

### POWER MANAGEMENT

#### Description

The EZ5Z3 voltage converters are innovative two terminal devices that accept a regulated 5V input and reduce it to 3.3V over a range of 10mA to 1A. The EZ5Z3-ADJ is an adjustable three terminal version allowing output voltage trimming.

The EZ5Z3 is available in SOT-223 and TO-220 packages.

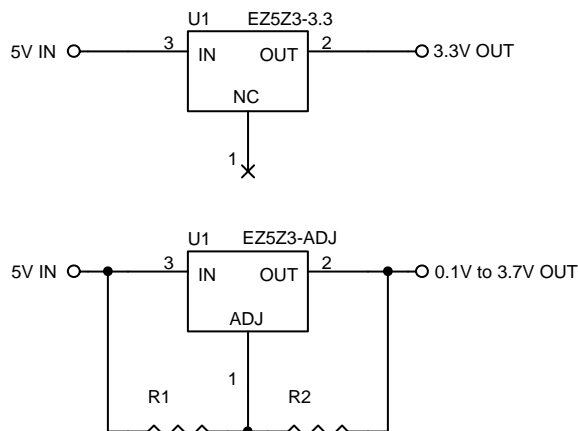
#### Features

- ◆ External components not required
- ◆ Heatsink not required
- ◆ 2 simple connections
- ◆ 1A output current
- ◆ Generates no EMI or spikes
- ◆ Drops 5V to 3.3V, ADJ
- ◆ Industrial temperature range
- ◆ SOT-223 and TO-220 packages

#### Applications

- ◆ Cellular Telephones
- ◆ Instrumentation
- ◆ Peripheral Cards
- ◆ Medical Equipment

### Typical Application Circuits



$$V_{\text{DROP}} = V_{\text{REF}} \left( 1 + \frac{R_1}{R_2} \right)$$

$$V_{\text{OUT}} = V_{\text{IN}} - V_{\text{DROP}}$$

$$R_1 + R_2 \leq \frac{V_{\text{DROP}}}{300\mu\text{A}}$$

**POWER MANAGEMENT**
**Absolute Maximum Ratings**

Parameter	Symbol	Maximum	Units
Power Dissipation	$P_D$	2	W
Continuous Current	$I_C$	1	A
Thermal Resistance Junction to Ambient SOT-223 TO-220	$\theta_{JA}$	62 50	°C/W
Thermal Resistance Junction to Case SOT-223 TO-220	$\theta_{JC}$	4 4	°C/W
Operating Ambient Temperature Range	$T_A$	-40 to 125	°C
Operating Junction Temperature Range	$T_J$	-40 to 150	°C
Storage Temperature Range	$T_{STG}$	-65 to 150	°C
Lead Temperature (Soldering) 10 Sec.	$T_{LEAD}$	300	°C
ESD Rating (Human Body Model)	$V_{ESD}$	2	kV

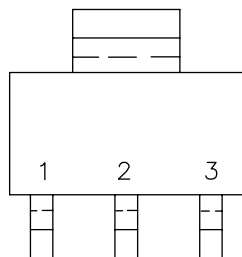
**Electrical Characteristics**

Unless specified:  $T_A = 25^\circ\text{C}$ . Values in **bold** apply over the full operating ambient temperature range.

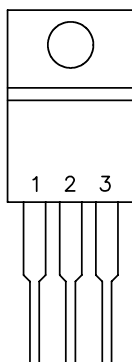
Parameter	Symbol	Conditions	Min	Typ	Max	Units
EZ5Z3-3.3	$V_{OUT}$	$V_{IN} = 5V, I_{OUT} = 500mA$	3.20	3.30	3.39	V
		$V_{IN} = 5V, 10mA \leq I_{OUT} \leq 1A$	<b>3.13</b>		<b>3.46</b>	
EZ5Z3-ADJ	$V_{REF}$	$V_{IN} = 5V, I_{OUT} = 500mA$	1.21	1.25	1.28	V
		$V_{IN} = 5V, 10mA \leq I_{OUT} \leq 1A$	<b>1.18</b>		<b>1.31</b>	
Load Regulation	$REG_{(LOAD)}$	$V_{IN} = 5V, I_{OUT} = 10mA \text{ to } 1A$		0.5	1.0	% $V_{OUT}$
Temperature Coefficient	$T_C$	$V_{IN} = 5V, I_{OUT} = 500mA$		<b>0.005</b>	<b>0.01</b>	% $V_{OUT}/^\circ\text{C}$

## POWER MANAGEMENT

### Pin Configurations



**SOT-223**



**TO-220**

Pin	Function (-3.3)	Function (-ADJ)
1	NC	ADJ
2	OUT	OUT
3	IN	IN
TAB is OUT		

### Ordering Information

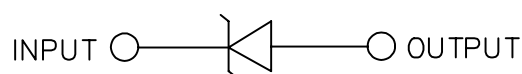
Device	V <sub>IN</sub>	Package	V <sub>OUT</sub> Volts
EZ5Z3-S3.3.TR EZ5Z3-SADJ.TR	5	SOT-223 <sup>(1)</sup>	3.3 ADJ
EZ5Z3-T3.3 EZ5Z3-TADJ	5	TO-220 <sup>(2)</sup>	3.3 ADJ

#### Notes:

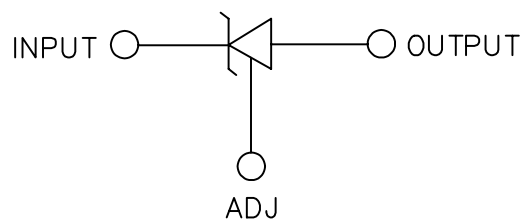
(1) Only available in tape and reel packaging. A reel contains 2500 devices.

(2) Only available in tube packaging. A tube contains 50 devices.

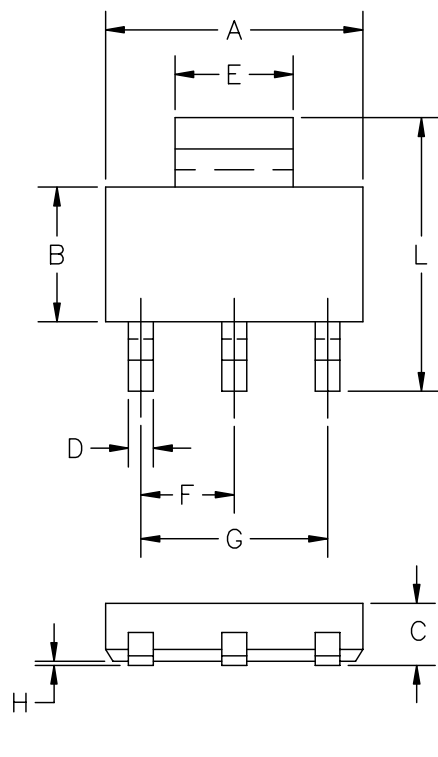
### Symbol



**EZ5Z3-3.3**

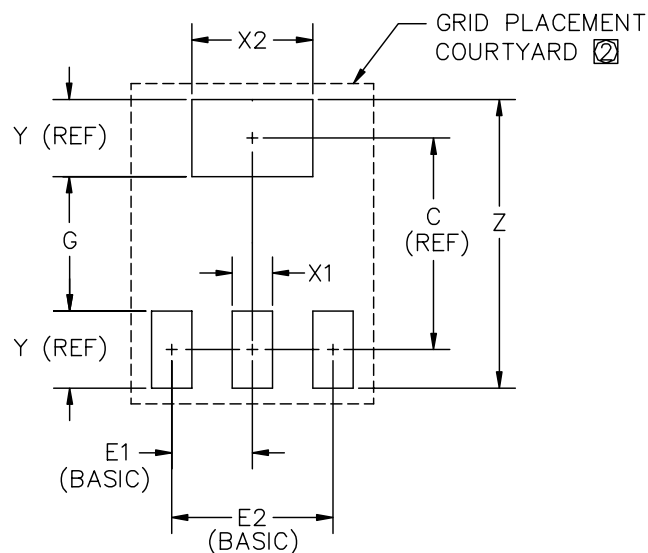


**EZ5Z3-ADJ**

**POWER MANAGEMENT**
**Outline Drawing - SOT-223**


DIM <sup>N</sup>	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	—

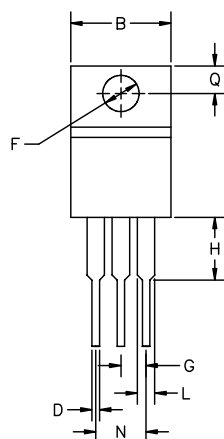
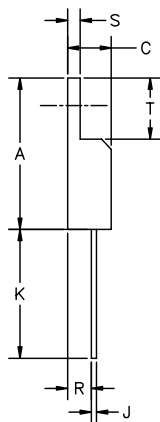
CONTROLLING DIMENSIONS: MILLIMETERS.

**Land Pattern - SOT-223**


DIM <sup>N</sup>	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
C	—	.24	—	6.20	—
E1	—	.09	—	2.30	—
E2	—	.18	—	4.60	—
G	.15	.16	4.00	4.20	—
X1	.03	.04	1.00	1.20	—
X2	.13	.14	3.40	3.60	—
Y	—	.09	—	2.20	—
Z	.32	.33	8.20	8.40	—

② GRID PLACEMENT COURTYARD IS 18 x 14 ELEMENTS (9 mm X 7mm) IN ACCORDANCE WITH THE INTERNATIONAL GRID DETAILED IN IEC PUBLICATION 97.

① CONTROLLING DIMENSION: MILLIMETERS

**POWER MANAGEMENT**
**Outline Drawing - TO-220**


DIMENSIONS					
DIM <sup>N</sup>	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	.560	.650	14.23	16.51	
B	.380	.420	9.66	10.66	
C	.140	.190	3.56	4.82	
D	.020	.045	0.51	1.14	
F	.139	.161	3.54	4.08	
G	.090	.110	2.29	2.79	
H	—	.250	—	6.35	
J	.012	.045	.31	1.14	
K	.500	.580	12.70	14.73	
L	.045	.070	1.15	1.77	
N	.190	.210	4.83	5.33	
Q	.100	.135	2.54	3.42	
R	.080	.115	2.04	2.92	
S	.020	.055	.51	1.39	
T	.230	.270	5.85	6.85	

JEDEC TO-220

**Contact Information**

Semtech Corporation  
 Power Management Products Division  
 652 Mitchell Rd., Newbury Park, CA 91320  
 Phone: (805)498-2111 FAX (805)498-3804