

April 14, 1998

TEL:805-498-2111 FAX:805-498-3804 WEB: <http://www.semtech.com>

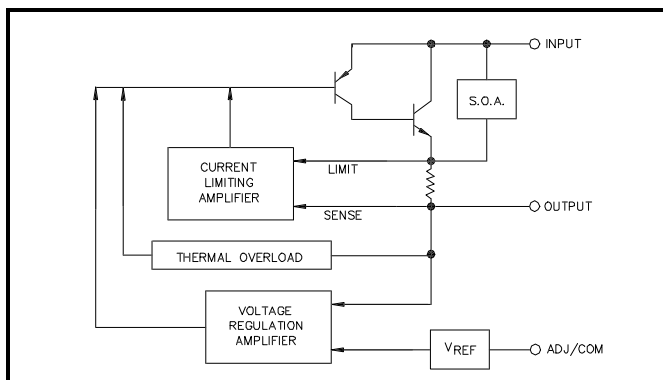
DESCRIPTION

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.

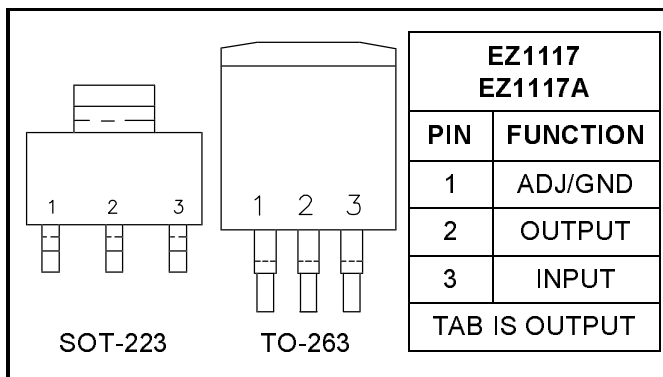
APPLICATIONS

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

BLOCK DIAGRAM



PIN CONFIGURATIONS



FEATURES

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

ORDERING INFORMATION

DEVICE ⁽¹⁾⁽²⁾	PACKAGE	V _{OUT} 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	Maximum	Units
Input Supply Voltage	V _{IN}	7	V
Power Dissipation	P _D	Internally Limited	W
Thermal Resistance Junction to Case SOT-223 TO-263	θ_{JC}	15 3	$^{\circ}\text{C/W}$
Thermal Resistance Junction to Ambient SOT-223 TO-263	θ_{JA}	156 60	$^{\circ}\text{C/W}$
Operating Junction Temperature Range	T _J	0 to 125	$^{\circ}\text{C}$
Storage Temperature Range	T _{STG}	-65 to 150	$^{\circ}\text{C}$
Lead Temperature (Soldering) 10 Sec	T _{LEAD}	260	$^{\circ}\text{C}$

April 14, 1998

ELECTRICAL CHARACTERISTICS ⁽⁶⁾

Unless otherwise specified:

 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 $7.0V$

		Test Conditions			Test Limits			
Parameter	Symbol	V_{IN}	I_O	$T_j^{(5)}$	Min	Typ	Max	Units
Output Voltage ⁽¹⁾ (Fixed Voltage Versions)	V_O	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 ⁽¹⁾ (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 ⁽¹⁾	$REG_{(LINE)}$		10mA	O.T.		0.035	0.2	%
Load Regulation ⁽¹⁾	$REG_{(LOAD)}$	5V		O.T.		0.2	0.4	%
Dropout Voltage ⁽²⁾ 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 1.0			A
Quiescent Current Fixed Voltage Version	I_Q	5V		O.T.		10	13	mA
Temperature Coefficient	T_C			O.T.		0.005		%/°C
Adjust Pin Current	I_{ADJ}			O.T.		55	90	μA
Adjust Pin Current Change	ΔI_{ADJ}			O.T.		0.2	5	μA
Temperature Stability	T_S			O.T.		0.5		%
Minimum Load Current Adj Voltage Version	I_O	5V		O.T.		5	10	mA
RMS Output Noise ⁽³⁾	V_N			25°C		0.003		% V_O
Ripple Rejection Ratio ⁽⁴⁾	R_A	5V		O.T.	60	72		dB

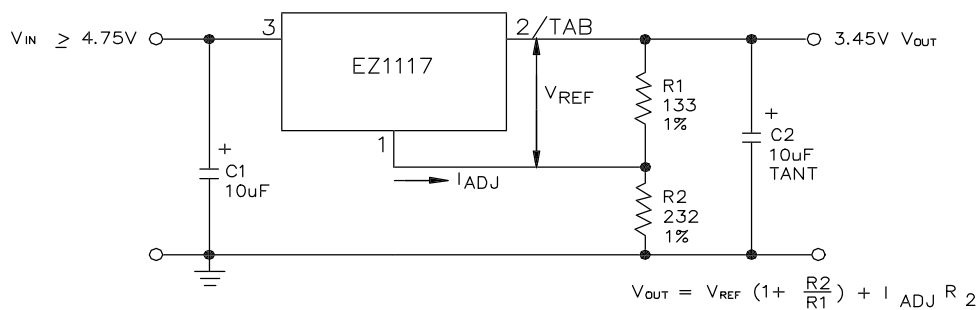
NOTES:

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

April 14, 1998

TYPICAL APPLICATIONS

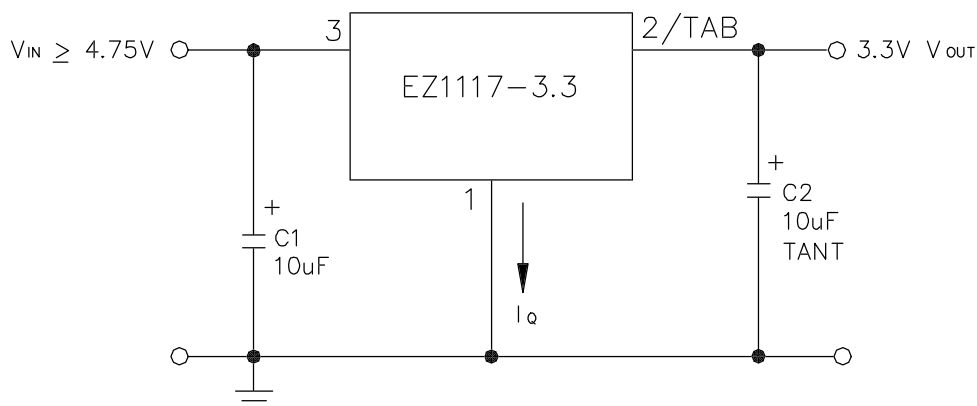
ADJUSTABLE VOLTAGE REGULATOR ⁽¹⁾⁽²⁾



(1) C1 NEEDED IF DEVICE IS FAR FROM FILTER CAPACITORS.

(2) C2 REQUIRED FOR STABILITY.

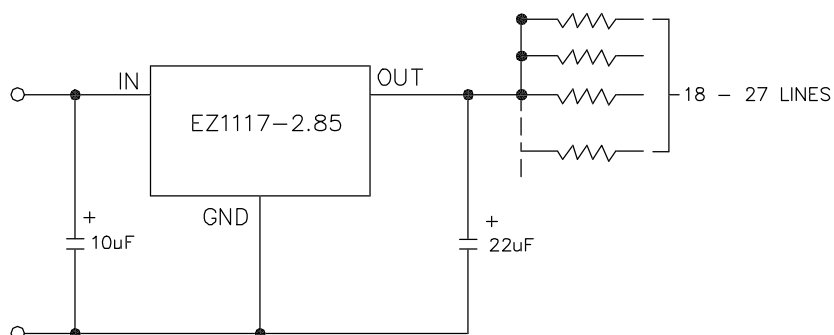
FIXED VOLTAGE REGULATOR



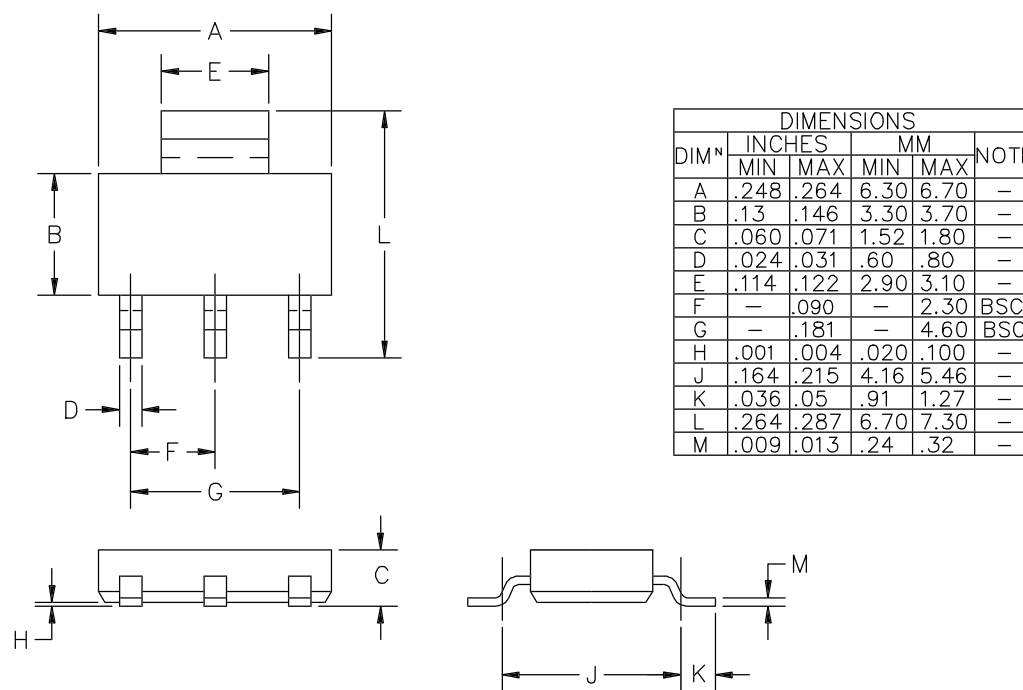
(1) C1 NEEDED IF DEVICE IS FAR FROM FILTER CAPACITORS.

(2) C2 REQUIRED FOR STABILITY.

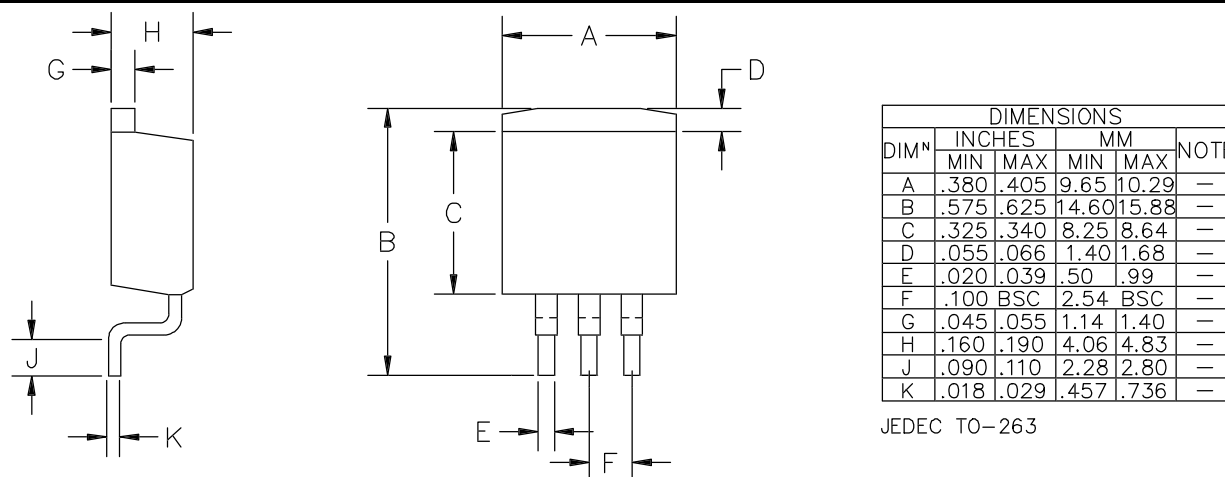
ACTIVE SCSI BUS TERMINATOR



April 14, 1998

DEVICE OUTLINE - SOT-223


CONTROLLING DIMENSIONS: MILLIMETERS.

DEVICE OUTLINE - TO-263


JEDEC TO-263