

## Plastic-Encapsulate Voltage Regulators

### FEATURES

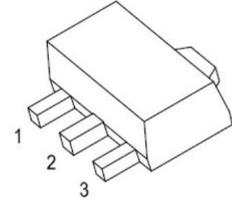
- Maximum output current IOM: 0.1A
- Output voltage Vo: 5V
- Continuous total dissipation PD: 0.6W (Ta=25°C)

### SOT-89-3L

1. OUT

2. GND

3. IN



### MECHANICAL DATA

- SOT-89-3L Small Outline Plastic Package
- Epoxy UL: 94V-0
- Mounting Position: Any

**Marking: 78L05**

**Absolute Maximum Ratings** (Operating temperature Range applies unless otherwise specified.)

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

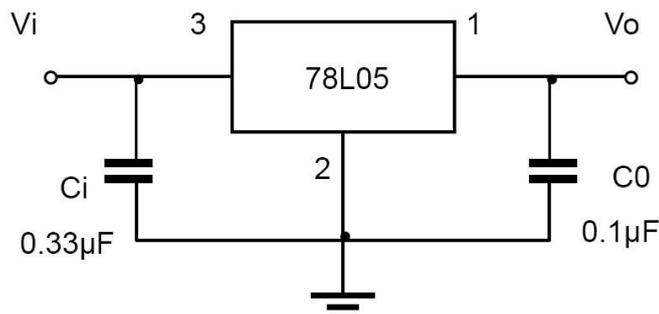
### Electrical Characteristics at Specified Virtual Junction Temperature

( $V_i=10V$ ,  $I_o=40mA$ ,  $C_i=0.33\mu F$ ,  $C_o=0.1\mu F$ , unless otherwise specified)

Parameter	Symbols	Test Condition	Limits			Unit	
			Min	Typ	Max		
Output Voltage	$V_o$		25°C	4.80	5.00	5.20	V
				4.85	5.00	5.15	V
		$7V \leq V_i \leq 20V$ , $I_o=1mA \sim 40mA$ $I_o=1mA \sim 70mA$	0-125°C	4.90	5.00	5.10	V
				4.75	5.00	5.25	V
Load Regulation	$\Delta V_o$	$I_o=1mA \sim 100mA$	25°C	15	60	mV	
		$I_o=1mA \sim 40mA$	25°C	8	30	mV	
Line Regulation	$\Delta V_o$	$7V \leq V_i \leq 20V$	0-125°C	32	150	mV	
		$8V \leq V_i \leq 20V$	25°C	26	100	mV	
Quiescent Current	$I_q$		25°C	3.8	6	mA	
Quiescent Current Change	$\Delta I_q$	$8V \leq V_i \leq 20V$	0-125°C		1.5	mA	
	$\Delta I_q$	$1mA \leq I_i \leq 40mA$	0-125°C		0.1	mA	
Output Noise Voltage	$V_N$	$10Hz \leq f \leq 100KHz$	25°C	42		$\mu V/V_o$	
Ripple Rejection	$RR$	$8V \leq V_i \leq 20V, f=120Hz$	25°C	41	49	dB	
Dropout Voltage	$V_d$		25°C		1.7	V	

\* Pulse test.

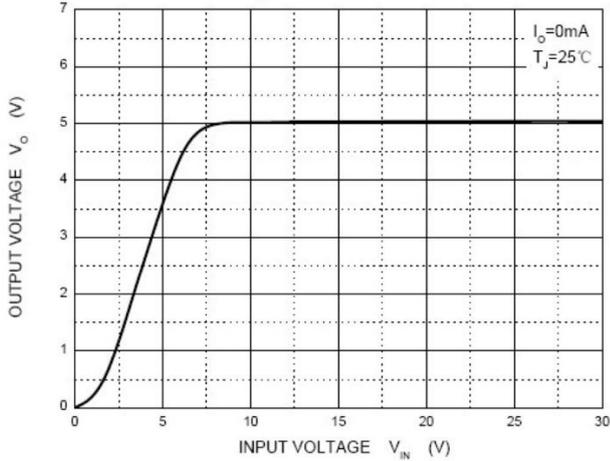
### TYPICAL APPLICATION



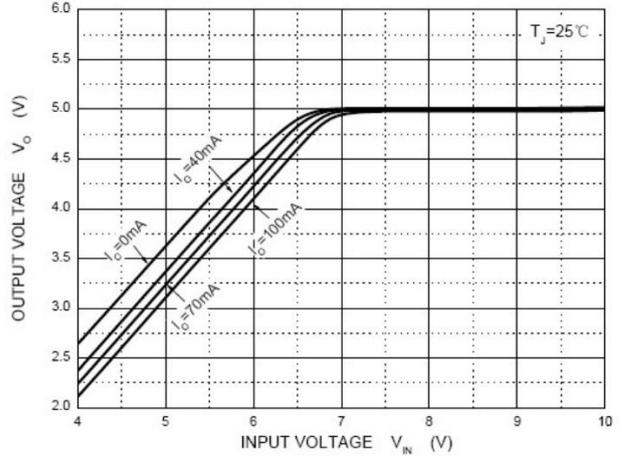
Note: Bypass capacitors are recommended for optimum stability and transient response and should be located as close as possible to the regulators.

## Typical characteristics

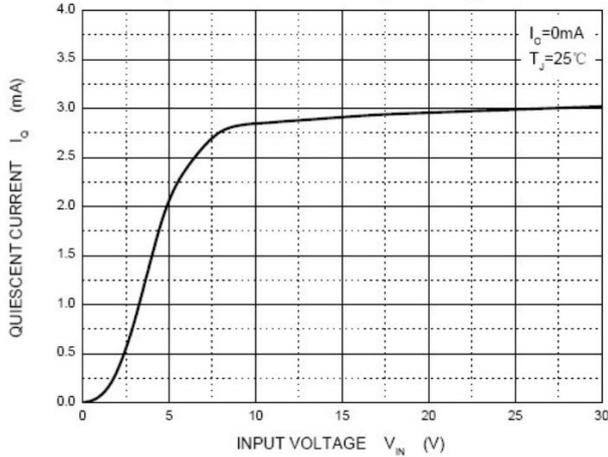
### Output Characteristics



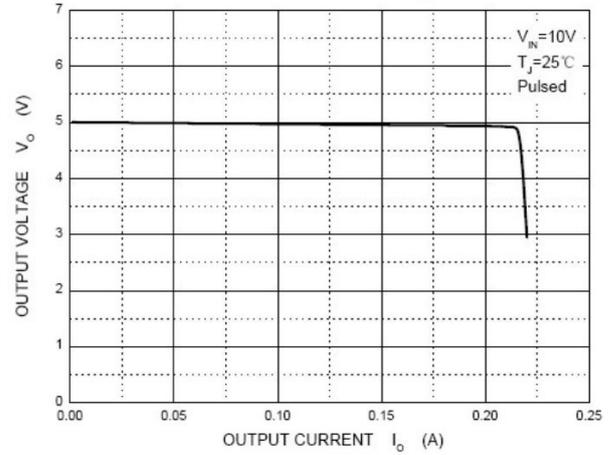
### Dropout Characteristics



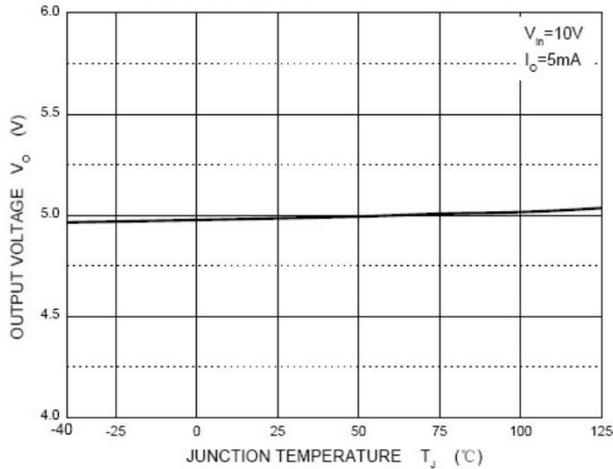
### Quiescent Current vs Input Voltage



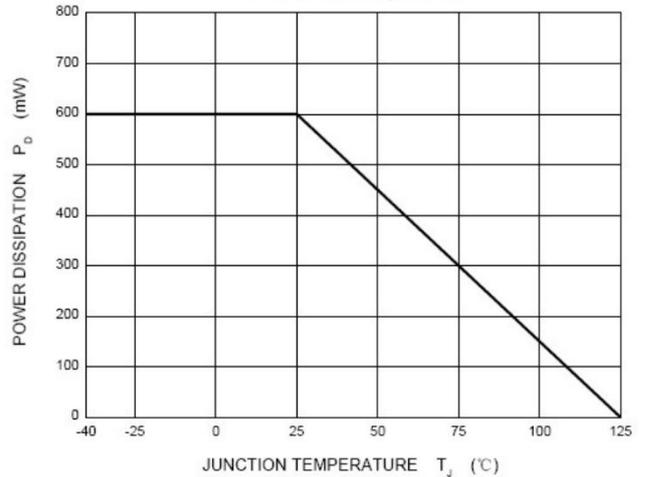
### Current Cut-off Grid Voltage



### Output Voltage vs Junction Temperature

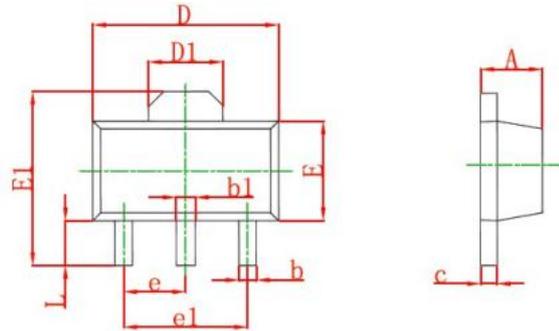


### Power Derating Curve



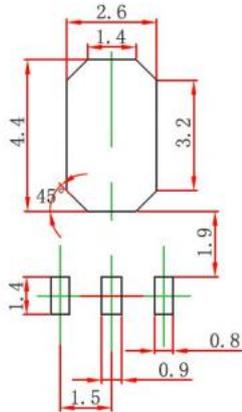
# 78L05

## SOT-89-3L PACKAGE OUTLINE Plastic surface mounted package



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

Recommended land dimensions for SOT-89-3 diode. Electrode patterns for PCBs



**Note:**

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

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