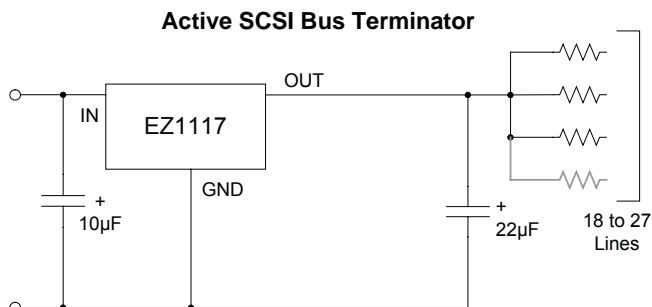
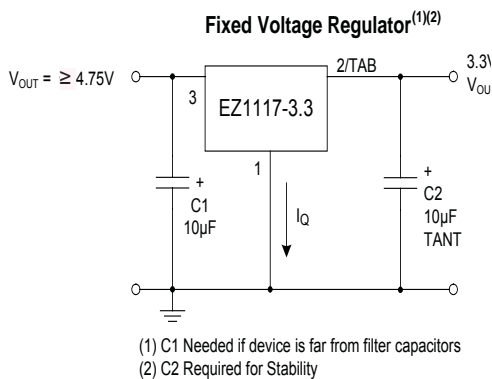
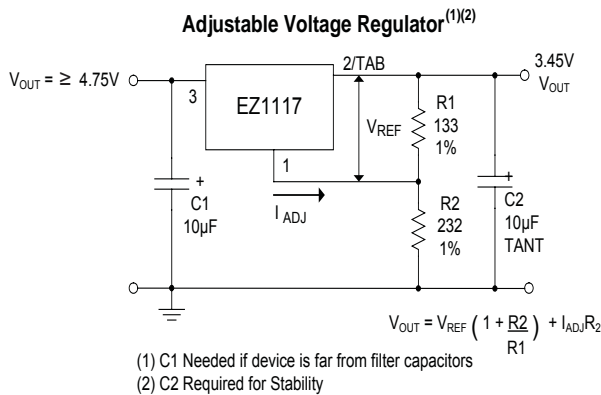


### Description

The EZ1117 series of high performance positive voltage regulators are designed for use in applications requiring low dropout performance at full rated current.

Additionally, the EZ1117 series provides excellent regulation over variations in line, load and temperature. Outstanding features include low dropout performance at rated current, fast transient response, internal current limiting and thermal shutdown protection of the output device. The EZ1117 series of three terminal regulators offer fixed and adjustable voltage options available in the space saving SOT-223 and TO-263 packages.

### Typical Application Circuits



### Features

- ◆ Low dropout performance, 1.2V max. for EZ1117, 1.3V max. for EZ1117A
- ◆ Full current rating over line and temperature
- ◆ Fast transient Response
- ◆ ±2% total output regulation over line, load and temperature
- ◆ Adjust pin current max 90µA over temperature
- ◆ Fixed/adjustable output voltage
- ◆ Line regulation 0.2% max.
- ◆ Load regulation 0.4% max.
- ◆ SOT-223 and TO-263 packages

### Applications

- ◆ Active SCSI termination
- ◆ Low voltage microcontrollers
- ◆ Switching power supply post-regulator

### Ordering Information

Device <sup>(1,2)</sup>	Package	V <sub>OUT</sub> Volts
EZ1117CST-X.X EZ1117ACST-X.X	SOT-223	See Note (1)
EZ1117CM-X.X EZ1117ACM-X.X	TO-263	See Note (1)

#### Notes:

- (1) Where X.X denotes voltage options. Available voltages are: 2.5V, 2.85V and 3.3V. Leave blank for adjustable version (1.3 to 5.7V). Contact factory for additional voltage options.  
(2) Add suffix 'TR' for tape and reel.

## Absolute Maximum Ratings

Parameter	Symbol	Max	Units
Input Supply Voltage	$V_{IN}$	7	V
Power Dissipation	$P_D$	Internally Limited	W
Thermal Resistance Junction to Case SOT-223	$\theta_{JC}$	15	°C/W
TO-263		3	
Thermal Resistance Junction to Ambient SOT-223	$\theta_{JA}$	156	°C/W
TO-263		60	
Operating Junction Temperature Range	$T_J$	0 to 125	°C
Storage Temperature Range	$T_{STG}$	-65 to 150	°C
Lead Temperature (Soldering) 10 Sec	$T_{LEAD}$	260	°C

## Electrical Characteristics<sup>(6)</sup>

Adj. Option:  $V_{IN} = 2.65V$  to  $7.0V$  and Adj  $I_o = 10mA$  to  $I_{RATED}$

Fixed Options:  $I_o = 0mA$  to  $I_{RATED}$

Fixed 2.5V:  $V_{IN} = 3.9V$  to  $7.0V$

Fixed 2.85V:  $V_{IN} = 4.25V$  to  $7.0V$

Fixed 3.3V:  $V_{IN} = 4.75V$  to  $7.0V$

Parameter	Symbol	Test Conditions			Test Limits			
		$V_{IN}$	$I_o$	$T_J^{(5)}$	Min	Typ	Max	Units
Output Voltage <sup>(1)</sup> (Fixed Voltage Versions)	$V_D$	5V	0mA	25°C	$0.99 V_o $	$V_o$	$1.01 V_o $	V
				O.T.	$0.98 V_o $	$V_o$	$1.02 V_o $	
Reference Voltage <sup>(1)</sup> (Adj Voltage Version)	$V_{REF}$	5V	10mA	25°C	1.238	1.250	1.262	V
				O.T.	1.225	1.250	1.270	
Line Regulation <sup>(1)</sup>	$REG_{(LINE)}$		10mA	O.T.		0.035	0.2	%
Load Regulation <sup>(1)</sup>	$REG_{(LOAD)}$	5V		O.T.		0.2	0.4	%
Dropout Voltage <sup>(2)</sup> EZ1117A	$V_D$		100mA	O.T.		1.00	1.10	V
			500mA			1.05	1.15	
			800mA			1.10	1.20	
			1,000mA			1.10	1.30	
Current Limit EZ1117 EZ1117A	$I_{CL}$			O.T.	0.8			A
						1.0		

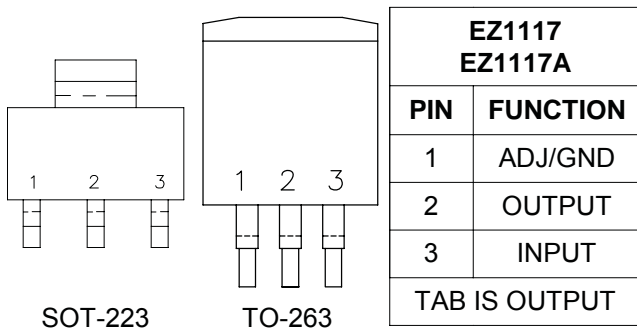
## Electrical Characteristics (Cont.)

Parameter	Symbol	Test Conditions			Test Limits			
		V <sub>IN</sub>	I <sub>O</sub>	T <sub>J</sub> <sup>(5)</sup>	Min	Typ	Max	Units
Quiescent Current Fixed Voltage Version	I <sub>Q</sub>	5V		O.T.		10	13	mA
Temperature Coefficient	T <sub>C</sub>			O.T.		0.005		%/°C
Adjust Pin Current	I <sub>ADJ</sub>			O.T.		55	90	μA
Adjust Pin Current Change	ΔI <sub>ADJ</sub>			O.T.		0.2	5	μA
Temperature Stability	T <sub>S</sub>			O.T.		0.5		%
Minimum Load Current Adj Voltage Version	I <sub>O</sub>	5V		O.T.		5	10	mA
RMS Output Noise <sup>(3)</sup>	V <sub>N</sub>			25°C		0.003		%V <sub>O</sub>
Ripple Rejection Ratio <sup>(4)</sup>	R <sub>A</sub>	5V		O.T.	60	72		dB

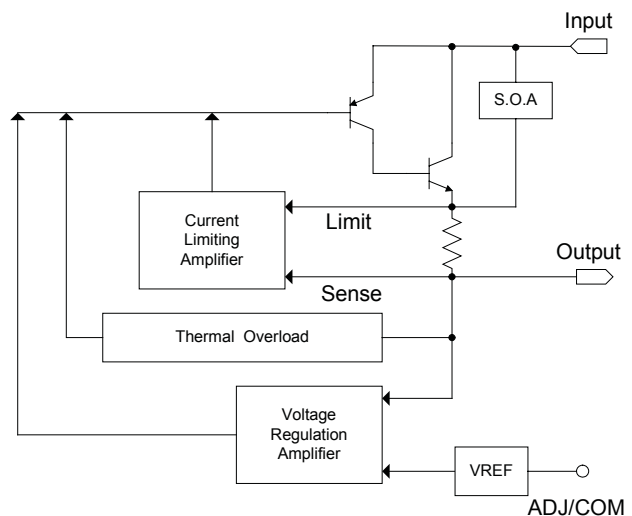
**NOTES:**

- (1) Low duty cycle pulse testing with Kelvin connections required.
- (2)  $\Delta V_{OUT} / \Delta V_{REF} = 1\%$ .
- (3) Bandwidth of 10Hz to 10kHz.
- (4) 120Hz input ripple (C<sub>ADJ</sub> for ADJ = 25μF).
- (5) O.T. = over specified operating junction temperature range.
- (6) I<sub>RATED</sub> = 1A for EZ1117A and 800mA for EZ1117.

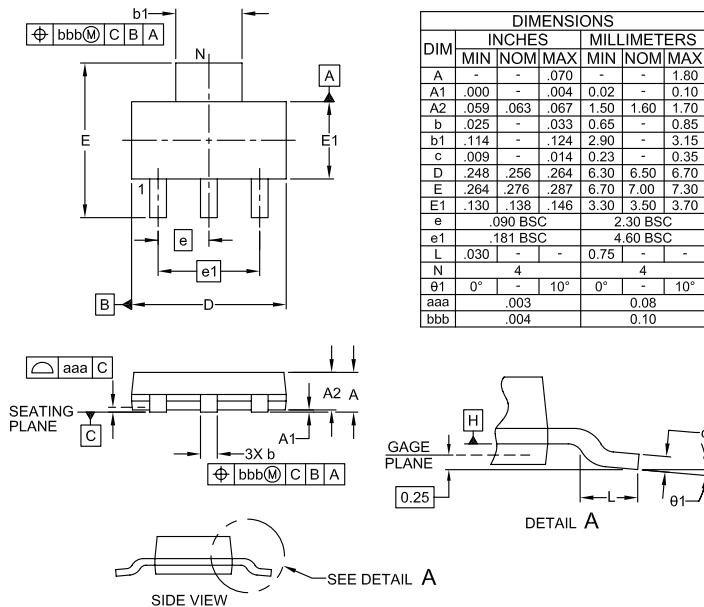
## Pin Configurations



## Block Diagram

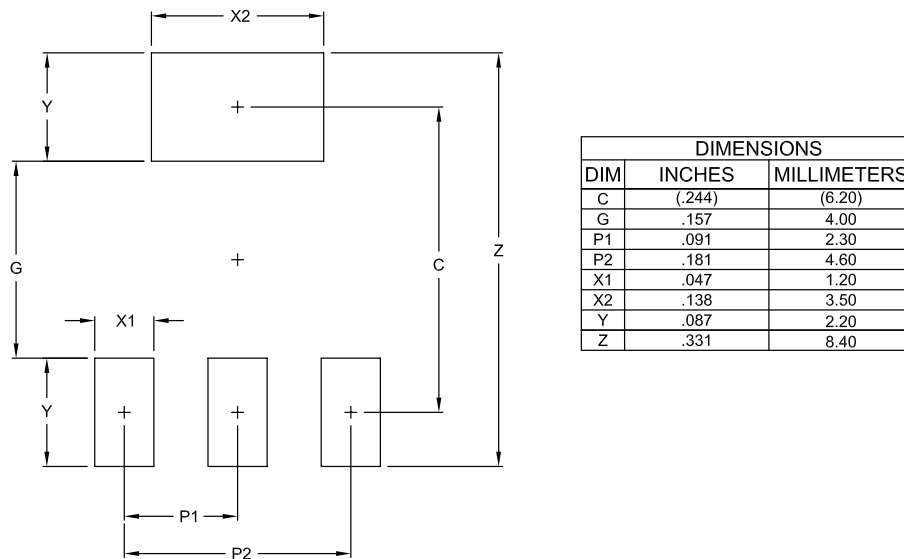


Outline Drawing - SOT-223



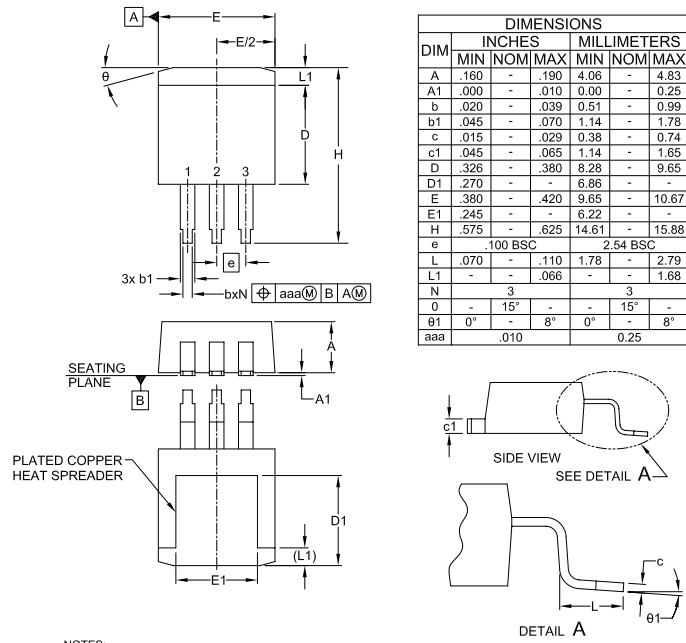
- NOTES:
1. CONTROLLING DIMENSIONS ARE IN MILLIMETERS (ANGLES IN DEGREES).
  2. DATUMS [-A] AND [-B] TO BE DETERMINED AT DATUM PLANE [-H].
  3. DIMENSIONS "E1" AND "D" DO NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS.
  4. REFERENCE JEDEC STD TO-261, VARIATION AA.

Land Pattern - SOT-223



- NOTES:
1. THIS LAND PATTERN IS FOR REFERENCE PURPOSES ONLY CONSULT YOUR MANUFACTURING GROUP TO ENSURE YOUR COMPANY'S MANUFACTURING GUIDELINES ARE MET.
  2. REFERENCE IPC-SM-782A.

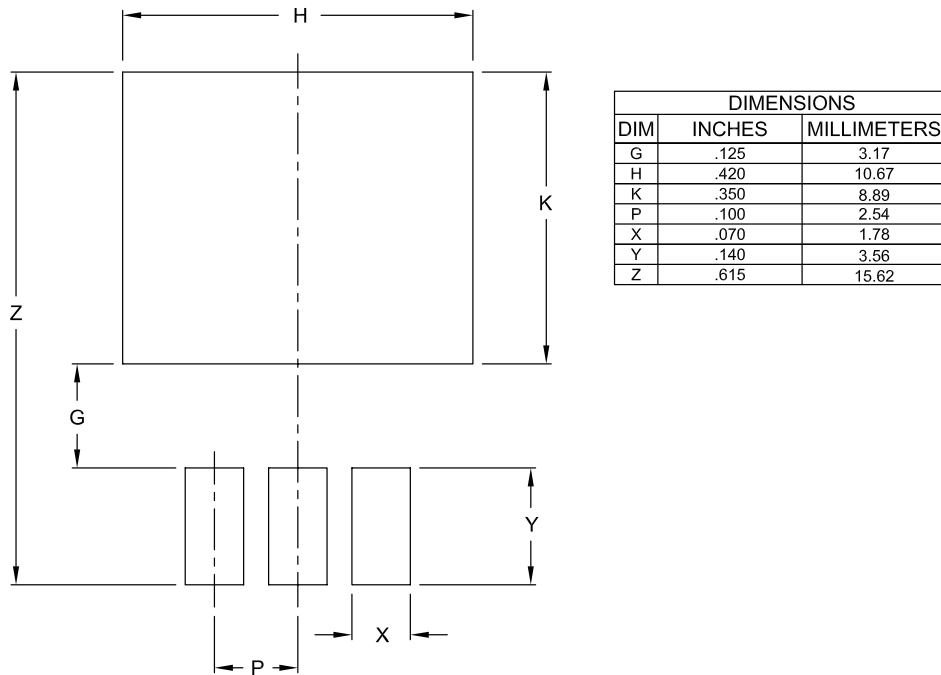
Outline Drawing - TO-263



DIM	INCHES		MILLIMETERS	
	MIN	NOM	MIN	NOM
A	.160	.190	4.06	4.83
A1	.000	.010	0.00	0.25
b	.020	.039	0.51	0.99
b1	.045	.070	1.14	1.78
c	.015	.029	0.38	0.74
c1	.045	.065	1.14	1.65
D	.326	.380	8.28	9.65
D1	.270	-	6.86	-
E	.380	.420	9.65	10.67
E1	.245	-	6.22	-
H	.575	.625	14.61	15.88
e	.100 BSC		2.54 BSC	
L	.070	.110	1.78	2.79
L1	-	.066	-	1.68
N	3		3	
O	-	15°	-	15°
O1	0°	-	8°	0°
aaa	.010		0.25	

- NOTES:
1. CONTROLLING DIMENSIONS ARE IN INCHES (ANGLES IN DEGREES).
  2. DIMENSIONS "D" AND "E" DO NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS.

Land Pattern - TO-263



DIM	INCHES	MILLIMETERS
G	.125	3.17
H	.420	10.67
K	.350	8.89
P	.100	2.54
X	.070	1.78
Y	.140	3.56
Z	.615	15.62

- NOTES:
1. THIS LAND PATTERN IS FOR REFERENCE PURPOSES ONLY CONSULT YOUR MANUFACTURING GROUP TO ENSURE YOUR COMPANY'S MANUFACTURING GUIDELINES ARE MET.

## Contact Information

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[www.semtech.com](http://www.semtech.com)

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[EZ1117CST2.5TRT](#) [EZ1117CST285TRT](#)