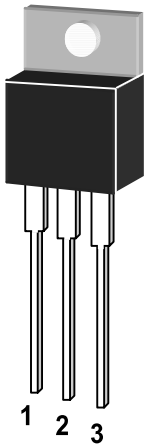
LM7808

3-terminal 1A positive voltage regulator

DESCRIPTION

The LM7808 series of three terminal positive regulators are available in the TO-220 package and with several fixed output voltages, making them useful in a wide range of applications. These applications include on-card regulation for elimination of noise and distribution problems associated with single point regulation. In addition, they can be used with power pass elements to make high current voltage regulator. 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.
- No external components required.
- Internal short circuit current limiting.
- Internal thermal overload protection
- Output Transistor Safe Operating area compensation.
- Output voltage offered in 4%tolerance.

Absolute Maximum Ratings (Ta=25℃)

Parameter	Symbol	Value	Units
Input Voltage	V_I	35	V
Operating Junction Temperature	T_{OPR}	0 to +150	^oC
Operating Temperature Range	T_{OPR}	0 to +125	^oC
Storage Temperature Range	T_S	-65 to +150	^oC

Electrical Characteristics (LM7805/MC7805)

(Refer to test circuit, $0^oC'T_J'125^oC$, I_O=500mA, V_I=14V, C_I=0.33μF, C_O=0.1μF, unless otherwise specified)

Parameter	Symbol	Conditions		LM7805/MC7805			Unit
				Min.	Typ.	Max.	
Output Voltage	V_O	T_J=+25°C		7.7	8.0	8.3	V
		5.0mA≤I_O≤1.0A,P_O≤15W V_I=10.5V to 23V V_I=11.5V to 23V		7.6	8.0	8.4	
Line Regulation	ΔV_O	T_J=+25°C	V_I=10.5V to 25V	-	5.0	160	mV
			V_I=11.5V to 17V	-	2.0	80	
Load Regulation	ΔV_O	T_J=+25°C	I_O=5.0mA to 1.5A	-	10	160	mV
			I_O=250mA to 750mA	-	5.0	80	
Quiescent Current	I_Q	T_J=+25°C		-	5.0	8	mA
Quiescent Current Change	ΔI_Q	I_O=5.0mA to 1.0A		-	0.05	0.5	mA
		V_I=10.5V to 25V		-	0.5	1.0	
		V_I=11.5V to 25V		-	-	-	
Output Voltage Drift	$\Delta V_O/\Delta T$	I_O=5.0mA		-	-0.8	-	mV/°C
Output Noise Voltage	V_N	f=10Hz to100KHz,T_A=+25°C		-	52	-	μV
Ripple Rejection	RR	f=120Hz,V_I=11.5V to21.5V		56	73	-	dB
Dropout Voltage	V_O	I_O=1A, T_J=+25°C		-	2	-	V
Output Resistance	R_O	f=1KHz		-	17	-	mς
Short Circuit Current	I_{SC}	V_I=35V, T_A=+25°C		-	230	-	mA
Peak Current	I_{PK}	T_J=+25°C		-	2.2	-	A

Notes

- $T_{MIN}<T_J<T_{MAX}$

  LM7808; T_{MIN}=0 ℃ , T_{MAX}=125 ℃

- 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.