0.8 & 1.0 AMP POSITIVE VOLTAGE REGULATORS

EZ1117
EZ1117A

April 14, 1998

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

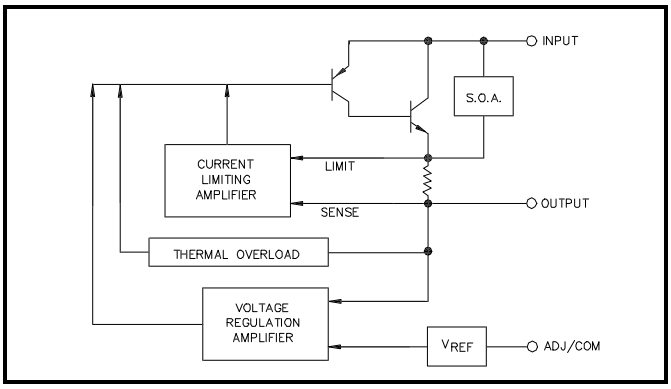
DESCRIPTION

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.

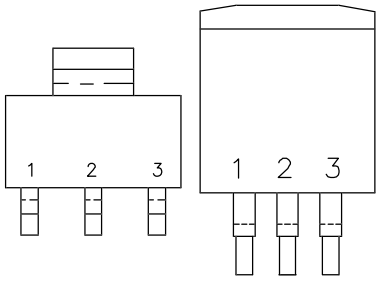
APPLICATIONS

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

BLOCK DIAGRAM



PIN CONFIGURATIONS



SOT-223 TO-263

EZ1117 EZ1117A	
PIN	**FUNCTION**
1	ADJ/GND
2	OUTPUT
3	INPUT
TAB IS OUTPUT	

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

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	°C/W
Thermal Resistance Junction to Ambient SOT-223 TO-263	θ_{JA}	 156 60	°C/W
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

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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)	V_o	5V	0mA	25°C	$0.99\|V_O\|$	V_O	$1.01\|V_O\|$	V
(Fixed Voltage Versions)				O.T.	$0.98\|V_O\|$	V_O	$1.02\|V_O\|$	
Reference Voltage(1)	V_{REF}	5V	10mA	25°C	1.238	1.250	1.262	V
(Adj Voltage Version)				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 500mA 800mA 1,000mA	O.T.		1.00 1.05 1.10 1.10	1.10 1.15 1.20 1.30	V
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) ΔV_{OUT}, ΔV_{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.

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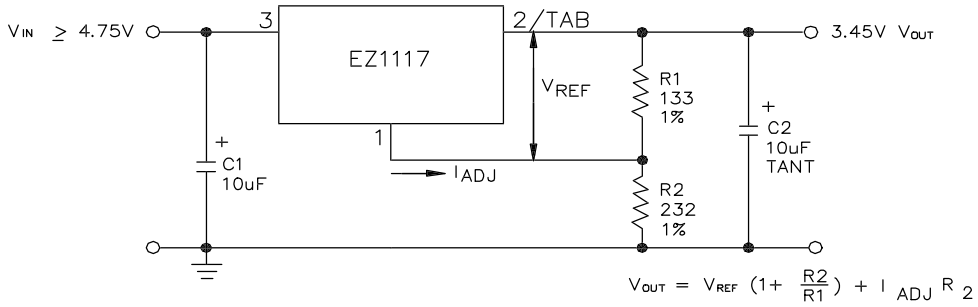
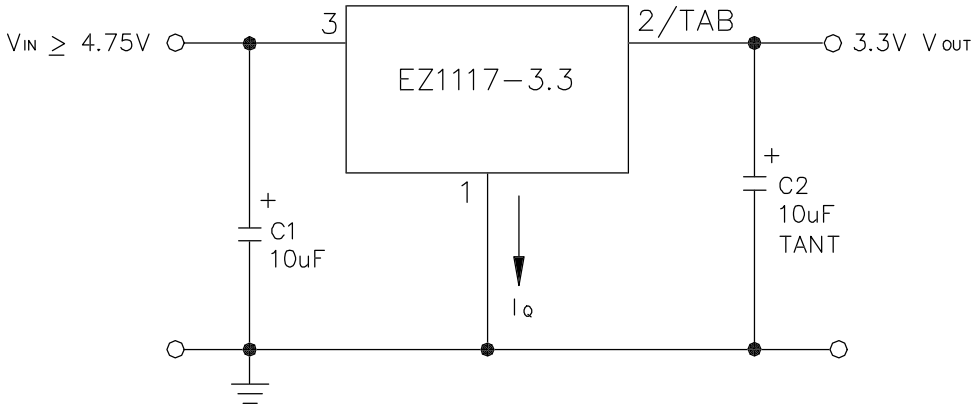
TYPICAL APPLICATIONS

ADJUSTABLE VOLTAGE REGULATOR (1)(2)



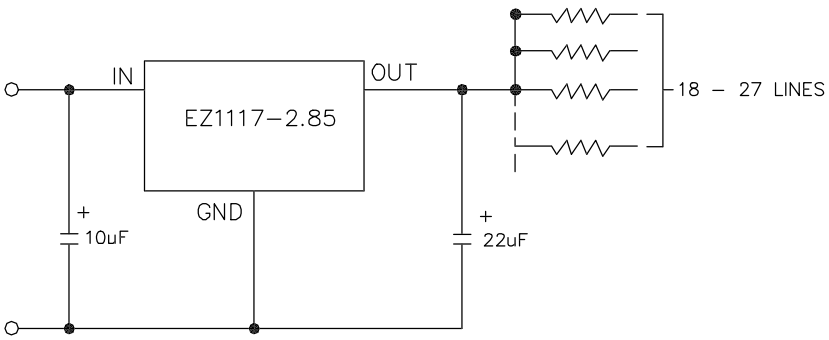
(1) C1 NEEDED IF DEVICE IS FAR FROM FILTER CAPACITORS.
(2) C2 REQUIRED FOR STABILITY.

FIXED VOLTAGE REGULATOR



(1) C1 NEEDED IF DEVICE IS FAR FROM FILTER CAPACITORS.
(2) C2 REQUIRED FOR STABILITY.

ACTIVE SCSI BUS TERMINATOR



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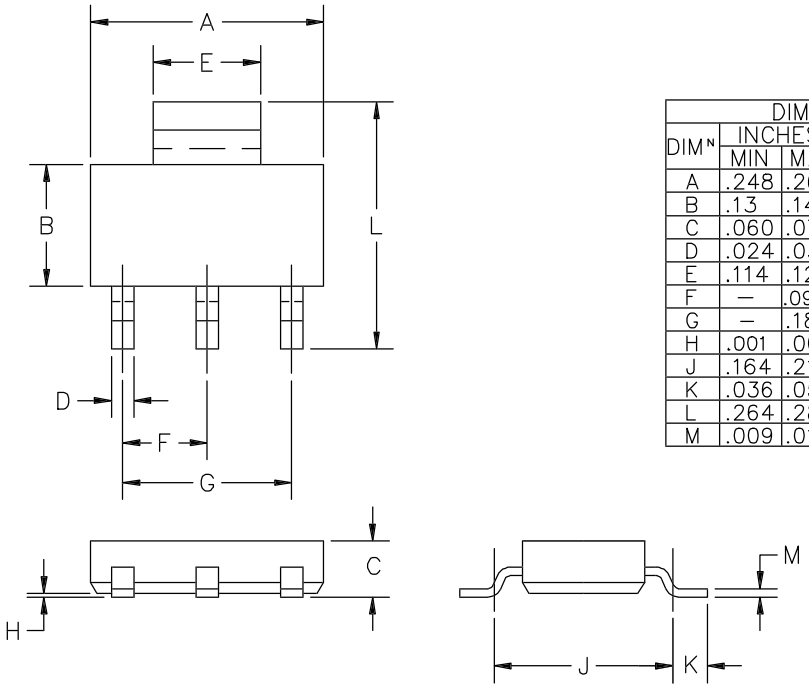
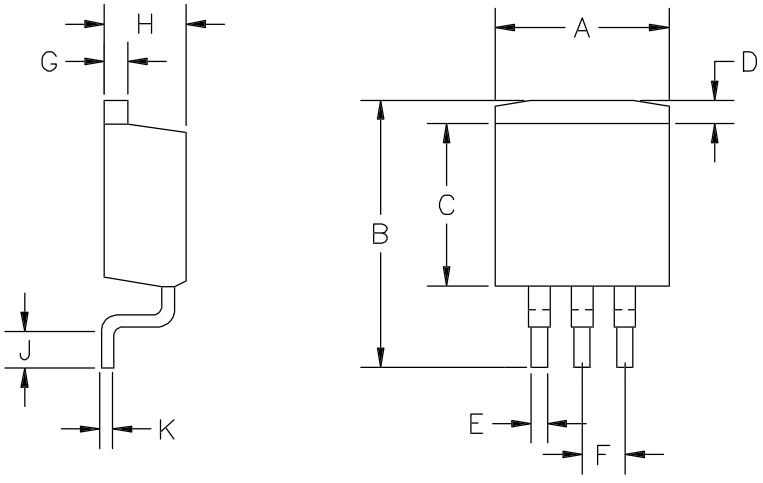
DEVICE OUTLINE - SOT-223



DIMENSIONS					
DIMN	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	.248	.264	6.30	6.70	–
B	.13	.146	3.30	3.70	–
C	.060	.071	1.52	1.80	–
D	.024	.031	.60	.80	–
E	.114	.122	2.90	3.10	–
F	–	.090	–	2.30	BSC
G	–	.181	–	4.60	BSC
H	.001	.004	.020	.100	–
J	.164	.215	4.16	5.46	–
K	.036	.05	.91	1.27	–
L	.264	.287	6.70	7.30	–
M	.009	.013	.24	.32	–

CONTROLLING DIMENSIONS: MILLIMETERS.

DEVICE OUTLINE - TO-263



DIMENSIONS					
DIMN	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	.380	.405	9.65	10.29	–
B	.575	.625	14.60	15.88	–
C	.325	.340	8.25	8.64	–
D	.055	.066	1.40	1.68	–
E	.020	.039	.50	.99	–
F	.100 BSC		2.54 BSC		–
G	.045	.055	1.14	1.40	–
H	.160	.190	4.06	4.83	–
J	.090	.110	2.28	2.80	–
K	.018	.029	.457	.736	–

JEDEC TO-263

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