

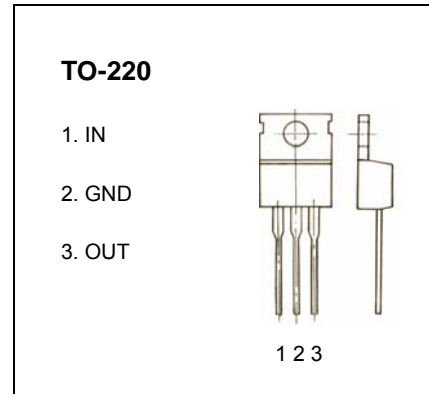


TO-220 Plastic-Encapsulate Voltage Regulator

**L7809** Three-terminal positive voltage regulator

**FEATURES**

- Maximum Output current  $I_{OM}$ : 1.5 A
- Output voltage  $V_o$ : 9 V
- Continuous total dissipation
  - $P_D$ : 1.5 W ( $T_a = 25^\circ\text{C}$ )
  - 15 W ( $T_C = 25^\circ\text{C}$ )



**ABSOLUTE MAXIMUM RATINGS (Operating temperature range applies unless otherwise specified)**

Parameter	Symbol	Value	Unit
Input Voltage	$V_i$	35	V
Thermal resistance junction-air	$R_{\theta JA}$	65	$^\circ\text{C/W}$
Thermal resistance junction-cases	$R_{\theta JC}$	5	$^\circ\text{C/W}$
Operating Junction Temperature Range	$T_{OPR}$	0-125	$^\circ\text{C}$
Storage Temperature Range	$T_{STG}$	-65-150	$^\circ\text{C}$

**ELECTRICAL CHARACTERISTICS AT SPECIFIED VIRTUAL JUNCTION TEMPERATURE ( $V_i=16\text{V}$ ,  $I_o=500\text{mA}$ ,  $C_i=0.33\mu\text{F}$ ,  $C_o=0.1\mu\text{F}$ , unless otherwise specified)**

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Output voltage	$V_o$	$25^\circ\text{C}$	8.65	9	9.35	V
		$11.5\text{V} \leq V_i \leq 24\text{V}$ , $I_o = 5\text{mA}-1\text{A}$ , $P \leq 15\text{W}$	$0-125^\circ\text{C}$	8.55	9	9.45
Load Regulation	$\Delta V_o$	$I_o = 5\text{mA}-1.5\text{A}$	$25^\circ\text{C}$	12	180	mV
		$I_o = 250\text{mA}-750\text{mA}$	$25^\circ\text{C}$	4	90	mV
Line regulation	$\Delta V_o$	$11.5\text{V} \leq V_i \leq 27\text{V}$	$25^\circ\text{C}$	7	180	mV
		$13\text{V} \leq V_i \leq 19\text{V}$	$25^\circ\text{C}$	2	90	mV
Quiescent Current	$I_q$	$25^\circ\text{C}$		4.3	8	mA
Quiescent Current Change	$\Delta I_q$	$11.5\text{V} \leq V_i \leq 27\text{V}$	$0-125^\circ\text{C}$		1	mA
		$5\text{mA} \leq I_o \leq 1\text{A}$	$0-125^\circ\text{C}$		0.5	mA
Output voltage drift	$\Delta V_o / \Delta T$	$I_o = 5\text{mA}$	$0-125^\circ\text{C}$	-1		$\text{mV}/^\circ\text{C}$
Output Noise Voltage	$V_N$	$10\text{Hz} \leq f \leq 100\text{KHz}$	$25^\circ\text{C}$	60		$\mu\text{V}$
Ripple Rejection	RR	$12\text{V} \leq V_i \leq 22\text{V}$ , $f = 120\text{Hz}$	$0-125^\circ\text{C}$	55	70	dB
Dropout Voltage	$V_d$	$I_o = 1\text{A}$	$25^\circ\text{C}$	2		V
Output resistance	$R_o$	$f = 1\text{KHz}$	$25^\circ\text{C}$	18		$\text{m}\Omega$
Short Circuit Current	$I_{sc}$		$25^\circ\text{C}$	400		mA
Peak Current	$I_{pk}$		$25^\circ\text{C}$	2.2		A

**TYPICAL APPLICATION**

