

VC78L08 Three-terminal positive voltage regulator

FEATURES

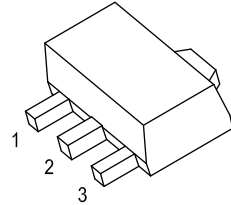
- Maximum output current
 I_{OM} : 0.1A
- Output voltage
 V_O : 8V
- Continuous total dissipation
 P_D : 0.6 W ($T_a = 25^\circ\text{C}$)

SOT-89-3L

1. OUT

2. GND

3. IN



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

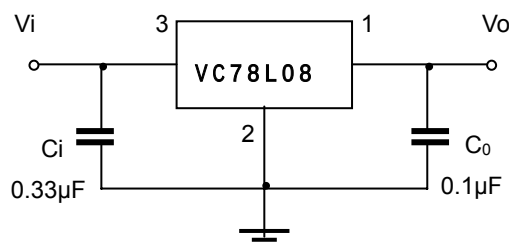
Parameter	Symbol	Value	Unit
Input Voltage	V_i	30	V
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	166.7	$^\circ\text{C/W}$
Operating Junction Temperature Range	T_{OPR}	-25~+125	$^\circ\text{C}$
Storage Temperature Range	T_{STG}	-65~+150	$^\circ\text{C}$

ELECTRICAL CHARACTERISTICS AT SPECIFIED VIRTUAL JUNCTION TEMPERATURE ($V_i=14\text{V}$, $I_o=40\text{mA}$, $C_i=0.33\mu\text{F}$, $C_o=0.1\mu\text{F}$, unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Output voltage	V_o	25°C	7.7	8.0	8.3	V
		$10.5\text{V} \leq V_i \leq 23\text{V}$, $I_o=1\text{mA} \sim 40\text{mA}$	7.6	8.0	8.4	V
		$I_o=1\text{mA} \sim 70\text{mA}$	7.6	8.0	8.4	V
Load Regulation	ΔV_o	$I_o=1\text{mA} \sim 100\text{mA}$, 25°C		18	80	mV
		$I_o=1\text{mA} \sim 40\text{mA}$, 25°C		10	40	mV
Line regulation	ΔV_o	$10.5\text{V} \leq V_i \leq 23\text{V}$, 25°C		42	175	mV
		$11\text{V} \leq V_i \leq 23\text{V}$, 25°C		36	125	mV
Quiescent Current	I_q	25°C		4	6	mA
Quiescent Current Change	ΔI_q	$11\text{V} \leq V_i \leq 23\text{V}$, $0 \sim 125^\circ\text{C}$			1.5	mA
	ΔI_q	$1\text{mA} \leq I_o \leq 40\text{mA}$, $0 \sim 125^\circ\text{C}$			0.1	mA
Output Noise Voltage	V_N	$10\text{Hz} \leq f \leq 100\text{KHz}$, 25°C		54		$\mu\text{V}/V_o$
Ripple Rejection	RR	$13\text{V} \leq V_i \leq 23\text{V}$, $f=120\text{Hz}$, $0 \sim 125^\circ\text{C}$	37	46		dB
Dropout Voltage	V_d	25°C		1.7		V

* Pulse test.

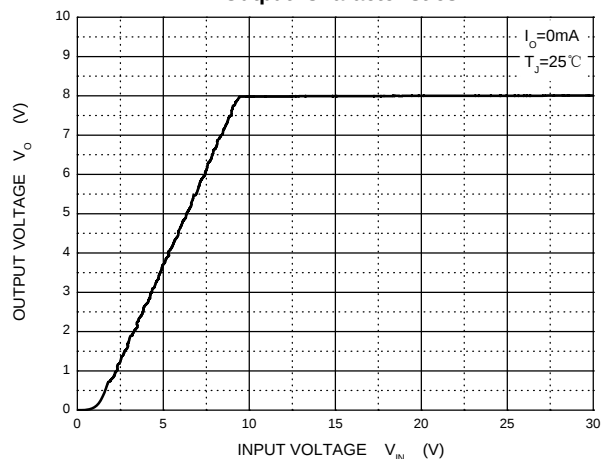
TYPICAL APPLICATION



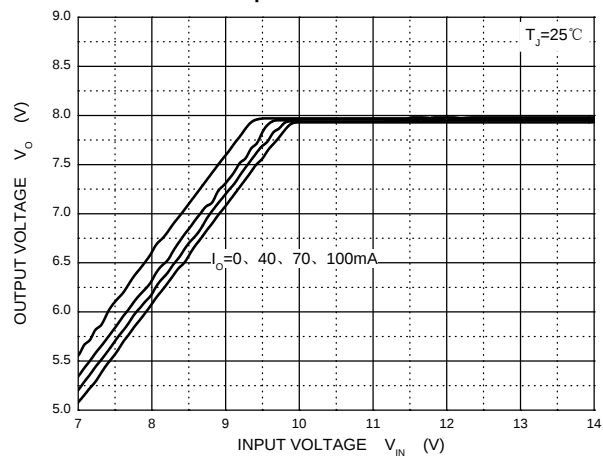
Note: Bypass capacitors are recommended for optimum stability and transient response and should be located as close as possible to the regulators.

Typical Characteristics

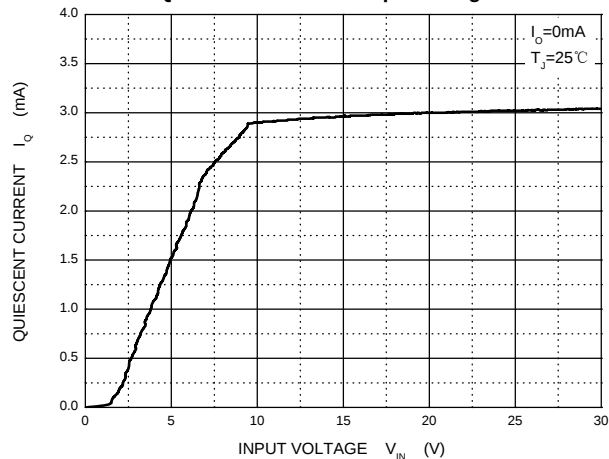
Output Characteristics



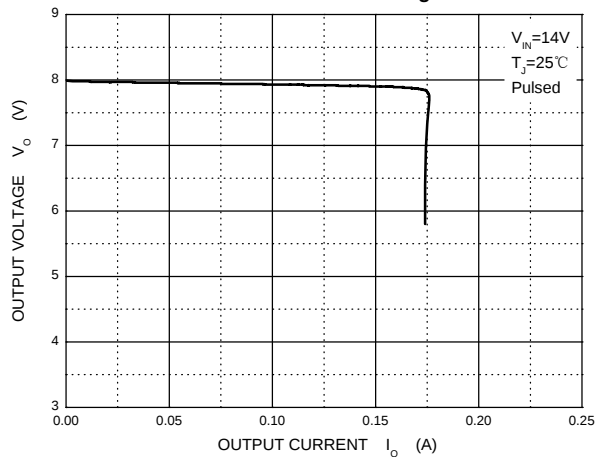
Dropout Characteristics



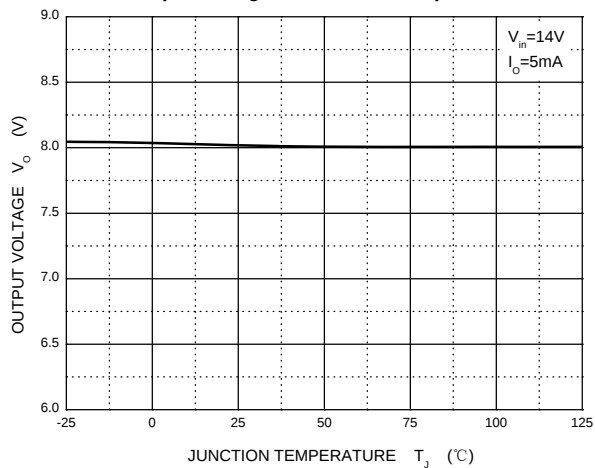
Quiescent Current vs Input Voltage



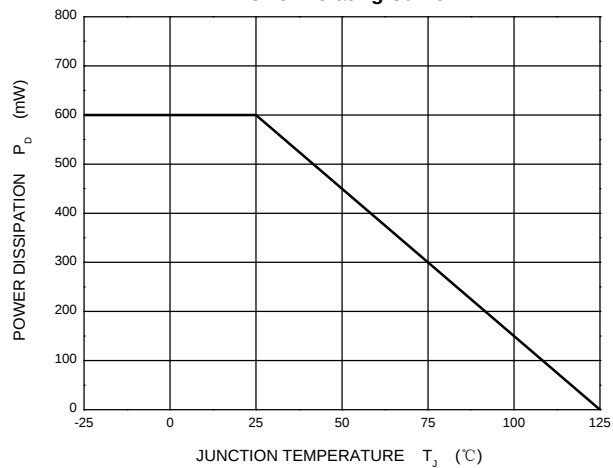
Current Cut-off Grid Voltage



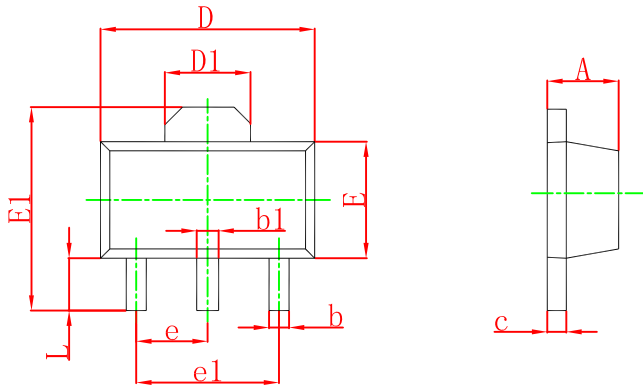
Output Voltage vs Junction Temperature



Power Derating Curve

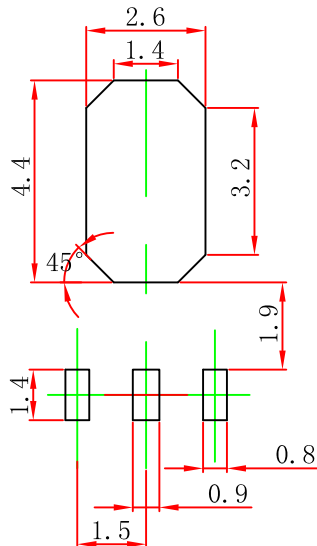


SOT-89-3L Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.400	1.600	0.055	0.063
b	0.320	0.520	0.013	0.020
b1	0.400	0.580	0.016	0.023
c	0.350	0.440	0.014	0.017
D	4.400	4.600	0.173	0.181
D1	1.550 REF.		0.061 REF.	
E	2.300	2.600	0.091	0.102
E1	3.940	4.250	0.155	0.167
e	1.500 TYP.		0.060 TYP.	
e1	3.000 TYP.		0.118 TYP.	
L	0.900	1.200	0.035	0.047

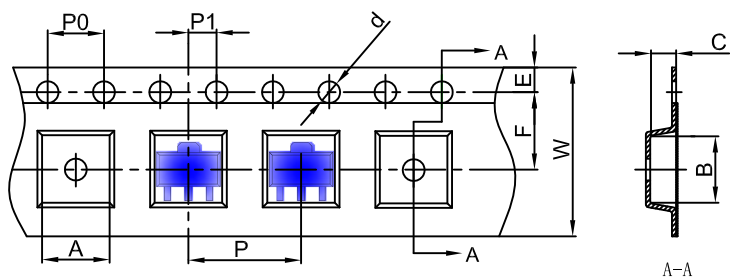
SOT-89-3L Suggested Pad Layout



Note:

1. Controlling dimension: in millimeters.
2. General tolerance: $\pm 0.05\text{mm}$.
3. The pad layout is for reference purposes only.

SOT-89-3L Embossed Carrier Tape



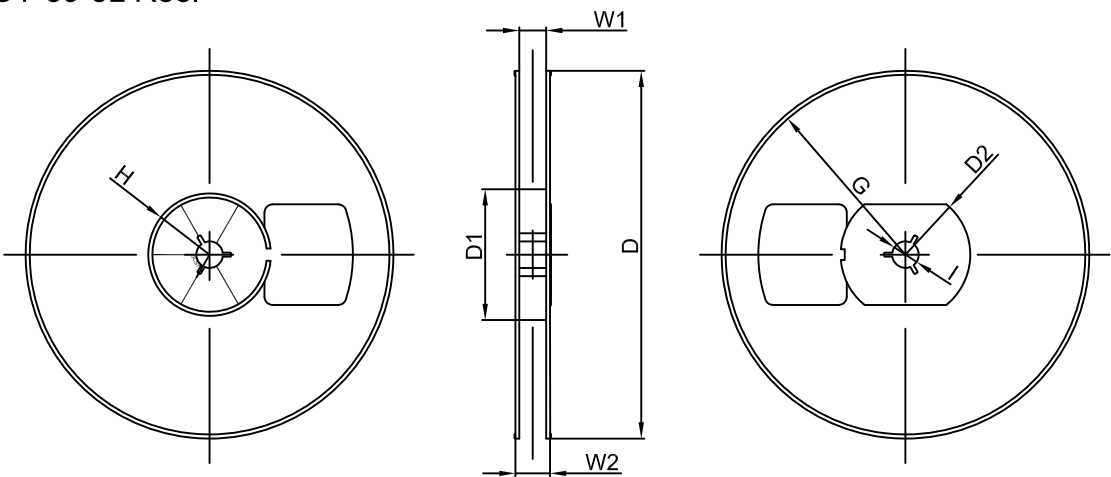
Packaging Description:
SOT-89-3L parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Heat Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled parts in standard option are shipped with 1,000 units per 7" or 18.0 cm diameter reel. The reels are clear in color and is made of polystyrene plastic (anti-static coated).

Dimensions are in millimeter										
Pkg type	A	B	C	d	E	F	P0	P	P1	W
SOT-89-3L	4.85	4.45	1.85	Ø1.50	1.75	5.50	4.00	8.00	2.00	12.00

SOT-89-3L Tape Leader and Trailer



SOT-89-3L Reel



Dimensions are in millimeter								
Reel Option	D	D1	D2	G	H	I	W1	W2
7"Dia	Ø180.00	60.00	R32.00	R86.50	R30.00	Ø13.00	13.20	16.50

REEL	Reel Size	Box	Box Size(mm)	Carton	Carton Size(mm)	G.W.(kg)
1000 pcs	7 inch	10,000 pcs	203×203×195	40,000 pcs	438×438×220	