

D317

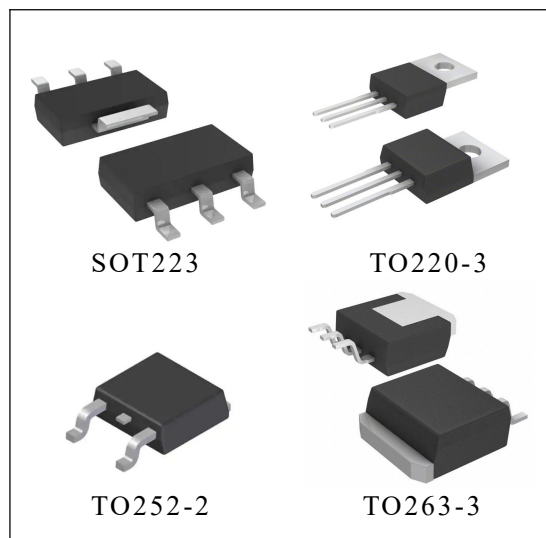
High Current Adjustable Voltage Regulator

General Description

The D317 is an adjustable 3-terminal positive voltage regulator, designed to supply 1A of output current with voltage adjustable from 1.3V ~ 35V.

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



Package Information

Part NO.	Package Description	Package Marking	Package Option
D317B	SOT223	D317B SXXXX	2500/Reel
D317T	TO220-3	CHMC D317T SXXXX	50/Tube
D317D	TO252-2	CHMC D317D SXXXX	2500/Reel
D317S	TO263-3	CHMC D317S SXXXX	50/Tube 800/Reel

CHMC:Trademark

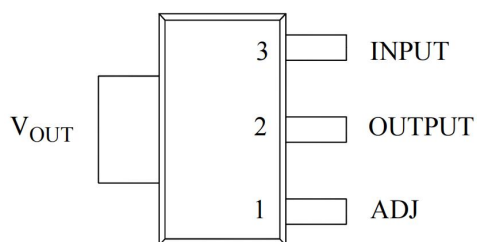
D317B/D317T/D317D/D317S:Part NO.

SXXXX:Lot NO.

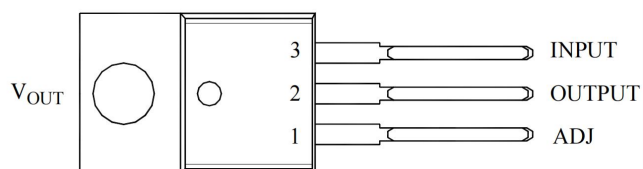
Application

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

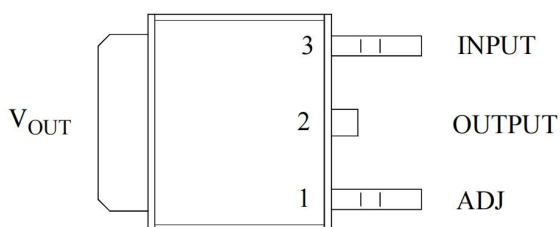
Pin Configuration



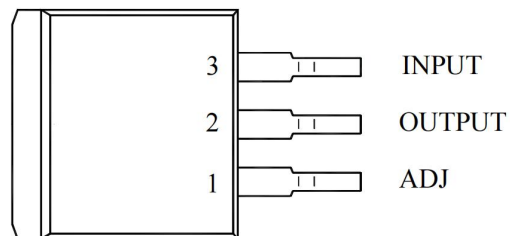
D317B(SOT223)



D317T(TO220-3)

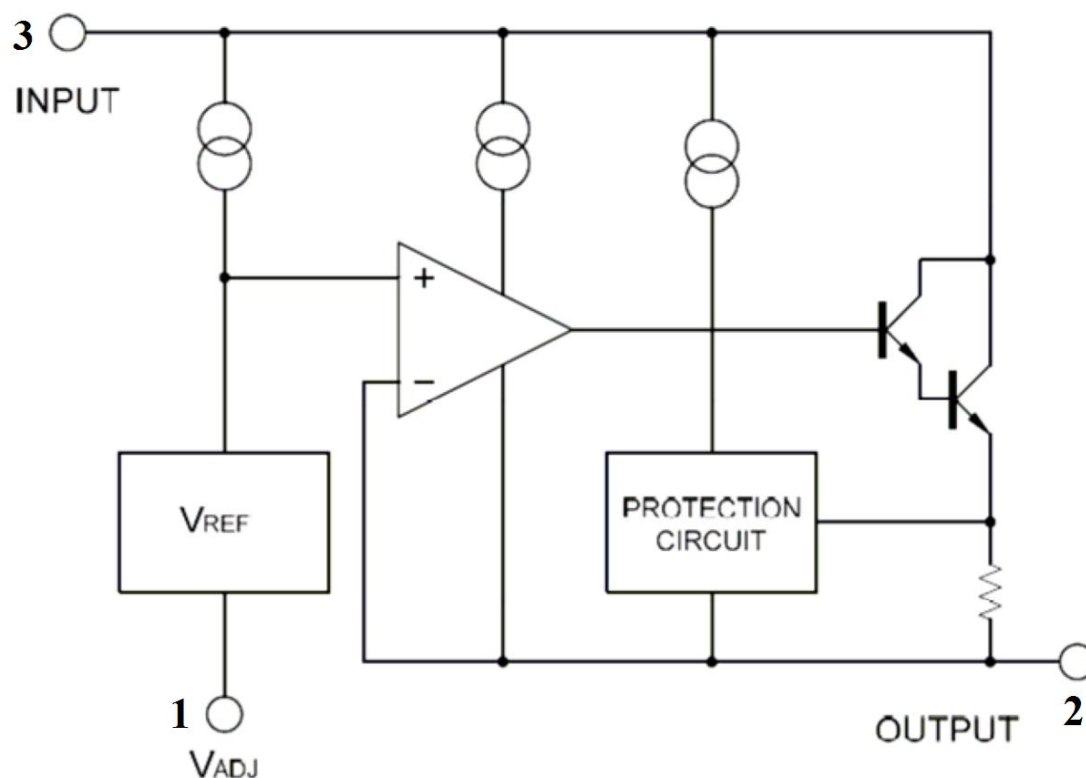


D317D(TO252-2)



D317S(TO263-3)

Block Diagram



Specifications Maximum Ratings (Ta=25°C) *

Characteristic	Symbol	Min.	Max.	Unit
Input-Output Voltage Differential	$V_i - V_o$		37	V
Power Dissipation	P_D	Internally Limited		
maximum Junction Temperature	T_j		150	°C
Lead Temperature (Soldering, 10 seconds)	T_{LEAD}		260	°C
Storage Temperature Range	T_{stg}	-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.

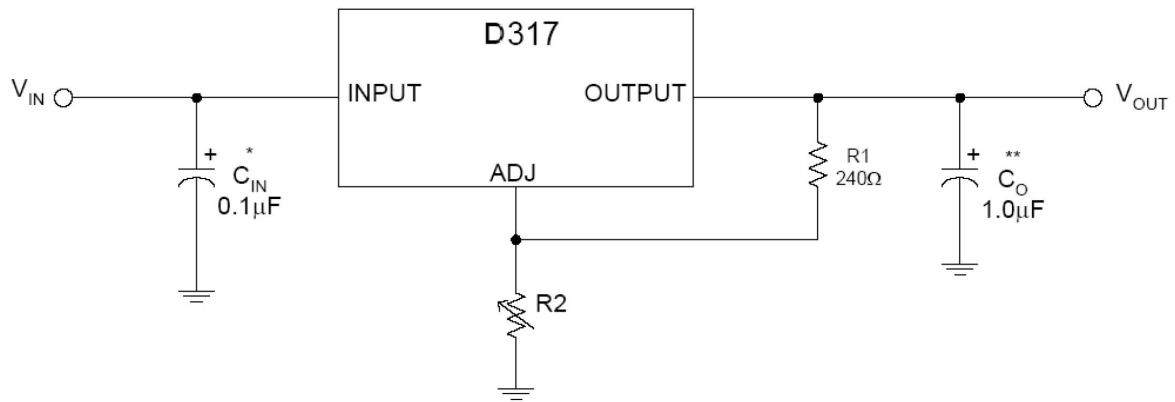
Electrical Characteristics

(unless otherwise specified: $V_i - V_o = 5.0V$; $I_o = 10mA$; $T_a = 25^\circ C$) *

Characteristics	Test conditions	Symbol	Min.	Typ	Max.	Unit
Reference voltage	$10mA \leq I_{OUT} \leq 1A$ $3V \leq (V_{IN} - V_{OUT}) \leq 37V$ $P_d \leq 20W$	VREF	1.20	1.25	1.30	V
Line Regulation	$3V \leq (V_{IN} - V_{OUT}) \leq 37V$	S _v	-	0.01	0.04	% /V
Load Regulation	$0mA \leq I_{OUT} \leq 1A$	S _i	-	0.2	0.4	%
Adjust Pin Current	-	I _{adj}	-	50	100	μA
Adjust Pin Current Change	$10mA \leq I_{OUT} \leq 1A$ $3V \leq (V_{IN} - V_{OUT}) \leq 37V$, $P_d \leq 20W$	ΔI_{adj}	-	0.2	5.0	μA
Minimum load current	$V_{IN} - V_{OUT} = 37V$	T _{LMIN}		3.5	10.0	mA
Ripple rejection	$f = 120Hz$, $C_{OUT} = 1\mu F$ tantalum, $(V_{IN} - V_{OUT}) = 3V$, $I_{OUT} = 1A$	RR	50	75		dB
Temperature stability	$T_{MIN} \leq T_J \leq T_{MAX}$			0.7		%
RMS output noise (% of V _{OUT})	$T_a = 25^\circ C$, $10Hz \leq f \leq 10kHz$	En		0.003		%
Thermal resistance, Junction to case	SOT223	θ_{JC}		23		$^\circ C/W$
	TO252-2			12		
	TO220-3			5		
	TO263-3			5		
Thermal resistance, Junction to ambient	SOT223	θ_{JA}		165		$^\circ C/W$
	TO252-2			112		
	TO220-3			54		
	TO263-3			64		
Thermal shutdown hysteresis		Thys		25		$^\circ C$

*: 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.

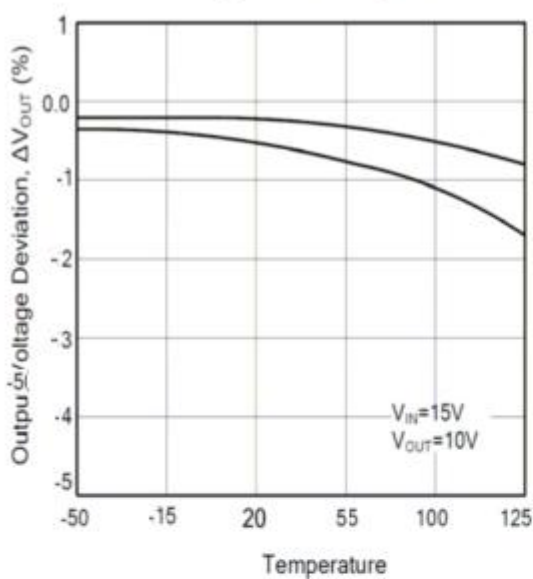
**= C_O is needed for stability and it improves transient response.

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

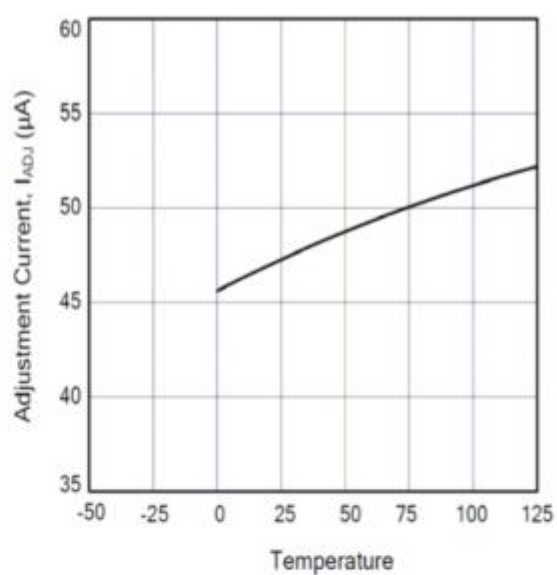
Since I_{ADJ} is controlled to less than 100 μA , the error associated with this term is negligible in most applications.

Characteristics Curves

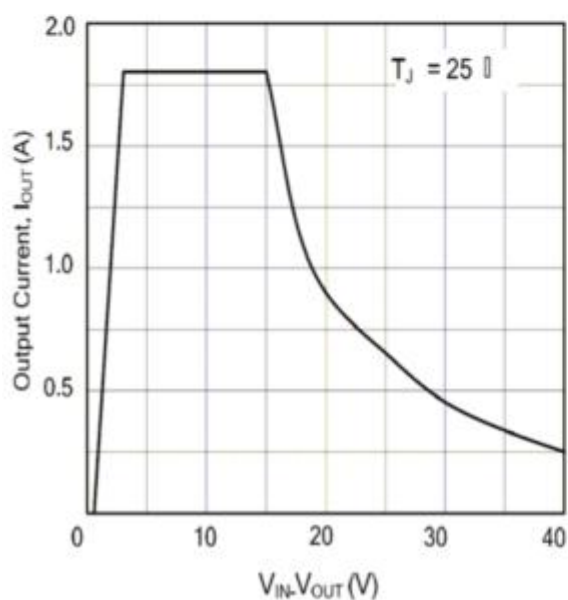
Load Regulation vs. temperature



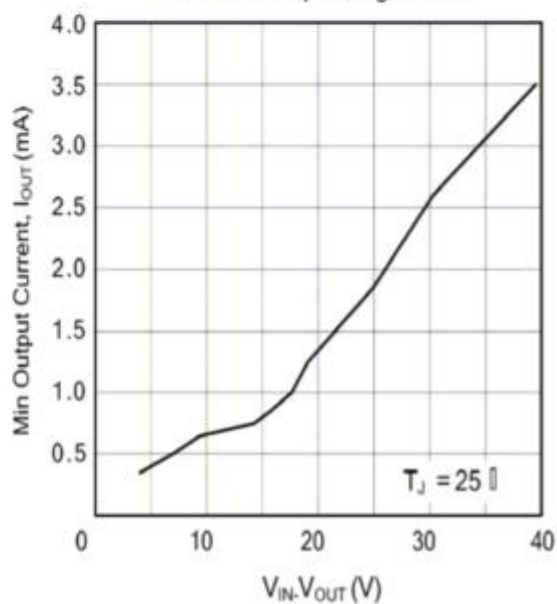
Adjustment Current vs. Temperature



Current Limit



Minimum Operating Current



Outline Dimensions

SOT223

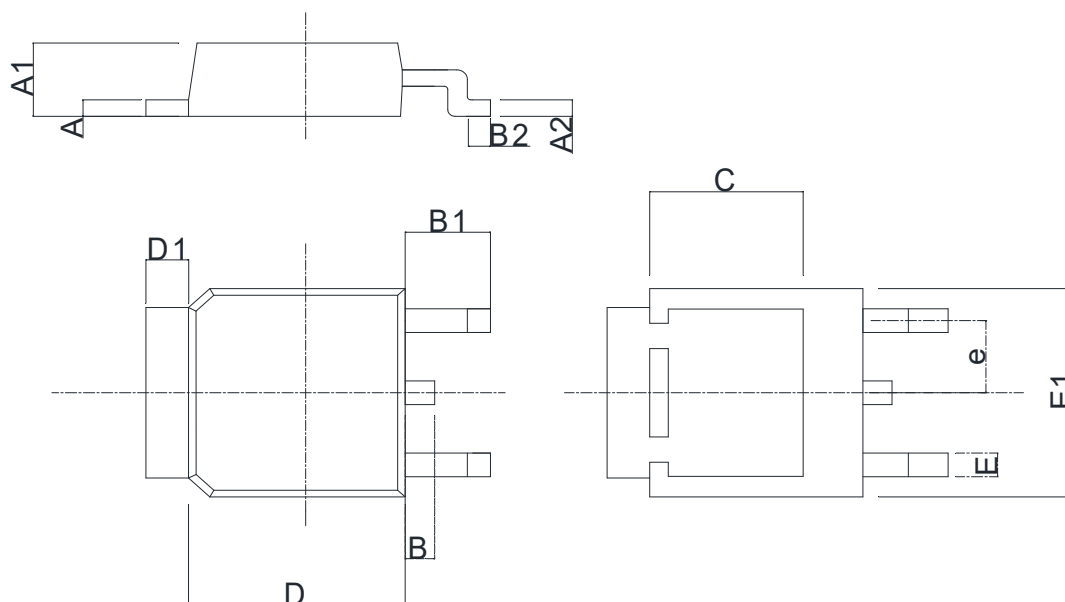
Unit:mm

The image shows a technical drawing of an SOT223 package. The top view (left) is a rectangle with a central rectangular area. Dimensions are labeled: D1 (total width), D (width of the central area), B1 (height of the package), B (height of the central area), E (height of the lead), and e (pitch of the lead). The side view (right) shows the package profile with dimensions A (height of the package) and A1 (height of the lead).

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.550	1.650	0.061	0.064
A1	0.280	0.320	0.011	0.012
B	1.750	1.950	0.068	0.076
B1	3.350	3.550	0.131	0.140
E	0.660	0.760	0.025	0.030
D1	6.450	6.550	0.253	0.257
D	2.900	3.000	0.114	0.118
e	2.300 (BSC)		0.090 (BSC)	

TO252-2

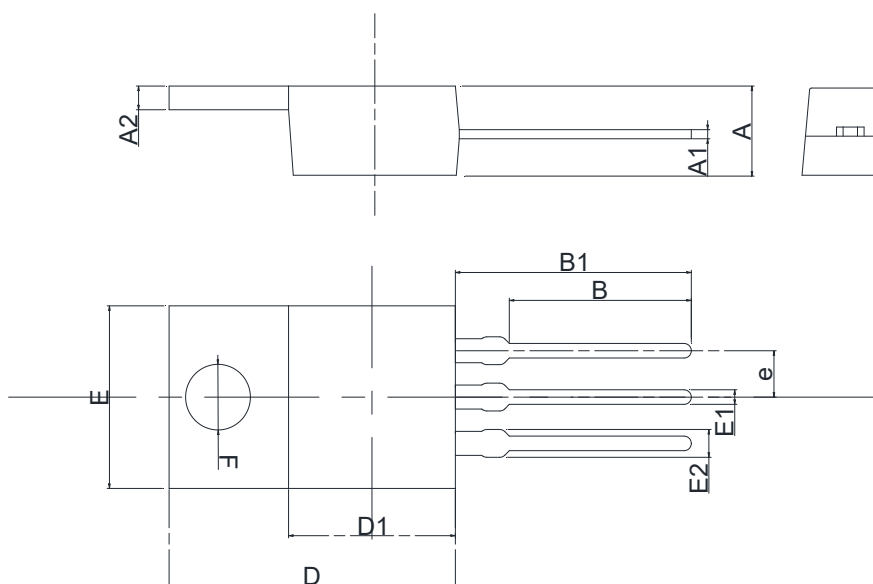
Unit:mm



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.470	0.570	0.018	0.023
A1	2.220	2.380	0.087	0.094
A2	0.470	0.570	0.018	0.023
B	0.820	0.840	0.032	0.033
B1	2.380	2.480	0.093	0.098
B2	0.500	0.520	0.019	0.021
C	4.250	4.450	0.167	0.176
D	6.000	6.200	0.236	0.245
D1	1.150	1.250	0.045	0.050
E	0.650	0.850	0.025	0.034
E1	6.450	6.750	0.253	0.266
e	2.285 (BSC)		0.090 (BSC)	

TO220-3

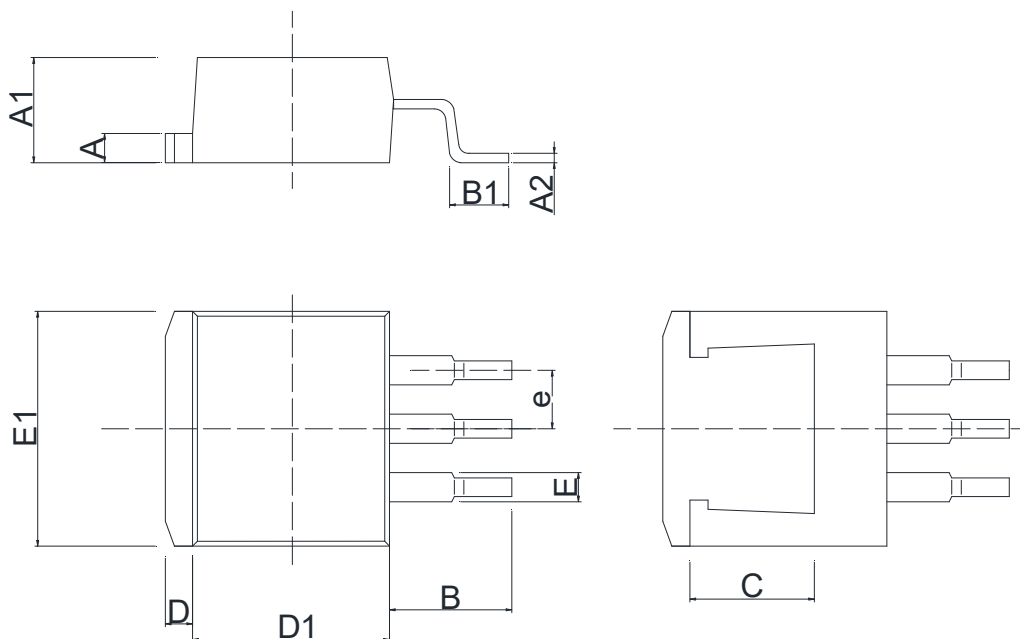
Unit:mm



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	4.300	4.700	0.169	0.185
A1	0.450	0.600	0.017	0.023
A2	1.250	1.400	0.049	0.055
B	9.780	10.380	0.385	0.408
B1	12.880	13.280	0.507	0.522
D	15.500	15.900	0.610	0.626
D1	9.000	9.400	0.354	0.370
E	9.700	10.100	0.381	0.398
E1	0.700	0.900	0.027	0.036
E2	1.420	1.620	0.055	0.063
e	2.540 (BSC)		0.984 (BSC)	
F	Φ 3.500	Φ 3.700	Φ 0.137	Φ 0.146

TO263-3

Unit:mm



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.170	1.370	0.046	0.054
A1	4.470	4.670	0.176	0.184
A2	0.310	0.530	0.012	0.021
B	5.080	5.480	0.200	0.216
B1	2.340	2.740	0.092	0.108
C	5.600 REF		0.220 REF	
D	1.170	1.370	0.046	0.054
D1	8.500	8.900	0.335	0.350
E	1.170	1.370	0.046	0.054
E1	10.010	10.310	0.394	0.406
e	2.540 (BSC)		0.100 (BSC)	

Statements

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