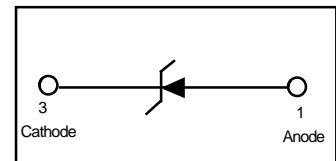
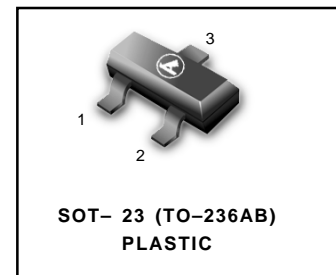


## Zener Voltage Regulator Diodes

- We declare that the material of product compliance with RoHS requirements.
- S- Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC-Q101 Qualified and PPAP Capable

**LBZX84C2V4LT1G**  
Series  
**S-LBZX84C2V4LT1G**  
Series



### MAXIMUM CASE TEMPERATURE FOR SOLDERING

PURPOSES: 260°C for 10 seconds

### THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Total Device Dissipation FR-5 Board(Note 1) $T_A = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	225	mW
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	556	$^\circ\text{C/W}$
Total Device Dissipation Alumina Substrate (Note 2), $T_A = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	300	mW
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	417	$^\circ\text{C/W}$
Junction and Storage Temperature	$T_J, T_{stg}$	-55to+150	$^\circ\text{C}$

Note 1. FR-5 = 1.0 x 0.75 x 0.62 in.

Note 2. Alumina = 0.4 x 0.3 x 0.024 in. 99.5% alumina.

### Ordering Information

Device	Package	Shipping
LBZX84C2V4LT1G Series	SOT-23	3000/Tape&Reel
LBZX84C2V4LT3G Series	SOT-23	10000/Tape&Reel

**LBZX84C2V4LT1G Series    S-LBZX84C2V4LT1G Series**

**ELECTRICAL CHARACTERISTICS – BZX84CxxxLT1 SERIES (STANDARD TOLERANCE)**

(Pinout: 1-Anode, 2-No Connection, 3-Cathode) ( $T_A = 25^\circ\text{C}$  unless otherwise noted,  $V_F = 0.90\text{ V Max. @ } I_F = 10\text{ mA}$ )

Device*	Device Marking	V <sub>Z1</sub> (Volts) @ I <sub>ZT1</sub> = 5 mA (Note 3)			Z <sub>ZT1</sub> (Ω) @ I <sub>ZT1</sub> = 5 mA	V <sub>Z2</sub> (V) @ I <sub>ZT2</sub> = 1 mA (Note 3)		Z <sub>ZT2</sub> (Ω) @ I <sub>ZT2</sub> = 1 mA	V <sub>Z3</sub> (V) @ I <sub>ZT3</sub> = 20 mA (Note 3)		Z <sub>ZT3</sub> (Ω) @ I <sub>ZT3</sub> = 20 mA	Max Reverse Leakage Current		θ <sub>VZ</sub> (mV/k) @ I <sub>ZT1</sub> = 5 mA		C (pF) @ V <sub>R</sub> = 0 f = 1 MHz
		Min	Nom	Max		Min	Max		Min	Max		I <sub>R</sub> μA	V <sub>R</sub> Volts	Min	Max	
		Min	Nom	Max	Min	Max	Min	Max	Min	Max	I <sub>R</sub> μA	V <sub>R</sub> Volts	Min	Max		
LBZX84C2V4LT1G	Z11	2.2	2.4	2.6	100	1.7	2.1	600	2.6	3.2	50	50	1	-3.5	0	450
LBZX84C2V7LT1G	Z12	2.5	2.7	2.9	100	1.9	2.4	600	3	3.6	50	20	1	-3.5	0	450
LBZX84C3V0LT1G	Z13	2.8	3	3.2	95	2.1	2.7	600	3.3	3.9	50	10	1	-3.5	0	450
LBZX84C3V3LT1G	Z14	3.1	3.3	3.5	95	2.3	2.9	600	3.6	4.2	40	5	1	-3.5	0	450
LBZX84C3V6LT1G	Z15	3.4	3.6	3.8	90	2.7	3.3	600	3.9	4.5	40	5	1	-3.5	0	450
LBZX84C3V9LT1G	Z16	3.7	3.9	4.1	90	2.9	3.5	600	4.1	4.7	30	3	1	-3.5	-2.5	450
LBZX84C4V3LT1G	W9	4	4.3	4.6	90	3.3	4	600	4.4	5.1	30	3	1	-3.5	0	450
<b>LBZX84C4V7LT1G</b>	<b>Z1</b>	<b>4.4</b>	<b>4.7</b>	<b>5</b>	<b>80</b>	<b>3.7</b>	<b>4.7</b>	<b>500</b>	<b>4.5</b>	<b>5.4</b>	<b>15</b>	<b>3</b>	<b>2</b>	<b>-3.5</b>	<b>0.2</b>	<b>260</b>
<b>LBZX84C5V1LT1G</b>	<b>Z2</b>	<b>4.8</b>	<b>5.1</b>	<b>5.4</b>	<b>60</b>	<b>4.2</b>	<b>5.3</b>	<b>480</b>	<b>5</b>	<b>5.9</b>	<b>15</b>	<b>2</b>	<b>2</b>	<b>-2.7</b>	<b>1.2</b>	<b>225</b>
<b>LBZX84C5V6LT1G</b>	<b>Z3</b>	<b>5.2</b>	<b>5.6</b>	<b>6</b>	<b>40</b>	<b>4.8</b>	<b>6</b>	<b>400</b>	<b>5.2</b>	<b>6.3</b>	<b>10</b>	<b>1</b>	<b>2</b>	<b>-2.0</b>	<b>2.5</b>	<b>200</b>
<b>LBZX84C6V2LT1G</b>	<b>Z4</b>	<b>5.8</b>	<b>6.2</b>	<b>6.6</b>	<b>10</b>	<b>5.6</b>	<b>6.6</b>	<b>150</b>	<b>5.8</b>	<b>6.8</b>	<b>6</b>	<b>3</b>	<b>4</b>	<b>0.4</b>	<b>3.7</b>	<b>185</b>
LBZX84C6V8LT1G	Z5	6.4	6.8	7.2	15	6.3	7.2	80	6.4	7.4	6	2	4	1.2	4.5	155
LBZX84C7V5LT1G	Z6	7	7.5	7.9	15	6.9	7.9	80	7	8	6	1	5	2.5	5.3	140
LBZX84C8V2LT1G	Z7	7.7	8.2	8.7	15	7.6	8.7	80	7.7	8.8	6	0.7	5	3.2	6.2	135
LBZX84C9V1LT1G	Z8	8.5	9.1	9.6	15	8.4	9.6	100	8.5	9.7	8	0.5	6	3.8	7.0	130
LBZX84C10LT1G	Z9	9.4	10	10.6	20	9.3	10.6	150	9.4	10.7	10	0.2	7	4.5	8.0	130
LBZX84C11LT1G	Y1	10.4	11	11.6	20	10.2	11.6	150	10.4	11.8	10	0.1	8	5.4	9.0	130
<b>LBZX84C12LT1G</b>	<b>Y2</b>	<b>11.4</b>	<b>12</b>	<b>12.7</b>	<b>25</b>	<b>11.2</b>	<b>12.7</b>	<b>150</b>	<b>11.4</b>	<b>12.9</b>	<b>10</b>	<b>0.1</b>	<b>8</b>	<b>6.0</b>	<b>10.0</b>	<b>130</b>
LBZX84C13LT1G	Y3	12.4	13	14.1	30	12.3	14	170	12.5	14.2	15	0.1	8	7.0	11.0	120
LBZX84C15LT1G	Y4	13.8	15	15.6	30	13.7	15.5	200	13.9	15.7	20	0.05	10.5	9.2	13.0	110
LBZX84C16LT1G	Y5	15.3	16	17.1	40	15.2	17	200	15.4	17.2	20	0.05	11.2	10.4	14.0	105
<b>LBZX84C18LT1G</b>	<b>Y6</b>	<b>16.8</b>	<b>18</b>	<b>19.1</b>	<b>45</b>	<b>16.7</b>	<b>19</b>	<b>225</b>	<b>16.9</b>	<b>19.2</b>	<b>20</b>	<b>0.05</b>	<b>12.6</b>	<b>12.4</b>	<b>16.0</b>	<b>100</b>
LBZX84C20LT1G	Y7	18.8	20	21.2	55	18.7	21.1	225	18.9	21.4	20	0.05	14	14.4	18.0	85
LBZX84C22LT1G	Y8	20.8	22	23.3	55	20.7	23.2	250	20.9	23.4	25	0.05	15.4	16.4	20.0	85
LBZX84C24LT1G	Y9	22.8	24	25.6	70	22.7	25.5	250	22.9	25.7	25	0.05	16.8	18.4	22.0	80
Device	Device Marking	V <sub>Z1</sub> Below @ I <sub>ZT1</sub> = 2 mA			Z <sub>ZT1</sub> Below @ I <sub>ZT1</sub> = 2 mA	V <sub>Z2</sub> Below @ I <sub>ZT2</sub> = 0.1 mA		Z <sub>ZT2</sub> Below @ I <sub>ZT2</sub> = 0.5 mA	V <sub>Z3</sub> Below @ I <sub>ZT3</sub> = 10 mA		Z <sub>ZT3</sub> Below @ I <sub>ZT3</sub> = 10 mA	Max Reverse Leakage Current		θ <sub>VZ</sub> (mV/k) Below @ I <sub>ZT1</sub> = 2 mA		C (pF) @ V <sub>R</sub> = 0 f = 1 MHz
		Min	Nom	Max		Min	Max		Min	Max		I <sub>R</sub> μA	V <sub>R</sub> (V)	Min	Max	
LBZX84C27LT1G	Y10	25.1	27	28.9	80	25	28.9	300	25.2	29.3	45	0.05	18.9	21.4	25.3	70
LBZX84C30LT1G	Y11	28	30	32	80	27.8	32	300	28.1	32.4	50	0.05	21	24.4	29.4	70
LBZX84C33LT1G	Y12	31	33	35	80	30.8	35	325	31.1	35.4	55	0.05	23.1	27.4	33.4	70
LBZX84C36LT1G	Y13	34	36	38	90	33.8	38	350	34.1	38.4	60	0.05	25.2	30.4	37.4	70
LBZX84C39LT1G	Y14	37	39	41	130	36.7	41	350	37.1	41.5	70	0.05	27.3	33.4	41.2	45
LBZX84C43LT1G	Y15	40	43	46	150	39.7	46	375	40.1	46.5	80	0.05	30.1	37.6	46.6	40
LBZX84C47LT1G	Y16	44	47	50	170	43.7	50	375	44.1	50.5	90	0.05	32.9	42.0	51.8	40
LBZX84C51LT1G	Y17	48	51	54	180	47.6	54	400	48.1	54.6	100	0.05	35.7	46.6	57.2	40
LBZX84C56LT1G	Y18	52	56	60	200	51.5	60	425	52.1	60.8	110	0.05	39.2	52.2	63.8	40
LBZX84C62LT1G	Y19	58	62	66	215	57.4	66	450	58.2	67	120	0.05	43.4	58.8	71.6	35
LBZX84C68LT1G	Y20	64	68	72	240	63.4	72	475	64.2	73.2	130	0.05	47.6	65.6	79.8	35
LBZX84C75LT1G	Y21	70	75	79	255	69.4	79	500	70.3	80.2	140	0.05	52.5	73.4	88.6	35

Note 3. Zener voltage is measured with a pulse test current I<sub>Z</sub> at an ambient temperature of 25°C.

LBZX84C2V4LT1G Series S-LBZX84C2V4LT1G Series

TYPICAL CHARACTERISTICS

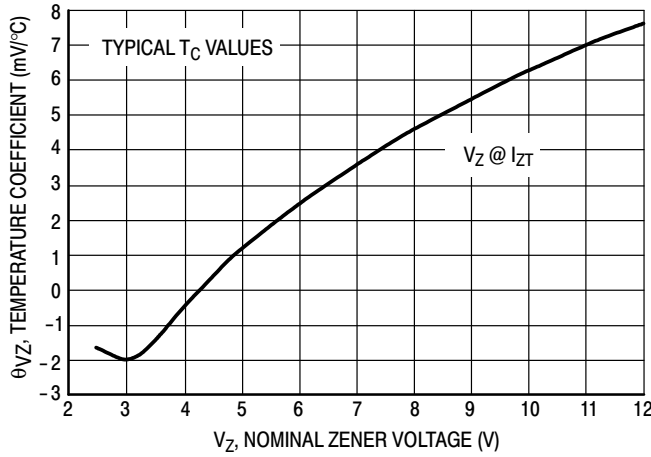


Figure 1. Temperature Coefficients  
(Temperature Range -55°C to +150°C)

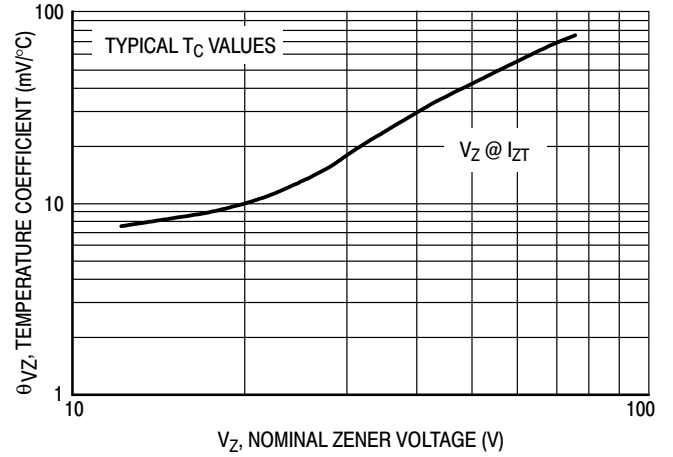


Figure 2. Temperature Coefficients  
(Temperature Range -55°C to +150°C)

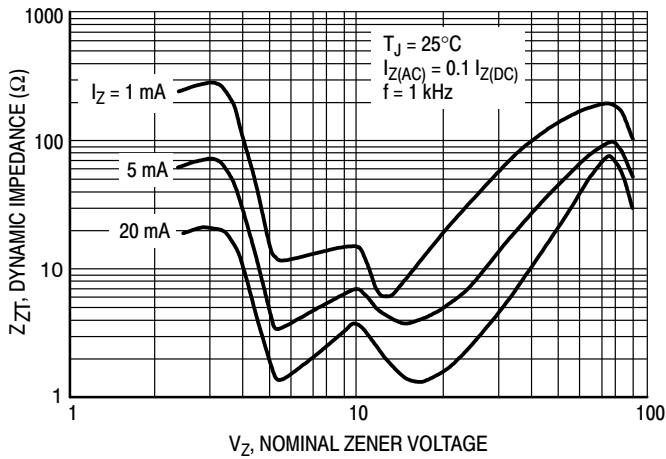


Figure 3. Effect of Zener Voltage on  
Zener Impedance

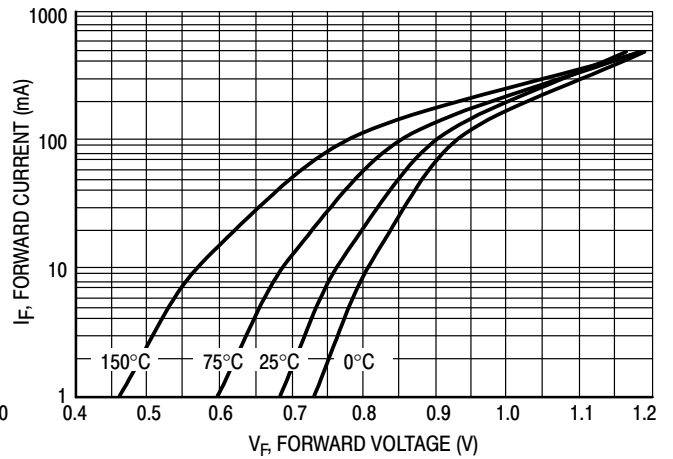


Figure 4. Typical Forward Voltage

LBZX84C2V4LT1G Series S-LBZX84C2V4LT1G Series

TYPICAL CHARACTERISTICS

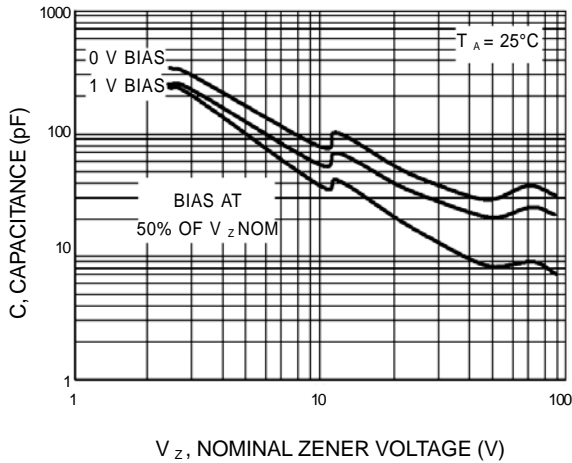


Figure 5. Typical Capacitance

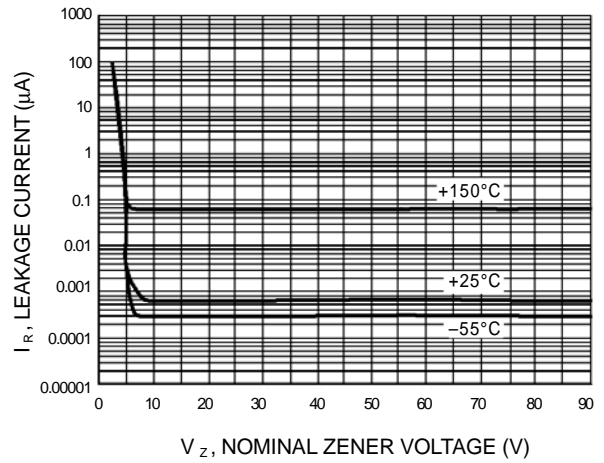


Figure 6. Typical Leakage Current

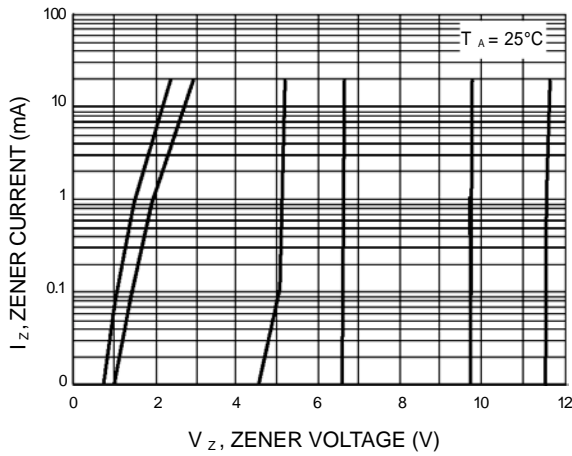


Figure 7. Zener Voltage versus Zener Current (V<sub>z</sub> Up to 12 V)

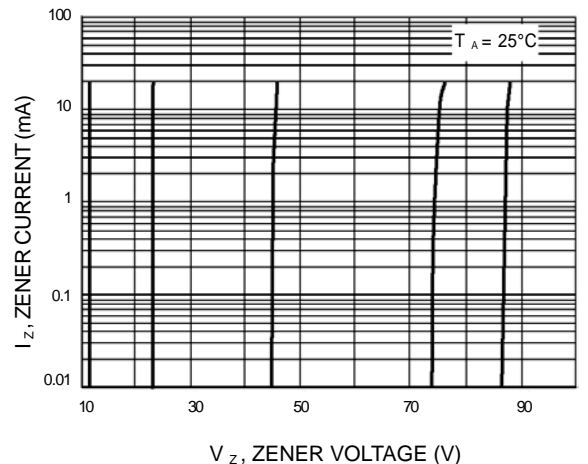


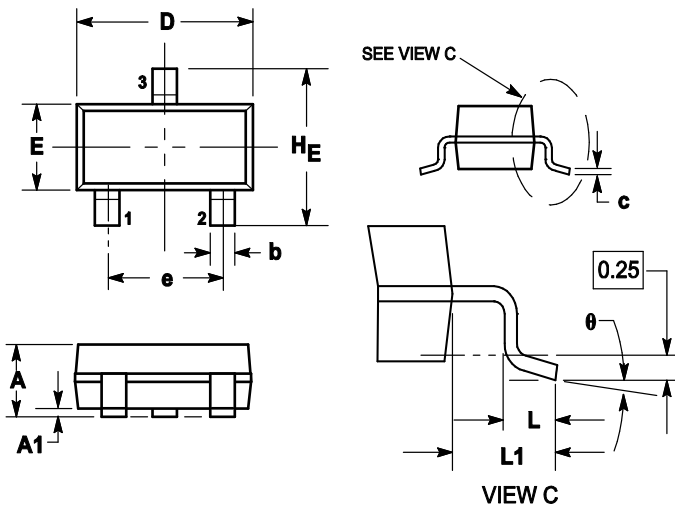
Figure 8. Zener Voltage versus Zener Current (12 V to 91 V)

**LBZX84C2V4LT1G Series S-LBZX84C2V4LT1G Series**

**OUTLINE AND DIMENSIONS**

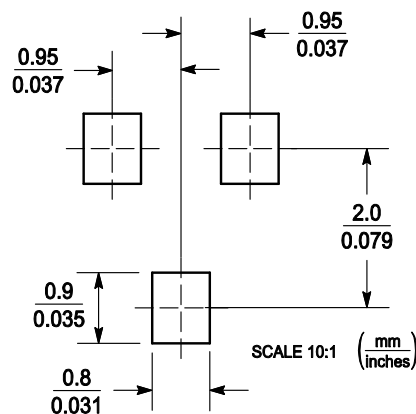
Notes:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.
4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS.



DIM	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.89	1	1.11	0.035	0.04	0.044
A1	0.01	0.06	0.1	0.001	0.002	0.004
b	0.37	0.44	0.5	0.015	0.018	0.02
c	0.09	0.13	0.18	0.003	0.005	0.007
D	2.80	2.9	3.04	0.11	0.114	0.12
E	1.20	1.3	1.4	0.047	0.051	0.055
e	1.78	1.9	2.04	0.07	0.075	0.081
L	0.10	0.2	0.3	0.004	0.008	0.012
L1	0.35	0.54	0.69	0.014	0.021	0.029
HE	2.10	2.4	2.64	0.083	0.094	0.104
θ	0°	---	10°	0°	---	10°

**SOLDERING FOOTPRINT**



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