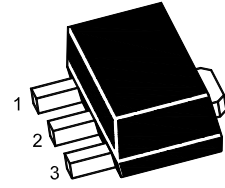


# ST 78L05U (SOT-89)

## 3-Terminal Positive Voltage Regulator



1.OUT 2.GND 3.IN  
SOT-89 Plastic Package

### Absolute Maximum Ratings ( $T_a = 25\text{ }^\circ\text{C}$ )

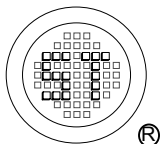
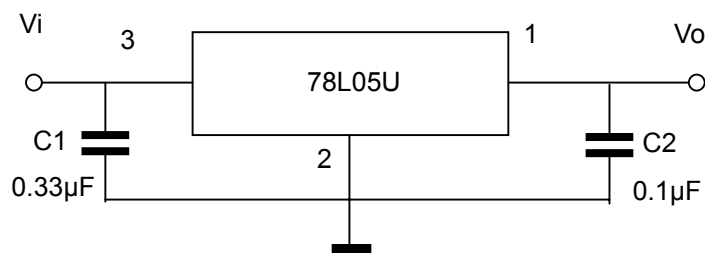
Parameter	Symbol	Rating	Unit
Input Voltage	$V_i$	30	V
Power Dissipation	$P_{tot}$	800 <sup>1)</sup>	mW
Operating Temperature	$T_{opr}$	-20~120	$^\circ\text{C}$
Storage Temperature Range	$T_s$	-55~150	$^\circ\text{C}$

<sup>1)</sup> 15 mm X 25 mm X 0.7 mm alumina ceramic board,  $T_a \leq 25\text{ }^\circ\text{C}$

### Electrical Characteristics ( $T_a = 25\text{ }^\circ\text{C}$ )

(Unless otherwise specified,  $0\text{ }^\circ\text{C} \leq T_j \leq 125\text{ }^\circ\text{C}$ ,  $V_i = 10\text{ V}$ ,  $I_o = 40\text{ mA}$ ,  $C_1 = 0.33\text{ }\mu\text{F}$ ,  $C_0 = 0.1\text{ }\mu\text{F}$ )

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Output Voltage	$V_o$	$T_j = 25\text{ }^\circ\text{C}$	4.8	5	5.2	V
		$7\text{ V} \leq V_i \leq 20\text{ V}$ , $I_o = 1\text{ mA} - 40\text{ mA}$	4.75	-	5.25	V
		$7\text{ V} \leq V_i \leq V_{MAX}$ , $I_o = 1\text{ mA} - 70\text{ mA}$	4.75	-	5.25	V
Load Regulation	$\Delta V_o$	$I_o = 1\text{ mA} - 100\text{ mA}$ , $T_j = 25\text{ }^\circ\text{C}$	-	11	60	mV
		$I_o = 1\text{ mA} - 40\text{ mA}$ , $T_j = 25\text{ }^\circ\text{C}$	-	5.0	30	
Line Regulation	$\Delta V_o$	$7\text{ V} \leq V_i \leq 20\text{ V}$ , $T_j = 25\text{ }^\circ\text{C}$	-	8	150	mV
		$8\text{ V} \leq V_i \leq 20\text{ V}$ , $T_j = 25\text{ }^\circ\text{C}$	-	1.6	50	
Quiescent Current	$I_Q$		-	2.0	5.5	mA
Quiescent Current Change	$\Delta I_Q$	$8\text{ V} \leq V_i \leq 20\text{ V}$	-	-	1.5	mA
		$1\text{ mA} \leq I_o \leq 40\text{ mA}$	-	-	0.1	
Output Noise Voltage	$V_N$	$10\text{ Hz} \leq f \leq 100\text{ KHz}$	-	40	-	$\mu\text{V}/V_o$
Ripple Rejection	RR	$f = 120\text{ Hz}$ , $8\text{ V} \leq V_i \leq 20\text{ V}$ , $T_j = 25\text{ }^\circ\text{C}$	-	80	-	dB
Dropout Voltage	$V_{Drop}$	$T_j = 25\text{ }^\circ\text{C}$	-	1.7	-	V



**SEMTECH ELECTRONICS LTD.**

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ISO/TS 16949 : 2002  
Certificate No. 05103



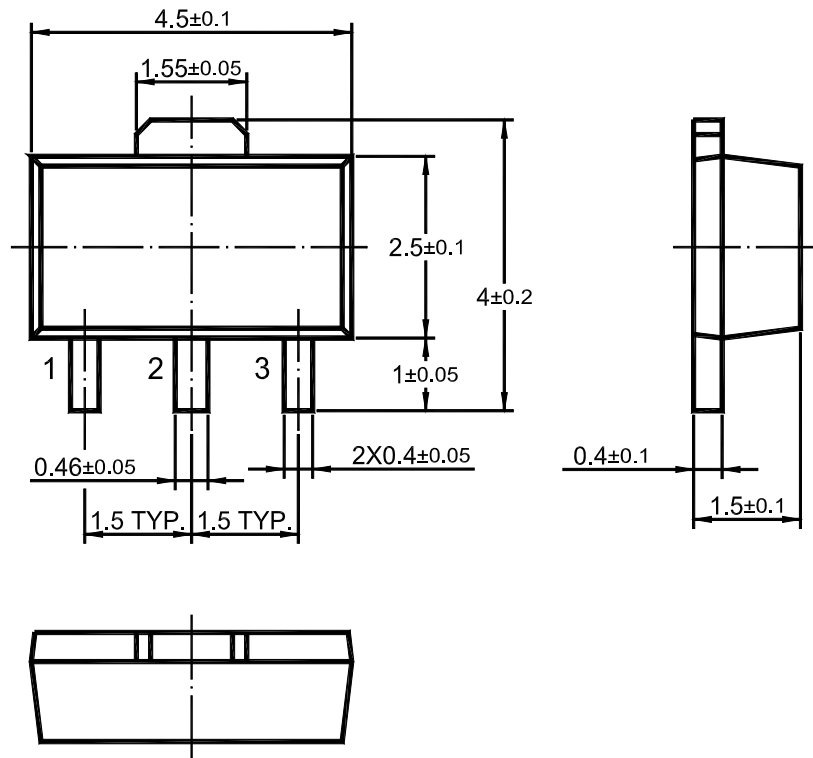
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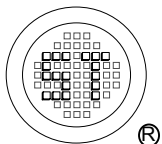
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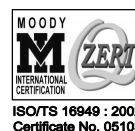
## SOT-89 PACKAGE OUTLINE



Dimensions in mm



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Dated : 22/03/2006 B