

# High-Precision Three-Pin Regulator Monolithic IC MM1257

## Outline

This IC is a high-precision high-voltage stabilized power supply device which stands out from ordinary low-saturation three-pin regulators.

It can be used at a wide range of output voltages, from 3V to 12V, delivering output currents up to 100mA. It is one of a series of devices available at lower prices than previous regulators.

## Features

- |                                      |  |
|--------------------------------------|--|
| 1. Input current                     | 27V max.   |
| 2. Output noise voltage              | 200 $\mu$ V <sub>RMS</sub> typ.  |
| 3. Maximum output current            | 100mA max.   |
| 4. No-load input current             | 500 $\mu$ A typ.   |
| 5. Thermal shutdown circuit provided |  |
| 6. Output voltage ranks              | A : 12V $\pm$ 2%    E : 6V $\pm$ 2%<br>B : 10V $\pm$ 2%    F : 5V $\pm$ 2%<br>C : 9V $\pm$ 2%     G : 3V $\pm$ 2%<br>D : 8V $\pm$ 2% |

## Package

TO-92A (MM1257□T)

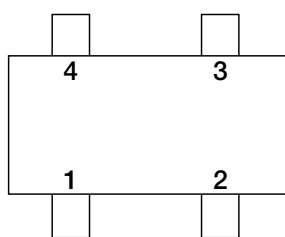
MMP-4A (MM1257□M)

\*The output voltage rank appears in the boxes.

## Applications

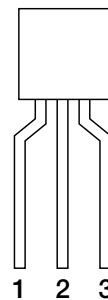
1. Handheld computers
2. Portable transceivers
3. Cordless phones

## Pin Assignment



MMP-4A

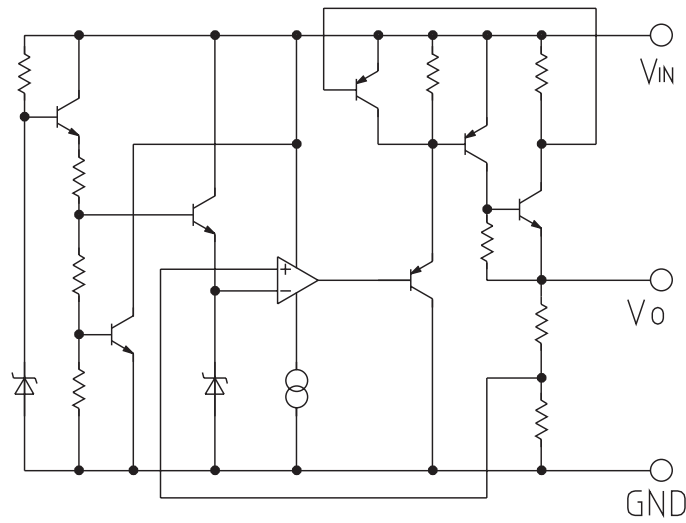
1	NC
2	V <sub>IN</sub>
3	V <sub>OUT</sub>
4	GND



TO-92A

1	V <sub>OUT</sub>
2	GND
3	V <sub>IN</sub>

**Equivalent Circuit Diagram**



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

Item	Symbol	Ratings	Units
Storage temperature	T <sub>STG</sub>	-40~+125	°C
Operating temperature	T <sub>OPR</sub>	-20~+75	°C
Power supply current	V <sub>CC</sub> max.	27	V
Output current	I <sub>OUT</sub>	100	mA
Maximum Ratings	P <sub>d</sub>	200 (MMP-4A), 300 (TO-92A)	mW

**Recommended Operating Conditions**

Item	Symbol	Ratings	Units
Input voltage	V <sub>IN</sub>	7~27	V
Output current	I <sub>O</sub>	1~100	mA

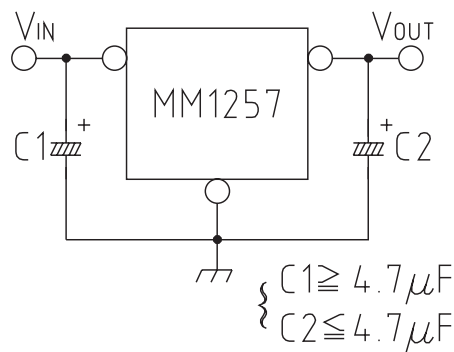
**Pin Description**

Pin no.	Pin name	Function
1	N.C	N.C
2	V <sub>IN</sub>	Power supply input pin
3	V <sub>OUT</sub>	Regulator output pin
4	GND	GND

**Electrical Characteristics** ( $V_o=5V$ )

Item	Symbol	Measurement circuit	Measurement conditions	Min.	Typ.	Max.	Units	
Output voltage	$V_o$	1	$V_{IN}=V_o+3V, I_o=40mA$	A	11.76	12.0	12.24	V
				B	9.80	10.0	10.20	
				C	8.82	9.0	9.18	
				D	7.84	8.0	8.16	
				E	5.88	6.0	6.12	
				F	4.90	5.0	5.10	
			$V_{IN}=7V, I_o=40mA$	G	2.94	3.0	3.06	
No-load input current	$I_{ccq}$	1	$V_{IN}=V_o+4V, I_o=40mA$		0.50	1.50	mA	
Input fluctuation rate	$\Delta V_1$	1	$V_{IN}=14.5V\sim 25V, I_o=40mA$	A		120	250	mV
			$V_{IN}=12.5V\sim 24V, I_o=40mA$	B		110	250	
			$V_{IN}=11.5V\sim 22V, I_o=40mA$	C		100	250	
			$V_{IN}=10.5V\sim 22V, I_o=40mA$	D		90	250	
			$V_{IN}=8.5V\sim 20V, I_o=40mA$	E		60	200	
			$V_{IN}=7V\sim 20V, I_o=40mA$	F		50	150	
			$V_{IN}=7V\sim 18V, I_o=40mA$	G		25	150	
Load fluctuation rate	$\Delta V_2$	1	$V_{IN}=15V, I_o=1\sim 100mA$	A		80	160	mV
			$V_{IN}=13V, I_o=1\sim 100mA$	B		70	140	
			$V_{IN}=12V, I_o=1\sim 100mA$	C		65	130	
			$V_{IN}=11V, I_o=1\sim 100mA$	D		60	120	
			$V_{IN}=9V, I_o=1\sim 100mA$	E		40	80	
			$V_{IN}=8V, I_o=1\sim 100mA$	F		20	60	
			$V_{IN}=8V, I_o=1\sim 100mA$	G		20	60	

**Measuring Circuit**



**Application Circuits**

