

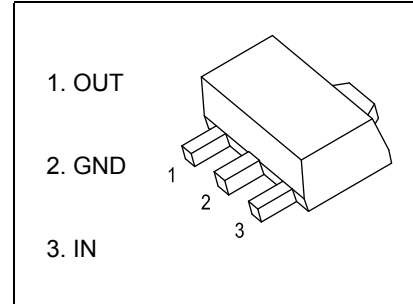
SOT-89 Plastic-Encapsulate Voltage Regulators

78L05 Three-terminal positive voltage regulator

SOT-89-3L

FEATURES

- Maximum output current
 I_{OM} : 0.1A
- Output voltage
 V_O : 5V
- Continuous total dissipation
 P_D : 0.6 W ($T_a=25^\circ\text{C}$)



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

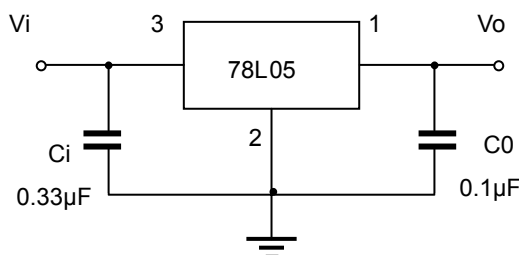
Parameter	Symbol	Value	Unit
Input Voltage	V_i	30	V
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	160	$^\circ\text{C/W}$
Operating Junction Temperature Range	T_{OPR}	-40~+125	$^\circ\text{C}$
Storage Temperature Range	T_{STG}	-65~+150	$^\circ\text{C}$

ELECTRICAL CHARACTERISTICS AT SPECIFIED VIRTUAL JUNCTION TEMPERATURE ($V_i=10V, I_o=40mA, C_i=0.33\mu F, C_o=0.1\mu F$, unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit	
Output voltage	V_o		25 $^\circ\text{C}$	4.80	5.0	5.20	V
				4.85	5.0	5.15	V
		$7V \leq V_i \leq 20V, I_o=1mA \sim 40mA$	0-125 $^\circ\text{C}$	4.90	5.0	5.10	V
				4.75	5.0	5.25	V
Load Regulation	ΔV_o	$I_o=1mA \sim 100mA$	25 $^\circ\text{C}$	11	60	mV	
		$I_o=1mA \sim 40mA$	25 $^\circ\text{C}$	5	30	mV	
Line regulation	ΔV_o	$7V \leq V_i \leq 20V$	0-125 $^\circ\text{C}$	55	150	mV	
		$8V \leq V_i \leq 20V$	25 $^\circ\text{C}$	45	100	mV	
Quiescent Current	I_q		25 $^\circ\text{C}$	3.8	6	mA	
Quiescent Current Change	ΔI_q	$8V \leq V_i \leq 20V$	0-125 $^\circ\text{C}$		1.5	mA	
		$1mA \leq I_o \leq 40mA$	0-125 $^\circ\text{C}$		0.1		
Output Noise Voltage	V_N	10Hz $\leq f \leq 100KHz$	25 $^\circ\text{C}$	40		$\mu V/V_o$	
Ripple Rejection	RR	$8V \leq V_i \leq 20V, f=120Hz$	0-125	41	49	dB	
Dropout Voltage	V_d		25 $^\circ\text{C}$	1.7		V	

* Pulse test.

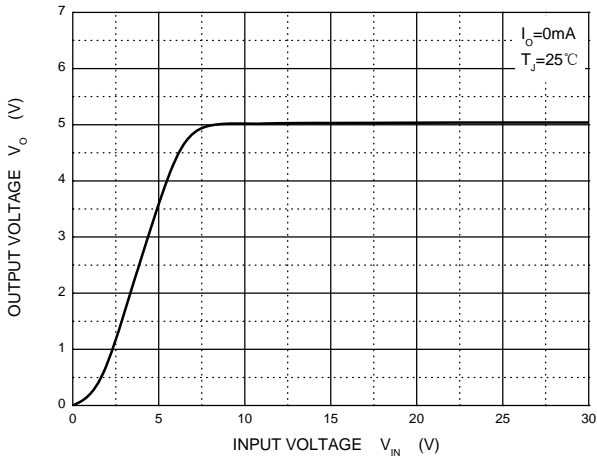
TYPICAL APPLICATION



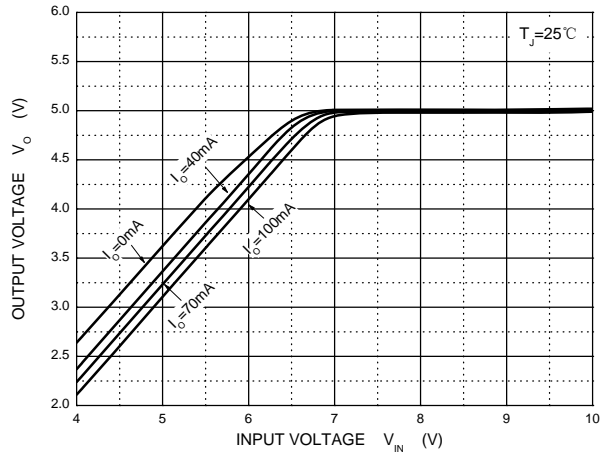
Note: Bypass capacitors are recommended for optimum stability and transient response and should be located as close as

Typical Characteristics

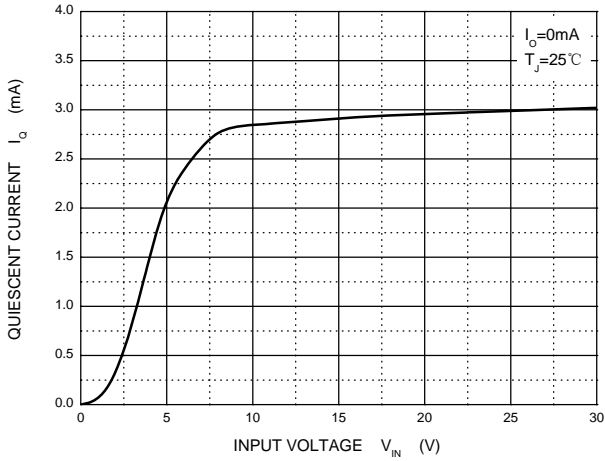
Output Characteristics



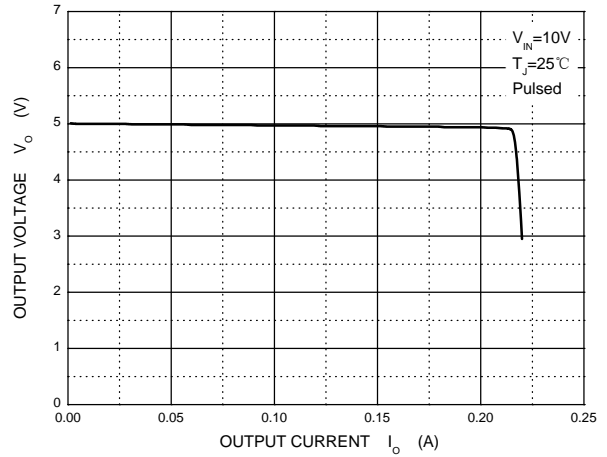
Dropout Characteristics



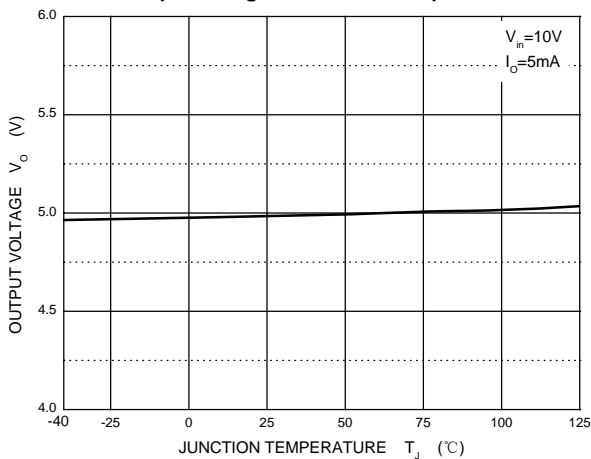
Quiescent Current vs Input Voltage



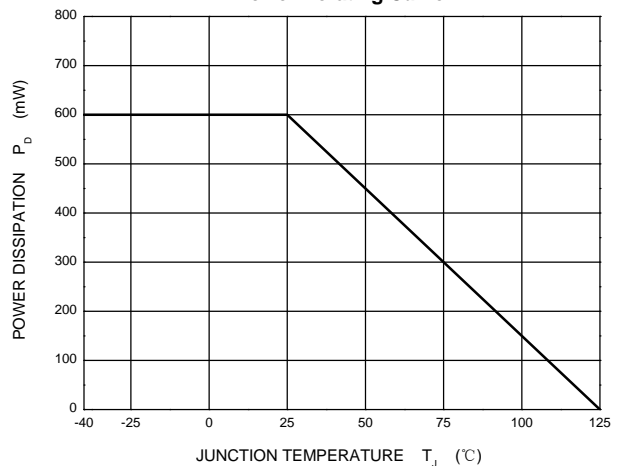
Current Cut-off Grid Voltage



Output Voltage vs Junction Temperature

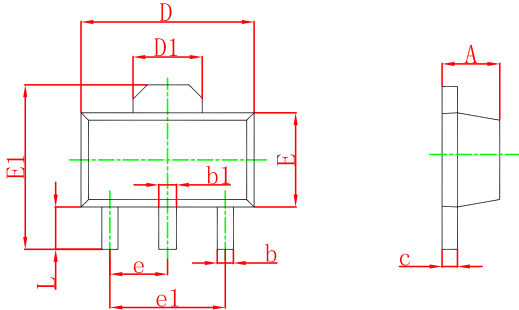


Power Derating Curve



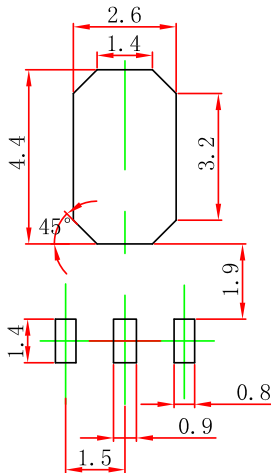
Outlitne Drawing

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: ±0.05mm.
 3. The pad layout is for reference purposes only.

PACKAGE SPECIFICATIONS

Package	Reel Size	Reel DIA. (mm)	Q'TY/Reel (pcs)	Box Size (mm)	QTY/Box (pcs)	Carton Size (mm)	G.W.(Kg)
SOT-89-3L	7'	330	1000	203×203×195	40000	438×438×220	180000

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