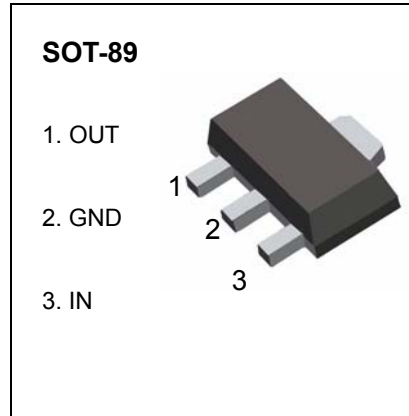


**78L05** Three-terminal positive voltage regulator

**FEATURES**

Maximum Output current  $I_o$ : 0.1 A  
Output voltage  $V_o$ : 5 V  
Continuous total dissipation  
 $P_D$ : 0.5 W ( $T_a = 25^\circ\text{C}$ )

**MARKING: 78L05 w** (w:week code)



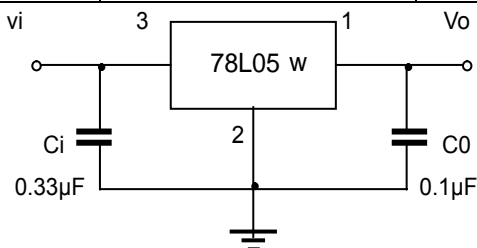
**ABSOLUTE MAXIMUM RATINGS (Operating temperature range applies unless otherwise specified)**

Parameter	Symbol	Value	Unit
Input Voltage	$V_i$	30	V
Operating Junction Temperature Range	$T_{OPR}$	0~+125	$^\circ\text{C}$
Storage Temperature Range	$T_{STG}$	-55~+150	$^\circ\text{C}$

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

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT	
Output voltage	$V_o$	$25^\circ\text{C}$	4.8	5.0	5.2	V	
		0-125 $^\circ\text{C}$	$7\text{V} \leq V_i \leq 20\text{V}, I_o=1\text{mA} \sim 40\text{mA}$	4.75	5.0	5.25	V
			$I_o=1\text{mA} \sim 70\text{mA}$	4.75	5.0	5.25	V
Load Regulation	$\Delta V_o$	$I_o=1\text{mA} \sim 100\text{mA}$ $25^\circ\text{C}$		15	60	mV	
		$I_o=1\text{mA} \sim 40\text{mA}$ $25^\circ\text{C}$		8	30	mV	
Line regulation	$\Delta V_o$	$7\text{V} \leq V_i \leq 20\text{V}$		32	150	mV	
		$8\text{V} \leq V_i \leq 20\text{V}$ $25^\circ\text{C}$		26	100	mV	
Quiescent Current	$I_q$	$25^\circ\text{C}$		3.8	6	mA	
Quiescent Current Change	$\Delta I_q$	$8\text{V} \leq V_i \leq 20\text{V}$ 0-125 $^\circ\text{C}$			1.5	mA	
	$\Delta I_q$	$1\text{mA} \leq V_i \leq 40\text{mA}$ 0-125 $^\circ\text{C}$			0.1	mA	
Output Noise Voltage	$V_N$	$10\text{Hz} \leq f \leq 100\text{KHz}$ $25^\circ\text{C}$		42		$\mu\text{V}$	
Ripple Rejection	RR	$8\text{V} \leq V_i \leq 20\text{V}, f=120\text{Hz}$ 0-125 $^\circ\text{C}$	41	49		dB	
Dropout Voltage	$V_d$	$25^\circ\text{C}$		1.7		V	

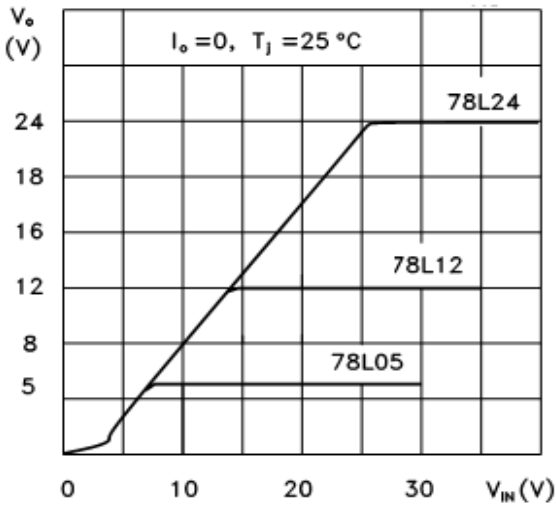
**TYPICAL APPLICATION**



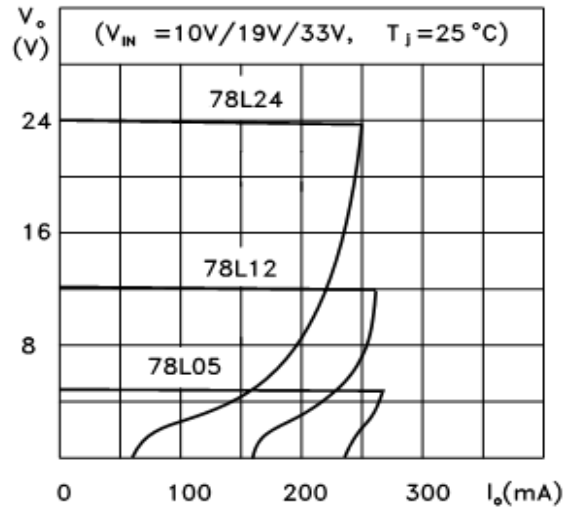
Note: Bypass capacitors are recommended for optimum stability and transient response and should be located as close as Possible to the regulators.

## Typical Characteristics

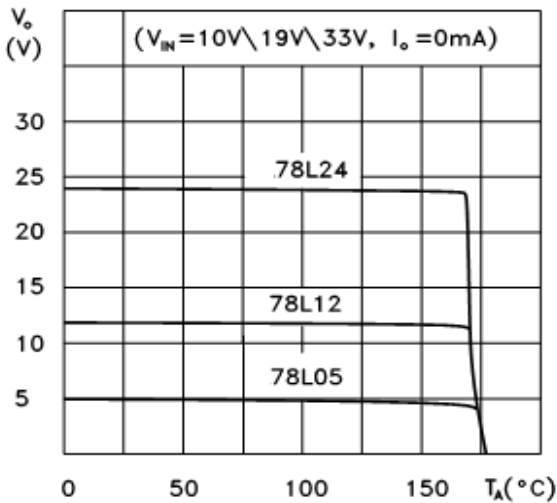
78L05/12/24 Output Characteristics



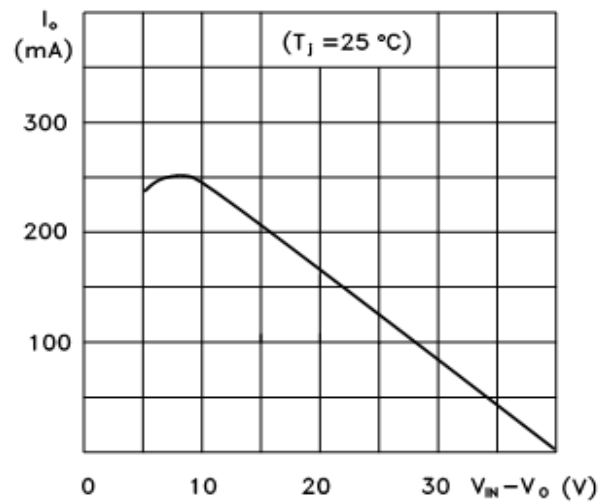
78L05/12/24 Load Characteristics



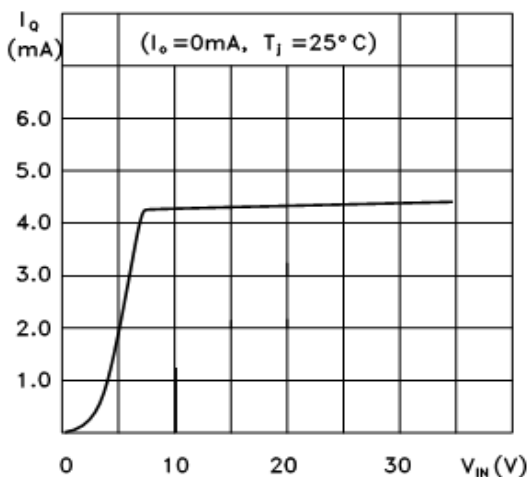
78L05/12/24 Thermal Shutdown



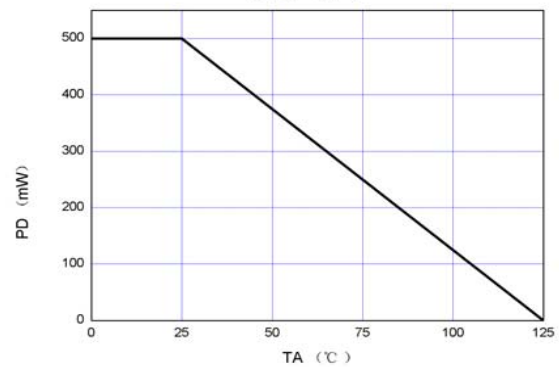
78L00 Series Short Circuit Output Current



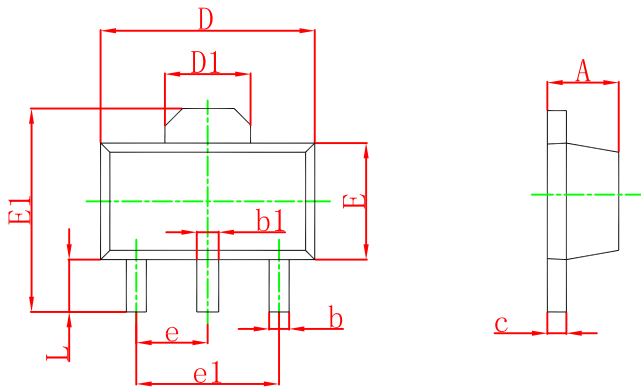
78L05 Quiescent Current vs Input Voltage



PD-TA

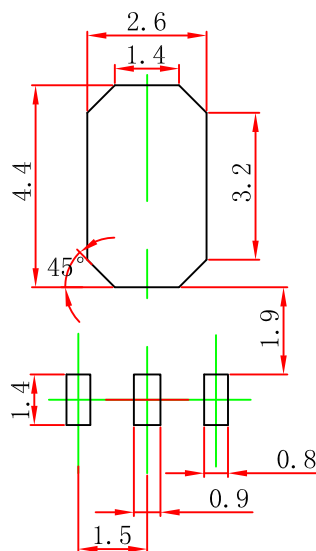


SOT-89-3L Package Outline Dimensions



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:  $\pm 0.05$ mm.  
 3. The pad layout is for reference purposes only.