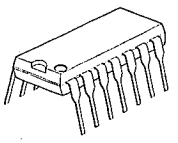
PRECISION VOLTAGE REGULATOR

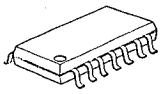
■ GENERAL DESCRIPTION

The NJM723 is a Precision Monolithic Voltage Regulator. The device consists of a temperature-compensated Voltage reference, error amplefier, 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 NJM723 is intended for use with positive or negative supplies as a series, shunt, switching of floating instrument power supplies, and other power supplies for digital and linear circuits.

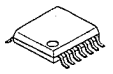
■ PACKAGE OUTLINE



NJM723D



NJM723M

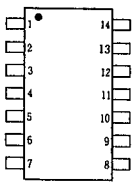


NJM723V

■ FEATURES

- Operating Voltage (12V~40V)
- 150mA output current without external pass transistor
- Output currents in excess of 10A posible by adding external
- Input voltage 40V max
- Output voltage adjustable from 2V to 37V
- Can be used as elther a linear or a switching regulator.
- Package Outline DIP14, DMP14, SSOP14
- Bipolar Technology

■ PIN CONFIGURATION



NJM723D
NJM723M
NJM723V

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

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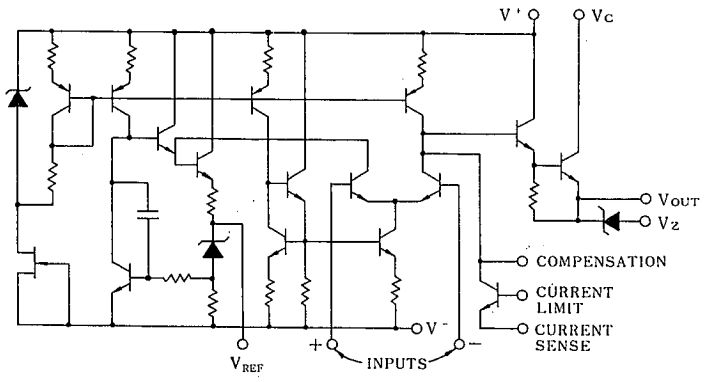
■ EQUIVALENT CIRCUIT



■ ABSOLUTE MAXIMUM RATINGS

(Ta=25℃)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V^+/V^-	40	V
Drpout Voltage	ΔV_{IO}	40	V
Differential Input Voltage	V_{IN} (diff)	±5	V
Output Current	I_O	150	mA
Power Dissipation	P_D	(DIP8) 700	mW
		(DMP8) 700(note)	mW
		(SSOP8) 450(note)	mW
Current from V_{REF}	I_{REF} (V_{REF})	15	mA
Operating Temperature Range	T_{opr}	−20~+75	℃
Storage Temperature Range	T_{stg}	−40~+125	℃

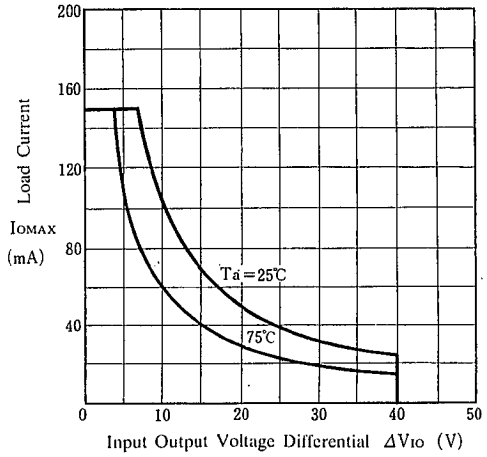
(note) At on PC board

■ ELECTRICAL CHARACTERISTICS (Ta=25℃, $V^+=V_C=12V$, $V^-=0V$, $V_O=5V$, $R_{SC}=0$, CI=100pF, $C_{REF}=0$, $I_L=1mA$)

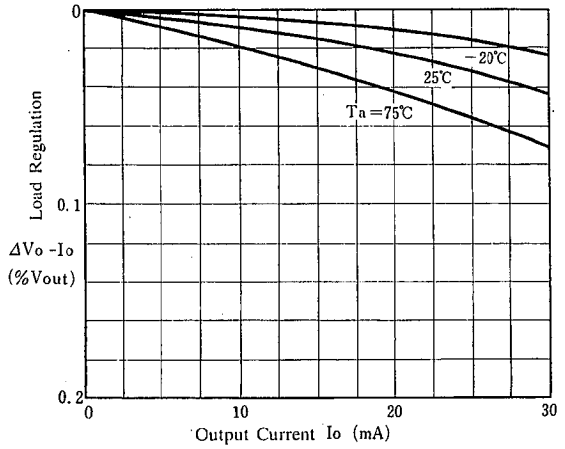
PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Line Regulation	ΔV_O-V_{IN}	$V_{IN}=12\sim15V$	—	0.01	0.1	$\%V_{OUT}$
		$V_{IN}=12\sim40V$	—	0.1	0.5	$\%V_{OUT}$
Load Regulation	ΔV_O-I_O	$I_O=1\sim50mA$	—	0.03	0.2	$\%V_{OUT}$
Ripple Rejection	RR	$f=50\sim10kHz$, $C_{REF}=0$	—	74	—	dB
		$f=50\sim10kHz$, $C_{REF}=5\mu F$	—	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

■ TYPICAL APPLICATION

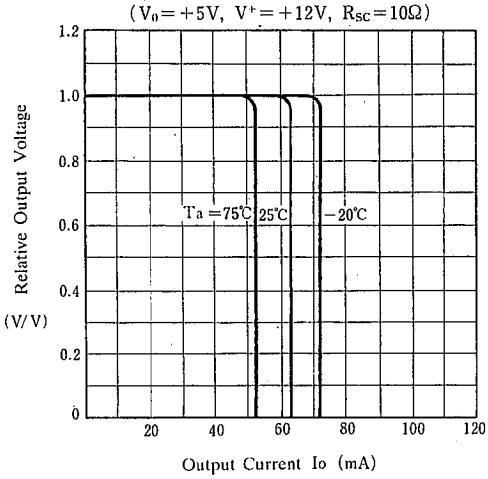
Maximum Load Current vs. Input Output Voltage Differential



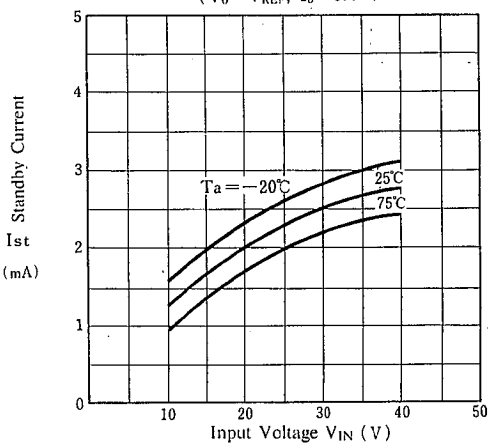
Load Regulation vs. Output Current
(V_O=+5V, V^+=+12V, R_{SC}=10Ω)



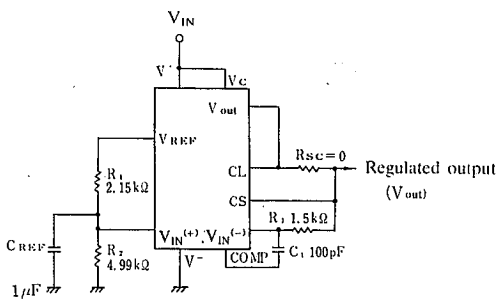
Relative Output Voltage vs. Output Current
(V_O=+5V, V^+=+12V, R_{SC}=10Ω)



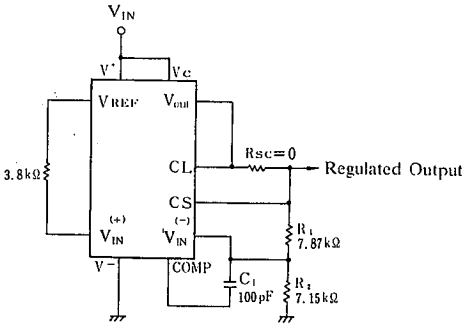
Standby Current vs. Input Voltage
(V_O=V_{REF}, I_O=0mA)



■ TYPICAL CHARACTERISTICS



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



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

MEMO