

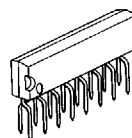
## NJM2225

The NJM2225 are bipolar integrated circuits of motor drive for video camera. The NJM2225 have function of auto iris by video luminance signal and external information input to AGC circuit. They are composed of clipping circuit of video luminance signal, amplifier for driving motor and comparator for AGC circuits.

### Package Outline

#### Absolute Maximum Ratings (Ta=25°C)

Supply Voltage	V <sup>+</sup>	12V
Motor Drive Current	I <sub>O</sub>	30mA(PIN.9)
Power Dissipation	P <sub>D</sub> (S-Type)	500mW
	(M-Type)	350mW
Operating Temperature Range	T <sub>opr</sub>	-20~+75°C
Storage Temperature Range	T <sub>stg</sub>	-40~+125°C



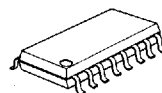
NJM2225S



NJM2225V

#### Recommended Operating Condition

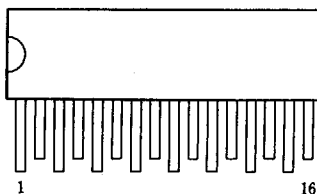
Operating Supply Voltage Range	V <sup>+</sup>	4.5~9.5V
--------------------------------	----------------	----------



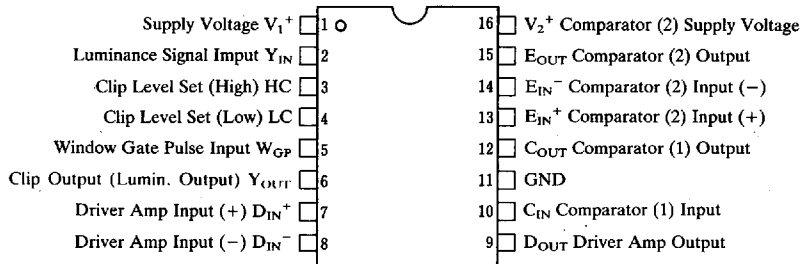
NJM2225M

### Pin Configuration

S-Type



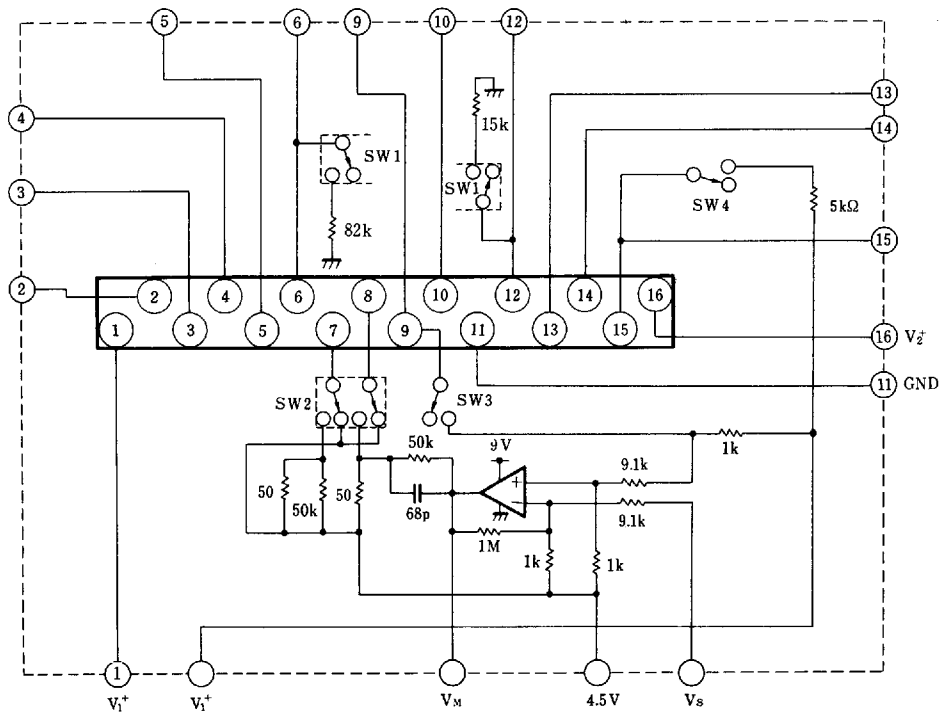
M-Type  
(Top View)



■ **Electrical Characteristics** ( $T_a=25^\circ\text{C}$ ,  $V_1^+=9\text{V}$ ,  $V_2^+=9\text{V}$ )

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Supply Current	$I_{CC}$		—	5.0	8.0	mA
Pin 3 Clip HIGH Level	$V_{CLH}$	$V_S=5\text{V}$	2.82	2.90	2.98	V
Pin 3 Clip LOW Level	$V_{CLL}$	$V_S=0\text{V}$	2.27	2.35	2.43	V
Pin 5 Threshold Level	$V_{TH}$		0.7	1.4	2.1	V
7-9 Open Loop Gain	$G_0$	$R_{L1}=1\text{k}\Omega$ (Pin 9 - $V^+$ )	80	90	—	dB
Pin 9 Output Operating Voltage	$V_{9L}$	$R_{L1}=1\text{k}\Omega$ (Pin 9 - $V^+$ )	1.4	1.5	1.6	V
Pin 10 DC Level	$V_{10}$		1.9	2.1	2.3	V
AGC Clip Level	$V_{12CL}$	$R_{L2}=15\text{k}\Omega$	3.80	4.00	4.20	V
Pin 15 Saturation Level	$V_{15L}$	$E_{IN}^+=2\text{V}$ , $E_{IN}^-=2.1\text{V}$ , $R_{L3}=5\text{k}\Omega$	—	0.2	0.4	V
Pin 15 OFF Level	$V_{15H}$	$E_{IN}^+=2\text{V}$ , $E_{IN}^-=1.9\text{V}$ , $R_{L3}=5\text{k}\Omega$	8.9	9.0	—	V

■ **Test Circuit**



■ 6569883 0004268 110 ■

## ■ Test Condition

Parameter	Test Condition	
Supply Current	$V_1^+ = V_2^+ = 9V$ ③-GND, ⑬⑭-4.5V SW1~SW4-OFF Other Pins-OPEN	
(Clip Circuit)	SW1~SW4-OFF	
Pin 3 Clip HIGH Level	⑤-5V	③ Voltage Test
Pin 3 Clip LOW Level	⑤-0V	③ Voltage Test
Pin 5 Threshold Level	⑤-0.8V	③ Voltage Test Clip Level 1
	⑤-2.0V	③ Voltage Test Clip Level 2
(Driver-Amp Circuit)	SW2, SW3-ON	
7-9 Open Loop Gain	Vs-6V,	VM Value; A
	Vs-3V,	VM Value; B
	O.L.Gain=20LOG [3000/(A-B)]	
Pin 9 Output Operating Voltage	Vs-0.5V	⑨ Voltage Test SW3-ON
(Comparator Circuit)		
Pin 10 DC Level	⑩ Voltage Test	
AGC Clip Level	SW1~SW3-ON Vs-8V	⑫ Voltage Test
(External Comparator Circuit)		
Pin 15 Saturation Level	SW4-ON ⑬-2V	
	⑭-2.1V	⑮ Voltage Test
Pin 15 OFF Level	⑬-2V ⑭-1.9V	⑮ Voltage Test

■ Terminal Function ( $V_1' = 9V$ ,  $V_2' = 9V$ )

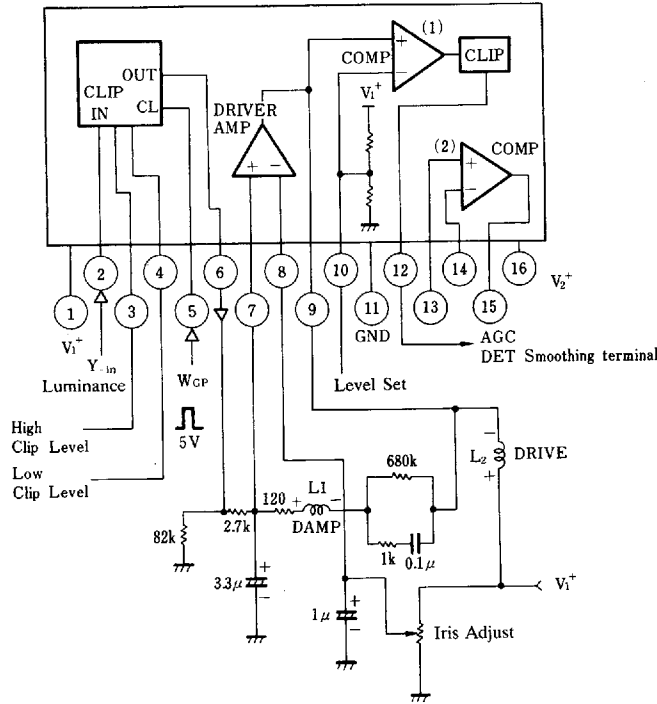
Pin No.	Pin Symbol	Equivalent Circuit	Pin Voltage [V]	Pin Description
1	$V_1^+$	—	9.0	Supply Voltage
2	$Y_{IN}$		2.38	Luminance signal input. Lum. sig. level: 0.5Vp-p.
3	HC		2.35	Setting clip level (High). No connect at $V^+ = 9V$ .
4	LC		0.6	Setting clip level (Low). No connect at $V^+ = 9V$ .
5	$W_{GP}$		0	Input window gate pulse. The pulse:  5V 0
6	$Y_{OUT}$		2.35	Clipped luminance signal Output.
7	$D_{IN}^+$		—	Input driver amp signal (+) of luminance converted to DC level.
8	$D_{IN}^-$		—	Input driver amp signal (-) of iris motor threshold voltage.
9	$D_{OUT}$		—	Driver amp output which drive driver coil of iris motor.

## Terminal Function ( $V_1^+=9V, V_2^+=9V$ )

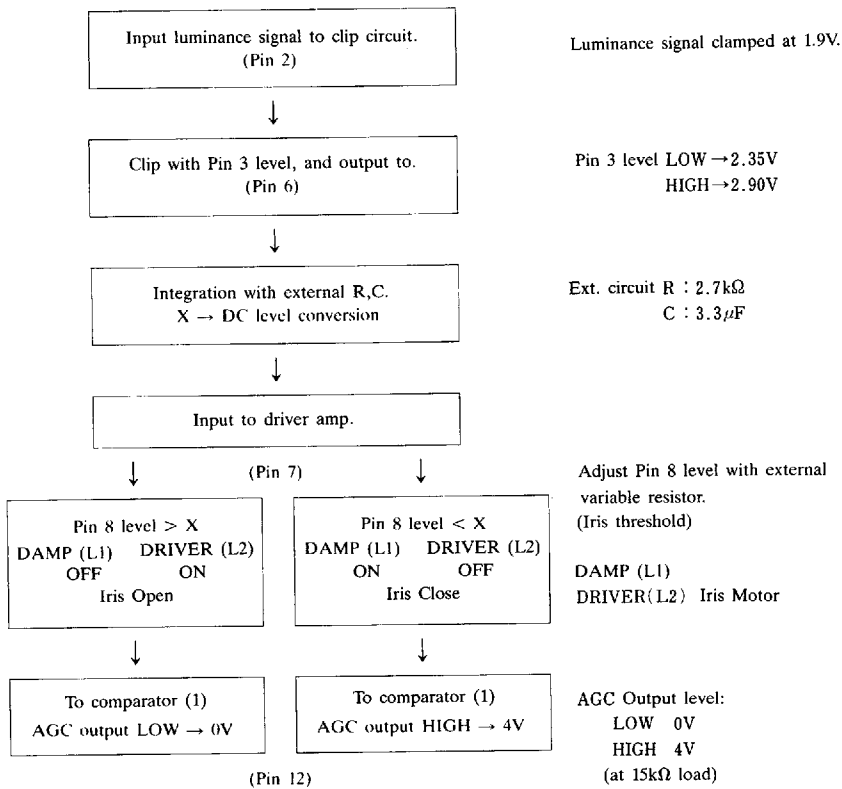
Pin No.	Pin Symbol	Equivalent Circuit	Pin Voltage [V]	Pin Description
10	$C_{IN}^-$		2.09	Level set of COMP (1) which judges on-off condition of iris. No connect at $V^+=9V$ .
11	GND	—	0	GND
12	$C_{OUT}$		0	Comparator (1) output which is signal to AGC circuit. Can drive TTL with $15k\Omega$ load (4V/0V).
13	$E_{IN}^+$		—	Comparator (2) input (+)
14	$E_{IN}^-$		—	Comparator (2) input (-)
15	$E_{OUT}$		—	Comparator (2) output
16	$V_2^+$	—	9.0	Supply terminal to comparator (2)

5

■ Typical Application



■ Brief Operation Principle



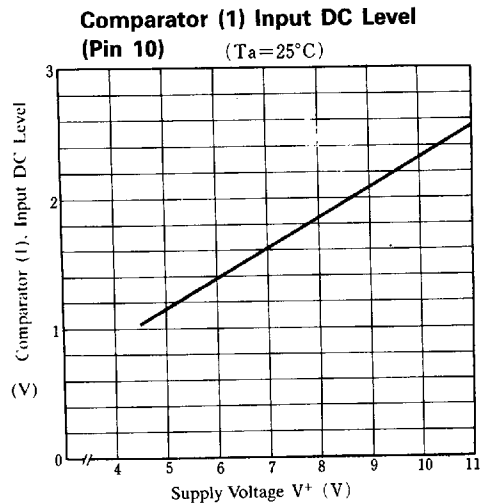
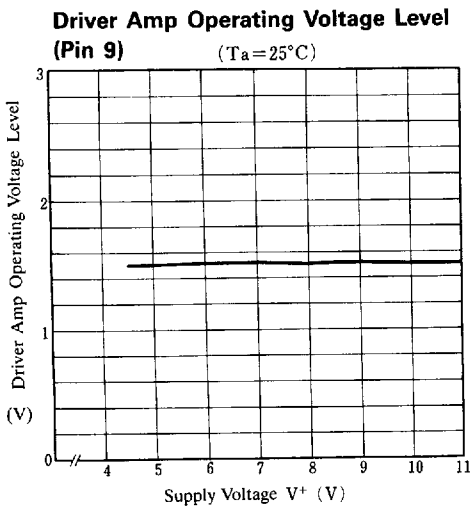
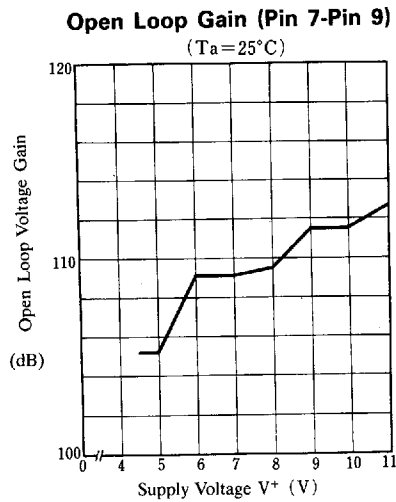
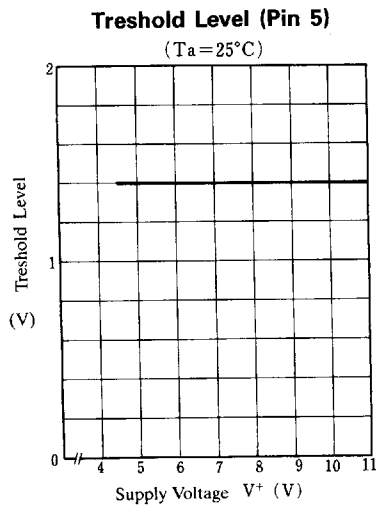
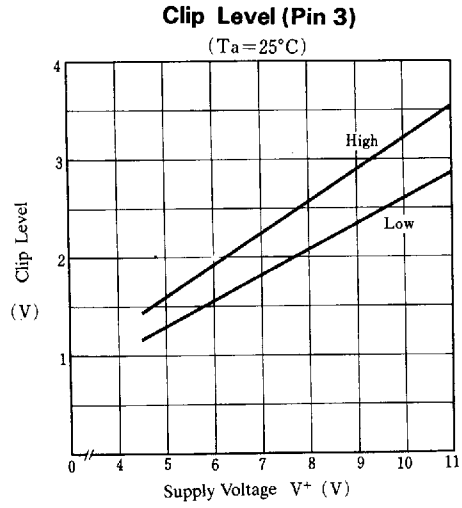
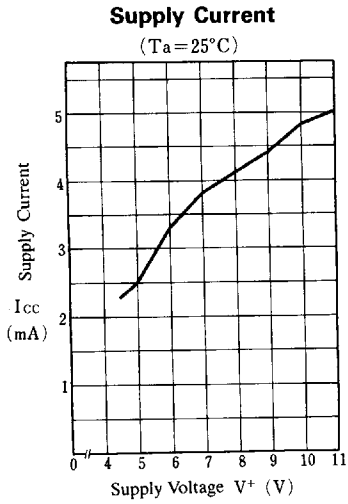
## ■ External Circuit

External Device	Operation Description
Pin6-Pin7 resistor 2.7k $\Omega$ Pin7-GND capacitor 3.3 $\mu$ F	Integrating video luminance signal, and convert to DC level.
Pin7-L1 resistor 120 $\Omega$	Control iris motor speed.
Pin8 -Pin9 RC 680k $\Omega$ , 1k $\Omega$ , 0.1 $\mu$ F	To prevent miss operation of motor by vertical synchronous signal, low-pass filter acts as negative feedback circuit.
Pin8-GND capacitor 1 $\mu$ F	AC ground
V <sub>1</sub> <sup>+</sup> -GND Variable resistor	Set threshold value of iris-motor start.

## ■ Note

- When used at V<sub>1</sub><sup>+</sup>=9V, not connect pin3, pin4, pin10.

■ Typical Characteristics



5



## ■ Typical Characteristics

