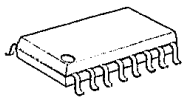
2-INPUT VIDEO SUPERIMPOSER

■ GENERAL DESCRIPTION

NJM 2262 is a 2input video superimposer, inculuding video switch circuit that consist of four Y signal circuit and one C signal circuit.

Its impose voltage is set up white level and black level but You can fix its impose voltage.

■ PACKAGE OUTLINE



NJM2262M

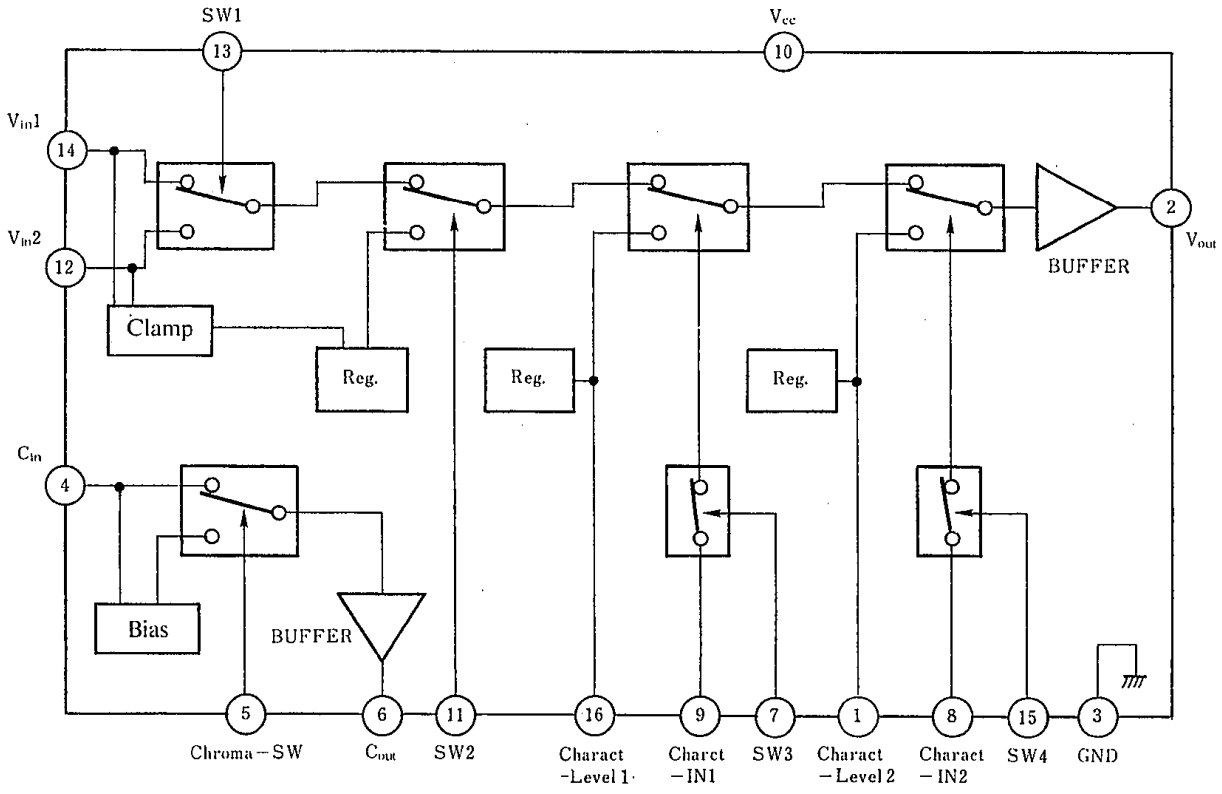
■ FEATURES

- Operating Voltage (4.5V～5.5V)
- Low Operating Current : 5V movement (I_{CC}=8mA)
- Internal Video SW
- Internal Clamp circuit and Bias circuit
- Impose voltage is step up white level and black level but you can fix is impose voltage.
- Package Outline DMP16
- Bipolar Technology

■ APPLICATION

- VTR Camera, VTR, TV etc.

■ BLOCK DIAGRAM



NJM2262M

■ ABSOLUTE MAXIMUM RATINGS

(Ta=25℃)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V^+	+7	V
Power Dissipation	P_D	300	mW
Operating Temperature Range	T_{opr}	−20～+75	℃
Storage Temperature Range	T_{stg}	−40～+125	℃

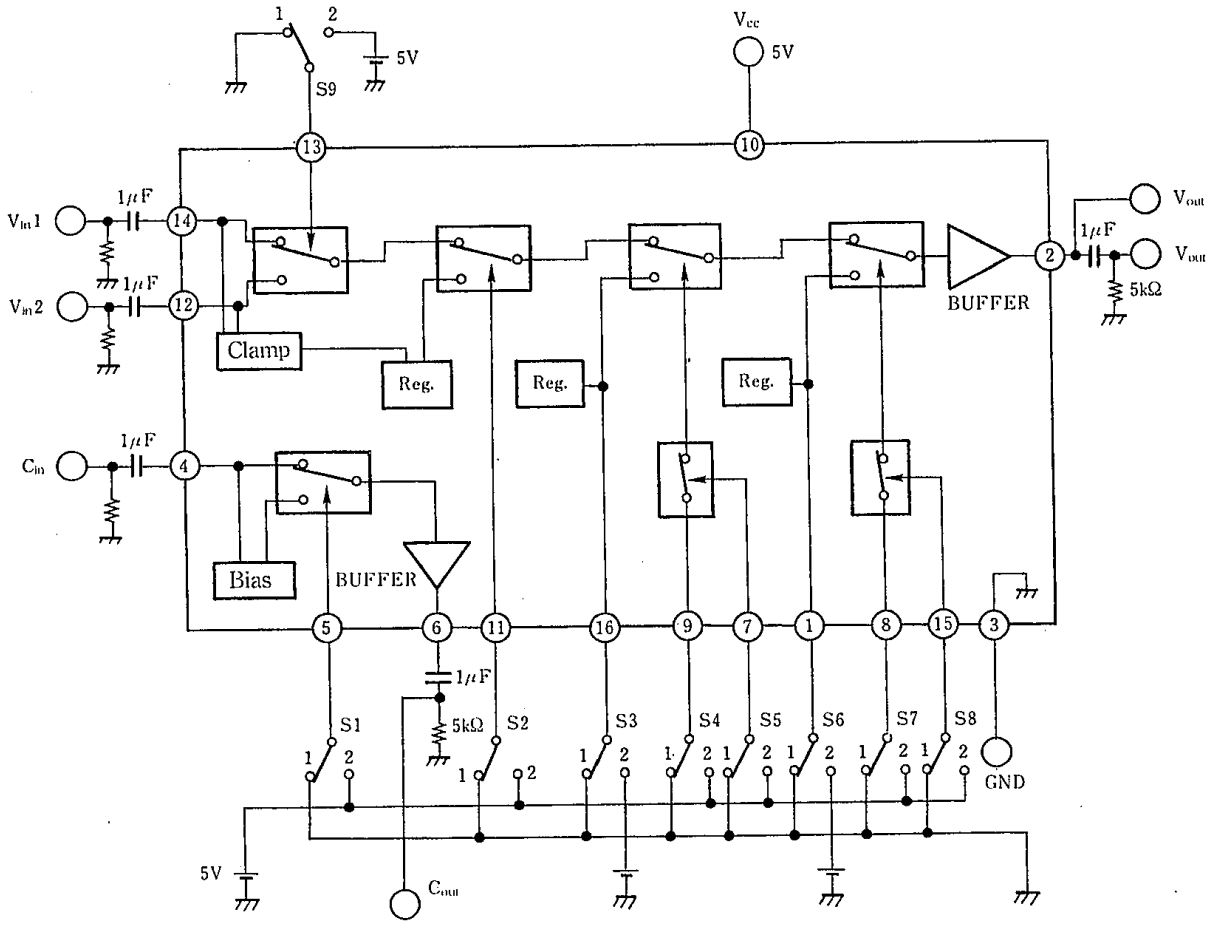
■ ELECTRICAL CHARACTERISTICS

(V^+=5V, V_{in}=1V, Ta=25°C)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Operating Current	I_{CC}	No signal	—	8.0	12.0	mA
Y Voltage Gain	G_{vy}	1MHz, 1V_{p-p} Sine Wave	−0.7	−0.2	+0.3	dB
C Voltage Gain	G_{vc}	1MHz, 1V_{p-p} Sine Wave	−0.8	−0.3	+0.2	dB
Y Frequency Characteristics	G_{fy}	Vo(7MHz)/Vo(1MHz)	−1.0	0	+1.0	dB
C Frequency Characteristics	G_{fc}	Vo(7MHz)/Vo(1MHz)	−1.0	0	+1.0	dB
Differential Gain	DG	Stea Step	—	—	3.0	%
Differential Phase	DP	Stea Step	—	—	3.0	deg
Output offset Voltage	Vos		−15.0	0	+15.0	mV
Y Cross-Talk	CT_y	4.43MHz Vo/vi	—	−60.0	−50.0	dB
C-Y Cross-Talk	CT_{cy}	4.43MHz Vo/Vi	—	−60.0	−50.0	dB
Y-C Cross-Talk	CT_{yc}	4.43MHz Vo/Vi	—	−60.0	−50.0	dB
Input Impedance 1	R_{i1}	V_{in1}, V_{in2}	10.0	—	—	kΩ
Input Impedance 2	R_{i2}	C_{in}	—	15.0	—	kΩ
Output Impedance	Ro		—	20.0	—	ΩV
Charact-LEVEL 1	V_{M1}		607	643	679	mV
Charact-LEVEL 2	V_{M2}		607	643	679	mV
Y Gate Level	V_{gy}	From Crump Level	0	35.7	71.4	mV
C Gate Level	V_{GC}	From Bias Level	−10.0	0	10.0	
Threshold Voltage 1	V_{th1}	SW1 (ON LEVEL)	2.5	—	—	V
		(OFF LEVEL)	—	—	0.8	V
Threshold Voltage 2	V_{th2}	SW2 (ON LEVEL)	2.5	—	—	V
		(OFF LEVEL)	—	—	0.8	V
Threshold Voltage 3	V_{th3}	SW3 (ON LEVEL)	3.0	—	—	V
		(OFF LEVEL)	—	—	1.0	V
Threshold Voltage 4	V_{th4}	SW4 (ON LEVEL)	3.0	—	—	V
		(OFF LEVEL)	—	—	1.0	V
Threshold Voltage 5	V_{th5}	SW5 (ON LEVEL)	2.5	—	—	V
		(OFF LEVEL)	—	—	0.8	V
Threshold Voltage 6	V_{th6}	SW6 (ON LEVEL)	2.5	—	—	V
		(OFF LEVEL)	—	—	0.8	V
Threshold Voltage 7	V_{th7}	SW7 (ON LEVEL)	2.5	—	—	V
		(OFF LEVEL)	—	—	0.8	V

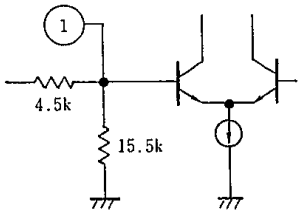
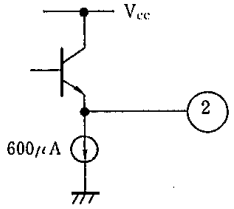
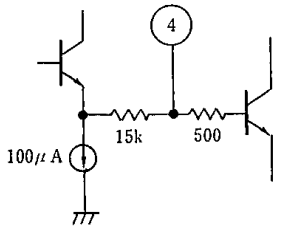
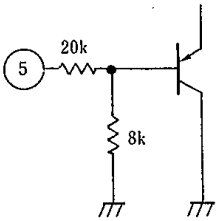
(note 1) Next two cross-talk (One side 0Ω termination)
① V_{in1}→V_{in2} ② V_{in2}→V_{in1}
(note 2) Next two cross-talk (One side 0Ω termination)
① C_{in}→V_{in1} ② C_{in}→V_{in2}
(note 3) Next two cross-talk (One side 0Ω termination)
① V_{in1}→C_{in} ② V_{in2}→C_{in}
(note 4) White Level
(note 5) Black Level

■ TEST CIRCUIT

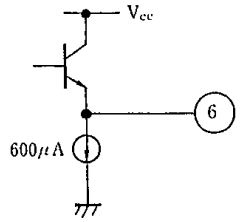
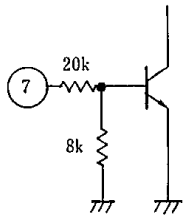
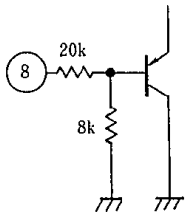
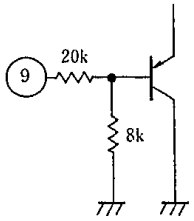


This IC requires 1MΩ resistance between INPUT and GND pin for clamp type input since the minute current causes an unstable pin voltage.

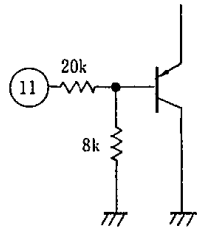
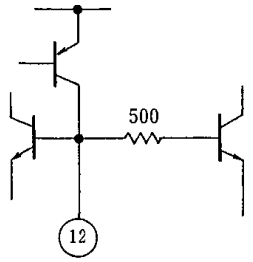
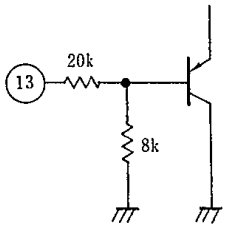
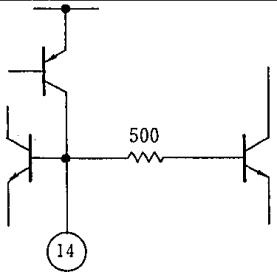
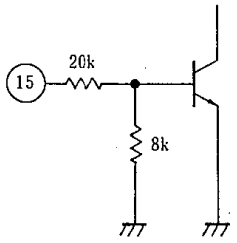
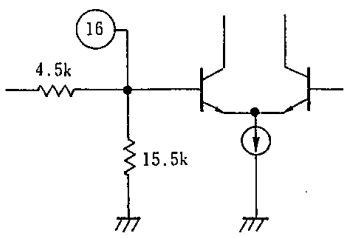
■ TERMINAL FUNCTION

PIN NO.	PIN NAME	FUNCTION	EQUIVALENT CIRCUIT
1	Charact-Level 2	Input terminal of the DC Voltage or the signal in the super imposing condition. In opening condition, presetted in voltage level of 90IRE (White Level) at 1 V_{P-P} video signal.	
2	V_{OUT}	Output terminal of Y signal	
3	GND	GND	
4	C_{IN}	Input terminal (Bias Input) of gate switch for C signal.	
5	Chroma-SW	Control Terminal of C-SW. Lo | Signal Output Hi | Bias Voltage Output	

■ TERMINAL FUNCTION

PIN NO.	PIN NAME	FUNCTION	EQUIVALENT CIRCUIT
6	C_{OUT}	Output terminal of C-SW.	
7	SW 3	ON/OFF control terminal of character signal inputted from 9 pin L_O | Charactor Signal Through H_i | Charactor Signal OFF	
8	Charact-IN 2	Terminal to input character signal for super impose.	
9	Charact-IN 1	Terminal to input character signal for super impose.	
10	Vcc	V_{cc}=5V	

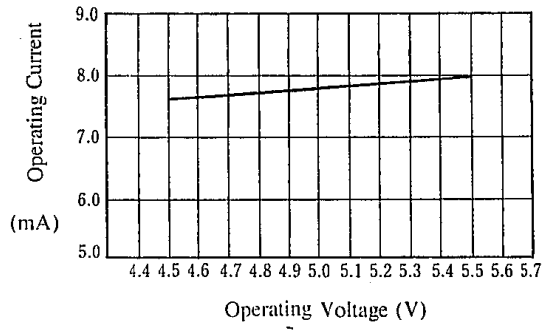
■ TERMINAL FUNCTION

PIN NO.	PIN NAME	FUNCTION	EQUIVALENT CIRCUIT
11	SW 2	Terminal to input charactor signal for super impose. Voltage for impose is presetted internally, at the voltage level 5IRE (Black Level)with $1V_{P-P}$ video signal.	
12	V_{in} 2	Input terminal of Y signal($1V_{P-P}$). Clamp circuit is internalized and clamp voltage is about 2.15V. (Oscillation might occur when higher impedance source. So, please control source impedance under 3.5Ω.)	
13	SW 1	Contorol terminal for input signal switch of Y signal. Lo: Output V_{in} 1 Hi: Output V_{in} 2	
14	V_{in} 1	Input terminal of Y signal ($1V_{P-P}$). Clamp circuit is internalized and clamp voltage is about 2.15V. (Oscillation migh occire when higher impedance source. So, please contorol source impedance under 3.5kΩ.)	
15	SW 4	ON/OFF control terminal of charactor signal inputted from 8 pin. Lo: Charactor Through Hi: Charactor Signal OFF	
16	Charact-Level 1		

■ TYPICAL CHARACTERISTICS

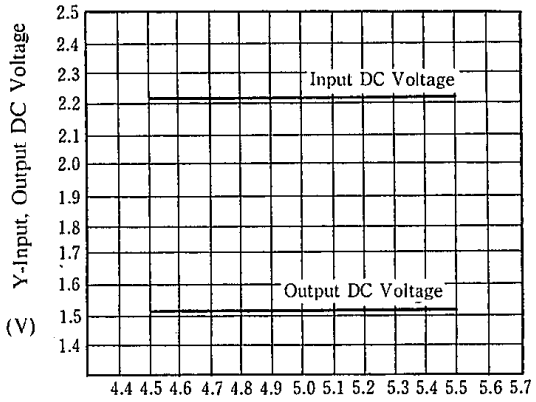
Operating Current vs. Operating Voltage

(Ta=25°C)

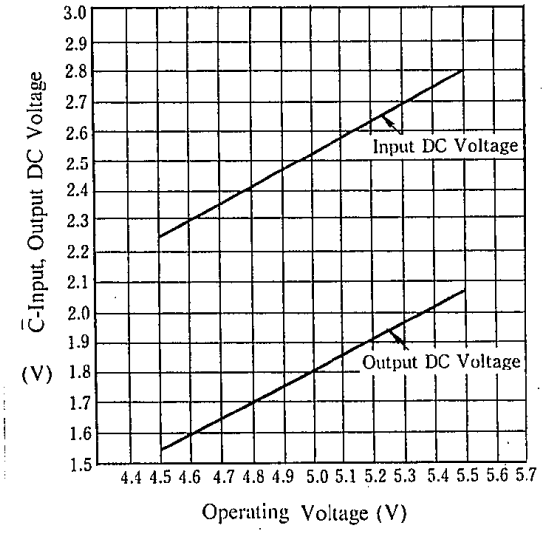


Y-Input, Output DC Voltage vs. Operating Voltage

(Ta=25°C)

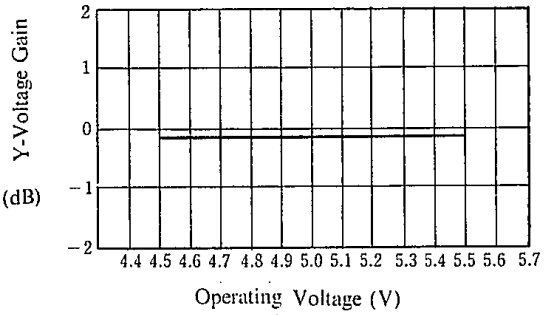


C-Input, Output DC Voltage vs. Operating Voltage



Y-Voltage Gain vs. Operating Voltage

(Ta=25°C, R_L=5kΩ, V_{in}=1V_{p-p}, 1MHz)



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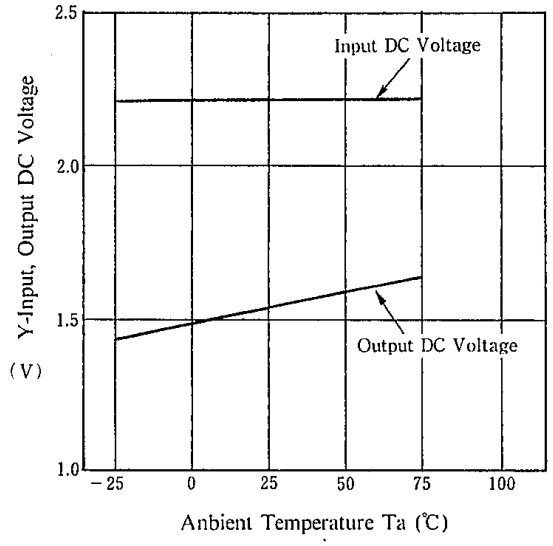
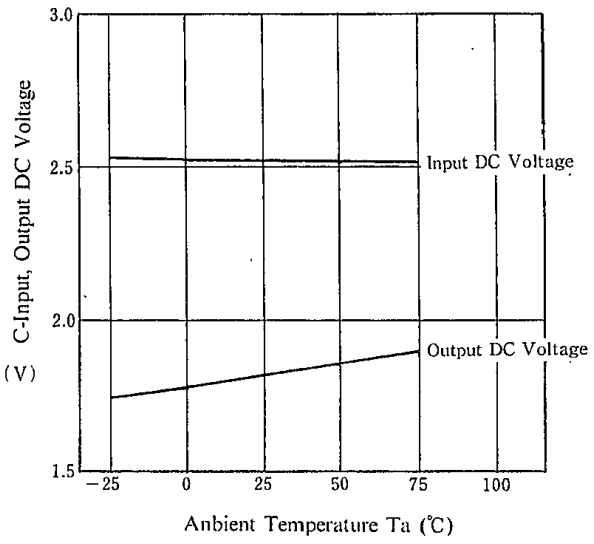
■ TYPICAL CHARACTERISTICS

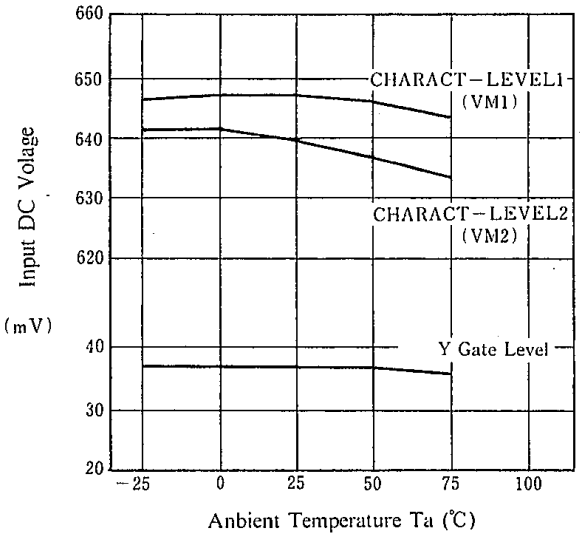
Y-Input, Output DC Voltage vs. Anbient Temperature



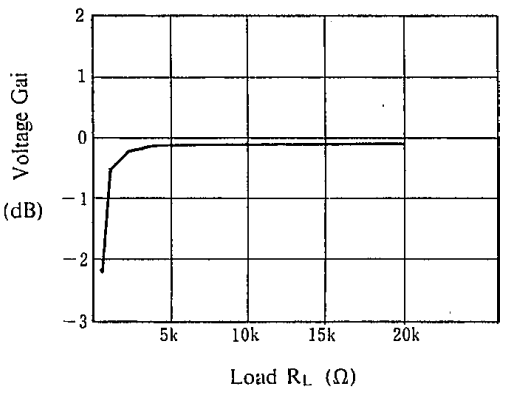
C-Input, Output DC Voltage vs. Anbient Temperature



Input DC Volage vs. Anbient Temperature



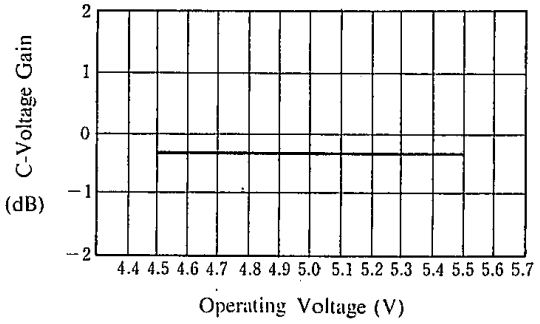
Voltage Gain vs. Load



■ TYPICAL CHARACTERISTICS

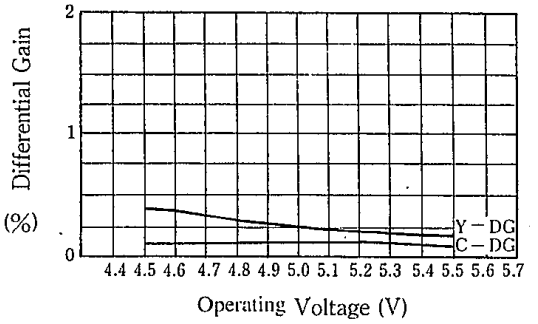
C-Voltage Gain vs. Operating Voltage

(Ta=25°C, R_L=5kΩ, V_{in}=1V_{p-p}, 1MHz)



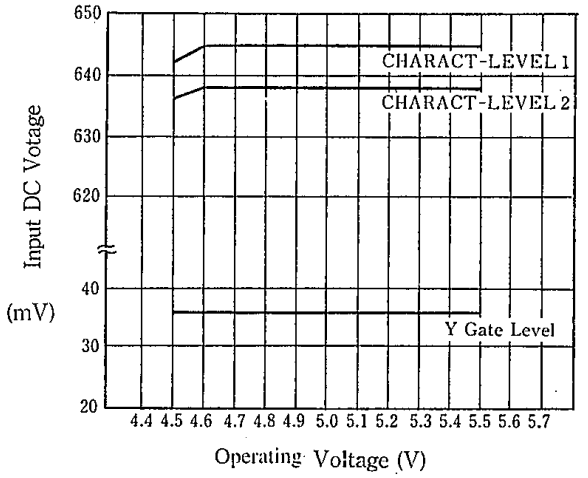
Differential Gain vs. Operating Voltage

(Ta=25°C, V_{IN}=1V_{P-P} Nomal Stea Case Pulse R_L=5kΩ)



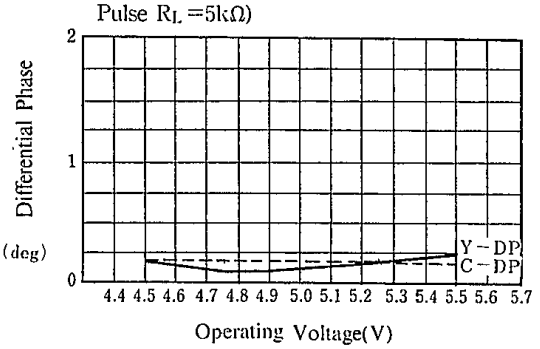
Input DC Votage vs. Operating Voltage

(Ta=25°C)

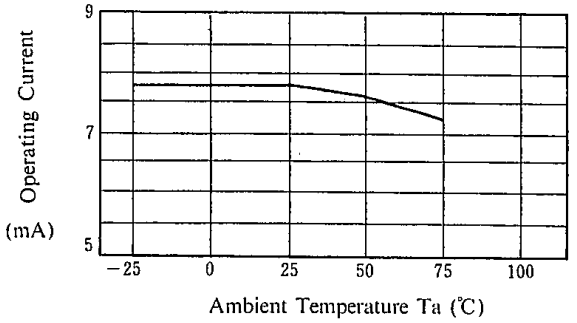


Differential Phase vs. Operating Voltage

(Ta=25℃, VIN=1V_{P-P} Normal Stea Case Pulse R_L=5kΩ)

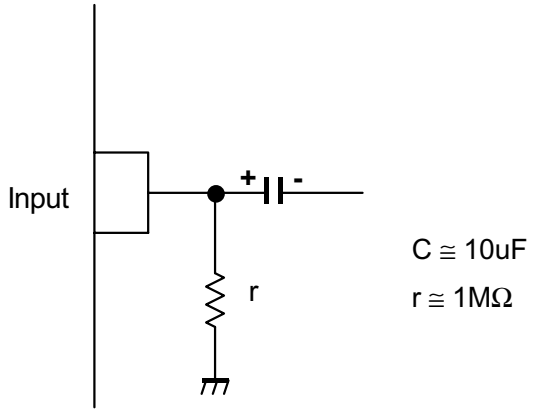


Operating Current vs. Ambient Temperature



■APPLICATION

This IC requires 1MΩ resistance between INPUT and GND pin for clamp type input since the minute current causes an unstable pin voltage.



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