

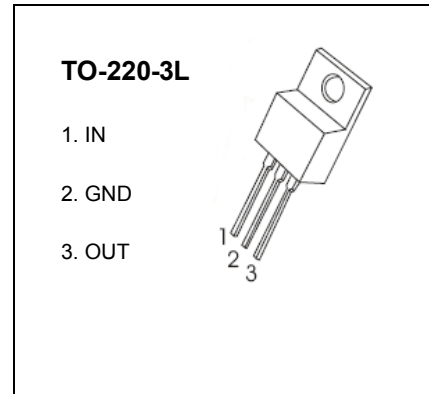


TO-220 Plastic-Encapsulate Voltage Regulator

L 7809 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 ($T_c = 25^\circ\text{C}$)



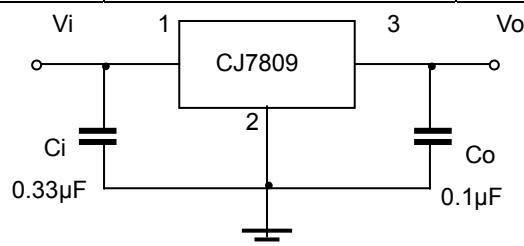
ABSOLUTE MAXIMUM RATINGS (Operating temperature range applies unless otherwise specified)

Parameter	Symbol	Value	Unit
Input Voltage	V_i	35	V
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	83.3	$^\circ\text{C}/\text{W}$
Thermal Resistance from Junction to Case	$R_{\theta JC}$	8.3	$^\circ\text{C}/\text{W}$
Operating Junction Temperature Range	T_{OPR}	0~+150	$^\circ\text{C}$
Storage Temperature Range	T_{STG}	-55~+150	$^\circ\text{C}$

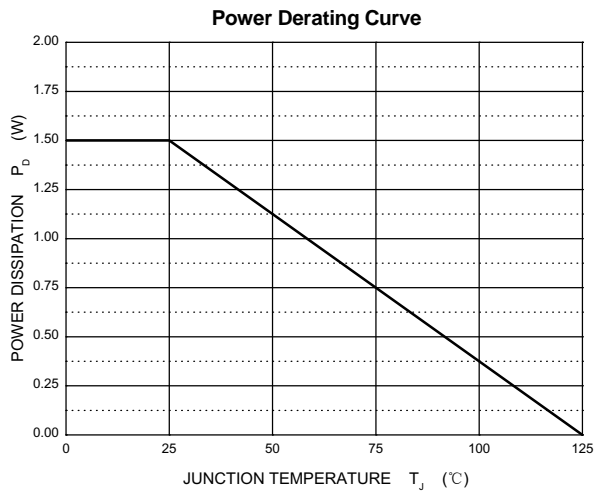
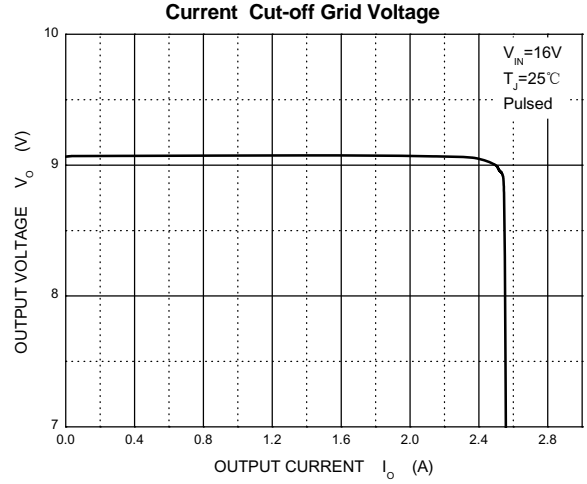
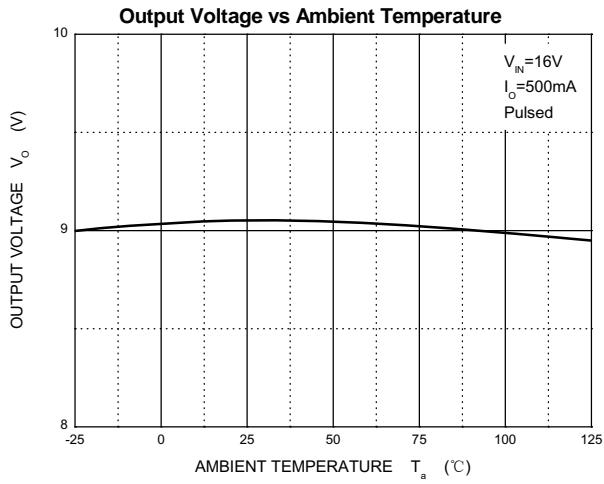
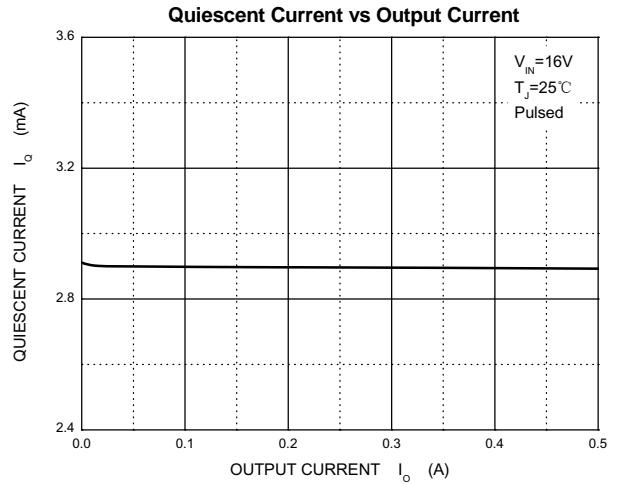
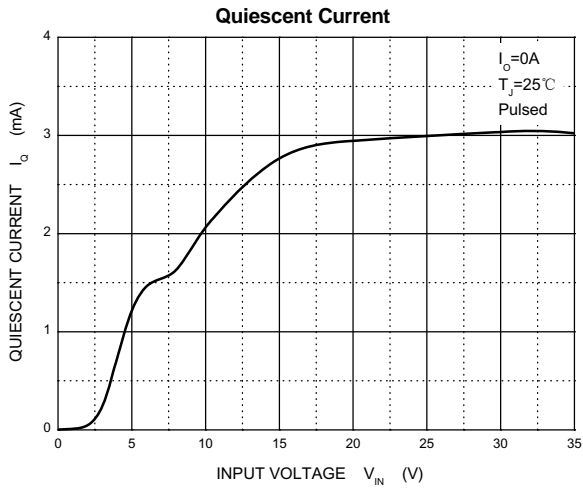
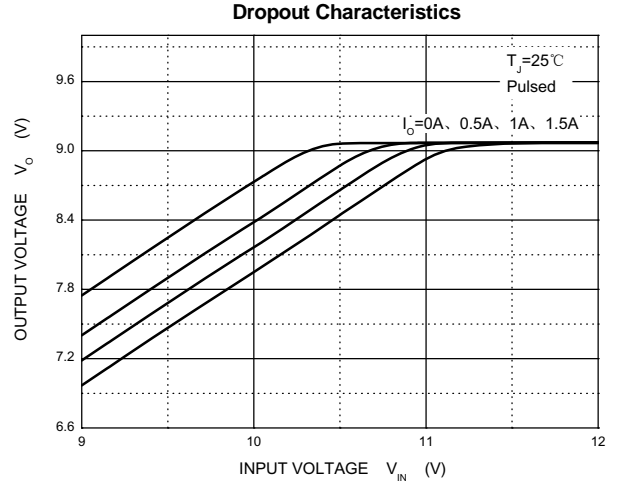
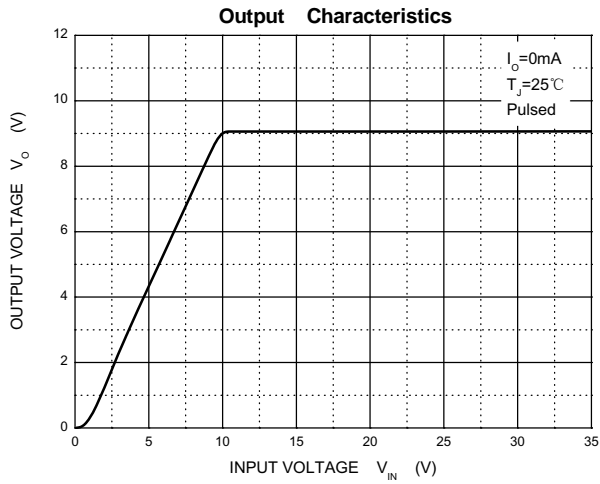
ELECTRICAL CHARACTERISTICS AT SPECIFIED VIRTUAL JUNCTION TEMPERATURE ($V_i=16\text{V}$, $I_o=500\text{mA}$, $C_i=0.33\mu\text{F}$, $C_o=0.1\mu\text{F}$, unless otherwise specified)

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Output voltage	V_o	25°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	V
Load Regulation	ΔV_o	$I_o = 5\text{mA} - 1.5\text{A}$ 25°C		12	180	mV
		$I_o = 250\text{mA} - 750\text{mA}$ 25°C		4	90	mV
Line regulation	ΔV_o	$11.5\text{V} \leq V_i \leq 27\text{V}$ 25°C		7	180	mV
		$13\text{V} \leq V_i \leq 19\text{V}$ 25°C		2	90	mV
Quiescent Current	I_q	25°C		4.3	8	mA
Quiescent Current Change	ΔI_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°C		60		μV
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°C		2		V
Output resistance	R_o	$f = 1\text{KHz}$ 25°C		18		$\text{m}\Omega$
Short Circuit Current	I_{sc}	25°C		400		mA
Peak Current	I_{pk}	25°C		2.2		A

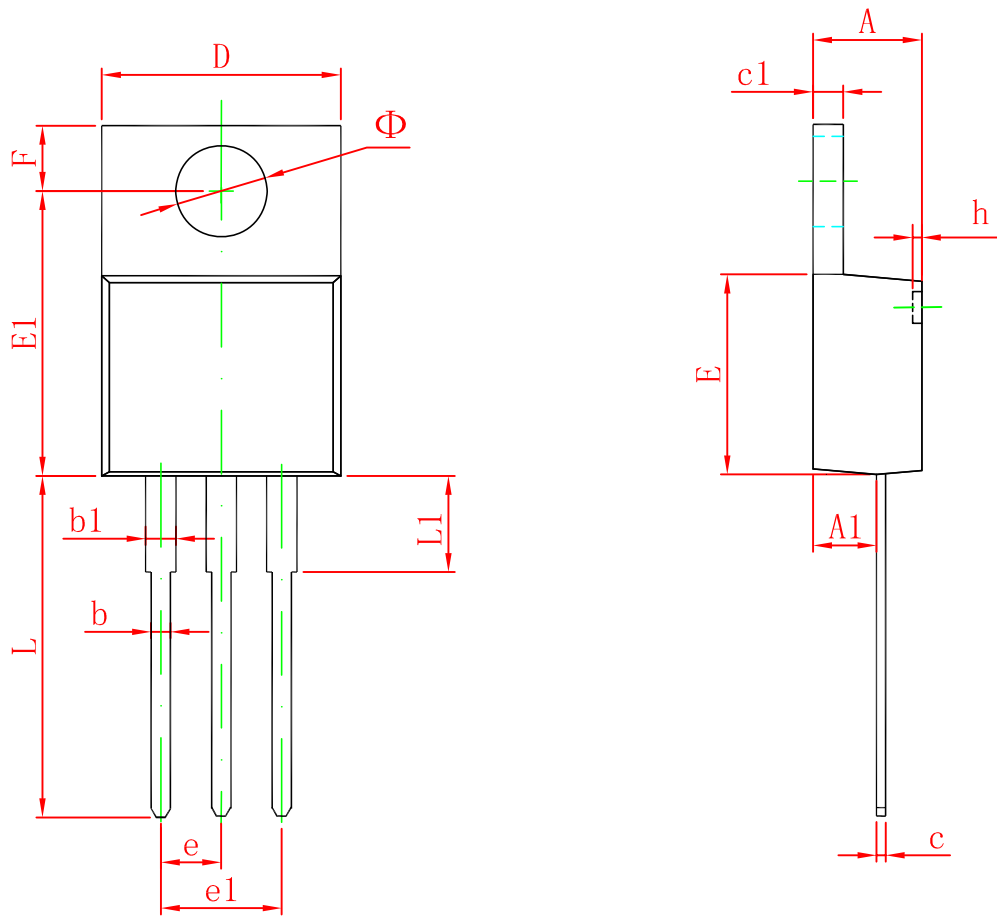
TYPICAL APPLICATION



Typical Characteristics



TO-220 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	4.470	4.670	0.176	0.184
A1	2.520	2.820	0.099	0.111
b	0.710	0.910	0.028	0.036
b1	1.170	1.370	0.046	0.054
c	0.310	0.530	0.012	0.021
c1	1.170	1.370	0.046	0.054
D	10.010	10.310	0.394	0.406
E	8.500	8.900	0.335	0.350
E1	12.060	12.460	0.475	0.491
e	2.540 TYP		0.100 TYP	
e1	4.980	5.180	0.196	0.204
F	2.590	2.890	0.102	0.114
h	0.000	0.300	0.000	0.012
L	13.400	13.800	0.528	0.543
L1	3.560	3.960	0.140	0.156
Φ	3.735	3.935	0.147	0.155