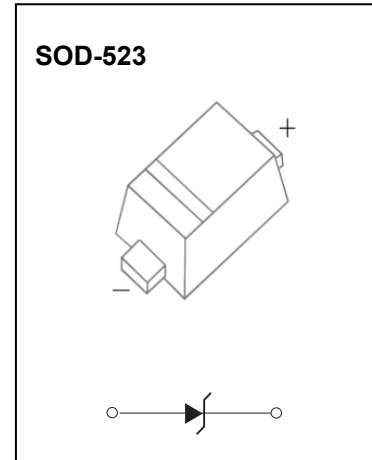


**SOD-523 Plastic-Encapsulate Diodes****BZX584C2V4-BZX584C43** ZENER DIODE**FEATURES**

- Planar Die Construction
- 150mW Power Dissipation
- Zener Voltages from 2.4 – 43V

**MAXIMUM RATINGS( $T_a=25^{\circ}\text{C}$  unless otherwise specified)**

| Characteristic                                   | Symbol          | Value    | Unit |
|--|-----------------|----------|------|
| Forward Voltage @ $I_F=10\text{mA}$              | $V_F$           | 0.9      | V    |
| Power Dissipation                                | $P_D$           | 150      | mW   |
| Thermal Resistance from Junction to Ambient      | $R_{\theta JA}$ | 833      | /W   |
| Operation Junction and Storage Temperature Range | $T_J, T_{stg}$  | -55~+150 |      |

# ELECTRICAL CHARACTERISTICS

$T_a=25^{\circ}\text{C}$  unless otherwise specified

| Type Number | Type Code | Zener Voltage Range (Note 2) |        |        |          | Maximum Zener Impedance (Note 3) |                 |                   | Maximum Reverse Current |       | Typical temperature coefficient @ $I_{ZT}$ mV/ $^{\circ}\text{C}$ |      |
|-------------|-----------|------------------------------|--------|--------|----------|----------------------------------|-----------------|-------------------|-------------------------|-------|---|------|
|             |           | $V_Z@I_{ZT}$                 |        |        | $I_{ZT}$ | $Z_{ZT}@I_{ZT}$                  | $Z_{ZK}@I_{ZK}$ |                   | $I_R$                   | $V_R$ | Min   | Max  |
|             |           | Nom(V)                       | Min(V) | Max(V) | (mA)     | ( $\Omega$ )                     | (mA)            | ( $\mu\text{A}$ ) | (V)                     |       |   |      |
| BZX584C2V4  | Z11       | 2.4                          | 2.20   | 2.60   | 5        | 100                              | 600             | 1.0               | 50                      | 1.0   | -3.5  | 0    |
| BZX584C2V7  | Z12       | 2.7                          | 2.5    | 2.9    | 5        | 100                              | 600             | 1.0               | 20                      | 1.0   | -3.5  | 0    |
| BZX584C3V0  | Z13       | 3.0                          | 2.8    | 3.2    | 5        | 95                               | 600             | 1.0               | 10                      | 1.0   | -3.5  | 0    |
| BZX584C3V3  | Z14       | 3.3                          | 3.1    | 3.5    | 5        | 95                               | 600             | 1.0               | 5                       | 1.0   | -3.5  | 0    |
| BZX584C3V6  | Z15       | 3.6                          | 3.4    | 3.8    | 5        | 90                               | 600             | 1.0               | 5                       | 1.0   | -3.5  | 0    |
| BZX584C3V9  | Z16       | 3.9                          | 3.7    | 4.1    | 5        | 90                               | 600             | 1.0               | 3                       | 1.0   | -3.5  | 0    |
| BZX584C4V3  | Z17       | 4.3                          | 4.0    | 4.6    | 5        | 90                               | 600             | 1.0               | 3                       | 1.0   | -3.5  | 0    |
| BZX584C4V7  | Z1        | 4.7                          | 4.4    | 5.0    | 5        | 80                               | 500             | 1.0               | 3                       | 2.0   | -3.5  | 0.2  |
| BZX584C5V1  | Z2        | 5.1                          | 4.8    | 5.4    | 5        | 60                               | 480             | 1.0               | 2                       | 2.0   | -2.7  | 1.2  |
| BZX584C5V6  | Z3        | 5.6                          | 5.2    | 6.0    | 5        | 40                               | 400             | 1.0               | 1                       | 2.0   | -2.0  | 2.5  |
| BZX584C6V2  | Z4        | 6.2                          | 5.8    | 6.6    | 5        | 10                               | 150             | 1.0               | 3                       | 4.0   | 0.4   | 3.7  |
| BZX584C6V8  | Z5        | 6.8                          | 6.4    | 7.2    | 5        | 15                               | 80              | 1.0               | 2                       | 4.0   | 1.2   | 4.5  |
| BZX584C7V5  | Z6        | 7.5                          | 7.0    | 7.9    | 5        | 15                               | 80              | 1.0               | 1                       | 5.0   | 2.5   | 5.3  |
| BZX584C8V2  | Z7        | 8.2                          | 7.7    | 8.7    | 5        | 15                               | 80              | 1.0               | 0.7                     | 5.0   | 3.2   | 6.2  |
| BZX584C9V1  | Z8        | 9.1                          | 8.5    | 9.6    | 5        | 15                               | 100             | 1.0               | 0.5                     | 6.0   | 3.8   | 7.0  |
| BZX584C10   | Z9        | 10                           | 9.4    | 10.6   | 5        | 20                               | 150             | 1.0               | 0.2                     | 7.0   | 4.5   | 8.0  |
| BZX584C11   | Y1        | 11                           | 10.4   | 11.6   | 5        | 20                               | 150             | 1.0               | 0.1                     | 8.0   | 5.4   | 9.0  |
| BZX584C12   | Y2        | 12                           | 11.4   | 12.7   | 5        | 25                               | 150             | 1.0               | 0.1                     | 8.0   | 6.0   | 10.0 |
| BZX584C13   | Y3        | 13                           | 12.4   | 14.1   | 5        | 30                               | 170             | 1.0               | 0.1                     | 8.0   | 7.0   | 11.0 |
| BZX584C15   | Y4        | 15                           | 13.8   | 15.6   | 5        | 30                               | 200             | 1.0               | 0.1                     | 10.5  | 9.2   | 13.0 |
| BZX584C16   | Y5        | 16                           | 15.3   | 17.1   | 5        | 40                               | 200             | 1.0               | 0.1                     | 11.2  | 10.4  | 14.0 |
| BZX584C18   | Y6        | 18                           | 16.8   | 19.1   | 5        | 45                               | 225             | 1.0               | 0.1                     | 12.6  | 12.4  | 16.0 |
| BZX584C20   | Y7        | 20                           | 18.8   | 21.2   | 5        | 55                               | 225             | 1.0               | 0.1                     | 14.0  | 14.4  | 18.0 |
| BZX584C22   | Y8        | 22                           | 20.8   | 23.3   | 5        | 55                               | 250             | 1.0               | 0.1                     | 15.4  | 16.4  | 20.0 |
| BZX584C24   | Y9        | 24                           | 22.8   | 25.6   | 5        | 70                               | 250             | 1.0               | 0.1                     | 16.8  | 18.4  | 22.0 |
| BZX584C27   | Y10       | 27                           | 25.1   | 28.9   | 2        | 80                               | 300             | 0.5               | 0.1                     | 18.9  | 21.4  | 25.3 |
| BZX584C30   | Y11       | 30                           | 28.0   | 32.0   | 2        | 80                               | 300             | 0.5               | 0.1                     | 21.0  | 24.4  | 29.4 |
| BZX584C33   | Y12       | 33                           | 31.0   | 35.0   | 2        | 80                               | 325             | 0.5               | 0.1                     | 23.1  | 27.4  | 33.4 |
| BZX584C36   | Y13       | 36                           | 34.0   | 38.0   | 2        | 90                               | 350             | 0.5               | 0.1                     | 25.2  | 30.4  | 37.4 |
| BZX584C39   | Y14       | 39                           | 37.0   | 41.0   | 2        | 130                              | 350             | 0.5               | 0.1                     | 27.3  | 33.4  | 41.2 |
| BZX584C43   | Y15       | 43                           | 40.0   | 46.0   | 2        | 100                              | 700             | 1                 | 0.1                     | 32    | 10  | 12   |

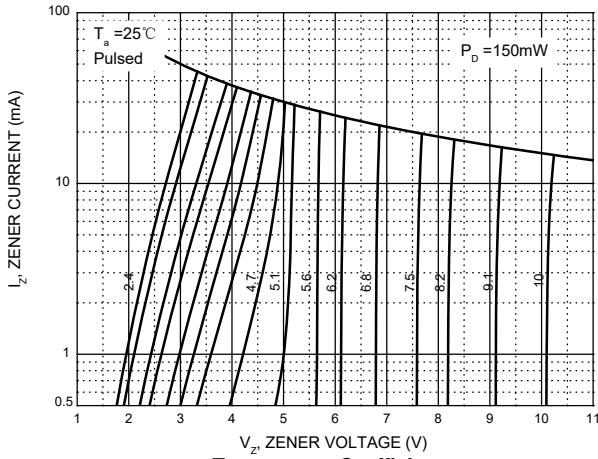
Notes: 1. Valid provided that device terminals are kept at ambient temperature.

2. Tested with pulses, period=5ms, pulse width =300 $\mu\text{s}$ .

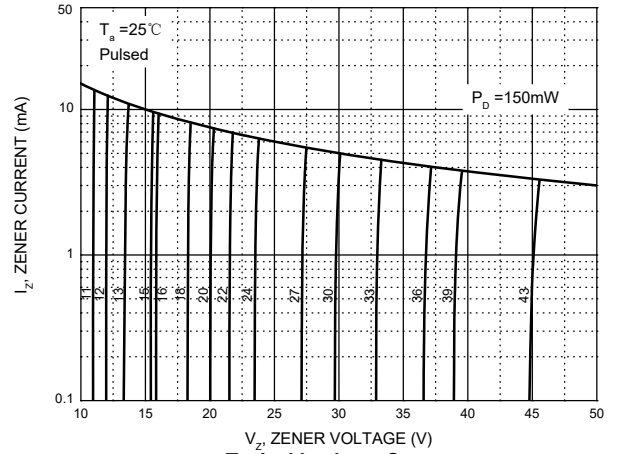
3. f = 1 kHz.

# Typical Characteristics

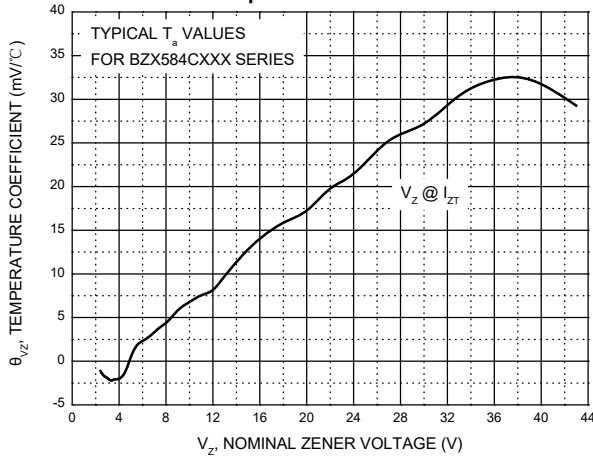
Zener Characteristics ( $V_z$  Up to 10 V)



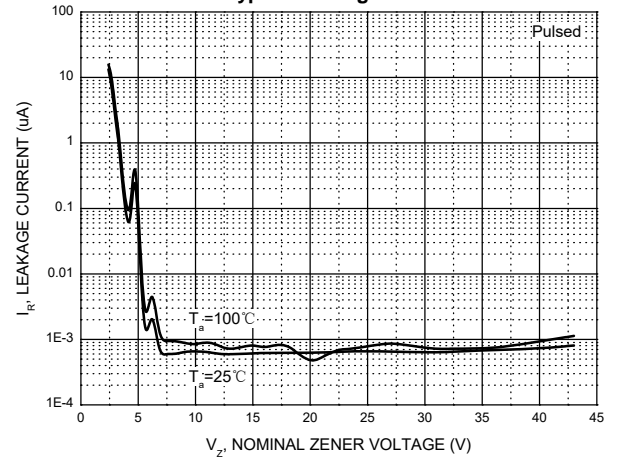
Zener Characteristics (11 V to 43 V)



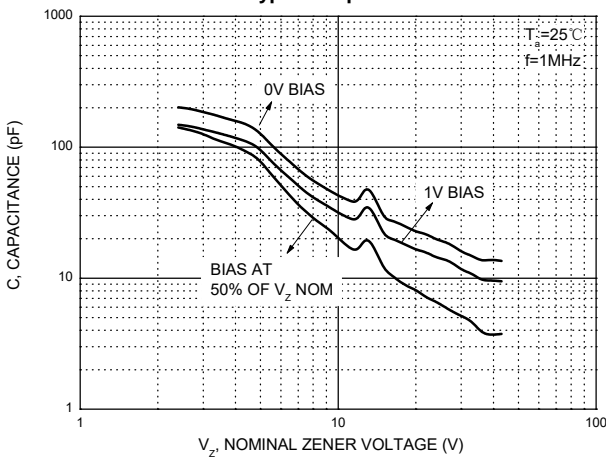
Temperature Coefficients



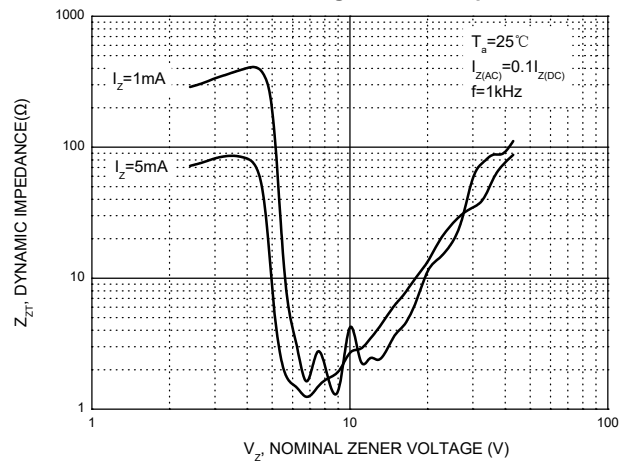
Typical Leakage Current



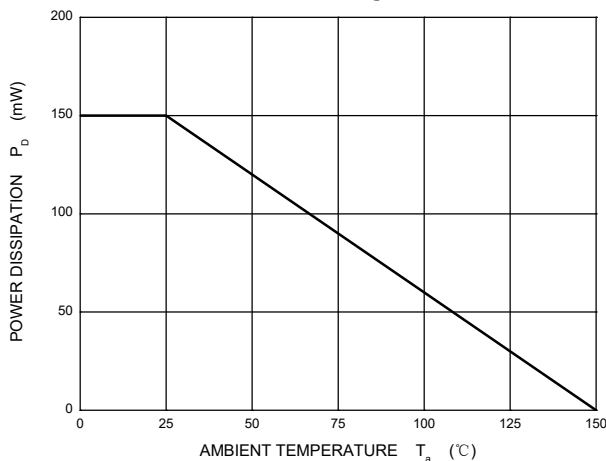
Typical Capacitance



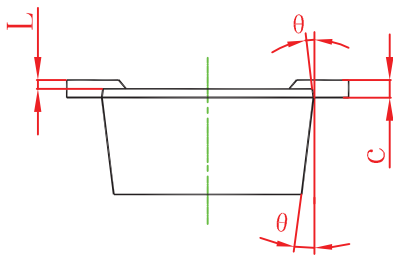
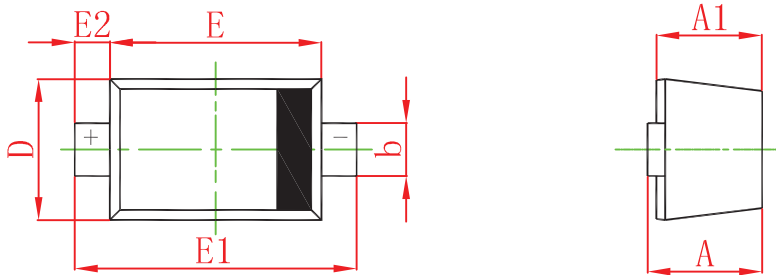
Effect of Zener Voltage on Zener Impedance



Power Derating Curve

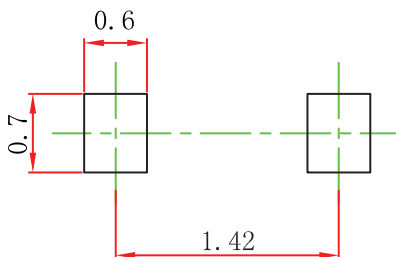


## SOD-523 Package Outline Dimensions



| Symbol | Dimensions In Millimeters |       | Dimensions In Inches |       |
|--------|---------------------------|-------|----------------------|-------|
|        | Min                       | Max   | Min                  | Max   |
| A      | 0.510                     | 0.770 | 0.020                | 0.031 |
| A1     | 0.500                     | 0.700 | 0.020                | 0.028 |
| b      | 0.250                     | 0.350 | 0.010                | 0.014 |
| c      | 0.080                     | 0.150 | 0.003                | 0.006 |
| D      | 0.750                     | 0.850 | 0.030                | 0.033 |
| E      | 1.100                     | 1.300 | 0.043                | 0.051 |
| E1     | 1.500                     | 1.700 | 0.059                | 0.067 |
| E2     | 0.200 REF                 |       | 0.008 REF            |       |
| L      | 0.010                     | 0.070 | 0.001                | 0.003 |
| θ      | 7° REF                    |       | 7° REF               |       |

## SOD-523 Suggested Pad Layout



**Note:**

1. Controlling dimension: in millimeters.
2. General tolerance:  $\pm 0.05\text{mm}$ .
3. The pad layout is for reference purposes only.

**NOTICE**

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# SOD-523 Tape and Reel

## SOD-523 Embossed Carrier Tape



### Packaging Description:

SOD-523 parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Heat Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled parts in standard option are shipped with 8,000 units per 7" or 17.8cm diameter reel. The reels are clear in color and is made of polystyrene plastic (anti-static coated).

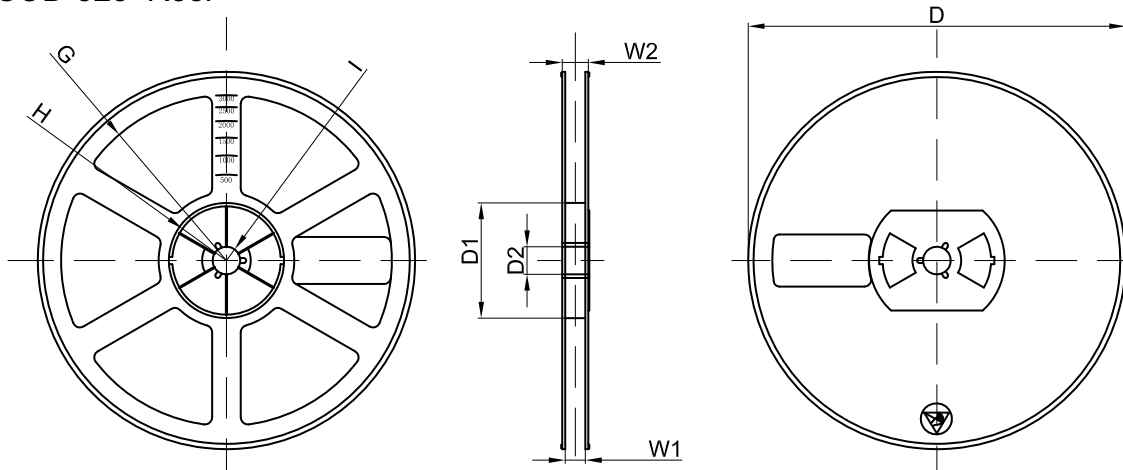
NOTE: TO CAVE 'C' ON CARRIER TAPE PER 120MM

| Dimensions are in millimeter |     |      |      |       |      |      |      |      |      |      |  |
|------------------------------|-----|------|------|-------|------|------|------|------|------|------|--|
| Pkg type                     | A   | B    | C    | d     | E    | F    | P0   | P    | P1   | W    |  |
| SOD-523                      | 0.9 | 1.94 | 0.73 | Ø1.50 | 1.75 | 3.50 | 4.00 | 2.00 | 2.00 | 8.00 |  |

## SOD-523 Tape Leader and Trailer



## SOD-523 Reel



| Dimensions are in millimeter |         |       |       |        |        |       |      |       |
|------------------------------|---------|-------|-------|--------|--------|-------|------|-------|
| Reel Option                  | D       | D1    | D2    | G      | H      | I     | W1   | W2    |
| 7"Dia                        | Ø178.00 | 54.40 | 13.00 | R78.00 | R25.60 | R6.50 | 9.50 | 12.30 |

| REEL     | Reel Size | Box         | Box Size(mm) | Carton      | Carton Size(mm) | G.W.(kg) |
|----------|-----------|-------------|--------------|-------------|-----------------|----------|
| 8000 pcs | 7 inch    | 120,000 pcs | 203×203×195  | 480,000 pcs | 438×438×220     |          |

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