H	(SYOUT, VOUT, SCOUT) Power Save: OFF
	L	(SYOUT, VOUT, SCOUT) Power Save: ON
	OPEN	(SYOUT, VOUT, SCOUT) Power Save: ON
PS2 (Power Save2)	H	(YOUT, PbOUT, PrOUT) Power Save: OFF
	L	(YOUT, PbOUT, PrOUT) Power Save: ON
	OPEN	(YOUT, PbOUT, PrOUT) Power Save: ON
MIX SW (Y/C MIX)	H	M/C MIX ON
	L	M/C MIX OFF
	OPEN	M/C MIX OFF
C/B SW (CLAMP/BIAS)	H	BIAS (RGB)
	L	CLAMP (Y,Pb,Pr)
	OPEN	CLAMP (Y,Pb,Pr)
LPF SW (LPF)	H	30MHz LPF
	L	13.5MHz LPF
	OPEN	13.5MHz LPF

■ SDC OUT

S1	S2	SDC OUT	
L (OPEN)	L (OPEN)	0V	4:3 Normal
L (OPEN)	H	2.1V	4:3 Letter box
H	H	2.1V	4:3 Letter box
H	L (OPEN)	4.6V	16:9 Squeeze

■ PIN CONFIGURATION

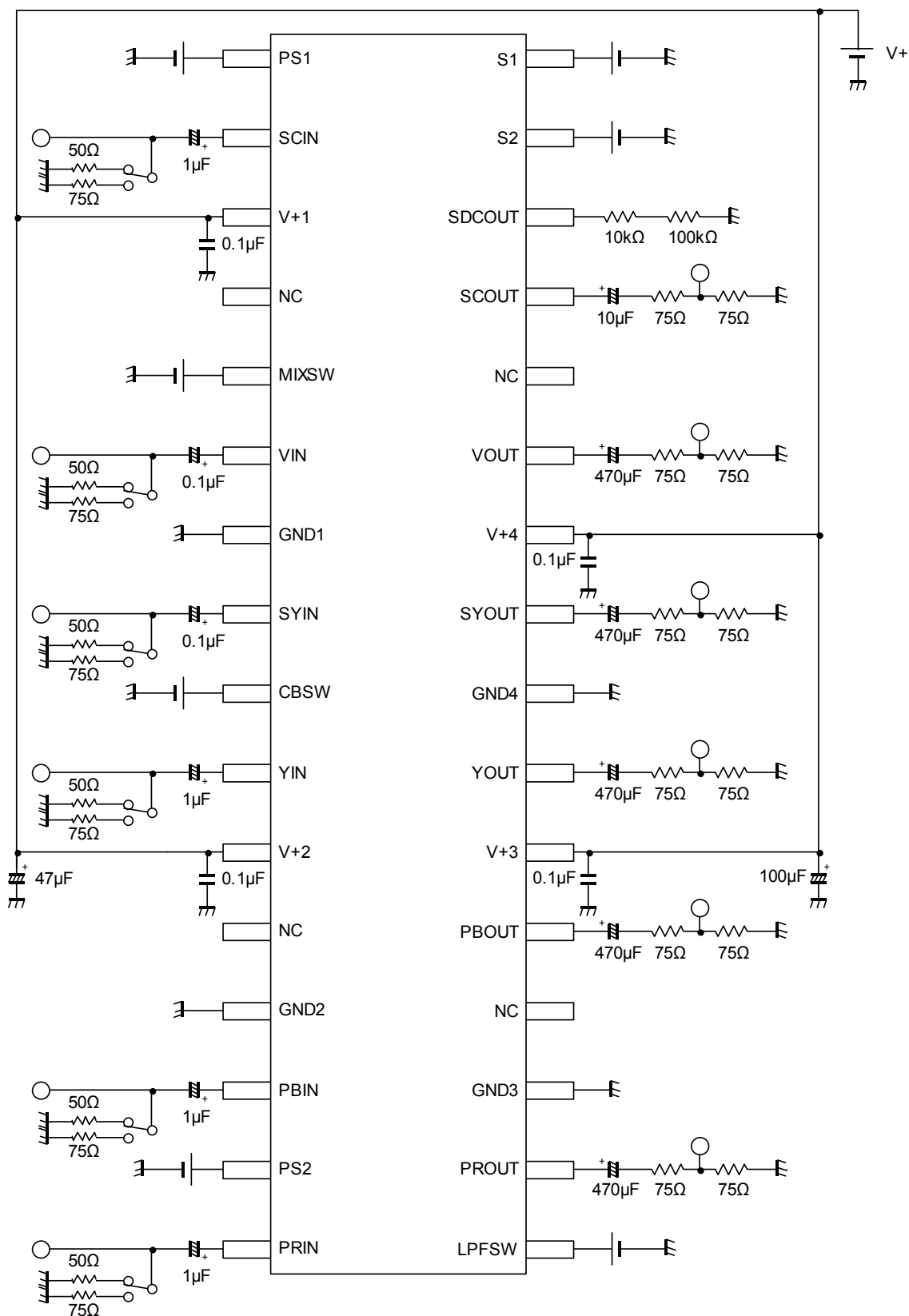
PS1	1	32	S1
SCIN	2	31	S2
V+1	3	30	SDCOUT
NC	4	29	SCOUT
MIXSW	5	28	NC
VIN	6	27	VOUT
GND1	7	26	V+4
SYIN	8	25	SYOUT
CBSW	9	24	GND4
YIN	10	23	YOUT
V+2	11	22	V+3
NC	12	21	PBOUT
GND2	13	20	NC
PBIN	14	19	GND3
PS2	15	18	PROUT
PRIN	16	17	LPFSW

■ TERMINAL FUNCTION

PIN No.	PIN NAME	FUNCTION	EQUIVALENT CIRCUIT	DC VOLTAGE
1	PS1	(SY, V, SC, SDC) Power save		-
5	MIXSW	Y/C MIX control		
9	CBSW	CLAMP/ BIAS control		
15	PS2	(Y, Pb, Pr) Power save		
17	LPFSW	(Y, Pb, Pr) LPF control		
31	S2	SDC control		
32	S1	SDC control		
2	SCIN	Chroma signal input		2.5V
14	PBIN	Component signal(Pb), R input		
16	PRIN	Component signal(Pr), B input		
6	VIN	Composite video signal input		1.7V
8	SYIN	Y signal input		
10	YIN	Component signal(Y), G input (Note) Y signal: CLAMP G signal: BIAS		(CLAMP) 1.7V (BIAS) 2.5V

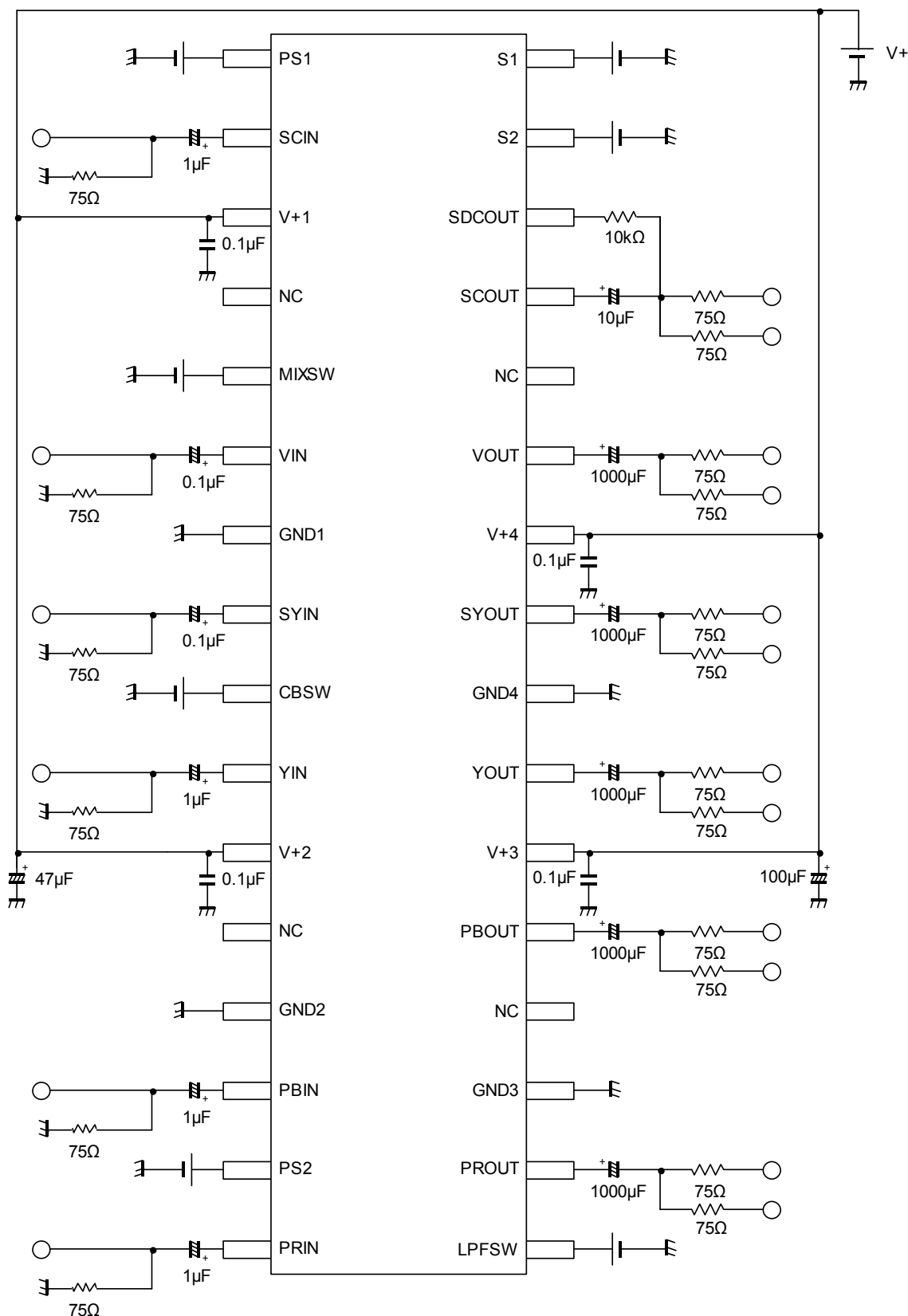
PIN No.	PIN NAME	FUNCTION	EQUIVALENT CIRCUIT	DC VOLTAGE
18 21 29	PROUT PBOUT SCOUT	Component signal(Cr) output Component signal(Cb) output Chroma signal output		2.5V
23 25 27	YOUT SYOUT VOUT	Component signal(Y) output Y signal output Composite video signal output		1.3V (Note) YOUT BIAS: 2.5V
30	SDCOUT	SDC output		-

■ TEST CIRCUIT



(Note) Please put the bypass capacitor of 0.1μF near IC pin.

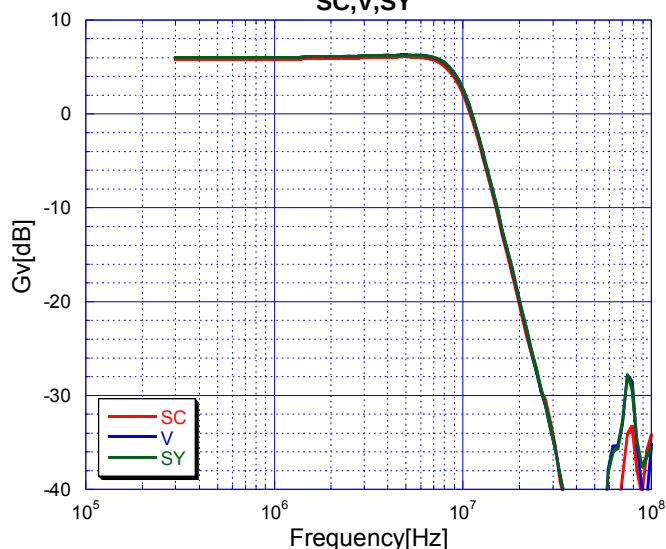
■ APPLICATION CIRCUIT



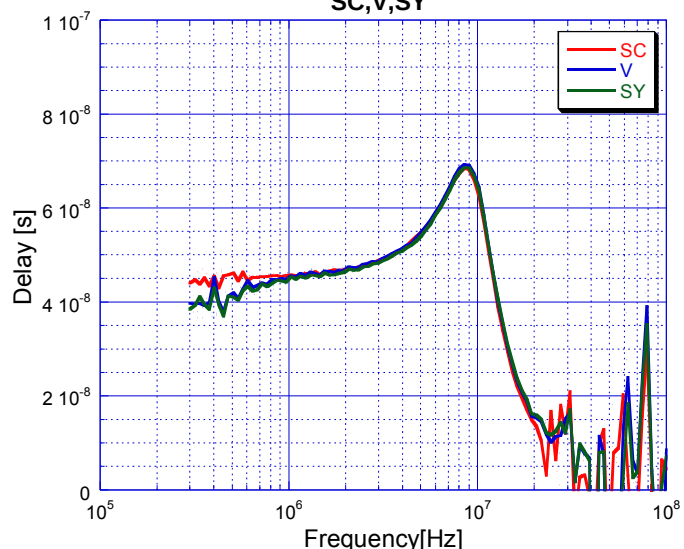
(Note) Please put the bypass capacitor of 0.1μF near IC pin.

■ TYPICAL CHARACTERISTICS

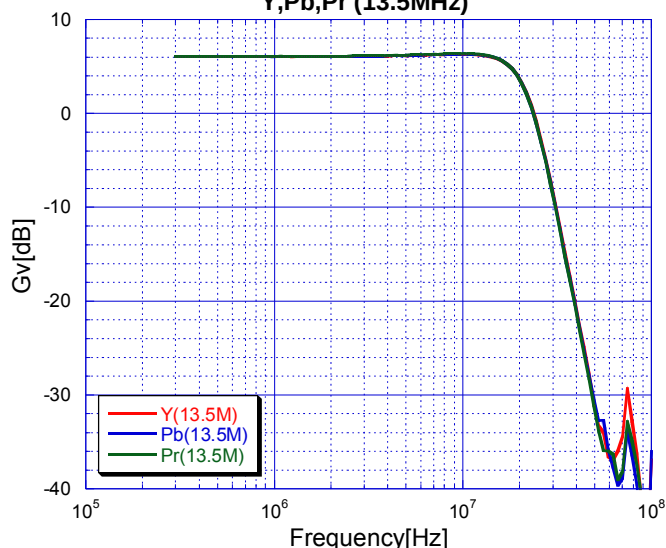
Voltage Gain vs. Frequency
SC,V,SY



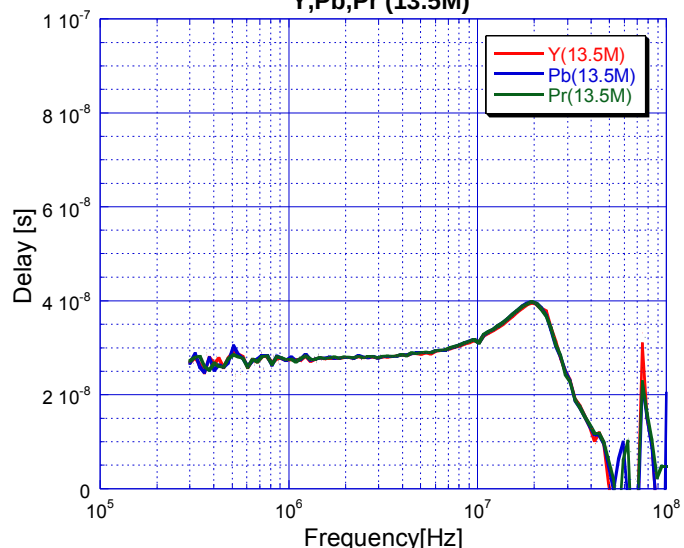
Group Delay vs. Frequency
SC,V,SY



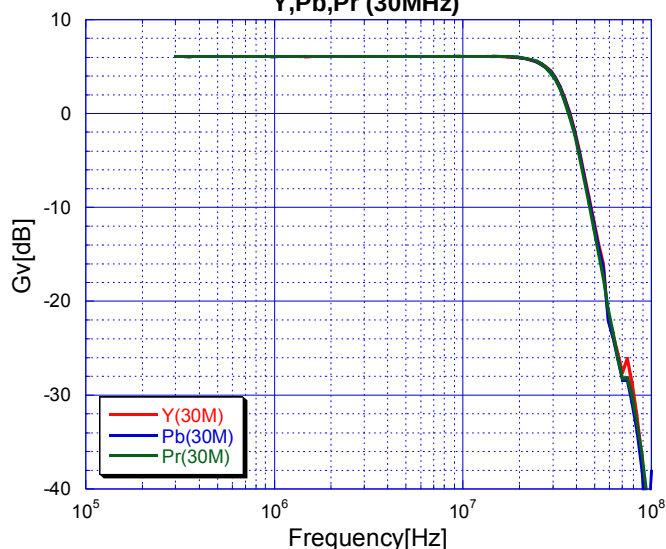
Voltage Gain vs. Frequency
Y,Pb,Pr (13.5MHz)



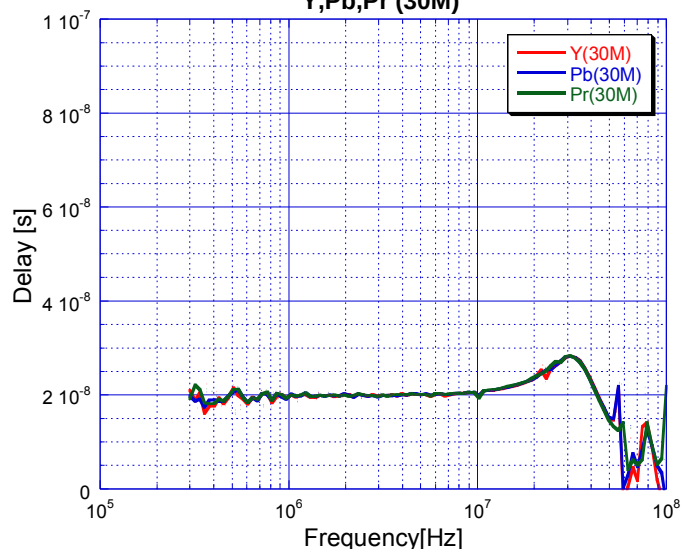
Group Delay vs. Frequency
Y,Pb,Pr (13.5M)



Voltage Gain vs. Frequency
Y,Pb,Pr (30MHz)



Group Delay vs. Frequency
Y,Pb,Pr (30M)





[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.