NJM723

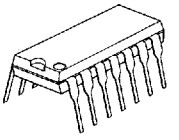
The NJM723 is a Precision Monolithic Voltage Regulator. The device consists of a temperature-compensated reference amplifier, error amplifier, power-series pass transistor and current-limit circuitry. Additional NPN or PNP pass elements may be used when output currents exceeding 150mA are required. In addition to the above, the device features low standby current drain, low temperature drift and high ripple rejection. The NJM 723 is intended for use with positive or negative supplies as a series, shunt, switching or floating instrument power supplies, and other power supplies for digital and linear circuits.

■ Absolute Maximum Ratings (Ta=25°C)

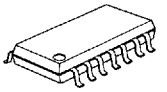
Supply Voltage	V^+/V^-	40V
Dropout Voltage	ΔV_{IO}	40V
Differetial Input Voltage	V_{IN} (diff)	±5V
Output Current	I_O	150mA
Power Dissipation	PD (D-Type)	700mW
	(M-Type)	700mW (note)
	(V-Type)	300mW
Current from V_{REF}	I_{REF} (V_{REF})	15mA
Operating Temperature Range	T_{opr}	−20~75°C
Storage Temperature Range	T_{stg}	−40~125°C

Note: At on PC board

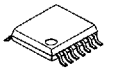
■ Package Outline



NJM723D



NJM723M

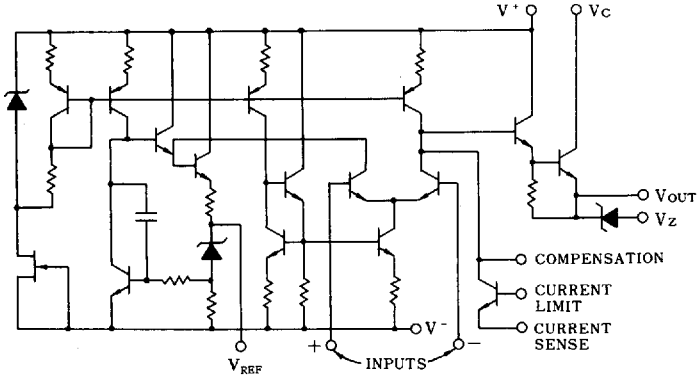


NJM723V

■ Electrical Characteristics (Ta=25°C, $V^+=V_C=12V$, $V^-=0V$, $V_O=5V$, $R_{SC}=0$, C1=100pF, $C_{REF}=0$, $I_L=1mA$)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Line Regulation	ΔV_O-V_{IN}	$V_{IN}=12\sim15V$	—	0.01	0.1	$\%V_{OUT}$
		$V_{IN}=12\sim40V$	—	0.1	0.5	$\%V_{OUT}$
Load Regulation	ΔV_O-I_O	$I_O=1\sim50mA$	—	0.03	0.2	$\%V_{OUT}$
Ripple Rejection	RR	f=50~10kHz, $C_{REF}=0$	—	74	—	dB
		f=50~10kHz, $C_{REF}=5\mu F$	—	86	—	dB
Average Temperature Coefficient of Output Voltage	$\Delta V_O/\Delta T$	$-20\leqq Ta\leqq75°C$	—	0.003	0.018	%/°C
Short Circuit Current Limit	I_{CL}	$R_{sc}=10\Omega$, $V_{OUT}=0$	—	65	—	mA
Reference Voltage	V_{REF}		6.8	7.15	7.5	V
Output Noise Voltage	V_{NO}	BW=100Hz~10kHz, $C_{RF}=0$	—	100	—	μV_{rms}
		BW=100Hz~10kHz, $C_{RF}=5\mu F$	—	2.5	—	μV_{rms}
Dropout Voltage	V_{IO}		3.0	—	38	V
Standby Current Drain	I_{STDBY}	$I_L=0$, $V_{IN}=30V$, $V_O=V_{REF}$	—	2.3	4.0	mA
Input Voltage Range	V_{IN}		9.5	—	40	V
Output Voltage Range	V_O		2.0	—	37	V

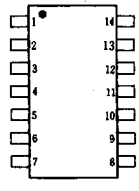
■ Equivalent Circuit



■ Connection Diagram

D,M-Type

(Top View)

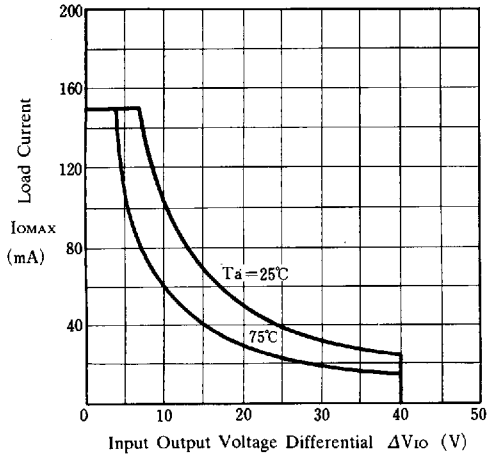


1	NC	8	NC
2	Current Limit	9	Vz
3	Current Sense	10	V_{out}
4	− Input	11	V_c
5	+ Input	12	V^+
6	V_{REF}	13	COMP
7	V^-	14	NC

6

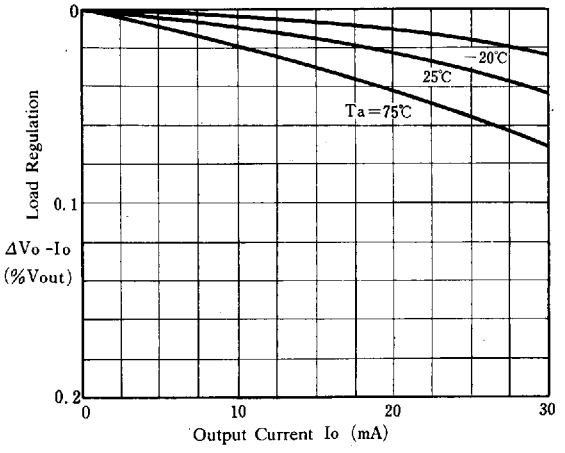
■ Typical Characteristics

Maximum Load Current vs. Input Output Voltage Differential



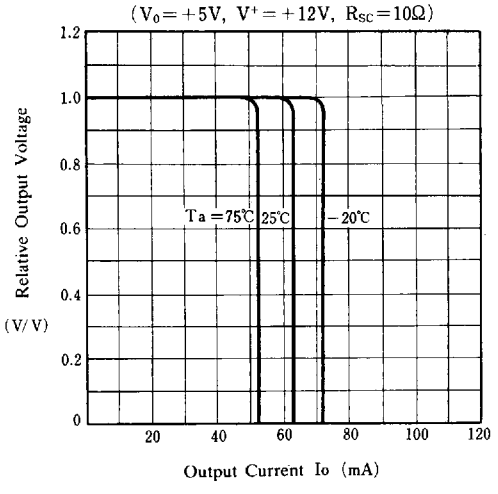
Load Regulation vs. Output Current

(V_O=+5V, V^+=+12V, R_{SC}=10Ω)



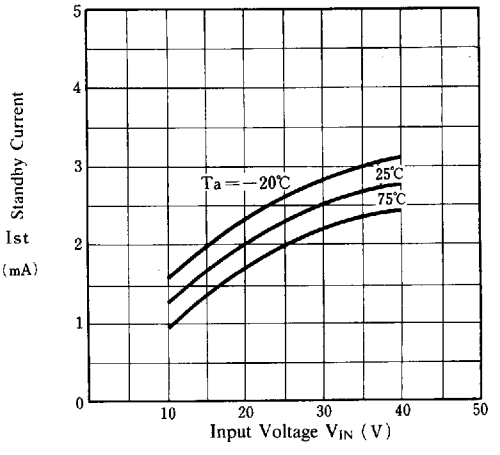
Relative Output Voltage vs. Output Current

(V_O=+5V, V^+=+12V, R_{SC}=10Ω)

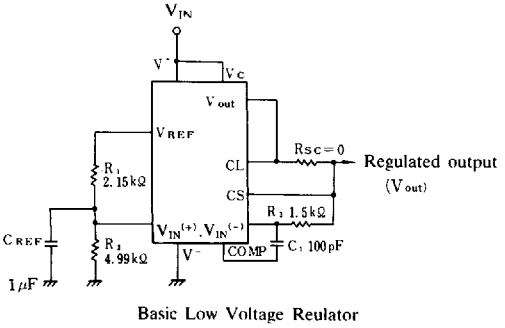


Standby Current vs. Input Voltage

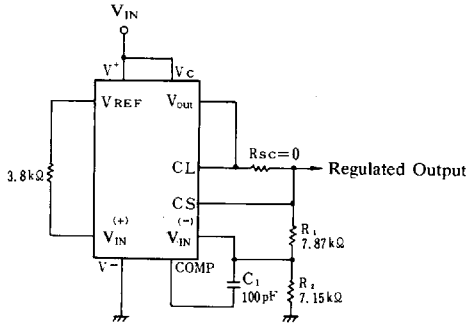
(V_O=V_{REF}, I_O=0mA)



■ Typical Applications



Basic Low Voltage Reulator
(V_{OUT} = 2 to 7V)



Basic High Voltage Regulator (V_{OUT} = 7 to 37V)