

TDSEMIC

拓電半導體

自主封測 品質把控 售後保障

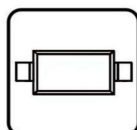
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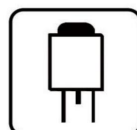
電源管理



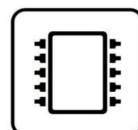
顯示驅動



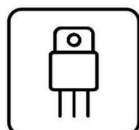
二三極管



LDO穩壓器



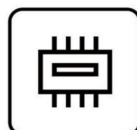
觸摸芯片



MOS管



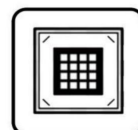
運算放大器



存儲芯片



MCU



串口通信

LM317S-TD

產品規格說明書

DESCRIPTION

The LM317XX is an adjustable 3-terminal positive voltage regulator, designed to supply 1.5A of output current with voltage adjustable from 1.25V ~ 32V.

FEATURES

Typical 1% Output Voltage Tolerance
Output voltage adjustable from 1.25V ~32V
Output current in excess of 1.5A
Internal short circuit protection
Internal over temperature protection
Output transistor safe area compensation



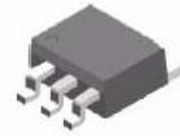
SOT-223



TO-220



TO-252

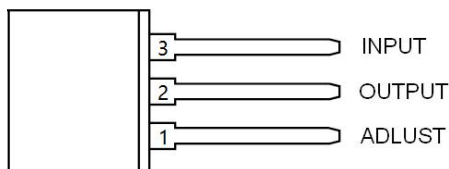


TO-263

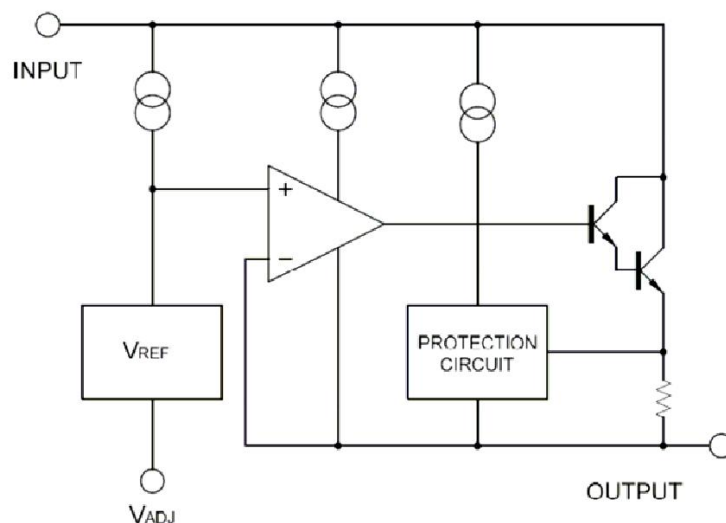
APPLICATIONS

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

Pin Configuration (Top View)



BLOCK DIAGRAM



ABSOLUTE MAXIMUM RATINGS (Ta=25° C) *

Characteristic	Symbol	Min.	Max.	Unit
Input - Output Voltage Difference	V _{in-Vout}		32	V
Power Dissipation	P _d	Internal limited		
Maximum junction temperature	T _J		150	°C
Storage temperature	T _s	-40	150	°C
Lead temperature (soldering, 10sec)	T _{LEAD}		260	°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.

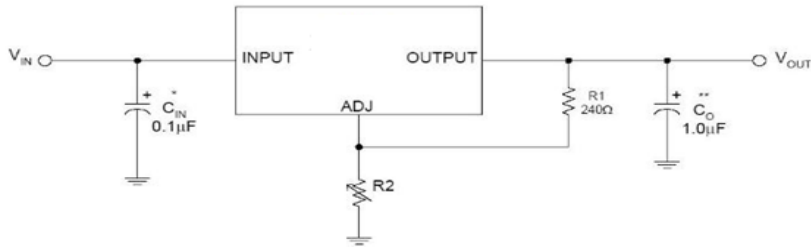
ELECTRICAL CHARACTERISTICS

(VIN-VOUT=5V, IOU=10mA, Ta=25° C, unless otherwise specified.) *

Characteristics	Test conditions	Symbol	Min.	Typ.	Max.	Unit
Reference voltage	$10\text{mA} \leq I_{\text{OUT}} \leq 1.5\text{A}$	VREF	1.20	1.25	1.30	V
	$3\text{V} \leq (V_{\text{IN}} - V_{\text{OUT}}) \leq 32\text{V}$					
	$\text{PD} \leq 20\text{W}$					
Line regulation	$3\text{V} \leq V_{\text{IN}} - V_{\text{OUT}} \leq 32\text{V}$	SV		0.01	0.04	%/V
Load regulation	$0\text{mA} \leq I_{\text{OUT}} \leq 1.5\text{A}$	Si		0.2	0.4	%
Adjust pin current		Iadj		50	100	μA
Adjust pin current change	$3\text{V} \leq V_{\text{IN}} - V_{\text{OUT}} \leq 32\text{V}, 10\text{mA} \leq I_{\text{OUT}} \leq 1.5\text{A}, \text{PD} \leq 20\text{W}$	Iadj		0.2	5.0	μA
Minimum load current	$V_{\text{IN}} - V_{\text{OUT}} = 32\text{V}$	ILmin		3.5	10.0	mA
Ripple rejection	$f = 120\text{Hz}, C_{\text{OUT}} = 1\mu\text{F}$ tantalum,	RR	60	75		dB
	$(V_{\text{IN}} - V_{\text{OUT}}) = 3\text{V},$					
	$I_{\text{OUT}} = 1.5\text{A}$					
Temperature stability	TMIN TJ TMAX			0.7		%
RMS output noise (% of VOUT)	$T_a = 25^\circ\text{C}, 10\text{Hz} \leq f \leq 10\text{kHz}$	en		0.003		%
Thermal resistance, Junction to case	SOT223	θ_{JC}		23		$^\circ\text{C}/\text{W}$
	TO252			12		
	TO220			5		
	TO263			5		
Thermal resistance, Junction to Ambient	SOT223	θ_{JA}		165		$^\circ\text{C}/\text{W}$
	TO252			112		
	TO220			54		
	TO263			64		
Thermal shutdown hysteresis		Thys		25		$^\circ\text{C}/\text{W}$

*: Maximum Power Dissipation is Package Type and Case Temperature dependent.

APPLICATION CIRCUIT



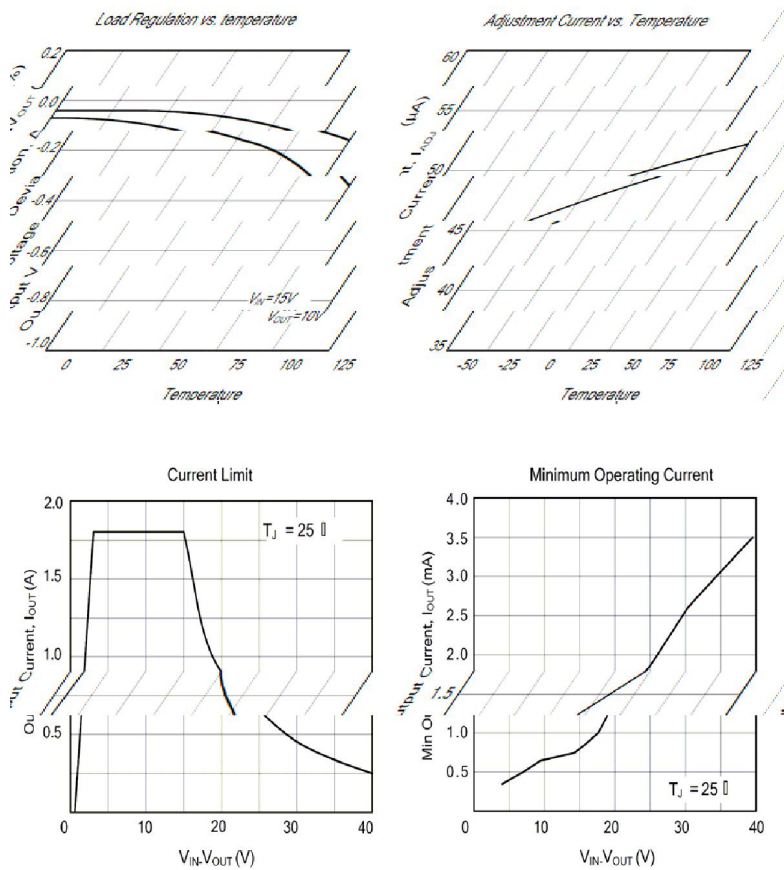
* = C_{IN} is required if the regulator is located near power supply filter.

**= 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 100µA, the error associated with this term is negligible in most applications.

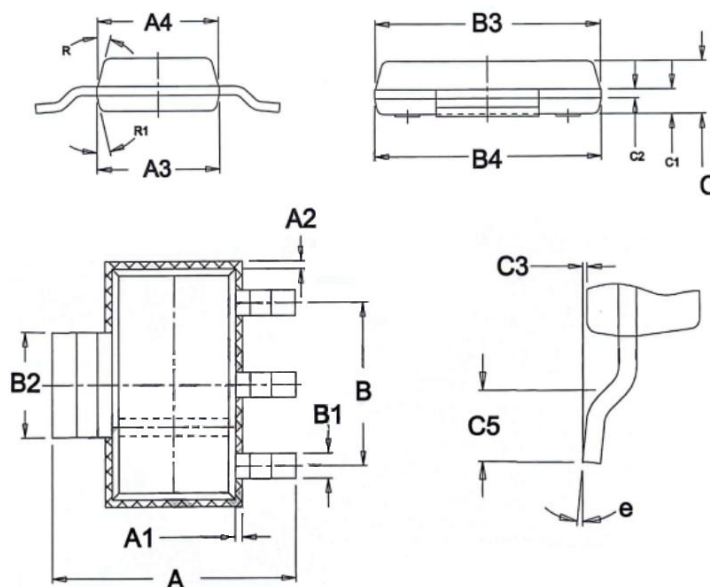
CHARACTERISTICS CURVES



OUTLINE DRAWING

SOT223-3L

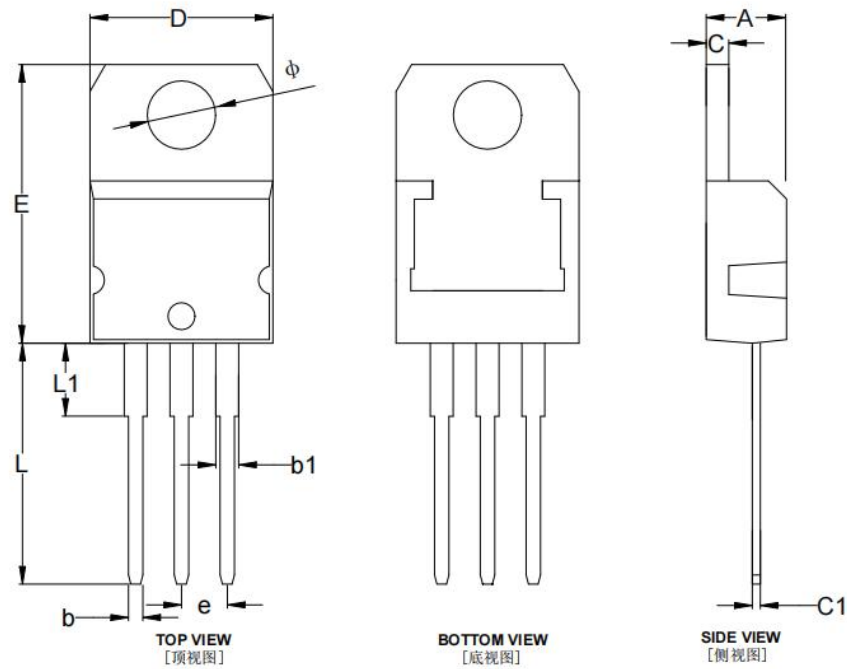
Unit:mm



标注 \ 尺寸	最小值 (mm)	平均值 (mm)	最大值 (mm)
A	6.85	6.90	7.05
A1			0.15
A2			0.15
A3	3.45	3.50	3.55
A4	3.40	3.45	3.50
B	4.55	4.60	4.65
B1	0.66	0.71	0.76
B2	2.90	2.95	3.00
B3	6.40	6.45	6.50
B4	6.45	6.50	6.55
C	1.45	1.50	1.55
C1	0.68	0.70	0.73
C2		0.25	
C3	0.02	0.06	0.10
R1		13°	
C5	0.09	1.00	1.10
e	0°	5°	10°
R		15°	

TO220-3L

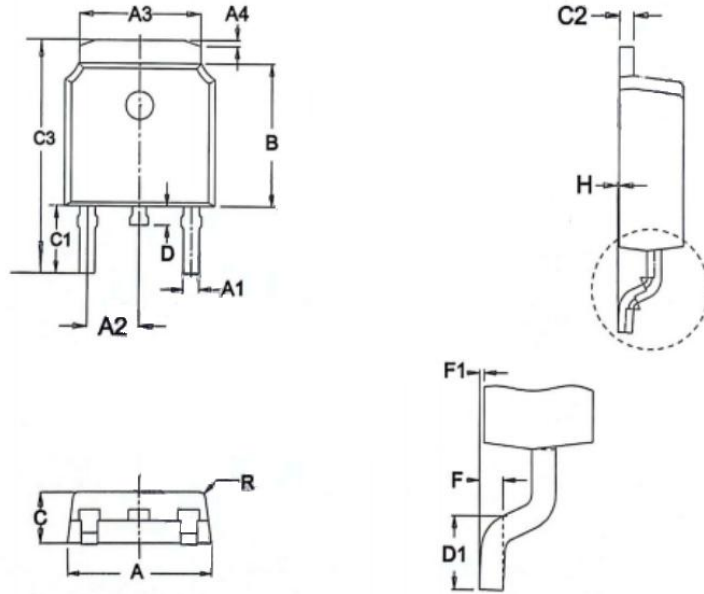
Unit:mm



编号	尺寸 (mm)		
	Min	TYP	Max
A	4.150	4.200	4.250
C	0.985	1.000	1.015
C1	0.365	0.380	0.395
D	10.	10.	10.
E	06015.	08015.	10015.
ϕ	32 7 00	35 8 00	37 9 00
e	2.540TYP		
b	0.770	0.800	0.830
b1	1.230	1.270	1.290
L	13.000	13.500	14.000
L1	3.500	3.700	3.900

TO252

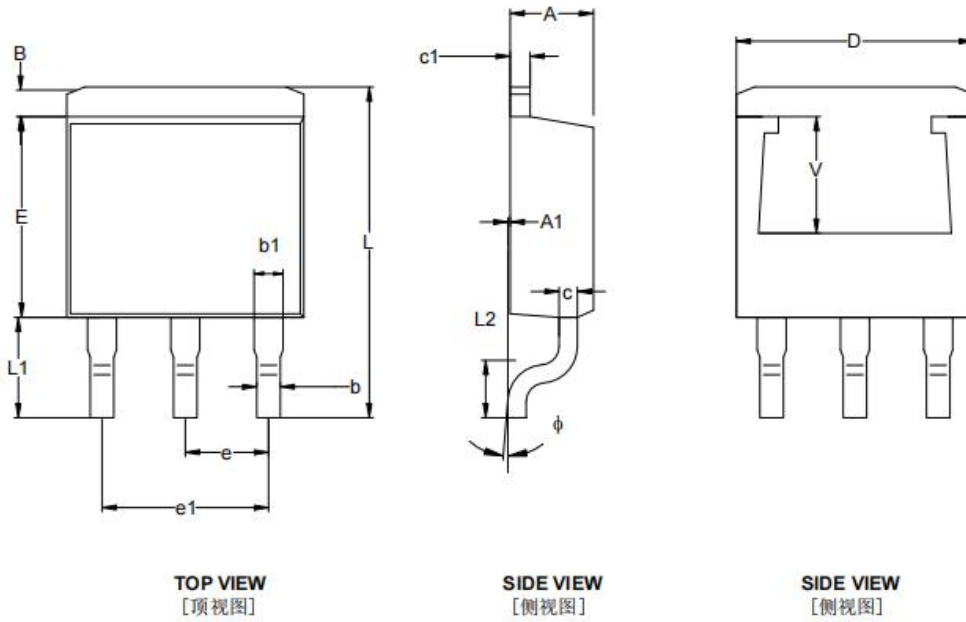
Unit:mm



标注 \ 尺寸	最小值 (mm)	平均值 (mm)	最大值 (mm)
A	6.550	6.600	6.650
A1	0.640	0.690	0.740
A2		2.286	
A3	5.234	5.334	5.434
A4	0.070	0.270	0.470
B	6.050	6.100	6.150
C	2.250	2.300	2.350
D	0.700	0.800	0.900
D1	1.400	1.500	1.600
F		0.508	
F1	0	0.050	0.100
H	0	0.050	0.100
R		0.250	
C1	2.650	2.780	2.950
C2	0.504	0.508	0.510
C3	9.750	9.850	10.00

TO263-3L

Unit:mm



编号	尺寸 (mm)		
	Min	TYP	Max
A	4.470	4.570	4.670
A1	0.000	0.075	0.150
B	1.120	1.270	1.420
b	0.710	0.810	0.910
b1	1.170	1.270	1.370
c	0.310	0.420	0.530
c1	1.170	1.270	1.370
D	10.010	10.160	10.310
E	8.700	9.050	9.400
e	2.540TYP		
e1	4.980	5.080	5.180
L	14.940	15.220	15.500
L1	4.950	5.200	5.450
L2	2.340	2.540	2.740
V	5.600REF		
ϕ	0°	4°	8°