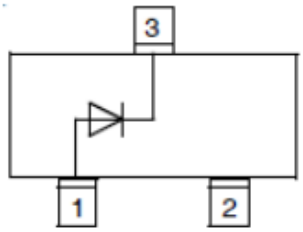
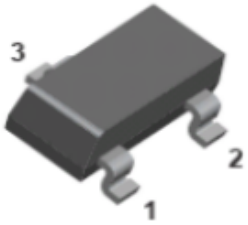
# Zener Diode




SOT-23

## Features

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

## Application

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

## Mechanical data

- **Package**: SOT-323
- **Terminals**: Tin plated leads, solderable per J-STD-002 and JESD22-B102

## ■Limitin n Rating, Ta=25℃ Unless otherwise specified)

| Characteristic | Symbol | Value | Units |
|---|---|---|---|
| Maximum Forward Voltage@$I_F$=10mA | $V_F$ | 0.9 | V |
| Power Dissipation | PD | 200 | mW |
| Peak Forward Surge Current* | $I_{FSM}$ | 2.0 | A |
| Thermal Resistance | RthJA | 625 | ℃ /W |
| Operation Temperature | $T_J$ | -55~+150 | ℃ |
| Storage Temperature Range | TSTG | -55~+150 | ℃ |

*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 |

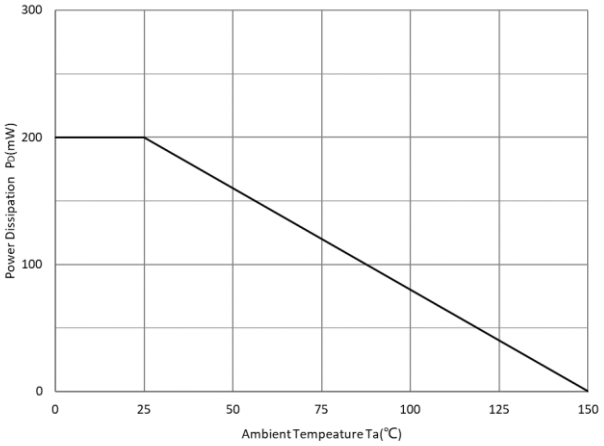
## ■Electrical Characteristics（Ta=25℃ Unless otherwise specified）

| Type Number | Marking Code | $V_Z$ @ $I_{ZT}$ (V) | | | $Z_{ZT}$(Ω) | | $Z_{ZK}$(Ω) | | $I_R$(μA) @$V_R$ | | Diode capacitance Cd (pF) | Non-repetitive peak reverse current Izsm (A) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | min | typ | max | max | $I_{ZT}$(mA) | max | $I_{ZK}$(mA) | max | $V_R$(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 |

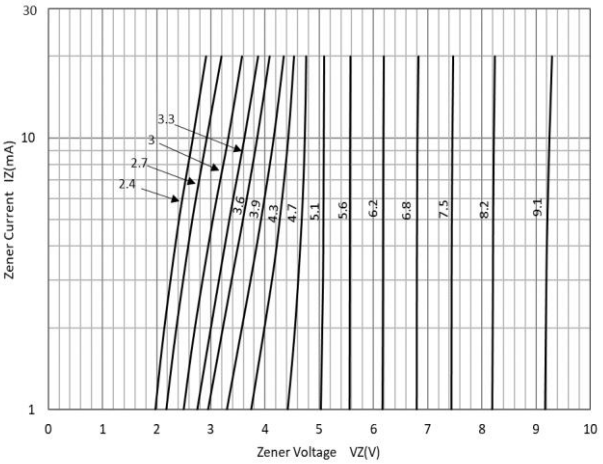
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BZX84C39W | KPE | 37 | 39 | 41 | 130 | 2 | 350 | 1 | 0.1 | 27.3 | 45 | 0.6 |

## ■ Characteristics(Typical)

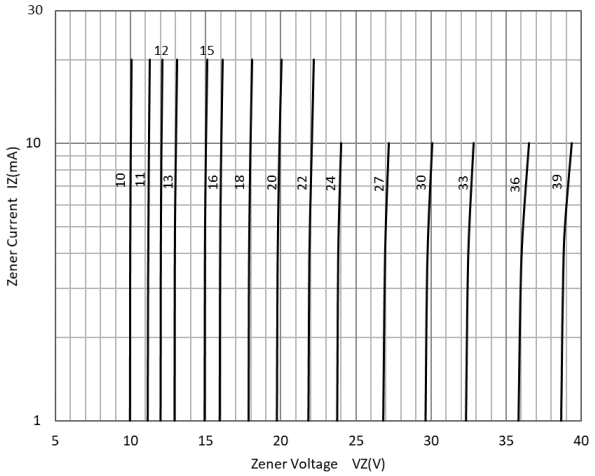
### Fig 1：$P_D$-Ta Curve



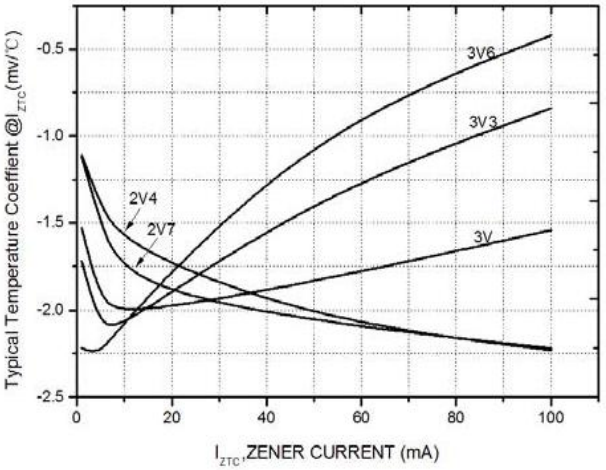

### Fig 2：Zener Breakdown Characteristics



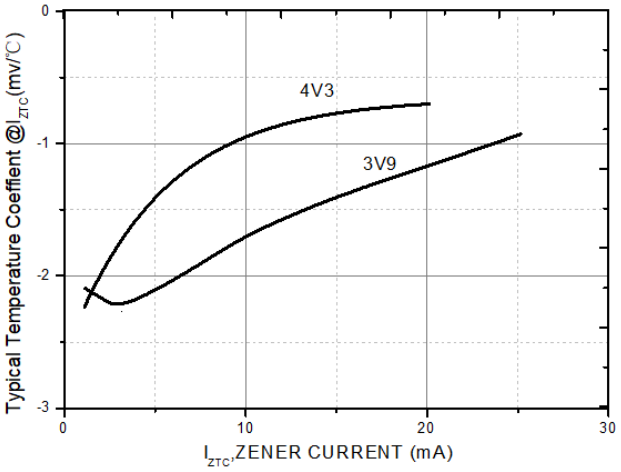

### Fig 3：Zener Breakdown Characteristics




### Fig 4 Typical Temperature Coeffient




### Fig 5 Typical Temperature Coeffient




### Fig 6：Typical Temperature Coeffient

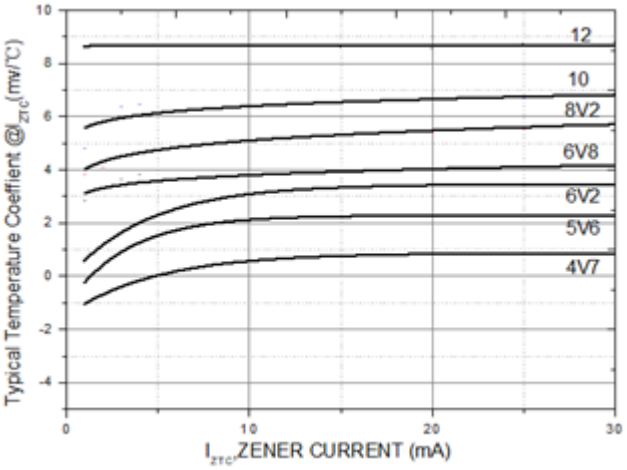


**Fig 7 Typical Temperature Coeffient**

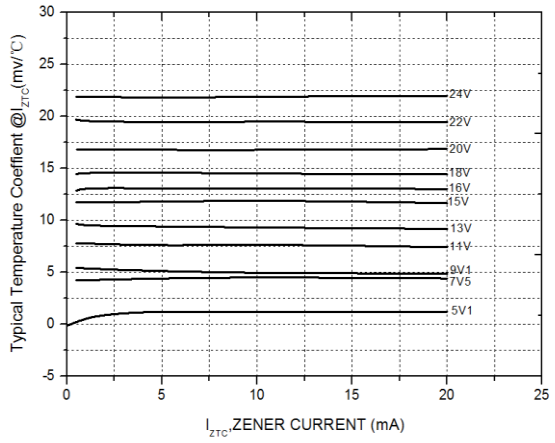



**Fig 8：Typical Temperature Coeffient**

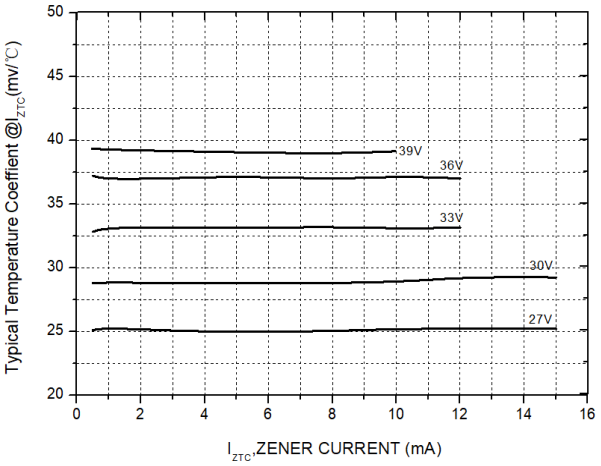



**Fig 9：Typical Forward Voltage**

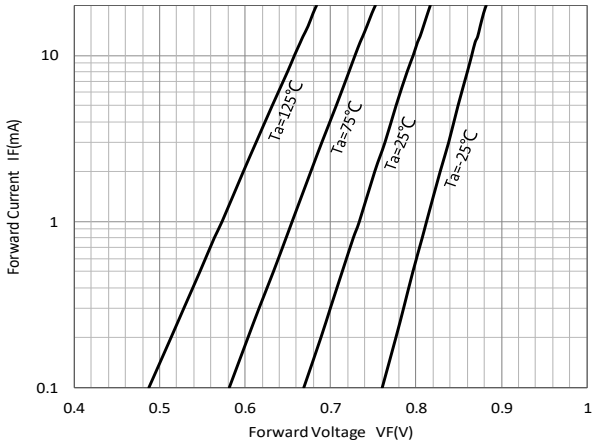



**Fig 10：Typical Reverse Current**

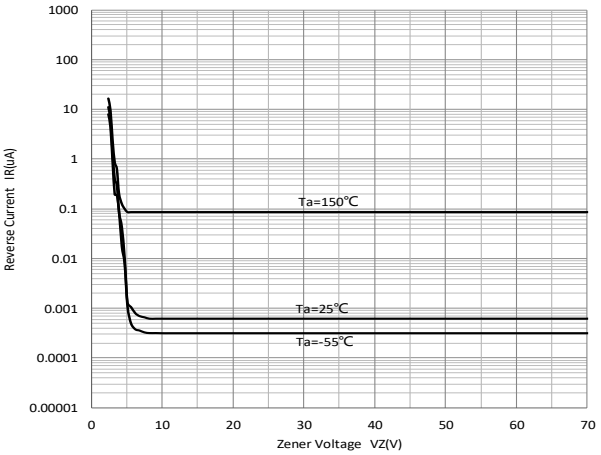
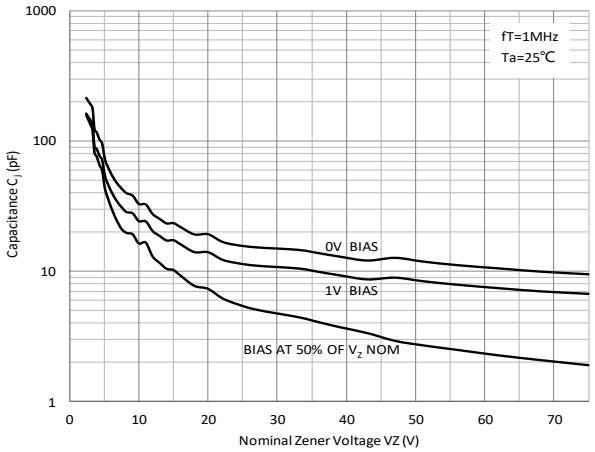
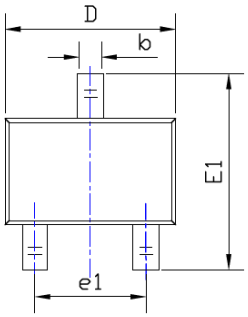


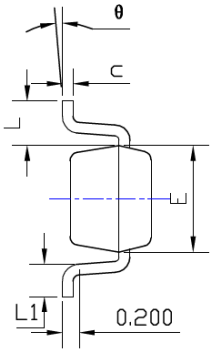

**Fig 11：Typical Capacitance**



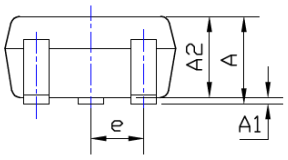
## ■ SOT-323 Package Outline Dimensions




TOP VIEW



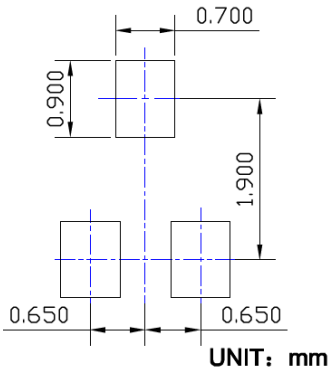

SIDE VIEW




SIDE VIEW

| DIMENSIONS | | | | |
|---|---|---|---|---|
| SYMBOL | 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 | 0.026TYP | | 0.650TYP | |
| e1 | 0.047 | 0.055 | 1.200 | 1.400 |
| L | 0.021REF | | 0.525REF | |
| L1 | 0.010 | 0.018 | 0.260 | 0.460 |
| θ | 0° | 8° | 0° | 8° |

## ■ SOT-323 Suggested Pad Layout




UNIT：mm

## Notice

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