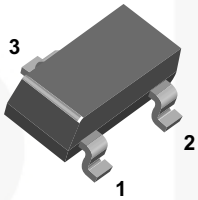
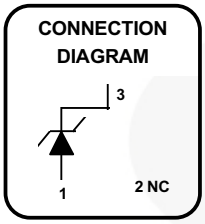
November 2015

BZX84C3V3 - BZX84C33
Zeners

Tolerance: C = 5%



SOT-23



Absolute Maximum Ratings(1),(2)

Stresses exceeding the absolute maximum ratings may damage the device. The device may not function or be operable above the recommended operating conditions and stressing the parts to these levels is not recommended. In addition, extended exposure to stresses above the recommended operating conditions may affect device reliability. The absolute maximum ratings are stress ratings only. Values are at T_A = 25°C unless otherwise noted.

Symbol	Parameter		Value	Unit
I_{FRM}	Repetitive Peak Forward Current		250	mA
I_{ZRM}	Repetitive Peak Working Current		250	mA
P_D	Power Dissipation	Referencing $R_{\theta JA}$, T_A = 25°C	250	mW
		Referencing ψ_{JL}, T_L = 25°C	550	
$R_{\theta JA}$	Junction-to-Ambient Thermal Resistance(3)		465	°C/W
ψ_{JL}	Junction-to-Lead Thermal Characteristics (with reference to Cathode)		220	°C/W
T_{STG}	Storage Temperature Range		-55 to +150	°C
T_J	Operating Junction Temperature		-55 to +150	°C

Notes:

1. These ratings are based on a maximum junction temperature of 150°C.
2. These are steady-state limits. Fairchild Semiconductor should be consulted on applications involving pulsed or low-duty-cycle operations.
3. Device mounted on FR-4 PCB, board size = 76.2 mm x 114.3 mm

Electrical Characteristics

Values are at T_A = 25°C unless otherwise noted.

Device	Mark	I_Z = 5.0 mA			I_Z = 1.0 mA			I_Z = 20 mA		
		V_Z (V)		Z_Z (Ω)	V_Z (V)		Z_Z (Ω)	V_Z (V)		Z_Z (Ω)
		Min.	Max.		Min.	Max.		Min.	Max.	
BZX84C3V3	Z14	3.1	3.5	95	2.3	2.9	600	3.6	4.2	40
BZX84C3V6	Z15	3.4	3.8	90	2.7	3.3	600	3.9	4.5	40
BZX84C3V9	Z16	3.7	4.1	90	2.9	3.5	600	4.1	4.7	30
BZX84C4V3	Z17	4.0	4.6	90	3.3	4.0	600	4.4	5.1	30
BZX84C4V7	Z1	4.4	5.0	80	3.7	4.7	500	4.5	5.4	15
BZX84C5V1	Z2	4.8	5.4	60	4.2	5.3	480	5.0	5.9	15
BZX84C5V6	Z3	5.2	6.0	40	4.8	6.0	400	5.2	6.3	10
BZX84C6V2	Z4	5.8	6.6	10	5.6	6.6	150	5.8	6.8	6
BZX84C6V8	Z5	6.4	7.2	15	6.3	7.2	80	6.4	7.4	6
BZX84C7V5	Z6	7.0	7.9	15	6.9	7.9	80	7.0	8.0	6
BZX84C8V2	Z7	7.7	8.7	15	7.6	8.7	80	7.7	8.8	6
BZX84C9V1	Z8	8.5	9.6	15	8.4	9.6	100	8.5	9.7	8
BZX84C10	Z9	9.4	10.6	20	9.3	10.6	150	9.4	10.7	10
BZX84C11	Y1	10.4	11.6	20	10.2	11.6	150	10.4	11.8	10
BZX84C12	Y2	11.4	12.7	25	11.2	12.7	150	11.4	12.9	10
BZX84C13	Y3	12.4	14.1	30	12.3	14.0	170	12.5	14.2	15
BZX84C15	Y4	13.8	15.6	30	13.7	15.5	200	13.9	15.7	20
BZX84C16	Y5	15.3	17.1	40	15.2	17.0	200	15.4	17.2	20
BZX84C18	Y6	16.8	19.1	45	16.7	19.0	225	16.9	19.2	20
BZX84C20	Y7	18.8	21.2	55	18.7	21.1	225	18.9	21.4	20
BZX84C22	Y8	20.8	23.3	55	20.7	23.2	250	20.9	23.4	25
BZX84C24	Y9	22.8	25.6	70	22.7	25.5	250	22.9	25.7	25
BZX84C27	Y10	25.1	28.9	80	25.0	28.9	300	25.2	29.3	45
BZX84C30	Y11	28.0	32.0	80	27.8	32.0	300	28.1	32.4	50
BZX84C33	Y12	31.0	35.0	80	30.8	35.0	325	31.1	35.4	55
V_F Forward Voltage = 0.9 V Maximum at I_F =10 mA for all BZX84 series										

Electrical Characteristics (Continued)

Values are at T_A = 25°C unless otherwise noted.

Device	V_R (V)	I_R (µA)	Cap[4] (pF)	D_{VZ} / D_t at 5.0 mA (mV/k)	
				Min.	Max.
BZX84C3V3	1.0	5.0	450	-3.5	0.0
BZX84C3V6	1.0	5.0	450	-3.5	0.0
BZX84C3V9	1.0	5.0	450	-3.5	0.0
BZX84C4V3	1.0	5.0	450	-3.5	0.0
BZX84C4V7	2.0	3	260	-3.5	0.2
BZX84C5V1	2.0	2	225	-2.7	1.2
BZX84C5V6	2.0	1	200	-2.0	2.5
BZX84C6V2	4.0	3	185	0.4	3.7
BZX84C6V8	4.0	2	155	1.2	4.5
BZX84C7V5	5.0	1	140	2.5	5.3
BZX84C8V2	5.0	0.7	135	3.2	6.2
BZX84C9V1	6.0	0.5	130	3.8	7.0
BZX84C10	7.0	0.2	130	4.5	8.0
BZX84C11	8.0	0.1	130	5.4	9.0
BZX84C12	8.0	0.1	130	6.0	10
BZX84C13	8.0	0.1	120	7.0	11
BZX84C15	10.5	0.05	110	9.2	13
BZX84C16	11.2	0.05	105	10.4	14
BZX84C18	12.6	0.05	100	12.4	16
BZX84C20	14	0.05	85	14.4	18
BZX84C22	15.4	0.05	85	16.4	20
BZX84C24	16.8	0.05	80	18.4	22
BZX84C27	18.9	0.05	70	21.4	25.3
BZX84C30	21	0.05	70	24.4	29.4
BZX84C33	23.1	0.05	70	27.4	33.4

Note:

4. Capacitance at V_R= 0.0 V, f = 1.0 MHz.

Typical Performance Characteristics

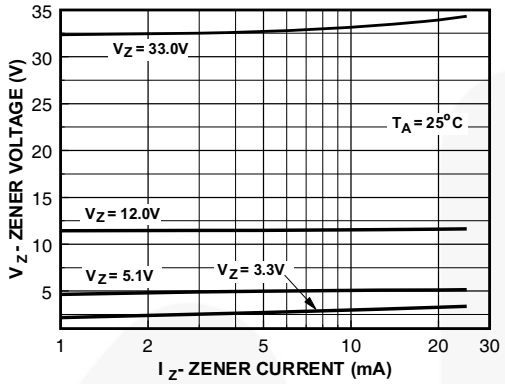


Figure 1. Zener Current vs. Zener Voltage

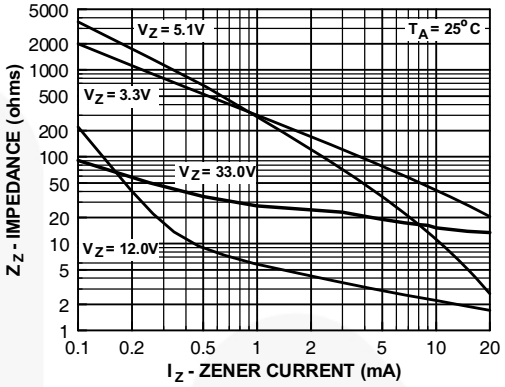


Figure 2. Zener Current vs. Zener Impedance

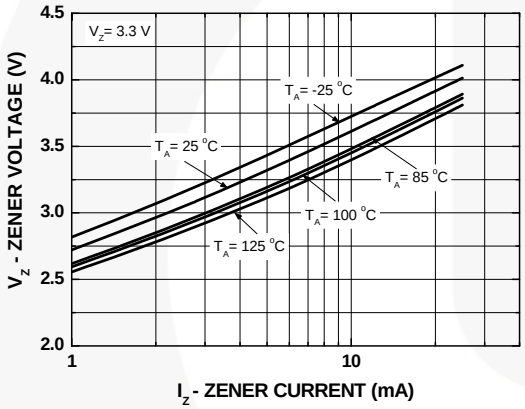


Figure 3. 3.3 V Zener Voltage vs. Temperature

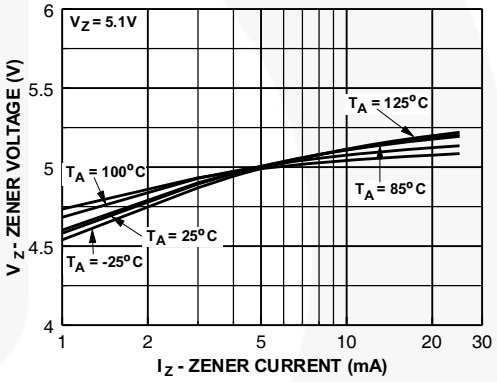


Figure 4. 5.1 V Zener Voltage vs. Temperature

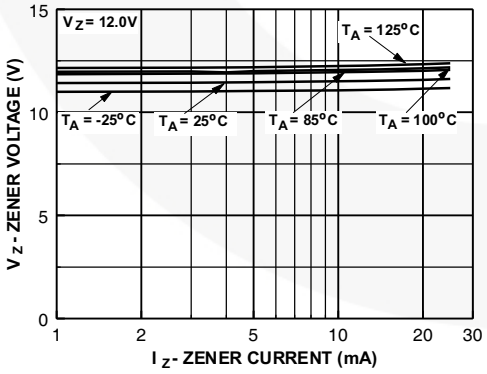


Figure 5. 12 V Zener Voltage vs. Zener Temperature

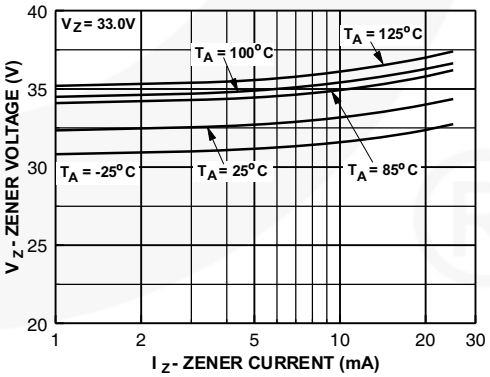
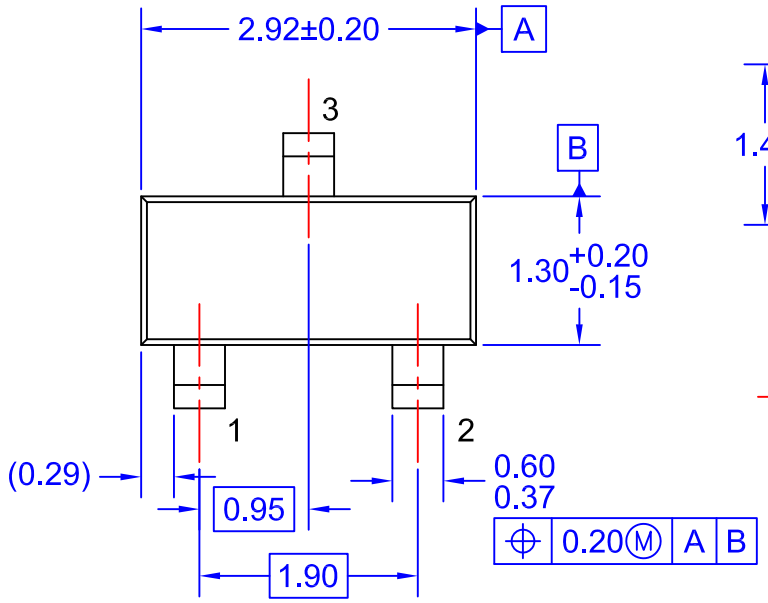
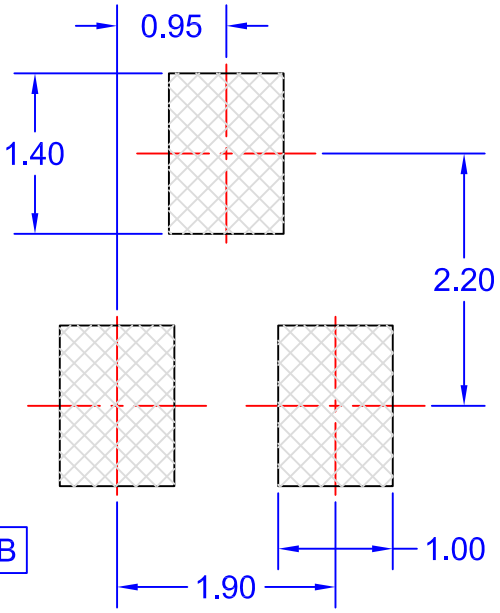
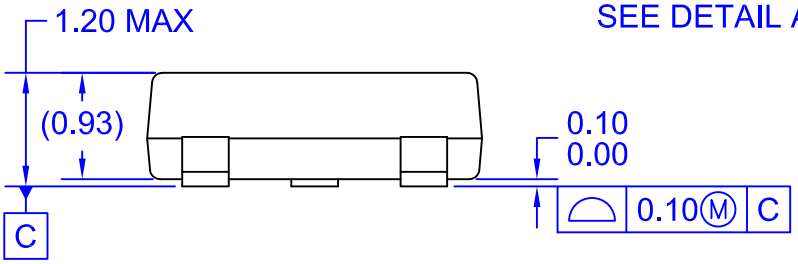


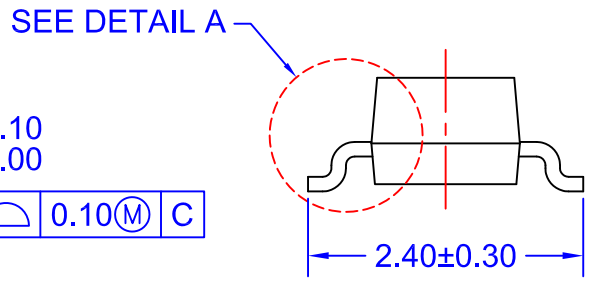
Figure 6. 33 V Zener Voltage vs. Zener Temperature

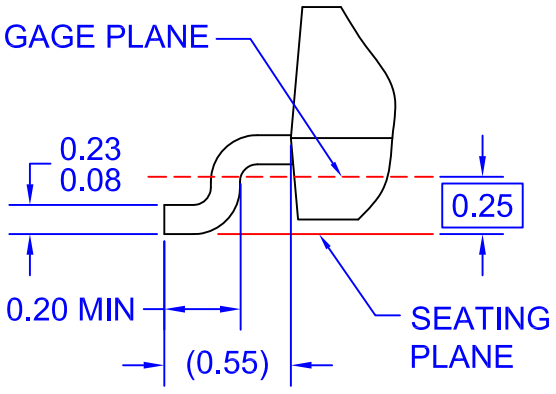




LAND PATTERN
RECOMMENDATION







DETAIL A
SCALE: 2X

NOTES: UNLESS OTHERWISE SPECIFIED

A) REFERENCE JEDEC REGISTRATION TO-236, VARIATION AB, ISSUE H.
B) ALL DIMENSIONS ARE IN MILLIMETERS.
C) DIMENSIONS ARE INCLUSIVE OF BURRS, MOLD FLASH AND TIE BAR EXTRUSIONS.
D) DIMENSIONING AND TOLERANCING PER ASME Y14.5M - 2009.
E) DRAWING FILE NAME: MA03DREV12

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