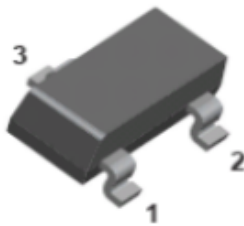
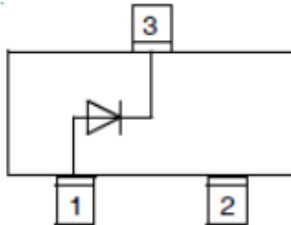




## Zener Diode

### Features

- Moisture sensitivity level 1
- Zener voltage 2.4V~39V



### Application

- Linear voltage regulator
- DC regulator
- Small-signal surge protection

### Mechanical data

- **Package:** SOT-23
- **Terminals:** Tin plated leads, solderable per J-STD-002 and JESD22-B102

### SOT-23

#### ■Limitin

n Rating, Ta=25°C Unless otherwise specified)

| Characteristic                               | Symbol            | Value    | Units |
|----------------------------------------------|-------------------|----------|-------|
| Maximum Forward Voltage@I <sub>F</sub> =10mA | V <sub>F</sub>    | 0.9      | V     |
| Power Dissipation                            | PD                | 200      | mW    |
| Peak Forward Surge Current*                  | I <sub>FSM</sub>  | 2.0      | A     |
| Thermal Resistance                           | R <sub>thJA</sub> | 625      | °C /W |
| Operation Temperature                        | T <sub>J</sub>    | -55~+150 | °C    |
| Storage Temperature Range                    | TSTG              | -55~+150 | °C    |

\*Measured on 8.3ms, single half sine-wave

#### ■Ordering Information (Example)

| PREFERED P/N              | PACKING CODE | UNIT WEIGHT(g)    | MINIMUM PACKAGE(pcs) | INNER BOX QUANTITY(pcs) | OUTER CARTON QUANTITY(pcs) | DELIVERY MODE |
|---------------------------|--------------|-------------------|----------------------|-------------------------|----------------------------|---------------|
| BZX84C2V4W THRU BZX84C39W | F2           | Approximate 0.005 | 3000                 | 30000                   | 120000                     | 7" reel       |



# BZX84C2V4W THRU BZX84C39W

## ■Electrical Characteristics (T<sub>a</sub>=25°C Unless otherwise specified)

| Type Number | Marking Code | V <sub>Z</sub> @ I <sub>ZT</sub> (V) |     |      | Z <sub>VT</sub> (Ω) |                      | Z <sub>ZK</sub> (Ω) |                      | I <sub>R</sub> (μA) @V <sub>R</sub> |                    | Diode capacitance Cd (pF) | Non-repetitive peak reverse current I <sub>Zsm</sub> (A) |
|-------------|--------------|--------------------------------------|-----|------|---------------------|----------------------|---------------------|----------------------|-------------------------------------|--------------------|---------------------------|----------------------------------------------------------|
|             |              | min                                  | typ | max  | max                 | I <sub>ZT</sub> (mA) | max                 | I <sub>ZK</sub> (mA) | max                                 | V <sub>R</sub> (V) | max                       | max                                                      |
| BZX84C2V4W  | KRB          | 2.28                                 | 2.4 | 2.52 | 100                 | 5                    | 600                 | 1                    | 50                                  | 1                  | 450                       | 6                                                        |
| BZX84C2V7W  | KRC          | 2.5                                  | 2.7 | 2.9  | 100                 | 5                    | 600                 | 1                    | 20                                  | 1                  | 450                       | 6                                                        |
| BZX84C3V0W  | KRD          | 2.8                                  | 3.0 | 3.2  | 95                  | 5                    | 600                 | 1                    | 10                                  | 1                  | 450                       | 6                                                        |
| BZX84C3V3W  | KRE          | 3.1                                  | 3.3 | 3.5  | 95                  | 5                    | 600                 | 1                    | 5                                   | 1                  | 450                       | 6                                                        |
| BZX84C3V6W  | KRF          | 3.4                                  | 3.6 | 3.8  | 90                  | 5                    | 600                 | 1                    | 5                                   | 1                  | 450                       | 4.5                                                      |
| BZX84C3V9W  | KRG          | 3.7                                  | 3.9 | 4.1  | 90                  | 5                    | 600                 | 1                    | 3                                   | 1                  | 450                       | 4.5                                                      |
| BZX84C4V3W  | KRH          | 4.0                                  | 4.3 | 4.6  | 90                  | 5                    | 600                 | 1                    | 3                                   | 1                  | 450                       | 3.5                                                      |
| BZX84C4V7W  | KR1          | 4.4                                  | 4.7 | 5.0  | 80                  | 5                    | 500                 | 1                    | 3                                   | 2                  | 300                       | 3.5                                                      |
| BZX84C5V1W  | KR2          | 4.8                                  | 5.1 | 5.4  | 60                  | 5                    | 480                 | 1                    | 2                                   | 2                  | 300                       | 3                                                        |
| BZX84C5V6W  | KR3          | 5.2                                  | 5.6 | 6.0  | 40                  | 5                    | 400                 | 1                    | 1                                   | 2                  | 200                       | 3                                                        |
| BZX84C6V2W  | KR4          | 5.8                                  | 6.2 | 6.6  | 10                  | 5                    | 150                 | 1                    | 3                                   | 4                  | 200                       | 3                                                        |
| BZX84C6V8W  | KR5          | 6.4                                  | 6.8 | 7.2  | 15                  | 5                    | 80                  | 1                    | 2                                   | 4                  | 200                       | 2                                                        |
| BZX84C7V5W  | KR6          | 7.0                                  | 7.5 | 7.9  | 15                  | 5                    | 80                  | 1                    | 1                                   | 5                  | 150                       | 2                                                        |
| BZX84C8V2W  | KR7          | 7.7                                  | 8.2 | 8.7  | 15                  | 5                    | 80                  | 1                    | 0.7                                 | 5                  | 150                       | 2                                                        |
| BZX84C9V1W  | KR8          | 8.5                                  | 9.1 | 9.6  | 15                  | 5                    | 100                 | 1                    | 0.5                                 | 6                  | 150                       | 1.8                                                      |
| BZX84C10W   | KR9          | 9.4                                  | 10  | 10.6 | 20                  | 5                    | 150                 | 1                    | 0.2                                 | 7                  | 90                        | 1.8                                                      |
| BZX84C11W   | KP1          | 10.4                                 | 11  | 11.6 | 20                  | 5                    | 150                 | 1                    | 0.1                                 | 8                  | 85                        | 1.8                                                      |
| BZX84C12W   | KP2          | 11.4                                 | 12  | 12.7 | 25                  | 5                    | 150                 | 1                    | 0.1                                 | 8                  | 85                        | 1.8                                                      |
| BZX84C13W   | KP3          | 12.4                                 | 13  | 14.1 | 30                  | 5                    | 170                 | 1                    | 0.1                                 | 8                  | 80                        | 1                                                        |
| BZX84C15W   | KP4          | 13.8                                 | 15  | 15.6 | 30                  | 5                    | 200                 | 1                    | 0.1                                 | 10.5               | 75                        | 1                                                        |
| BZX84C16W   | KP5          | 15.3                                 | 16  | 17.1 | 40                  | 5                    | 200                 | 1                    | 0.1                                 | 11.2               | 75                        | 1                                                        |
| BZX84C18W   | KP6          | 16.8                                 | 18  | 19.1 | 45                  | 5                    | 225                 | 1                    | 0.1                                 | 12.6               | 70                        | 1                                                        |
| BZX84C20W   | KP7          | 18.8                                 | 20  | 21.2 | 55                  | 5                    | 225                 | 1                    | 0.1                                 | 14                 | 60                        | 1                                                        |
| BZX84C22W   | KP8          | 20.8                                 | 22  | 23.3 | 55                  | 5                    | 250                 | 1                    | 0.1                                 | 15.4               | 60                        | 0.6                                                      |
| BZX84C24W   | KP9          | 22.8                                 | 24  | 25.6 | 70                  | 5                    | 250                 | 1                    | 0.1                                 | 16.8               | 55                        | 0.6                                                      |
| BZX84C27W   | KPA          | 25.1                                 | 27  | 28.9 | 80                  | 2                    | 300                 | 1                    | 0.1                                 | 18.9               | 50                        | 0.6                                                      |
| BZX84C30W   | KPB          | 28                                   | 30  | 32   | 80                  | 2                    | 300                 | 1                    | 0.1                                 | 21.0               | 50                        | 0.6                                                      |
| BZX84C33W   | KPC          | 31                                   | 33  | 35   | 80                  | 2                    | 325                 | 1                    | 0.1                                 | 23.1               | 45                        | 0.6                                                      |
| BZX84C36W   | KPD          | 34                                   | 36  | 38   | 90                  | 2                    | 350                 | 1                    | 0.1                                 | 25.2               | 45                        | 0.6                                                      |



**BZX84C2V4W THRU BZX84C39W**

|           |     |    |    |    |     |   |     |   |     |      |    |     |
|-----------|-----|----|----|----|-----|---|-----|---|-----|------|----|-----|
| BZX84C39W | KPE | 37 | 39 | 41 | 130 | 2 | 350 | 1 | 0.1 | 27.3 | 45 | 0.6 |
|-----------|-----|----|----|----|-----|---|-----|---|-----|------|----|-----|



## BZX84C2V4W THRU BZX84C39W

### ■ Characteristics(Typical)

Fig 1:  $P_D$ -Ta Curve

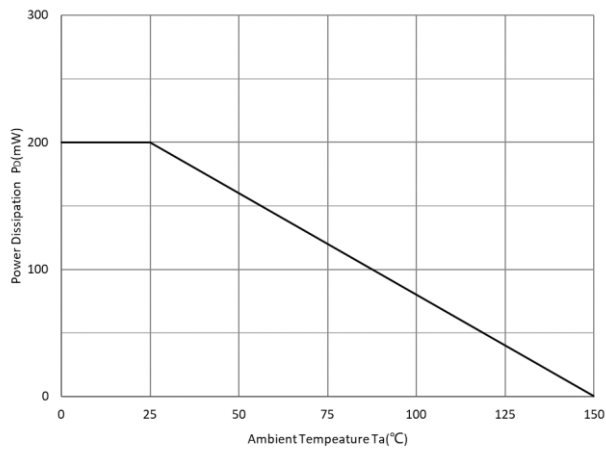


Fig 2: Zener Breakdown Characteristics

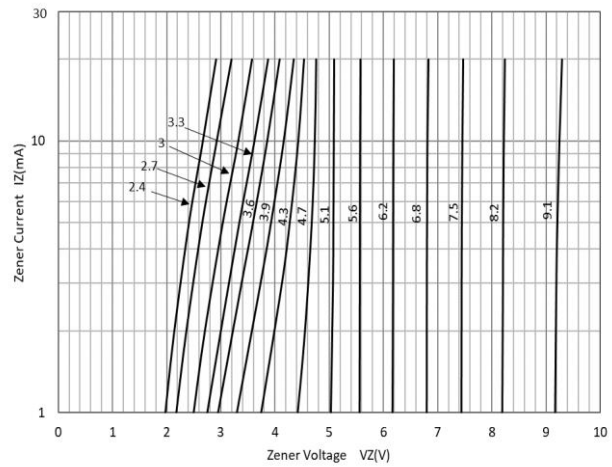


Fig 3: Zener Breakdown Characteristics

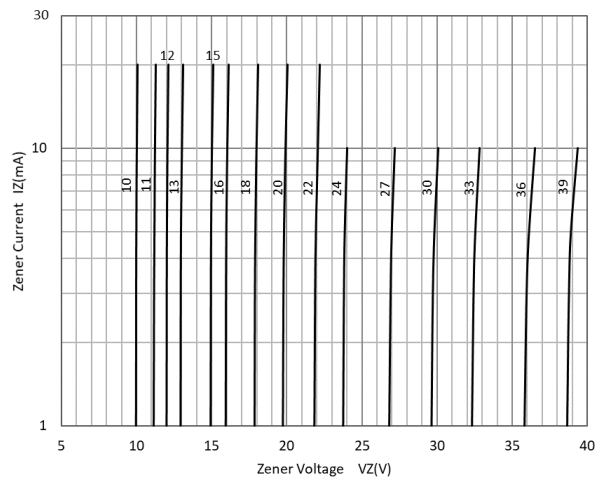


Fig 4 Typical Temperature Coefficient

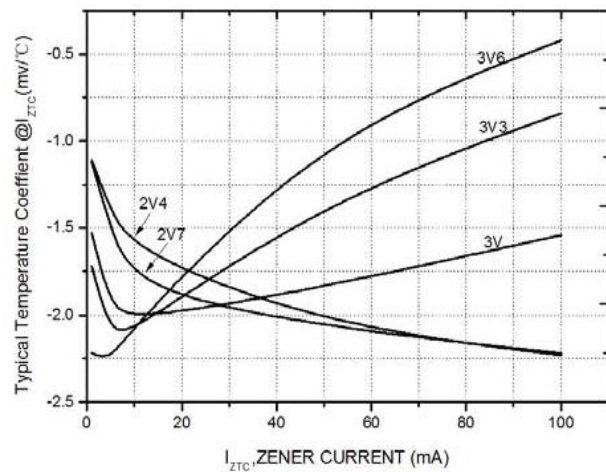


Fig 5 Typical Temperature Coefficient

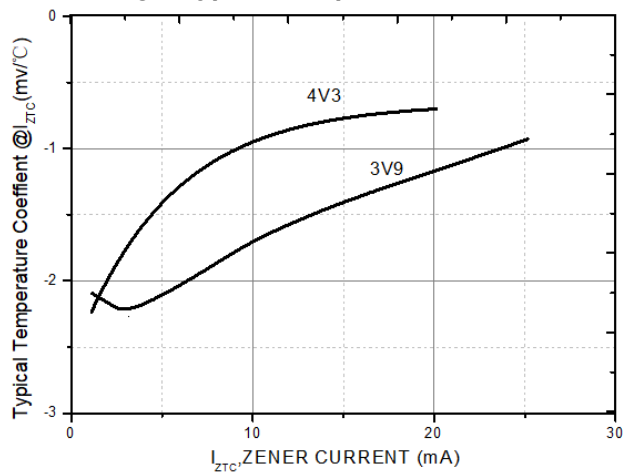
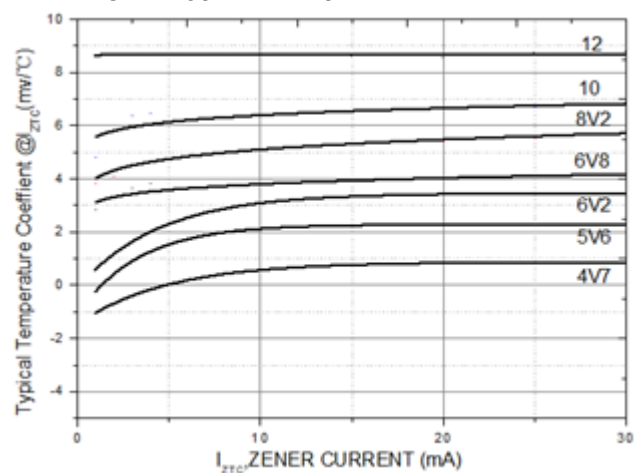


Fig 6: Typical Temperature Coefficient





## BZX84C2V4W THRU BZX84C39W

Fig 7 Typical Temperature Coefficient

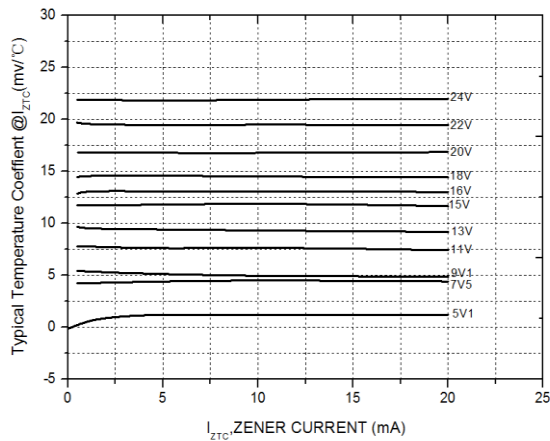


Fig 8: Typical Temperature Coefficient

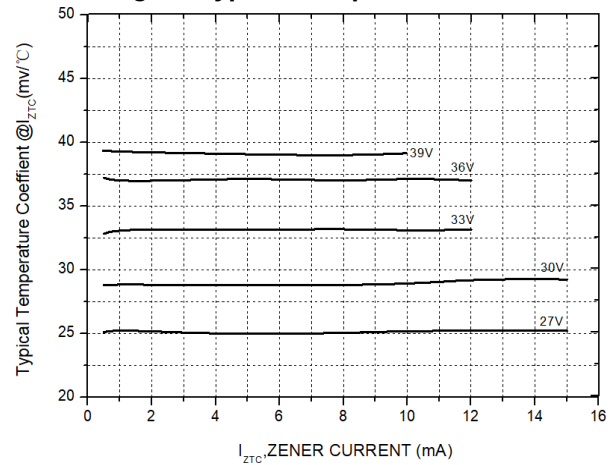


Fig 9: Typical Forward Voltage

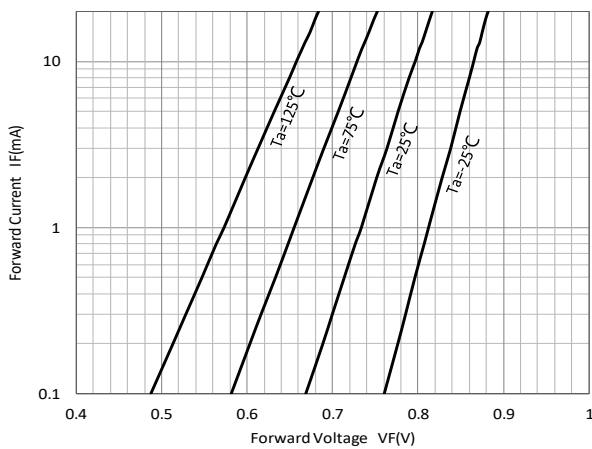


Fig 10: Typical Reverse Current

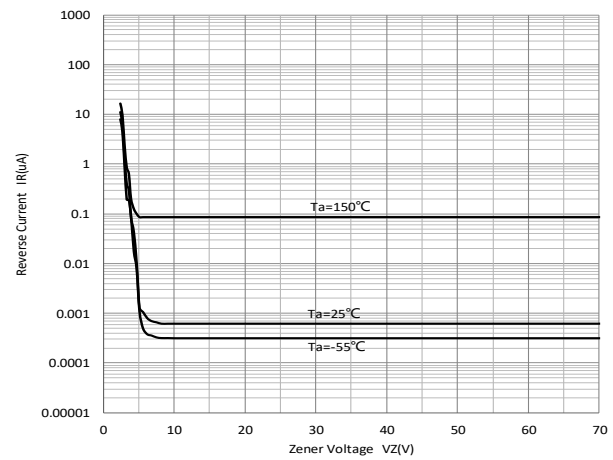
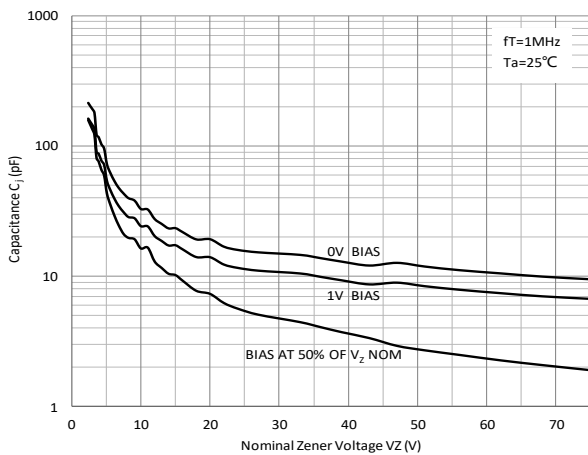


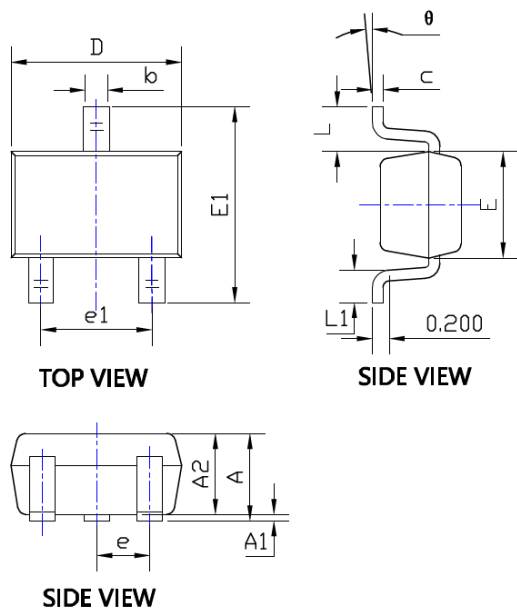
Fig 11: Typical Capacitance





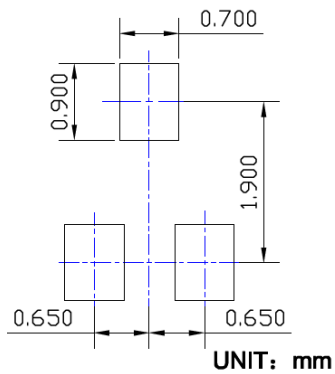
## BZX84C2V4W THRU BZX84C39W

### ■ SOT-323 Package Outline Dimensions



| SYMBOL | DIMENSIONS |       |            |       |
|--------|------------|-------|------------|-------|
|        | INCHES     |       | Millimeter |       |
|        | MIN.       | MAX.  | MIN.       | MAX.  |
| A      | 0.035      | 0.043 | 0.900      | 1.100 |
| A1     | 0.000      | 0.004 | 0.000      | 0.100 |
| A2     | 0.035      | 0.039 | 0.900      | 1.000 |
| b      | 0.006      | 0.016 | 0.150      | 0.400 |
| c      | 0.004      | 0.010 | 0.100      | 0.250 |
| D      | 0.071      | 0.087 | 1.800      | 2.200 |
| E      | 0.045      | 0.053 | 1.150      | 1.350 |
| E1     | 0.085      | 0.096 | 2.150      | 2.450 |
| e      | 0.026 TYP  |       | 0.650 TYP  |       |
| e1     | 0.047      | 0.055 | 1.200      | 1.400 |
| L      | 0.021 REF  |       | 0.525 REF  |       |
| L1     | 0.010      | 0.018 | 0.260      | 0.460 |
| θ      | 0°         | 8°    | 0°         | 8°    |

### ■ SOT-323 Suggested Pad Layout





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