



DESCRIPTION

The A317 is an adjustable 3-terminal positive voltage regulator, designed to supply 1A of output current with voltage adjustable from 1.3V ~ 35V.

The A317 is available in TO-220 and TO-263 Package.

ORDER INFORMATION

Package Type	Part Number	
TO-220-3	T3	A317T3U
		A317T3VU
TO-263-3	S3	A317S3R
		A317S3VR
Note	R: Tape & Reel	
	U: Tube	
	V: Halogen free Package	
AiT provides all RoHS products		
Suffix “ V ” means Halogen free Package		

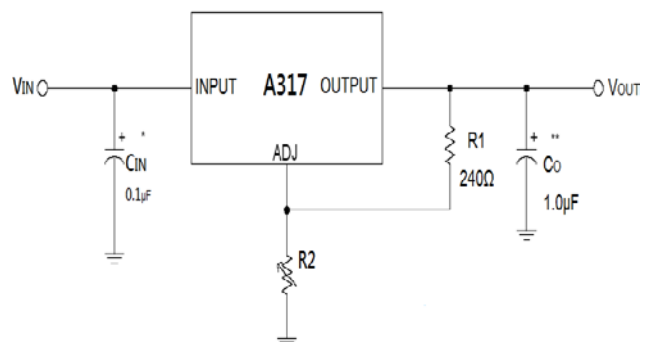
FEATURES

- Typical 1% Output Voltage Tolerance
- Output voltage adjustable from 1.3V ~ 35V
- Output current in excess of 1A
- Internal short circuit protection
- Internal over temperature protection
- Output transistor safe area compensation
- Available in TO-220 and TO-263 Package

APPLICATIONS

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

TYPICAL APPLICATION



- * = C_{IN} is required if the regulator is located near power supply filter.
** = C_O is needed for stability and it improves transient response.

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

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



PIN DESCRIPTION

<p>Top View</p>		<p>Top View</p>	
Pin #		Symbol	Function
TO-220-3	TO-263-3		
1	1	ADJ	Adjustable
2	2	V _{OUT}	Output
3	3	V _{IN}	Input



ABSOLUTE MAXIMUM RATINGS

$T_A=25^{\circ}\text{C}$

$V_{IN}-V_{OUT}$, Input - Output Voltage Difference	37 V
P_D , Power Dissipation	Internal limited
T_J , Maximum junction temperature	150°C
T_S , Storage temperature	-40°C to 150°C
T_{LEAD} , Lead temperature (soldering, 10sec)	260°C
ESD, ESD (human body model)	4000 V

Stresses above may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated in the Electrical Characteristics is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.



ELECTRICAL CHARACTERISTICS

$V_{IN}-V_{OUT}=5V$, $I_{OUT}=10mA$, $T_A=25^{\circ}C$, unless otherwise specified^{NOTE1}

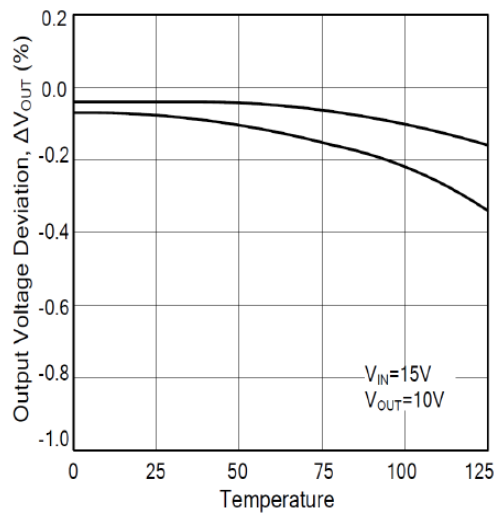
Parameter	Symbol	conditions	Min.	Typ.	Max.	Unit
Reference voltage	V_{REF}	$10mA \leq I_{OUT} \leq 1A$ $3V \leq (V_{IN}-V_{OUT}) \leq 37V, P_D \leq 20W$	1.20	1.25	1.30	V
Line regulation	S_V	$3V \leq V_{IN}-V_{OUT} \leq 37V$		0.01	0.04	%/V
Load regulation	S_I	$0mA \leq I_{OUT} \leq 1A$		0.2	0.4	%
Adjust pin current	I_{ADJ}			50	100	μA
Adjust pin current change	ΔI_{ADJ}	$3V \leq V_{IN}-V_{OUT} \leq 37V$, $10mA \leq I_{OUT} \leq 1A, P_D \leq 20W$		0.2	5.0	μA
Minimum load current	I_{LMIN}	$V_{IN}-V_{OUT}=37V$		3.5	10.0	mA
Ripple rejection	RR	$f=120Hz, C_{OUT}=1\mu F$ tantalum, $(V_{IN}-V_{OUT})=3V, I_{OUT}=1A$	60	75		dB
Temperature stability		$T_{MIN} \leq T_J \leq T_{MAX}$		0.7		%
RMS output noise (% of V_{OUT})	e_n	$T_A=25^{\circ}C, 10Hz \leq f \leq 10kHz$		0.003		%
Thermal resistance, Junction to case	θ_{JC}	TO-220		5		$^{\circ}C/W$
		TO-263		5		
Thermal resistance, Junction to Ambient	θ_{JA}	TO-220		54		
		TO-263		64		
Thermal shutdown hysteresis	T_{HYS}			25		$^{\circ}C$

NOTE1: Maximum Power Dissipation is Package Type and Case Temperature dependent.

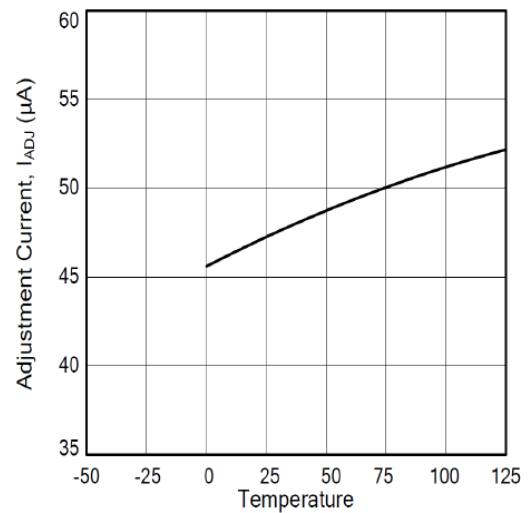


TYPICAL PERFORMANCE CHARACTERISTICS

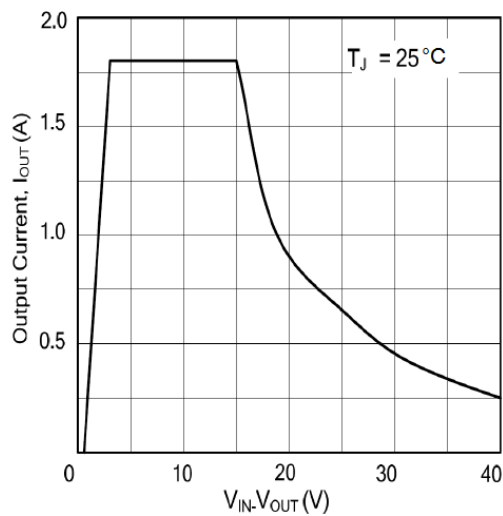
1. Load Regulation vs. Temperature



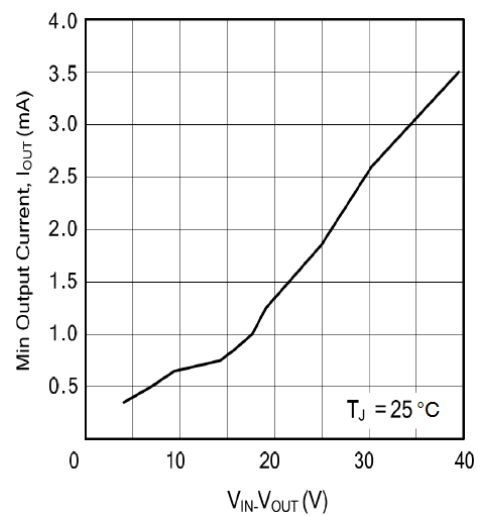
2. Adjustment Current vs. Temperature



3. Current Limit

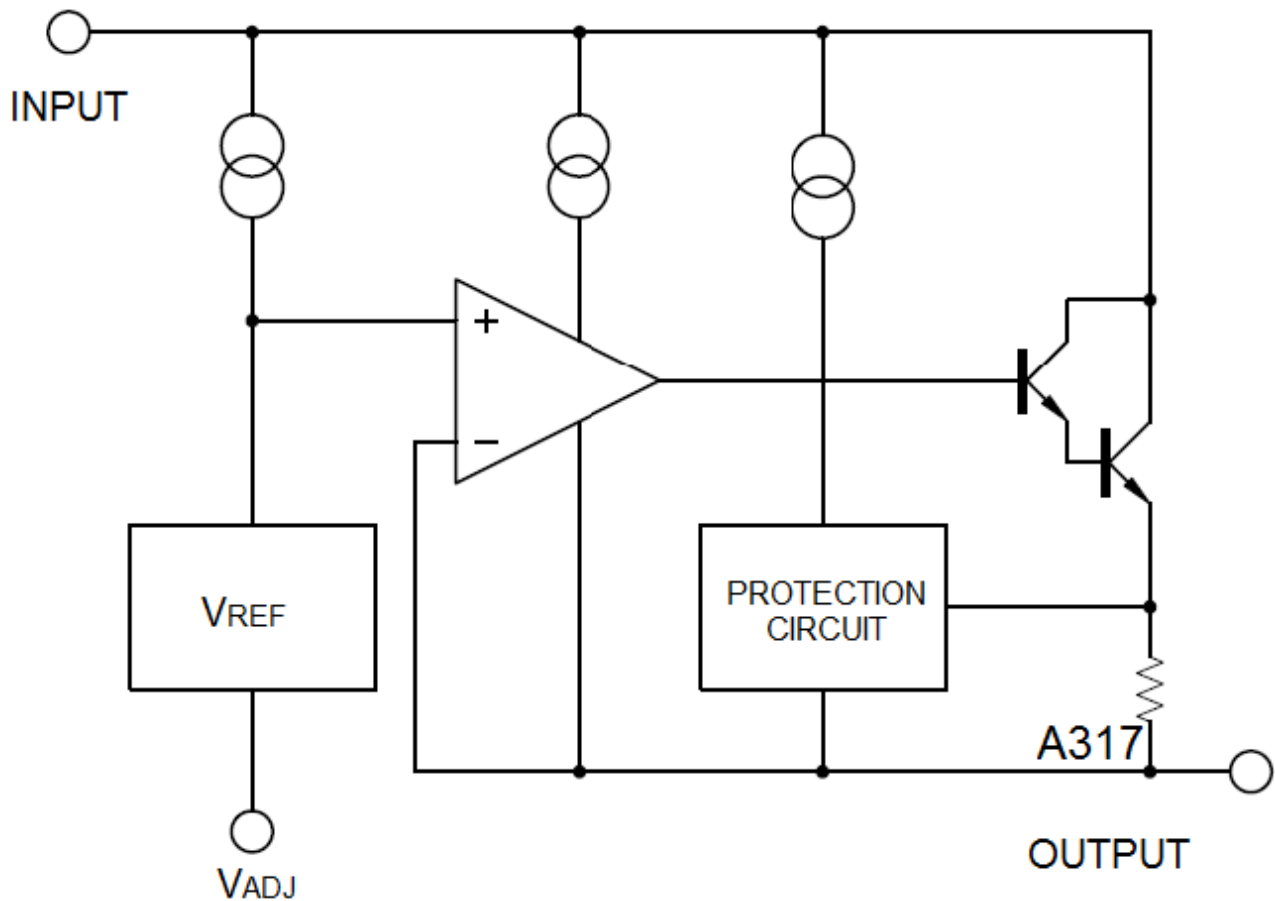


4. Minimum Operating Current





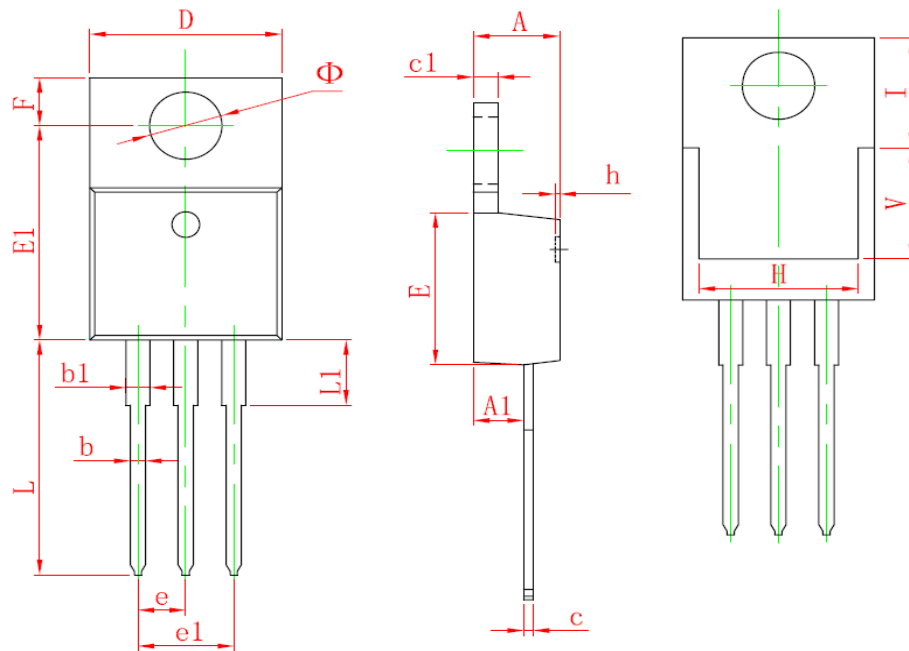
BLOCK DIAGRAM





PACKAGE INFORMATION

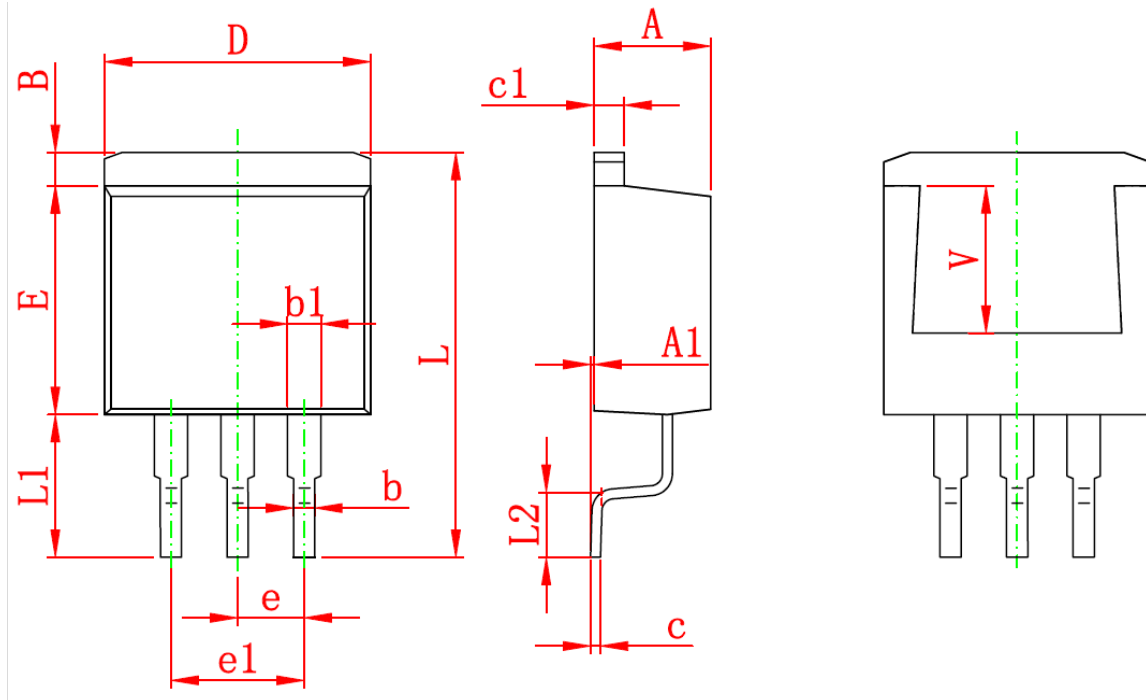
Dimension in TO-220-3 (Unit: mm)



Symbol	Min	Max
A	4.300	4.700
A1	2.200	2.600
b	0.710	0.910
b1	1.170	1.370
c	0.450	0.600
c1	1.250	1.400
D	9.700	10.100
E	8.000	10.200
E1	12.700	13.100
e	2.540 TYP.	
e1	4.880	5.280
F	2.700	2.900
H	8.700 REF.	
h	0.000	0.300
L	12.880	13.280
L1	-	3.000
V	9.000	9.200
I	-	6.300
Φ	3.500	3.700



Dimension in TO-263-3 (Unit: mm)



Symbol	Min	Max
A	4.070	4.820
A1	0.020	0.250
B	1.270	1.390
b	0.510	0.900
b1	1.150	1.390
c	0.380	
c1	1.150	1.390
D	9.650	10.290
E	8.640	9.650
e	2.540 TYP	
e1	5.080	
L	15.740	14.760
L1	5.080	5.480
L2	2.390	2.690
V	5.600 REF	



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