

Electrical Characteristics (LM7809)

Refer to the test circuit, $-40^{\circ}\text{C} < T_J < 125^{\circ}\text{C}$, $I_O = 500\text{ mA}$, $V_I = 15\text{ V}$, $C_I = 0.33\text{ }\mu\text{F}$, $C_O = 0.1\text{ }\mu\text{F}$, unless otherwise specified.

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
V_O	Output Voltage	$T_J = +25^{\circ}\text{C}$	8.65	9.00	9.35	V
		$I_O = 5\text{ mA to }1\text{ A}$, $P_O \leq 15\text{ W}$, $V_I = 11.5\text{ V to }24\text{ V}$	8.60	9.00	9.40	
Regline	Line Regulation ⁽⁸⁾	$T_J = +25^{\circ}\text{C}$	$V_I = 11.5\text{ V to }25\text{ V}$	6	180	mV
			$V_I = 12\text{ V to }17\text{ V}$	2	90	
Regload	Load Regulation ⁽⁸⁾	$T_J = +25^{\circ}\text{C}$	$I_O = 5\text{ mA to }1.5\text{ A}$	12	180	mV
			$I_O = 250\text{ mA to }750\text{ mA}$	4	90	
I_Q	Quiescent Current	$T_J = +25^{\circ}\text{C}$		5	8	mA
ΔI_Q	Quiescent Current Change	$I_O = 5\text{ mA to }1\text{ A}$ $V_I = 11.5\text{ V to }26\text{ V}$			0.5	mA
					1.3	
$\Delta V_O/\Delta T$	Output Voltage Drift ⁽⁹⁾	$I_O = 5\text{ mA}$		-1		mV/ $^{\circ}\text{C}$
V_N	Output Noise Voltage	$f = 10\text{ Hz to }100\text{ kHz}$, $T_A = +25^{\circ}\text{C}$		58		μV
RR	Ripple Rejection ⁽⁹⁾	$f = 120\text{ Hz}$, $V_I = 13\text{ V to }23\text{ V}$	56	71		dB
V_{DROP}	Dropout Voltage	$I_O = 1\text{ A}$, $T_J = +25^{\circ}\text{C}$		2		V
R_O	Output Resistance ⁽⁹⁾	$f = 1\text{ kHz}$		17		m Ω
I_{SC}	Short-Circuit Current	$V_I = 35\text{ V}$, $T_J = +25^{\circ}\text{C}$		250		mA
I_{PK}	Peak Current ⁽⁹⁾	$T_J = +25^{\circ}\text{C}$		2.2		A

Notes:

8. Load and line regulation are specified at constant junction temperature. Changes in V_O due to heating effects must be taken into account separately. Pulse testing with low duty is used.
9. These parameters, although guaranteed, are not 100% tested in production.