

# TDS:EMIC

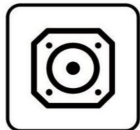
## 拓電半導體

自主封測 品質把控 售後保障

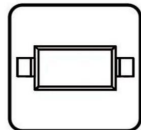
WEB | [WWW.TDSEMIC.COM](http://WWW.TDSEMIC.COM)



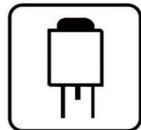
電源管理



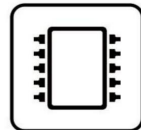
顯示驅動



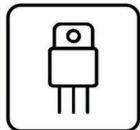
二三極管



LDO穩壓器



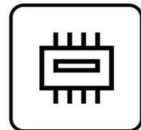
觸摸芯片



MOS管



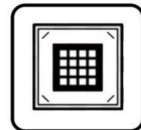
運算放大器



存儲芯片



MCU



串口通信

# LM317L-TD

產品規格說明書

## Description

The LM317L-TD is an adjustable 3-terminal positive voltage regulator, designed to supply 100mA of output current with voltage adjustable from 1.25V~37V.

## Features

- Typical 1% Output Voltage Tolerance
- Output Voltage Adjustable from 1.25V~37V
- Output Current in Excess of 100mA
- Internal Short Circuit Protection
- Internal Over Temperature Protection
- Output Transistor Safe Area Compensation

## Application

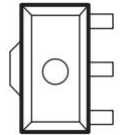
- PC Motherboard
- LCD Monitor
- Graphic Card
- DVD Player
- Network Interface Card/Switch
- Telecom Equipment
- Printer and other Peripheral Equipment



TO-92

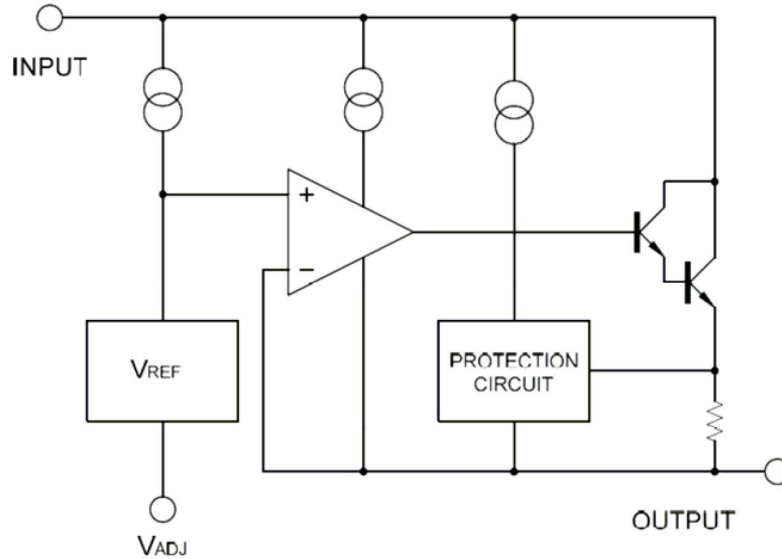


SO-8

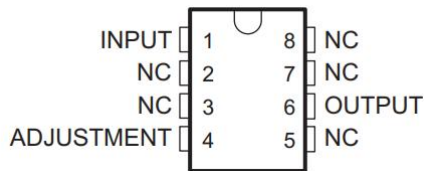


SOT89-3

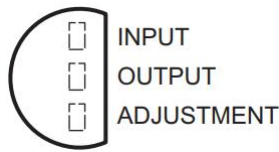
## Block Diagram



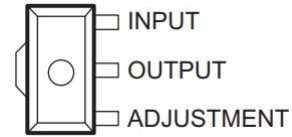
## Pin Configuration (Top View)



SOP8



TO92



SOT89-3

## Absolute Maximum Ratings (Ta=25°C) \*

Parameter	Symbol	Min.	Max.	Unit
Input-Output Voltage Differential	V <sub>in-Vout</sub>		40	V
Power Dissipation	P <sub>D</sub>	Internally Limited		
Maximum Operating Junction Temperature	T <sub>j</sub>	-40	125	°C
Lead Temperature (Soldering, 10 seconds)	T <sub>LEAD</sub>		150	°C
Storage Temperature Range	T <sub>stg</sub>	-65	+150	°C
ESD (human body model)	ESD		4000	V

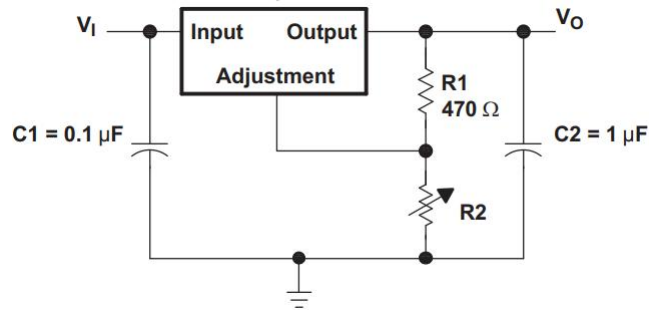
\*: Absolute maximum ratings are stress ratings only and functional device operation is not implied. The device could be damaged beyond Absolute maximum ratings.

## Electrical Characteristics (Unless otherwise specified: $V_i - V_o = 5.0V$ ; $I_o = 10mA$ ; $T_a = 25^\circ C$ )

Parameter	Test conditions	Symbol	Min.	Typ.	Max.	Unit
Reference Voltage	$2.5mA \leq I_{OUT} \leq 100mA$ $5V \leq V_{IN} - V_{OUT} \leq 35V$ $P_d \leq \text{rated dissipation}$	$V_{REF}$	1.20	1.25	1.30	V
Line Regulation	$5V \leq V_{IN} - V_{OUT} \leq 35V$	LNR	-	0.01	0.02	% /V
Load Regulation	$2.5mA \leq I_{OUT} \leq 100mA$	LDR	-	0.02	0.5	% /V
Adjust Pin Current		$I_{adj}$	-	50	100	$\mu A$
Adjust Pin Current Change	$2.5mA \leq I_{OUT} \leq 100mA$ $3V \leq V_{IN} - V_{OUT} \leq 35V$ , $P_d \leq \text{rated dissipation}$	$\Delta I_{adj}$	-	0.2	5.0	$\mu A$
Minimum Load Current	$V_{IN} - V_{OUT} = 35V$	$I_{L(MIN)}$		1.5	2.5	mA
Current Limit	$V_{IN} - V_{OUT} = 3V$	$I_{LIMIT}$	100	200		mA
Ripple Rejection	$f = 120Hz$ , $V_{IN} - V_{OUT} = 3V$ , $C_{OUT} = 1\mu F$ Tantalum, $I_{OUT} = 100mA$	PSRR	60	75		dB
Temperature Stability	$T_{MIN} \leq T_J \leq T_{MAX}$			0.7		%
RMS Output Noise (% of $V_{OUT}$ )	$T_a = 25^\circ C$ , $10Hz \leq f \leq 10kHz$	$E_n$		0.003		%/ $V_o$
Thermal Resistance, Junction to Ambient	SOP8	$\theta_{JC}$		97.1		$^\circ C/W$
	TO92			139.5		
	SOT89-3			51.5		

Maximum Power Dissipation is Package Type and Case Temperature dependent.

## Application Circuit



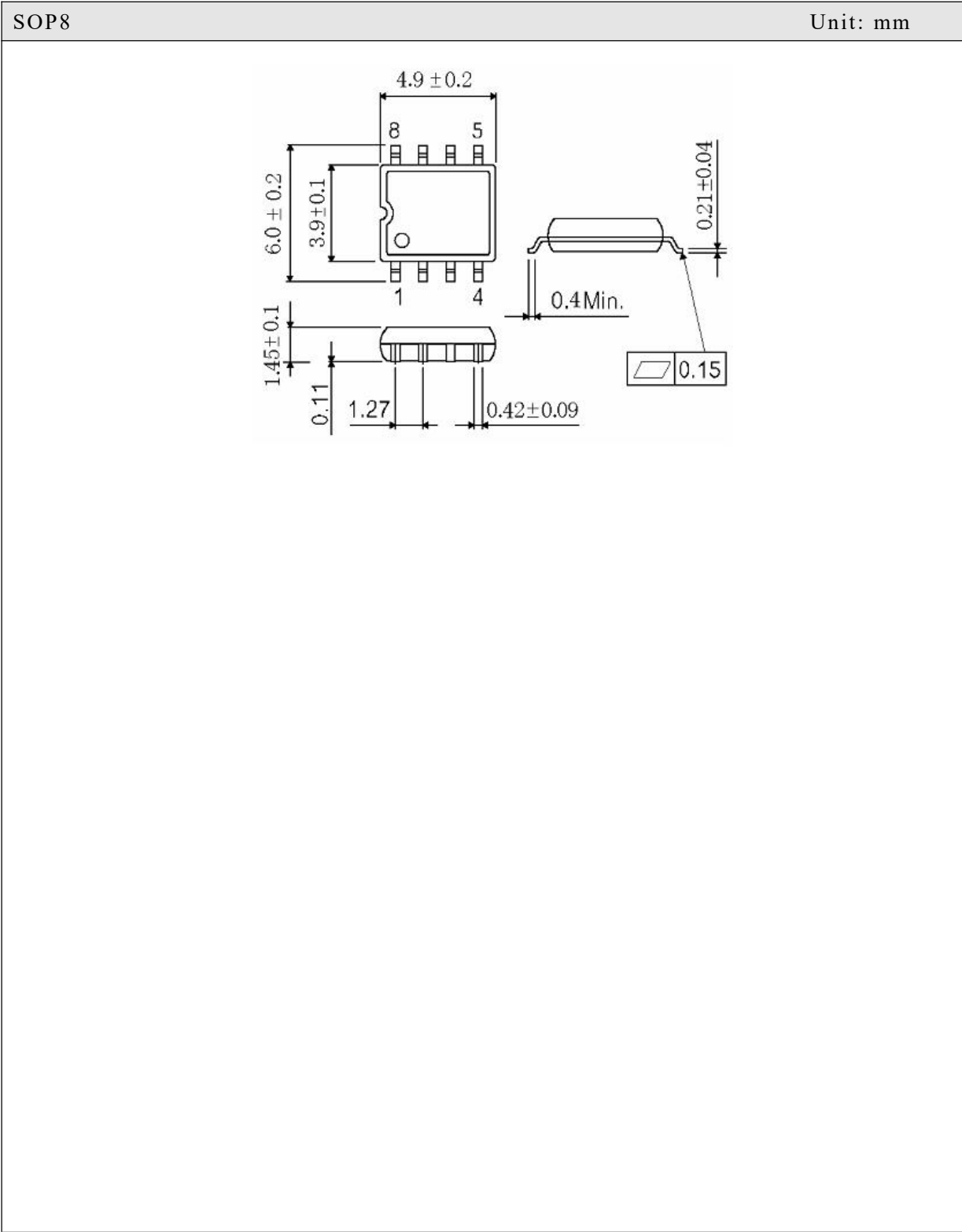
\* =  $C_{IN}$  is required if the regulator is located near power supply filter.

\*\*=  $C_O$  is needed for stability and it improves transient response.

$$V_{OUT} = V_{REF} \times (1 + R2/R1) + I_{ADJ} \times R2$$

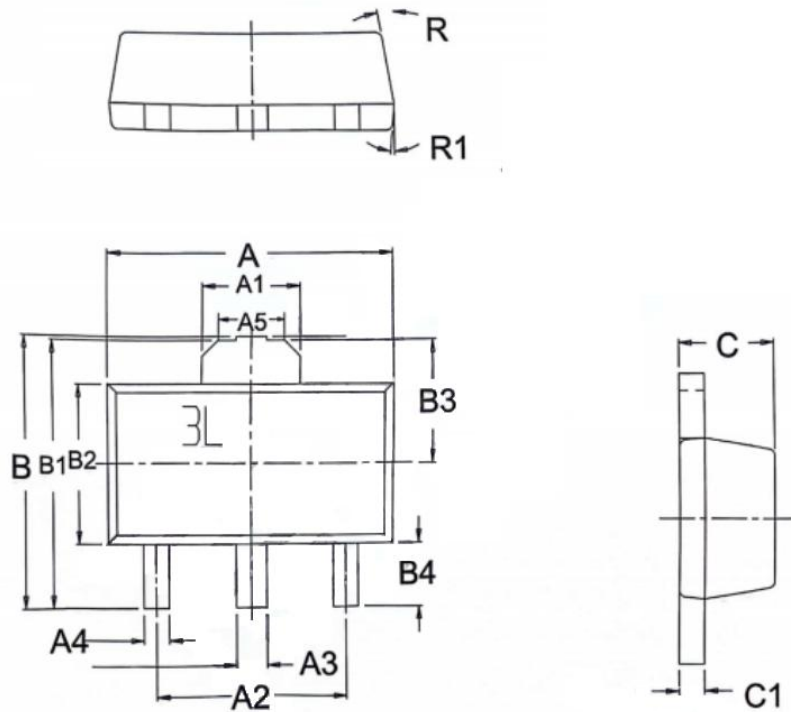
Since  $I_{ADJ}$  is controlled to less than  $100\mu A$ , the error associated with this term is negligible in most applications.

## Outline Drawing



SOT89-3

Unit: mm



尺寸 标注	最小值 (mm)	平均值 (mm)	最大值 (mm)
A	4.45	4.50	4.55
A1	1.65	1.70	1.75
A2	2.98	3.00	3.03
A3	0.46	0.48	0.53
A4	0.38	0.40	0.45
A5	0.98	1.08	1.18
B	4.14	4.24	4.34
B1	4.13	4.18	4.23
B2	2.45	2.50	2.55
B3	1.93	1.98	2.03
B4	0.95	1.00	1.05
C	1.45	1.50	1.55
C1	0.37	0.38	0.39
R		10°	
R1		5°	

