

# Zener Voltage Regulators

225 mW SOT-23 Surface Mount

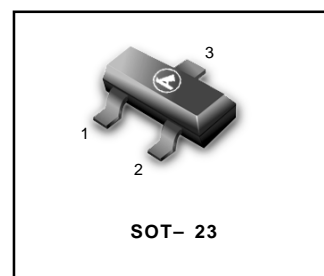
**LBZX84B2V0LT1G  
Series  
S-LBZX84B2V0LT1G  
Series**

## FEATURES

- Non-wire bonding structure improves
- High demand voltage range (3.6V-36V)
- This is a Pb-Free device
- 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.

## CONSTRUCTION

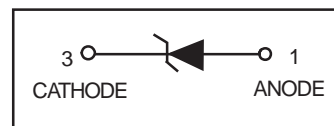
- Silicon epitaxial planar



## ORDERING INFORMATION

| Device                | Package | Shipping        |
|-----------------------|---------|-----------------|
| LBZX84B2V0LT1G Series | SOT-23  | 3000/Tape&Reel  |
| LBZX84B2V0LT3G Series | SOT-23  | 10000/Tape&Reel |

\*See specific marking table.



## ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

| Parameter             | Symbol | Limits      | Unit |
|-----------------------|--------|-------------|------|
| Power dissipation     | P      | 225         | mW   |
| Junction temperature  | Tj     | +150        | °C   |
| Storage temperature   | Tstg   | -55 to +150 | °C   |
| Operating temperature | Topr   | -55 to +150 | °C   |

## DEVICE MARKING CODE

| Device         | Marking | Device         | Marking | Device        | Marking |
|----------------|---------|----------------|---------|---------------|---------|
| LBZX84B2V0LT1G | 02      | LBZX84B5V6LT1G | C2      | LBZX84B16LT1G | 55      |
| LBZX84B2V2LT1G | 12      | LBZX84B6V2LT1G | E2      | LBZX84B18LT1G | 65      |
| LBZX84B2V4LT1G | 22      | LBZX84B6V8LT1G | F2      | LBZX84B20LT1G | 75      |
| LBZX84B2V7LT1G | 32      | LBZX84B7V5LT1G | H2      | LBZX84B22LT1G | 85      |
| LBZX84B3V0LT1G | 42      | LBZX84B8V2LT1G | J2      | LBZX84B24LT1G | 95      |
| LBZX84B3V3LT1G | 52      | LBZX84B9V1LT1G | L2      | LBZX84B27LT1G | A5      |
| LBZX84B3V6LT1G | 62      | LBZX84B10LT1G  | 05      | LBZX84B30LT1G | C5      |
| LBZX84B3V9LT1G | 72      | LBZX84B11LT1G  | 15      | LBZX84B33LT1G | E5      |
| LBZX84B4V3LT1G | 82      | LBZX84B12LT1G  | 25      | LBZX84B36LT1G | F5      |
| LBZX84B4V7LT1G | 92      | LBZX84B13LT1G  | 35      | -             | -       |
| LBZX84B5V1LT1G | A2      | LBZX84B15LT1G  | 45      | -             | -       |

## LBZX84B2V0LT1G Series , S-LBZX84B2V0LT1G Series

**ELECTRICAL CHARACTERISTICS (Ta=25°C)**

| Device         | Zener voltage      |        |                        | Operating resistance |                        | Rising operating resistance |                        | Reverse current     |                       |
|----------------|--------------------|--------|------------------------|----------------------|------------------------|-----------------------------|------------------------|---------------------|-----------------------|
|                | V <sub>Z</sub> (V) |        |                        | Z <sub>Z</sub> (Ω)   |                        | Z <sub>Zk</sub> (Ω)         |                        | I <sub>R</sub> (μA) |                       |
|                | Min.               | Max.   | I <sub>Z</sub><br>(mA) | Max.                 | I <sub>Z</sub><br>(mA) | Max.                        | I <sub>Z</sub><br>(mA) | Max.                | V <sub>R</sub><br>(V) |
| LBZX84B2V0LT1G | 2.020              | 2.200  | 5                      | 100                  | 5                      | 1000                        | 0.5                    | 120                 | 0.5                   |
| LBZX84B2V2LT1G | 2.220              | 2.410  | 5                      | 100                  | 5                      | 1000                        | 0.5                    | 120                 | 0.7                   |
| LBZX84B2V4LT1G | 2.430              | 2.630  | 5                      | 100                  | 5                      | 1000                        | 0.5                    | 100                 | 1.0                   |
| LBZX84B2V7LT1G | 2.690              | 2.910  | 5                      | 110                  | 5                      | 1000                        | 0.5                    | 100                 | 1.0                   |
| LBZX84B3V0LT1G | 3.010              | 3.220  | 5                      | 120                  | 5                      | 1000                        | 0.5                    | 50                  | 1.0                   |
| LBZX84B3V3LT1G | 3.320              | 3.530  | 5                      | 120                  | 5                      | 1000                        | 0.5                    | 20                  | 1.0                   |
| LBZX84B3V6LT1G | 3.600              | 3.845  | 5                      | 100                  | 5                      | 1000                        | 1.0                    | 10                  | 1.0                   |
| LBZX84B3V9LT1G | 3.890              | 4.160  | 5                      | 100                  | 5                      | 1000                        | 1.0                    | 5                   | 1.0                   |
| LBZX84B4V3LT1G | 4.170              | 4.430  | 5                      | 100                  | 5                      | 1000                        | 1.0                    | 5                   | 1.0                   |
| LBZX84B4V7LT1G | 4.550              | 4.750  | 5                      | 100                  | 5                      | 800                         | 0.5                    | 2                   | 1.0                   |
| LBZX84B5V1LT1G | 4.980              | 5.200  | 5                      | 80                   | 5                      | 500                         | 0.5                    | 2                   | 1.5                   |
| LBZX84B5V6LT1G | 5.490              | 5.730  | 5                      | 60                   | 5                      | 200                         | 0.5                    | 1                   | 2.5                   |
| LBZX84B6V2LT1G | 6.060              | 6.330  | 5                      | 60                   | 5                      | 100                         | 0.5                    | 1                   | 3.0                   |
| LBZX84B6V8LT1G | 6.650              | 6.930  | 5                      | 40                   | 5                      | 60                          | 0.5                    | 0.5                 | 3.5                   |
| LBZX84B7V5LT1G | 7.280              | 7.600  | 5                      | 30                   | 5                      | 60                          | 0.5                    | 0.5                 | 4.0                   |
| LBZX84B8V2LT1G | 8.020              | 8.360  | 5                      | 30                   | 5                      | 60                          | 0.5                    | 0.5                 | 5.0                   |
| LBZX84B9V1LT1G | 8.850              | 9.230  | 5                      | 30                   | 5                      | 60                          | 0.5                    | 0.5                 | 6.0                   |
| LBZX84B10LT1G  | 9.770              | 10.210 | 5                      | 30                   | 5                      | 60                          | 0.5                    | 0.1                 | 7.0                   |
| LBZX84B11LT1G  | 10.760             | 11.220 | 5                      | 30                   | 5                      | 60                          | 0.5                    | 0.1                 | 8.0                   |
| LBZX84B12LT1G  | 11.740             | 12.240 | 5                      | 30                   | 5                      | 80                          | 0.5                    | 0.1                 | 9.0                   |
| LBZX84B13LT1G  | 12.910             | 13.490 | 5                      | 37                   | 5                      | 80                          | 0.5                    | 0.1                 | 10.0                  |
| LBZX84B15LT1G  | 14.340             | 14.980 | 5                      | 42                   | 5                      | 80                          | 0.5                    | 0.1                 | 11.0                  |
| LBZX84B16LT1G  | 15.850             | 16.510 | 5                      | 50                   | 5                      | 80                          | 0.5                    | 0.1                 | 12.0                  |
| LBZX84B18LT1G  | 17.560             | 18.350 | 5                      | 65                   | 5                      | 80                          | 0.5                    | 0.1                 | 13.0                  |
| LBZX84B20LT1G  | 19.520             | 20.390 | 5                      | 85                   | 5                      | 100                         | 0.5                    | 0.1                 | 15.0                  |
| LBZX84B22LT1G  | 21.540             | 22.470 | 5                      | 100                  | 5                      | 100                         | 0.5                    | 0.1                 | 17.0                  |
| LBZX84B24LT1G  | 23.720             | 24.780 | 5                      | 120                  | 5                      | 120                         | 0.5                    | 0.1                 | 19.0                  |
| LBZX84B27LT1G  | 26.190             | 27.530 | 5                      | 150                  | 5                      | 150                         | 0.5                    | 0.1                 | 21.0                  |
| LBZX84B30LT1G  | 29.190             | 30.690 | 5                      | 200                  | 5                      | 200                         | 0.5                    | 0.1                 | 23.0                  |
| LBZX84B33LT1G  | 32.150             | 33.790 | 5                      | 250                  | 5                      | 250                         | 0.5                    | 0.1                 | 25.0                  |
| LBZX84B36LT1G  | 35.070             | 36.870 | 5                      | 300                  | 5                      | 300                         | 0.5                    | 0.1                 | 27.0                  |

Notes) 1. The Zener voltage (V<sub>Z</sub>) is measured 40ms after power is supplied.

2. The operating resistances (Z<sub>Z</sub>, Z<sub>Zk</sub>) are measured by superimposing a minute alternating current on the regulated current (I<sub>Z</sub>).

# LBZX84B2V0LT1G Series , S-LBZX84B2V0LT1G Series

## ELECTRICAL CHARACTERISTIC CURVES (Ta=25°C)

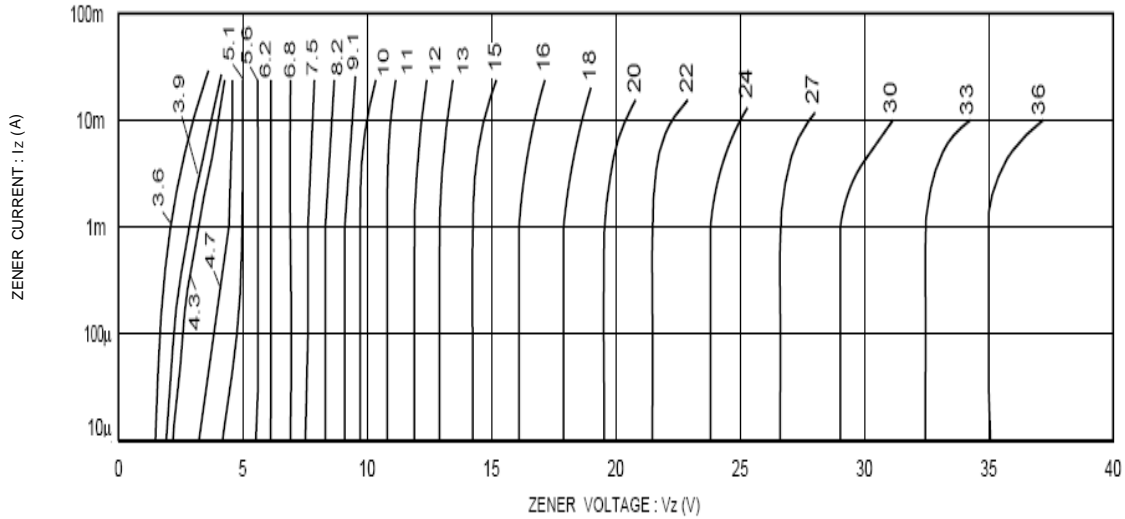


Fig.1 Zener voltage characteristics

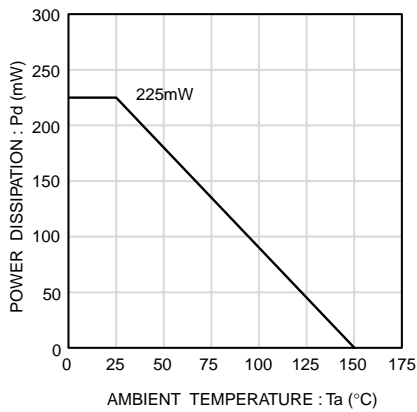


Fig.2 Derating curve

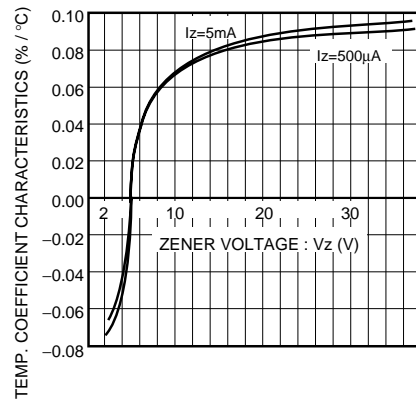
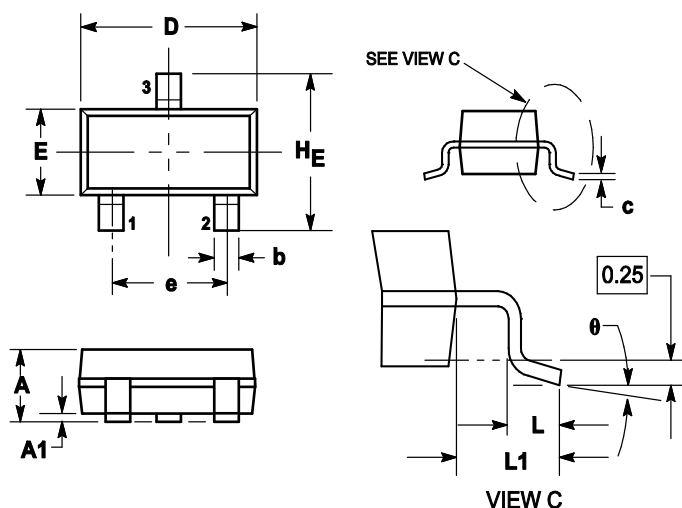


Fig.3 Zener voltage-temp. coefficient characteristics

## LBZX84B2V0LT1G Series , S-LBZX84B2V0LT1G Series

### OUTLINE AND DIMENSIONS

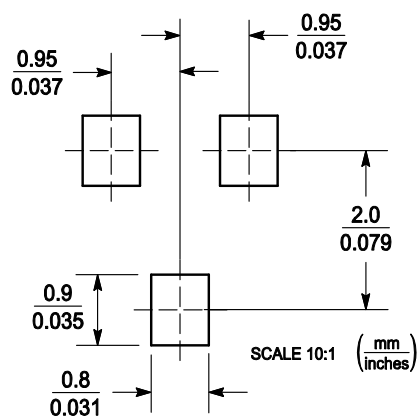


Notes:

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



**DISCLAIMER**

- Curve guarantee in the specification. The curve of test items with electric parameter is used as quality guarantee. The curve of test items without electric parameter is used as reference only.
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