



**HS7809** Three-terminal positive voltage regulator TO-220

**FEATURES**

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



1. IN
2. GND
3. OUT

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

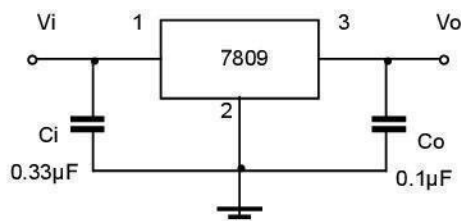
Parameter	Symbol	Value	Unit
Input Voltage	$V_i$	35	V
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	83.3	$^\circ\text{C/W}$
Thermal Resistance from Junction to Case	$R_{\theta JC}$	8.3	$^\circ\text{C/W}$
Operating Junction Temperature Range	$T_{OPR}$	0~+150	$^\circ\text{C}$
Storage Temperature Range	$T_{STG}$	-55~+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	$V_o$	$25\text{ }^\circ\text{C}$	8.65	9	9.35	V
		$11.5\text{ V} \leq V_i \leq 24\text{ V}$ , $I_o = 5\text{ mA} - 1\text{ A}$ , $P \leq 15\text{ W}$ $-25\text{ }^\circ\text{C} - 125\text{ }^\circ\text{C}$	8.55	9	9.45	V
Load Regulation	$\Delta V_o$	$I_o = 5\text{ mA} - 1.5\text{ A}$ $25\text{ }^\circ\text{C}$		12	180	mV
		$I_o = 250\text{ mA} - 750\text{ mA}$ $25\text{ }^\circ\text{C}$		4	90	mV
Line regulation	$\Delta V_o$	$11.5\text{ V} \leq V_i \leq 27\text{ V}$ $25\text{ }^\circ\text{C}$		7	180	mV
		$13\text{ V} \leq V_i \leq 19\text{ V}$ $25\text{ }^\circ\text{C}$		2	90	mV
Quiescent Current	$I_q$	$25\text{ }^\circ\text{C}$		4.3	8	mA
Quiescent Current Change	$\Delta I_q$	$11.5\text{ V} \leq V_i \leq 27\text{ V}$ $-25\text{ }^\circ\text{C} - 125\text{ }^\circ\text{C}$			1	mA
		$5\text{ mA} \leq I_o \leq 1\text{ A}$ $-25\text{ }^\circ\text{C} - 125\text{ }^\circ\text{C}$			0.5	mA
Output voltage drift	$\Delta V_o / \Delta T$	$I_o = 5\text{ mA}$ $-25\text{ }^\circ\text{C} - 125\text{ }^\circ\text{C}$		-1		mV/°C
Output Noise Voltage	$V_N$	$10\text{ Hz} \leq f \leq 100\text{ KHz}$ $25\text{ }^\circ\text{C}$		60		$\mu\text{ V/V}_o$
Ripple Rejection	RR	$12\text{ V} \leq V_i \leq 22\text{ V}$ , $f = 120\text{ Hz}$ $-25\text{ }^\circ\text{C} - 125\text{ }^\circ\text{C}$	55	70		dB
Dropout Voltage	$V_d$	$I_o = 1\text{ A}$ $25\text{ }^\circ\text{C}$		2		V
Output resistance	$R_o$	$f = 1\text{ KHz}$ $25\text{ }^\circ\text{C}$		18		m $\Omega$
Short Circuit Current	$I_{sc}$	$25\text{ }^\circ\text{C}$		400		mA
Peak Current	$I_{pk}$	$25\text{ }^\circ\text{C}$		2.2		A

\* Pulse test.

**TYPICAL APPLICATION**



Note: Bypass capacitors are recommended for optimum stability and transient response and should be located as close as possible to the regulators.

# Typical Characteristics

