

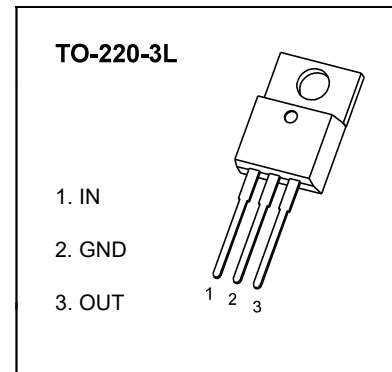


TO-220-3L Plastic-Encapsulate Voltage Regulators

7812 Three-terminal positive voltage regulator

FEATURES

- Maximum output current
 $I_{OM}: 1.5\text{ A}$
- Output voltage
 $V_O: 12\text{ V}$
- Continuous total dissipation
 $P_D: 1.5\text{ W}$ ($T_a = 25\text{ }^\circ\text{C}$)



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

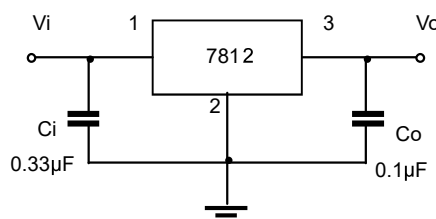
Parameter	Symbol	Value	Unit
Input Voltage	V_i	35	V
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	66.7	$^\circ\text{C/W}$
Operating Junction Temperature Range	T_{OPR}	-40~+125	$^\circ\text{C}$
Storage Temperature Range	T_{STG}	-65~+150	$^\circ\text{C}$

ELECTRICAL CHARACTERISTICS AT SPECIFIED VIRTUAL JUNCTION TEMPERATURE ($V_i=19\text{ V}$, $I_o=500\text{ mA}$, $C_i=0.33\mu\text{ F}$, $C_o=0.1\mu\text{ F}$, unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit	
Output Voltage	V_o	$25\text{ }^\circ\text{C}$	11.5	12.0	12.5	V	
		$I_o = 5\text{ mA} - 1\text{ A}$, $14.5\text{ V} \leq V_i \leq 27\text{ V}$	-25-125 $^\circ\text{C}$	11.4	12.0	12.6	V
Load Regulation	ΔV_o	$I_o = 5\text{ mA} - 1.5\text{ A}$	$25\text{ }^\circ\text{C}$		10	240	mV
		$I_o = 250\text{ mA} - 750\text{ mA}$	$25\text{ }^\circ\text{C}$		3	120	mV
Line Regulation	ΔV_o	$14.5\text{ V} \leq V_i \leq 30\text{ V}$	$25\text{ }^\circ\text{C}$		12	240	mV
		$16\text{ V} \leq V_i \leq 22\text{ V}$	$25\text{ }^\circ\text{C}$		4	120	mV
Quiescent Current	I_q	$25\text{ }^\circ\text{C}$		4.3	8	mA	
Quiescent Current Change	ΔI_q	$5.0\text{ mA} \leq I_o \leq 1.0\text{ A}$	-25-125 $^\circ\text{C}$			0.5	mA
		$14.5\text{ V} \leq V_i \leq 30\text{ V}$	-25-125 $^\circ\text{C}$			1.0	mA
Output Voltage Drift	$\Delta V_o / \Delta T$	$I_o = 5\text{ mA}$	-25-125 $^\circ\text{C}$		-1	mV/ $^\circ\text{C}$	
Output Noise Voltage	V_N	$f = 10\text{ Hz to } 100\text{ KHz}$	$25\text{ }^\circ\text{C}$		75	$\mu\text{ V}/V_o$	
Ripple Rejection	RR	$f = 120\text{ Hz}$, $15\text{ V} \leq V_i \leq 25\text{ V}$	-25-125 $^\circ\text{C}$	55	71	dB	
Dropout Voltage	V_d	$I_o = 1.0\text{ A}$	$25\text{ }^\circ\text{C}$		2	V	
Output Resistance	R_o	$f = 1\text{ KHz}$	-25-125 $^\circ\text{C}$		18	m Ω	
Short Circuit Current	I_{sc}	$25\text{ }^\circ\text{C}$			350	mA	
Peak Current	I_{pk}	$25\text{ }^\circ\text{C}$			2.2	A	

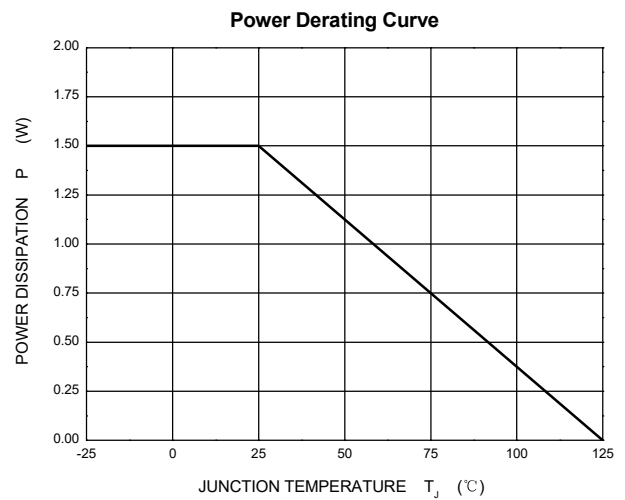
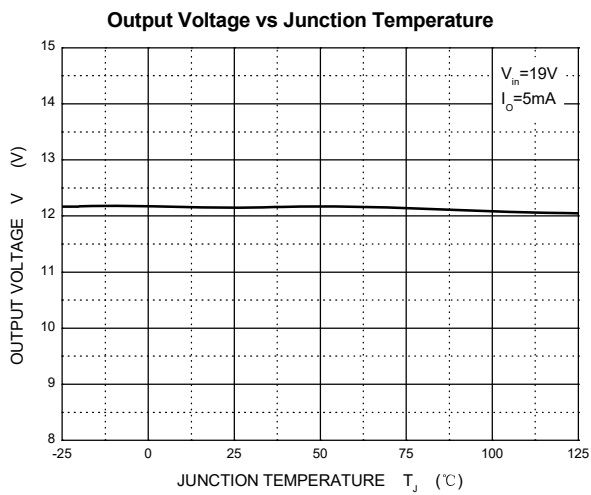
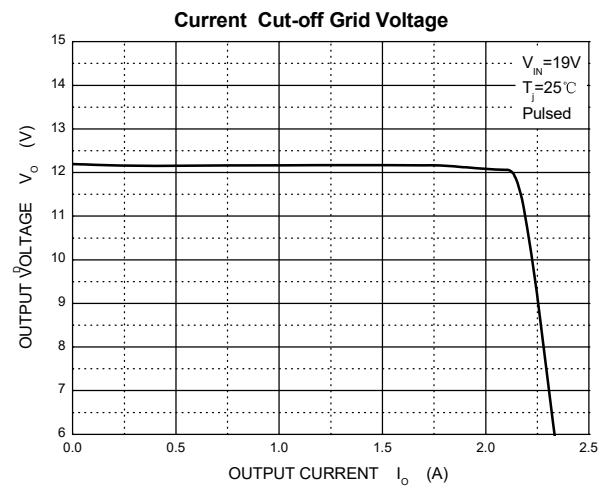
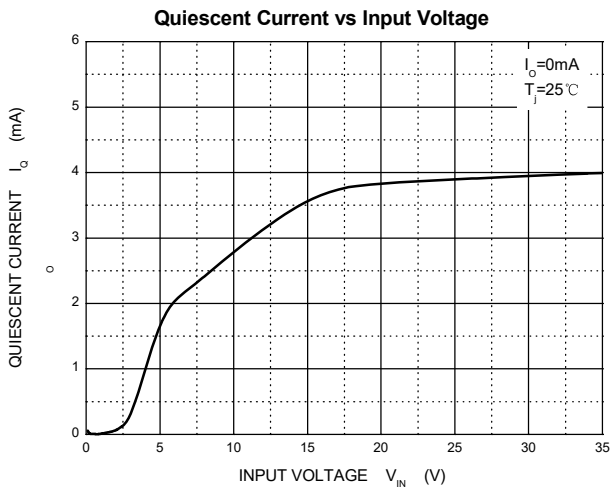
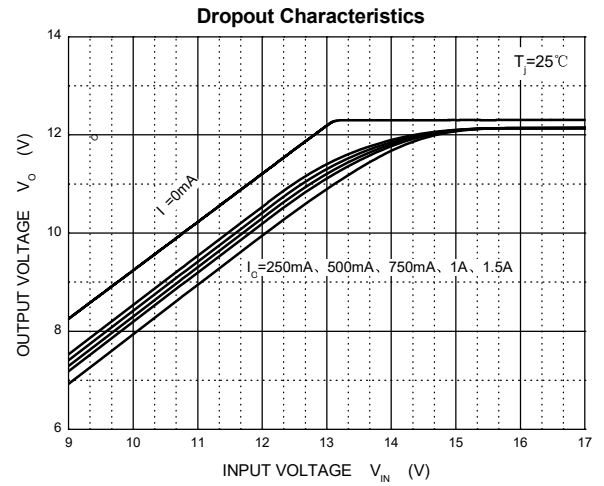
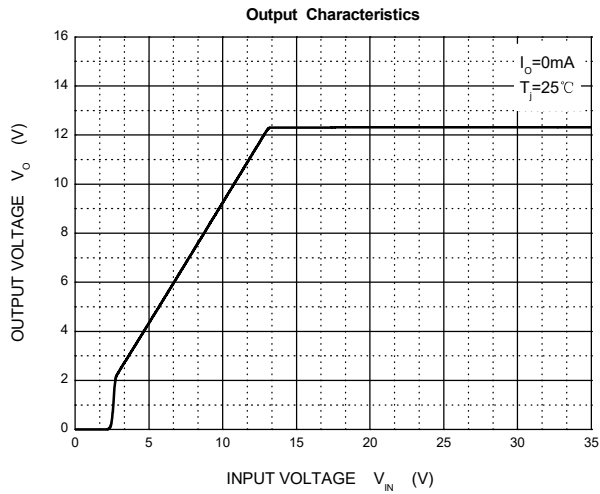
* Pulse test.

TYPICAL APPLICATION

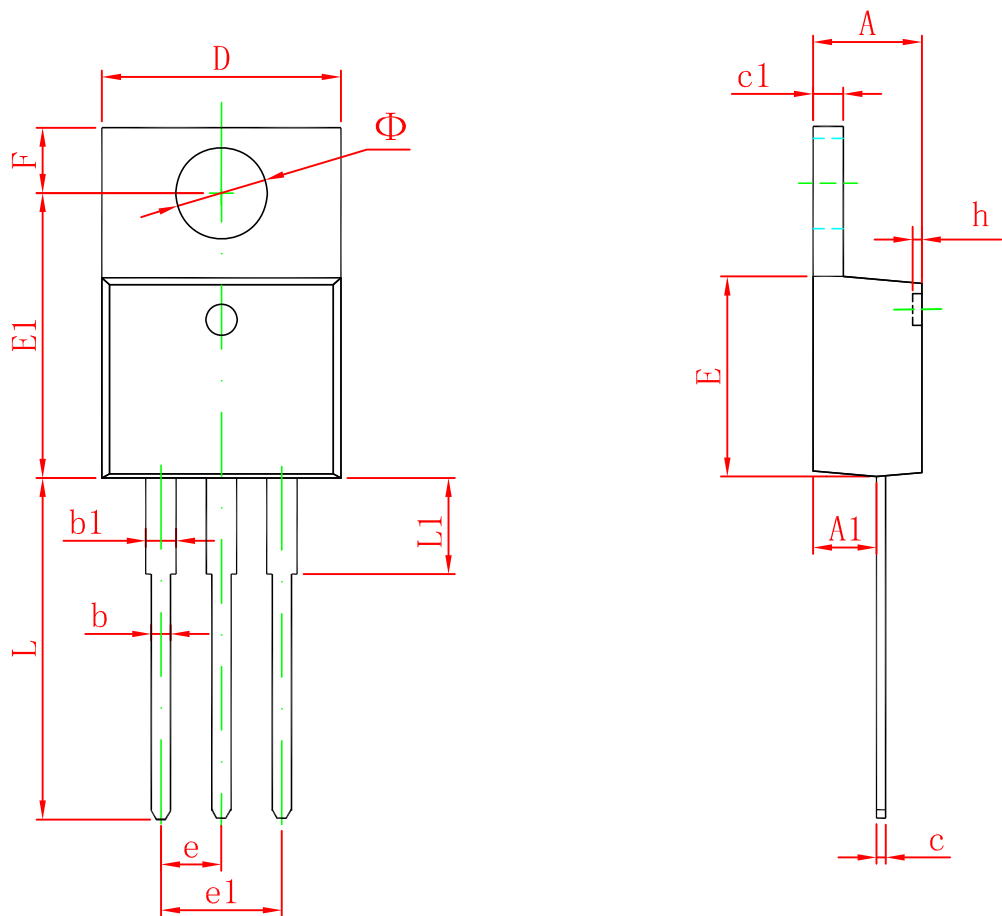


Note: Bypass capacitors are recommended for optimum stability and transient response and should be located as close as possible to the regulators.

Typical Characteristics



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