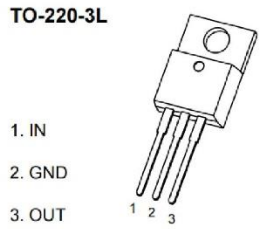
Linear Voltage Regulator

L7809 Three-terminal positive voltage regulator

FEATURES

- Maximum Output Current I_{OM}: 1.5A
- Output Voltage V_O: 9V
- Continuous total dissipation
  P_D: 1.5W(T_A=25°C)



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

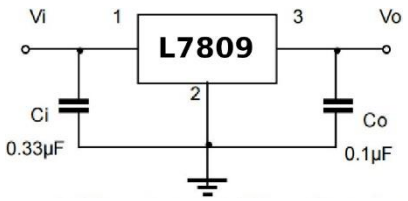
Parameter	Symbol	Value	UNIT
Input Voltage	V_i	35	V
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	83.3	°C/W
Thermal Resistance from Junction to Case	$R_{\theta JC}$	8.3	°C/W
Operating Junction Temperature Range	T_{OPR}	0 ~ +150	°C
Storage Temperature Range	T_{STG}	-55 ~ +150	°C

ELECTRICAL CHARACTERISTICS AT SPECIFIED VIRTUAL JUNCTION TEMPERATURE

(V_i=16V, I_O=500mA, C_i=0.33μF, C_O=0.1μF, unless otherwise specified)

Parameter	Symbol	Test conditions		MIN	TYP	MAX	UNIT
Output Voltage	V_O		25°C	8.65	9	9.35	V
		11.5V≤V_i≤24V, I_O=5mA-1A, P≤15W	-25~125°C	8.55	9	9.45	
Load Regulation	ΔV_O	I_O=5mA-1.5A	25°C		12	180	mV
		I_O=250mA-750mA	25°C		4	90	
Line Regulation	ΔV_O	11.5V≤V_i≤27V	25°C		7	180	mV
		13V≤V_i≤19V	25°C		2	90	
Quiescent Current	I_Q		25°C		4.3	8	mA
Quiescent Current Change	ΔI_Q	11.5V≤V_i≤27V	-25~125°C			1	mA
		5mA≤I_O≤1A	-25~125°C			0.5	
Output Noise Voltage	V_N	10Hz≤F≤100KHz	25°C		60		μV/V_O
Output Voltage Drift	$\Delta V_O/\Delta T$	I_O=5mA	-25~125°C		-1		mV/°C
Ripple Rejection	RR	12V≤V_i≤22V, F=120Hz	-25~125°C	55	70		dB
Dropout Voltage	V_D	I_O=1A	25°C		2		V
Output Resistance	R_O	F=1KHz	25°C		18		mΩ
Short Circuit Current	I_{SC}		25°C		400		mA
Peak Current	I_{PK}		25°C		2.2		A

TYPICAL APPLICATION

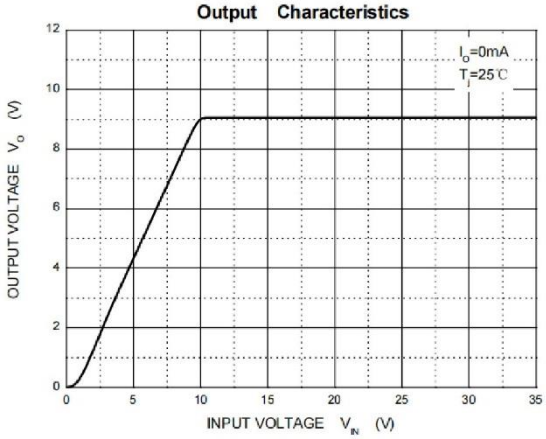


Note: Bypass capacitors are recommended for optimum stability and transient response and should be located as close as possible to the regulators.

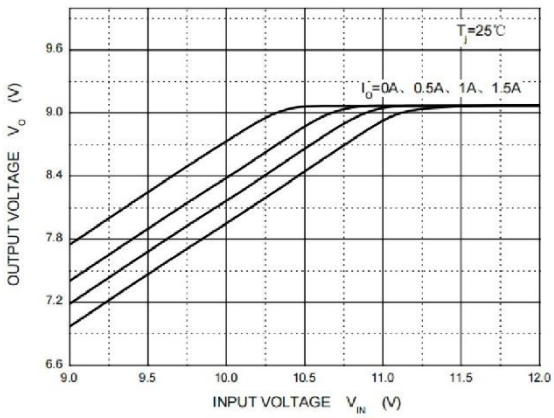
All products, product specifications and data are subject to change without notice to improve reliability, function or design or otherwise.

TYPICAL CHARACTERISTICS

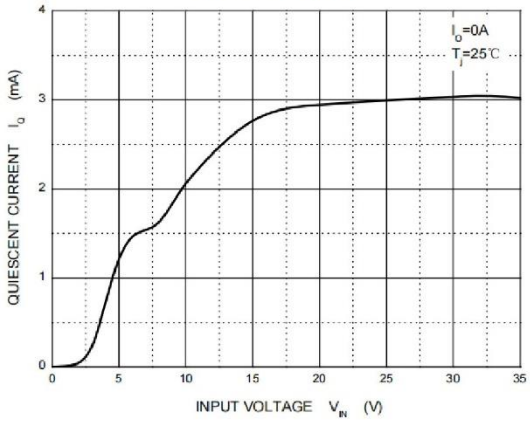
Output Characteristics



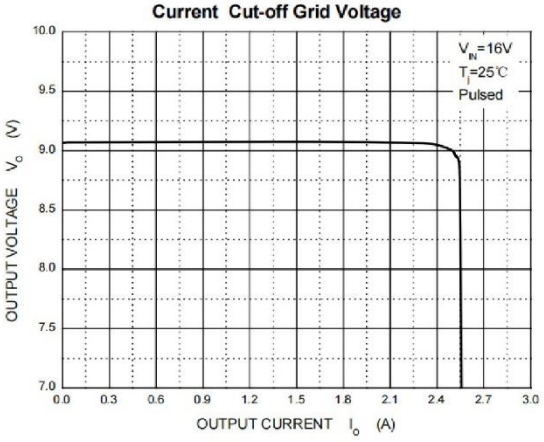
Dropout Characteristics



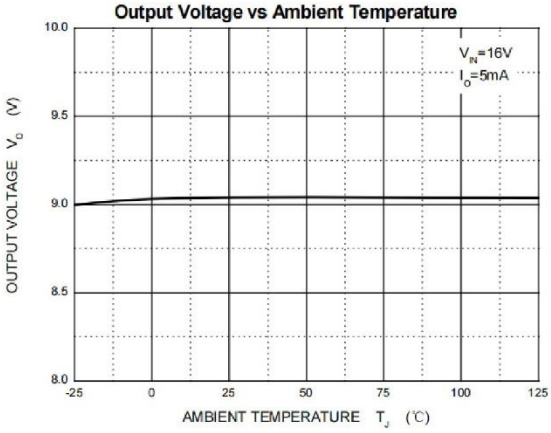
Quiescent Current



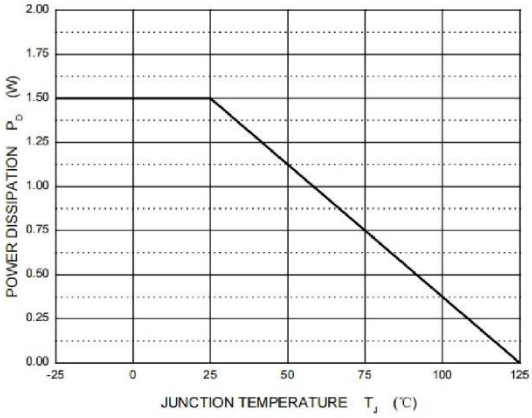
Current Cut-off Grid Voltage



Output Voltage vs Ambient Temperature

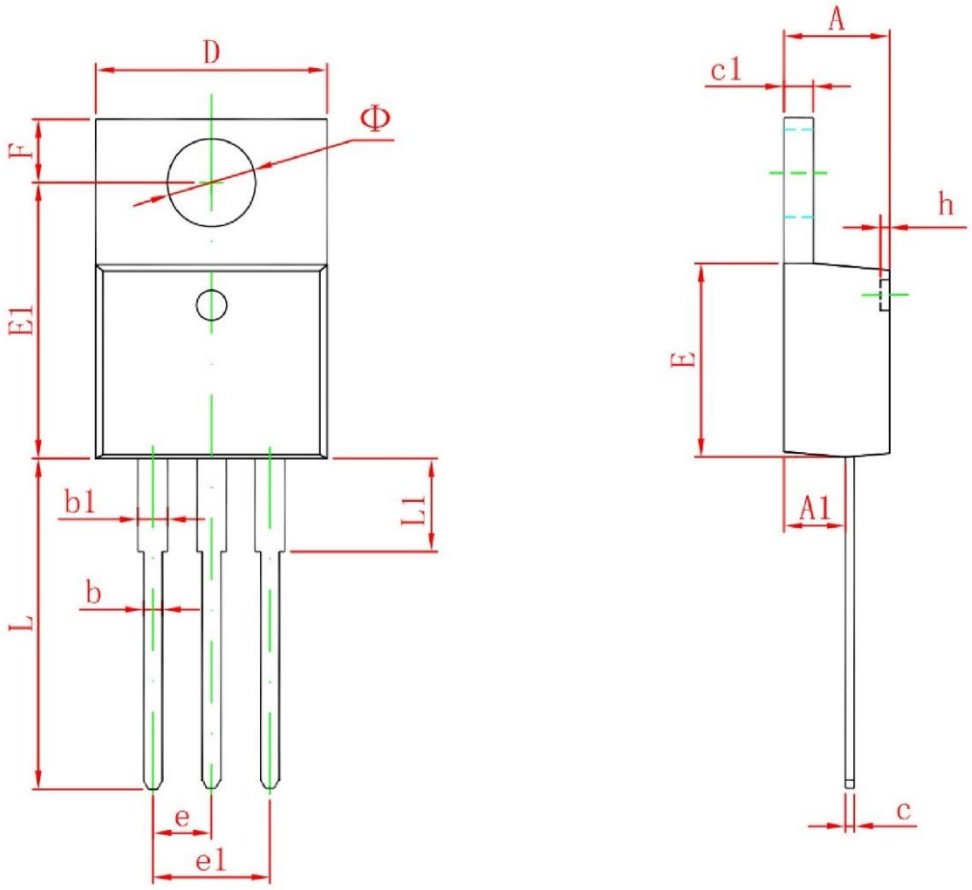


Power Derating Curve



All products, product specifications and data are subject to change without notice to improve reliability, function or design or otherwise.

TO-220-3L 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

All products, product specifications and data are subject to change without notice to improve reliability, function or design or otherwise.