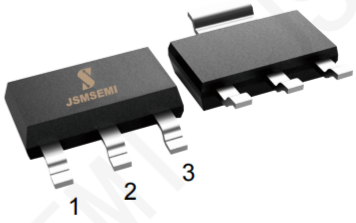
Description

The LM317 is an adjustable 3-terminal positive voltage regulator,designed to supply 1.5A of output current with voltage adjustable from1.25V~32V.



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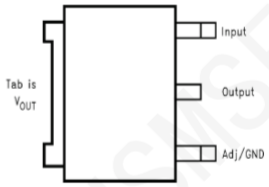
Features

- 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

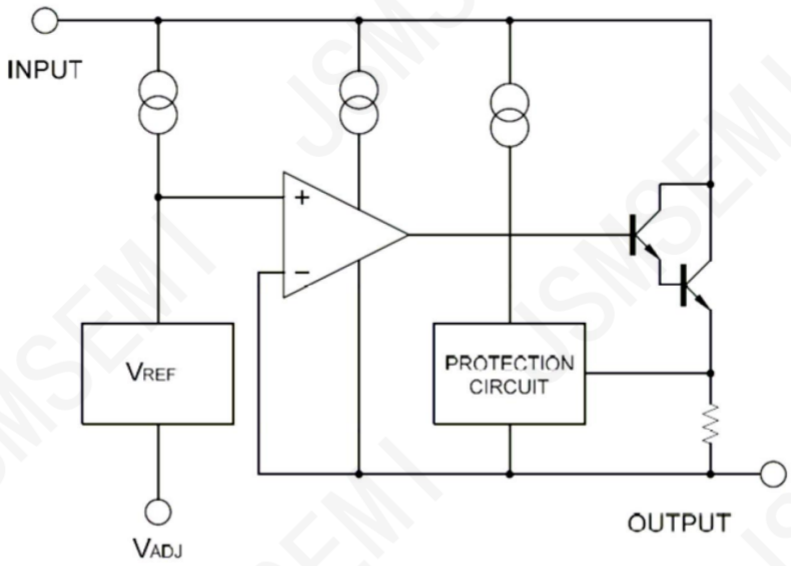


1. Adj
2. Output
3. Input

Application

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

Block Diagram



Absolute Maximum Ratings(Ta=25°C)*

Parameter	Symbol	Min.	Max.	Unit
Input-Output Voltage Differential	Vin-Vout		32	V
Power Dissipation	P_D	Internally Limited		
Maximum Operating Junction Temperature	Tj	0	125	°C
Lead Temperature(Soldering,10seconds)	T_{LEAD}		260	°C
Storage TemperatureRange	Tstg	-40	+150	°C
ESD(human body model)	ESD		4000	V

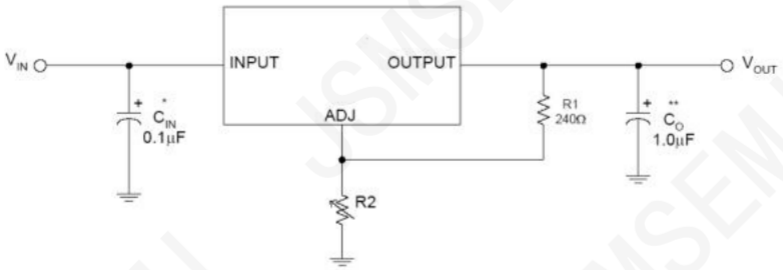
*:Absolute maximum ratings are stress ratings only and functional device operation is not implied.
The device could be damaged beyond Absolute maximum ratings.

Electrical Characteristics(Unless otherwise specified:Vi-Vo=5.0V;Io=10mA;Ta=25°C)

Parameter	Testconditions	Symbol	Min.	Typ.	Max.	Unit
Reference Voltage	10mA≤ I_{OUT}≤ 1.5A 3V≤ V_{IN}-V_{OUT}≤ 32V Pd≤ 20W	V_{REF}	1.20	1.25	1.30	V
Line Regulation	3V≤ V_{IN}-V_{OUT}≤ 32V	LNR	-	0.01	0.04	%/V
Load Regulation	10mA≤ I_{OUT}≤ 1.5A	LDR	-	0.2	0.4	%
Adjust PinCurrent		Iadj	-	50	100	μA
Adjust Pin Current Change	10mA≤ I_{OUT}≤ 1.5A 3V≤ V_{IN}-V_{OUT}≤ 32V, Pd≤ 20W	Δ Iadj	-	0.2	5.0	μA
Minimum Load Current	V_{IN}-V_{OUT}=32V	$I_{L(MIN)}$		3.5	10.0	mA
Current Limit	V_{IN}-V_{OUT}=3V	I_{LIMIT}	1.8	2.2		A
Ripple Rejection	f=120Hz, V_{IN}-V_{OUT}=3V, C_{OUT}=1μF Tantalum, I_{OUT}=1.5A	PSRR	60	75		dB
Temperature Stability	T_{MIN}≤ T_J≤ T_{MAX}			0.7		%
RMS Output Noise (% of V_{OUT})	Ta=25° C, 10Hz≤ f=10kHz	En		0.003		%/Vo
Thermal Shutdown Hysteresis		Thys		25		°C

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.

Package Information

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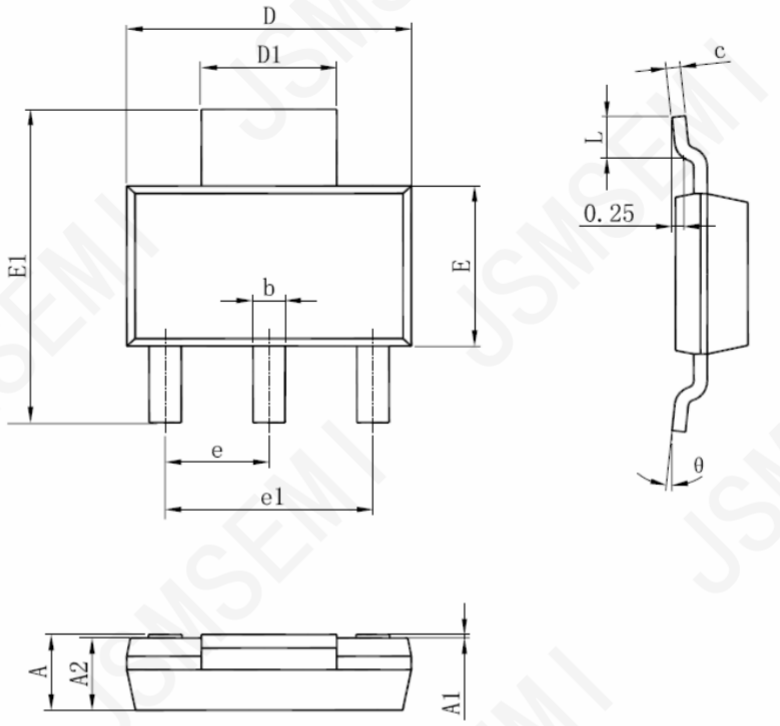

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.520	1.800	0.060	0.071
A1	0.000	0.100	0.000	0.004
A2	1.500	1.700	0.059	0.067
b	0.660	0.820	0.026	0.032
c	0.250	0.350	0.010	0.014
D	6.200	6.400	0.244	0.252
D1	2.900	3.100	0.114	0.122
E	3.300	3.700	0.130	0.146
E1	6.830	7.070	0.269	0.278
e	2.300(BSC)		0.091(BSC)	
e1	4.500	4.700	0.177	0.185
L	0.900	1.150	0.035	0.045
θ	0°	10°	0°	10°