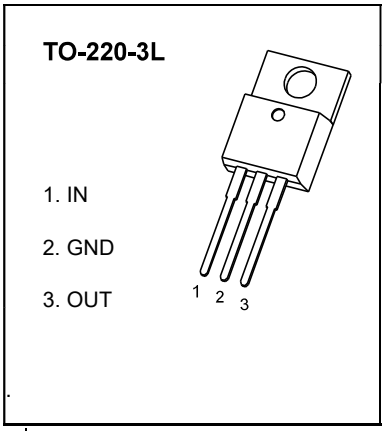
DONGGUAN NANJING ELECTRONICS LTD.,

TO-220-3L Plastic-Encapsulate Voltage Regulators



7808 Three-terminal positive voltage regulator

FEATURES

- Maximum output current
  I_{OM}:1.5 A
- Output voltage
  V_O: 8V
- Continuous total dissipation
  P_D: 1.5W (T_a= 25 ℃)

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

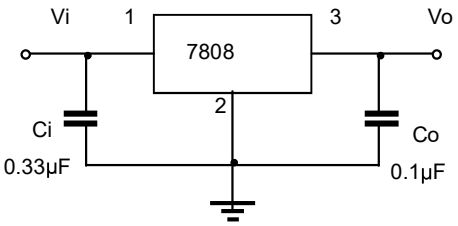
Parameter	Symbol	Value	Unit
Input Voltage	V_i	35	V
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	66.7	℃/W
Operating Junction Temperature Range	T_{OPR}	-40~+125	℃
Storage Temperature Range	T_{STG}	-65~+150	℃

ELECTRICAL CHARACTERISTICS AT SPECIFIED VIRTUAL JINCTION TEMPERATURE(Vi=14V,Io=500mA, Ci=0.33μF, Co=0.1μF, unless otherwise specified)

Parameter	Symbol	Test conditions		Min	Typ	Max	Unit
Output Voltage	Vo		25℃	7.7	8	8.3	V
		10.5V≤V_i≤23V, Io=5mA-1A	-25-125℃	7.6	8	8.4	V
Load Regulation	ΔVo	Io=5mA-1.5A	25℃		12	160	mV
		Io=250mA-750mA	25℃		4	80	mV
Line Regulation	ΔVo	10.5V≤V_i≤25V	25℃		6	160	mV
		11V≤V_i≤17V	25℃		2	80	mV
Quiescent Current	Iq		25℃		4.3	8	mA
Quiescent Current Change	ΔIq	10.5V≤V_i≤25V	-25-125℃			1	mA
		5mA≤I_O≤1A	-25-125℃			0.5	mA
Output Voltage Drift	$\Delta V_O/\Delta T$	I_O=5mA	-25-125℃		-0.8		mV/℃
Output Noise Voltage	V_N	10Hz≤f≤100KHz	25℃		52		μV/Vo
Ripple Rejection	RR	11.5V≤V_i≤21.5V,f=120Hz	-25-125℃	55	72		dB
Dropout Voltage	Vd	Io=1A	25℃		2		V
Output Resistance	R_O	f=1KH_Z	25℃		10		mΩ
Short Circuit Current	Isc		25℃		450		mA
Peak Current	Ipk		25℃		2.2		A

* Pulse test.

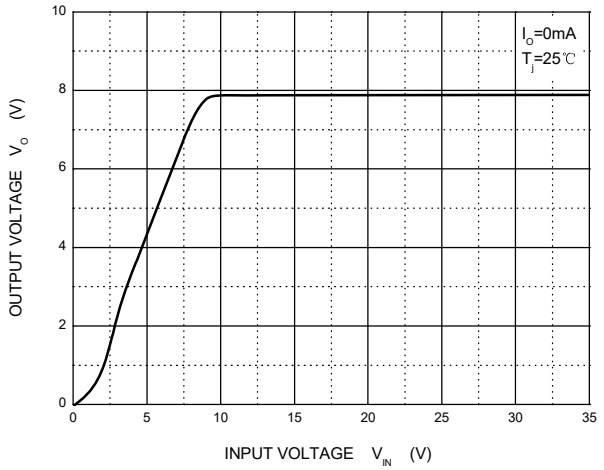
TYPICAL APPLICATION



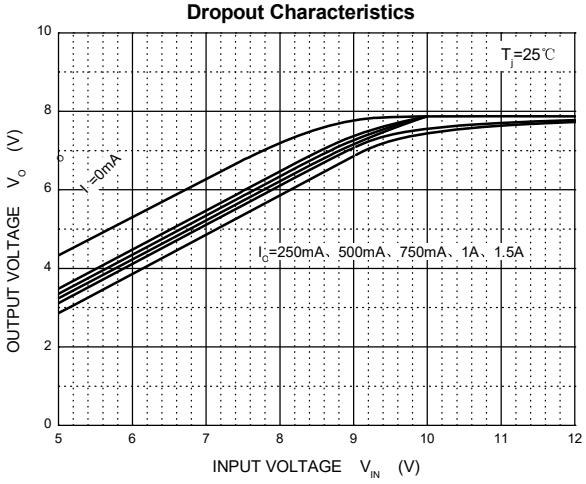
Note: Bypass capacitors are recommended for optimum stability and transient response and should be located as close as possible to the regulators.

Typical Characteristics

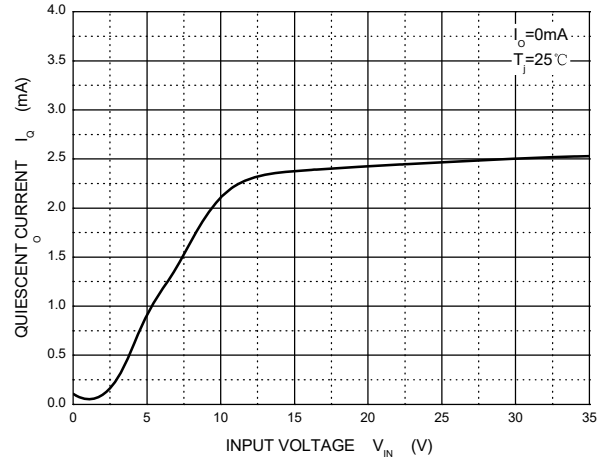
Output Characteristics



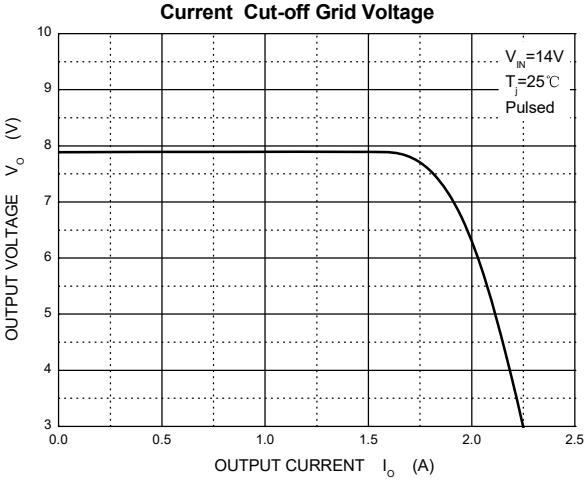
Dropout Characteristics



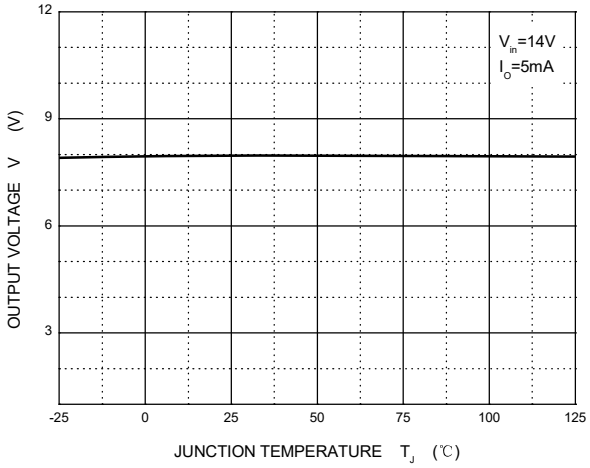
Quiescent Current vs Input Voltage



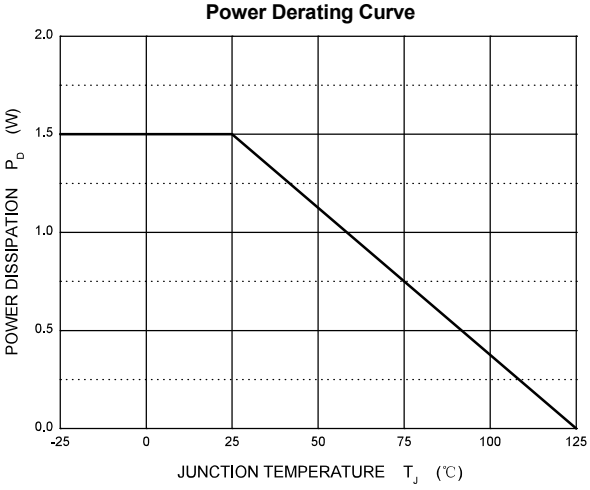
Current Cut-off Grid Voltage



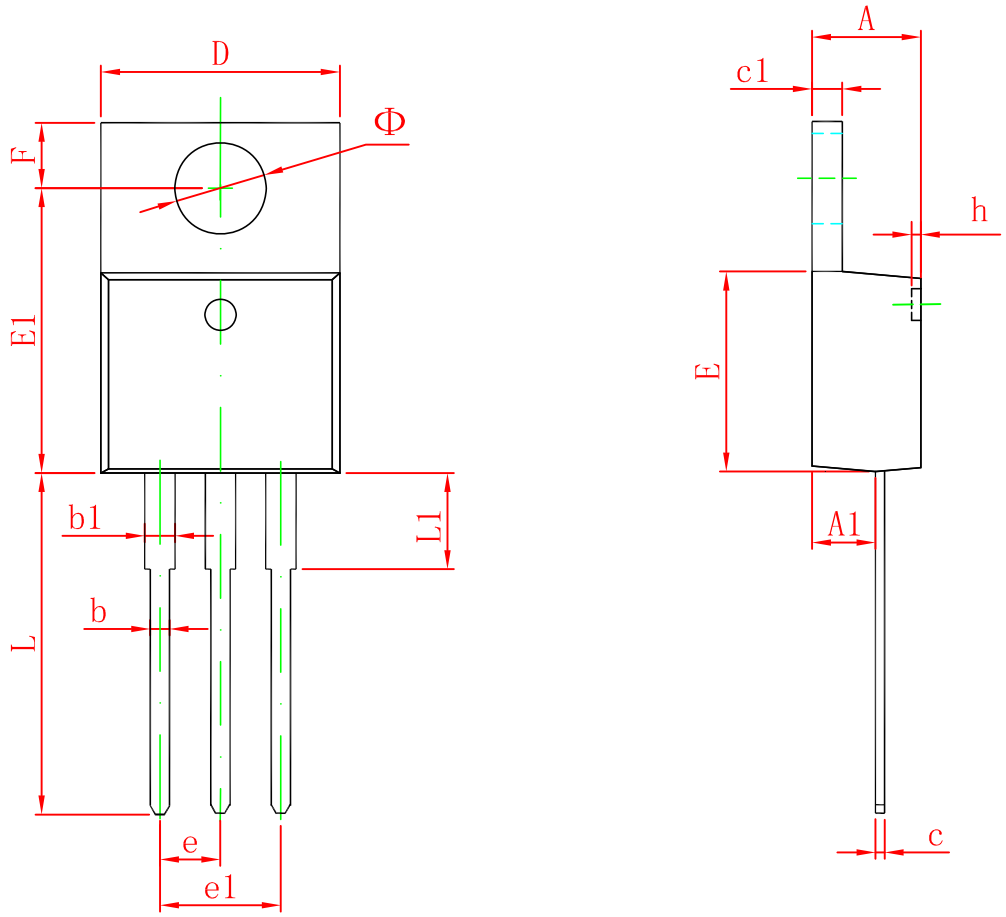
Output Voltage vs Junction Temperature



Power Derating Curve



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