

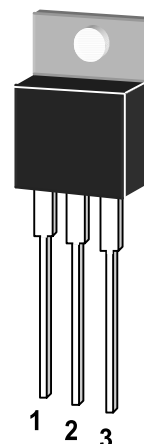
# LM78XX/MC78XX

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## 3-terminal 1A positive voltage regulator

### DESCRIPTION

The LM78XX/MC78XX series of three terminal positive regulators are available in the TO-220/D-PAK package and with several fixed output voltages, making them useful in a wide range of applications. Each type employs internal current limiting, thermal shut-down and safe operating area protection, making it essentially indestructible. If adequate heat sinking is provided, they can deliver over 1A output current. Although designed primarily as fixed voltage regulators, these devices can be used with external components to obtain adjustable voltages and currents.

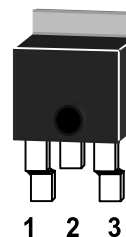


1. Output 2. Common 3. Input

TO-220 Plastic Package

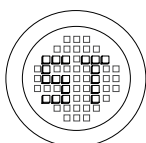
### Features

- Output Current up to 1A.
- Output Voltages of 5, 6, 8, 9, 10, 11, 12, 15, 18, 24V.
- Thermal Overload Protection.
- Short Circuit Protection.
- Output Transistor Safe Operating area Protection.



1. Input 2. GND 3. Output

TO-252 Plastic Package



®

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# LM78XX/MC78XX

## Absolute Maximum Ratings (Ta=25°C)

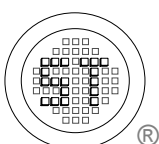
Parameter	Symbol	Value	Units
Input Voltage(for Vo=5V to 18V)	V <sub>I</sub>	35	V
(for Vo=24V)	V <sub>I</sub>	40	V
Thermal Resistance Junction-Cases	R <sub>θJC</sub>	5	°C/W
Thermal Resistance Junction-Air	R <sub>θJA</sub>	65	°C/W
Operating Temperature Range(LM78XXCT/MC78XXCT/MC78XXCDT)	T <sub>OPR</sub>	0 to +125	°C
Storage Temperature Range	T <sub>S</sub>	-65 to +150	°C

## Electrical Characteristics (LM7805/MC7805)

(Refer to test circuit, 0°C<T<sub>J</sub><125°C, I<sub>O</sub>=500mA, V<sub>I</sub>=10V, C<sub>I</sub>=0.33μF, C<sub>O</sub>=0.1μF, unless otherwise specified)

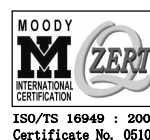
Parameter	Symbol	Conditions	LM7805/MC7805			Unit	
			Min.	Typ.	Max.		
Output Voltage	V <sub>O</sub>	T <sub>J</sub> =+25°C	4.8	5.0	5.2	V	
		5.0mA≤I <sub>O</sub> ≤1.0A, P <sub>O</sub> ≤15W V <sub>I</sub> =7V to 20V V <sub>I</sub> =8V to 20V	4.75	5.0	5.25		
Line Regulation	ΔV <sub>O</sub>	T <sub>J</sub> =+25°C	V <sub>O</sub> =7V to 20V	-	4.0	100	mV
			V <sub>I</sub> =8V to 12V	-	1.6	50	
Load Regulation	ΔV <sub>O</sub>	T <sub>J</sub> =+25°C	I <sub>O</sub> =5.0mA to 1.5A	-	9	100	mV
			I <sub>O</sub> =250mA to 750mA	-	4	50	
Quiescent Current	I <sub>Q</sub>	T <sub>J</sub> =+25°C	-	5.0	8	mA	
Quiescent Current Change	ΔI <sub>Q</sub>	I <sub>O</sub> =5.0mA to 1.0A	-	0.03	0.5	mA	
		V <sub>I</sub> =7V to 25V	-	0.3	1.3		
Output Voltage Drift	ΔV <sub>O</sub> /ΔT	I <sub>O</sub> =5.0mA	-	-0.8	-	mV/°C	
Output Noise Voltage	V <sub>N</sub>	f=10Hz to 100KHz, T <sub>A</sub> =+25°C	-	42	-	μV	
Ripple Rejection	RR	f=120Hz, V <sub>O</sub> =8V to 18V	62	73	-	dB	
Dropout Voltage	V <sub>O</sub>	I <sub>O</sub> =1A, T <sub>J</sub> =+25°C	-	2	-	V	
Output Resistance	R <sub>O</sub>	f=1KHz	-	15	-	mΩ	
Short Circuit Current	I <sub>SC</sub>	V <sub>I</sub> =35V, T <sub>A</sub> =+25°C	-	230	-	mA	
Peak Current	I <sub>PK</sub>	T <sub>J</sub> =+25°C	-	2.2	-	A	

Load and line regulation are specified at constant junction temperature, Changes in Vo due to heating effects must be taken into account separately, Pulse testing with low duty is used.



## SEMTECH ELECTRONICS LTD.

(Subsidiary of Semtech International Holdings Limited, a company listed on the Hong Kong Stock Exchange, Stock Code: 724)



ISO/TS 16949 : 2002  
Certificate No. 05103



ISO 14001  
Certificate No. 7116



ISO 9001 : 2000  
Certificate No. 559-199-0402-04

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