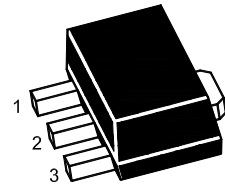


# ST 78L09U

## 3-Terminal Positive Voltage Regulator



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

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

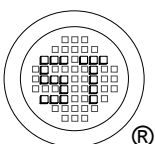
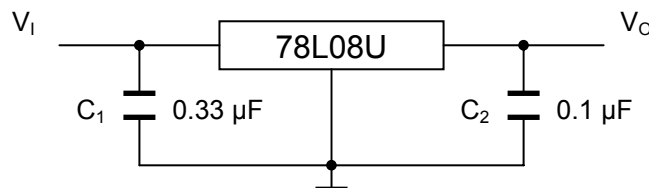
Parameter	Symbol	Value	Unit
Input Voltage	$V_I$	35	V
Power Dissipation	$P_{tot}$	800 <sup>1)</sup>	mW
Operating Temperature	$T_{opr}$	- 20 to + 120	$^\circ\text{C}$
Storage Temperature Range	$T_s$	- 55 to + 150	$^\circ\text{C}$

<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,  $0\text{ }^\circ\text{C} \leq T_j \leq 125\text{ }^\circ\text{C}$ ,  $V_I = 15\text{ V}$ ,  $I_o = 40\text{ mA}$ ,  $C_1 = 0.33\text{ }\mu\text{F}$ ,  $C_0 = 0.1\text{ }\mu\text{F}$ )

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Output Voltage	$V_O$	$T_j = 25\text{ }^\circ\text{C}$	8.64	9	9.36	V
		$11.4\text{ V} \leq V_I \leq 24\text{ V}$ , $1\text{ mA} \leq I_o \leq 40\text{ mA}$	8.55	-	9.45	V
		$V_I = 15\text{ V}$ , $1\text{ mA} \leq I_o \leq 70\text{ mA}$	8.55	-	9.45	V
Line Regulation	Regline	$11.4\text{ V} \leq V_I \leq 24\text{ V}$ , $T_j = 25\text{ }^\circ\text{C}$	-	-	200	mV
		$12\text{ V} \leq V_I \leq 24\text{ V}$ , $T_j = 25\text{ }^\circ\text{C}$	-	-	160	
Load Regulation	Regload	$1\text{ mA} \leq I_o \leq 100\text{ mA}$ , $T_j = 25\text{ }^\circ\text{C}$	-	-	90	mV
		$1\text{ mA} \leq I_o \leq 40\text{ mA}$ , $T_j = 25\text{ }^\circ\text{C}$	-	-	45	
Quiescent Current	$I_Q$	$T_j = 25\text{ }^\circ\text{C}$	-	-	6	mA
Quiescent Current Change	$\Delta I_Q$	$12\text{ V} \leq V_I \leq 24\text{ V}$ , $I_o = 40\text{ mA}$	-	-	1.5	mA
		$V_I = 15\text{ V}$ , $1\text{ mA} \leq I_o \leq 40\text{ mA}$	-	-	0.1	
Output Noise Voltage	$V_N$	$10\text{ Hz} \leq f \leq 100\text{ KHz}$ , $T_j = 25\text{ }^\circ\text{C}$	-	70	-	$\mu\text{V}$
Ripple Rejection	RR	$f = 120\text{ Hz}$ , $12\text{ V} \leq V_I \leq 24\text{ V}$ , $T_j = 25\text{ }^\circ\text{C}$	38	-	-	dB
Dropout Voltage	$V_{Drop}$	$T_j = 25\text{ }^\circ\text{C}$	-	1.7	-	V



**SEMTECH ELECTRONICS LTD.**

(Subsidiary of Sino-Tech International Holdings Limited, a company listed on the Hong Kong Stock Exchange, Stock Code: 724)



ISO/TS 16949 : 2002  
Certificate No. 05103



ISO 14001:2004  
Certificate No. 71116

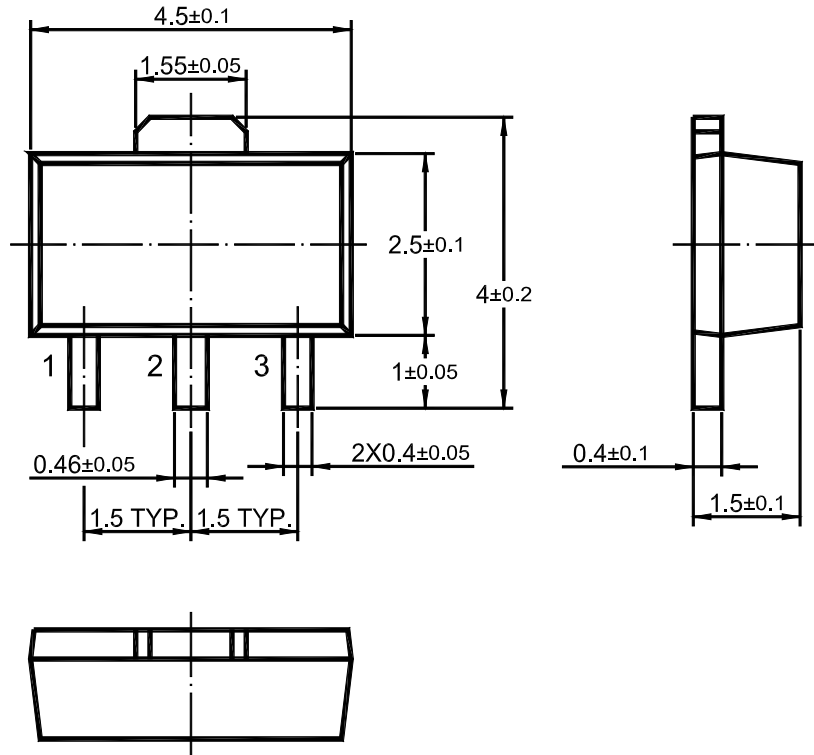


ISO 9001:2000  
Certificate No. 0506098

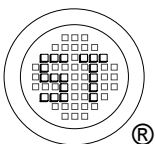
Dated : 05/09/2006

# ST 78L09U

## SOT-89 PACKAGE OUTLINE



Dimensions in mm



**SEMTECH ELECTRONICS LTD.**  
(Subsidiary of Sino-Tech International Holdings Limited, a company listed on the Hong Kong Stock Exchange, Stock Code: 724)



Dated : 05/09/2006