

# MSKSEMI 美森科

SEMICONDUCTOR



ESD



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## BZX84C2V4-BZX84C75

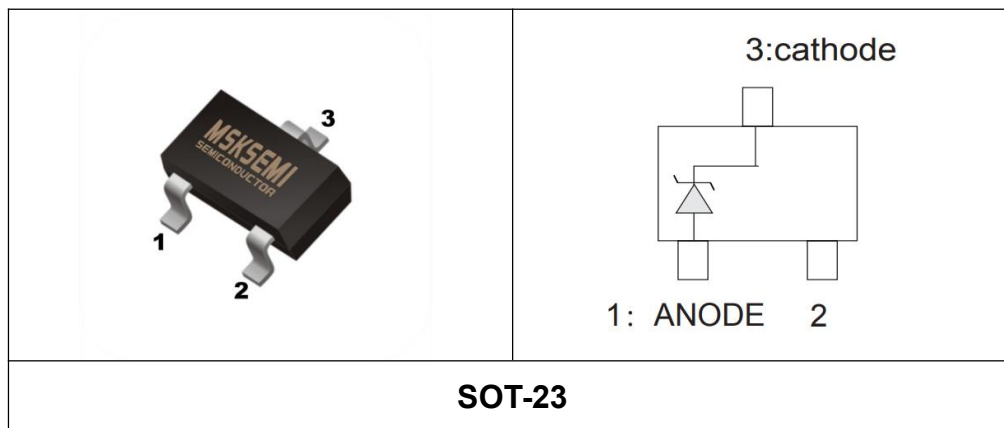
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Product specification

## Features

- Planar Die Construction
- 300mW Power Dissipation
- Zener Voltages from 2.4V - 75V
- Ultra- Small Surface Mount Package Power Dissipation

## Reference News



## Maximum Ratings(Ta=25°C unless otherwise specified)

| Characteristic                                     | Symbol           | Value     | Unit |
|--|------------------|-----------|------|
| Forward Voltage ( Note 2 ) @ I <sub>F</sub> = 10mA | V <sub>F</sub>   | 0.9       | V    |
| Power Dissipation( Note 1 )                        | P <sub>d</sub>   | 300       | mW   |
| Thermal Resistance from Junction to Ambient        | R <sub>θJA</sub> | 417       | °C/W |
| Junction Temperature                               | T <sub>j</sub>   | 150       | °C   |
| Storage Temperature Range                          | T <sub>stg</sub> | -55~+ 150 | °C   |

**ELECTRICAL CHARACTERISTICS**

Ta=25°C unless otherwise specified

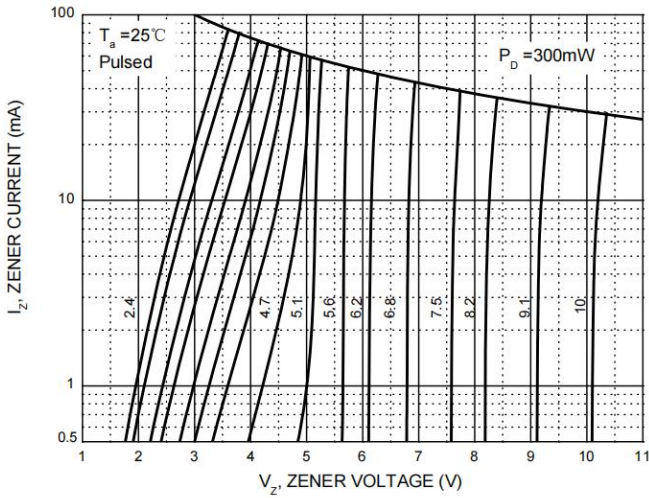
| P/N       | MARK | Zener Voltage Range ( Note 2 )   |        |        |                | Maximum Zener Impedance ( Note 3) |                                   |                | Maximum Reverse Current |      | Temperature Coefficient of Zener voltage @ I <sub>ZT</sub> =5mA |      |
|-----------|------|----------------------------------|--------|--------|----------------|-----------------------------------|-----------------------------------|----------------|-------------------------|------|---|------|
|           |      | V <sub>Z</sub> @ I <sub>ZT</sub> |        |        | Z <sub>T</sub> | Z <sub>T</sub> @ I <sub>ZT</sub>  | Z <sub>ZK</sub> @ I <sub>ZK</sub> | Z <sub>K</sub> | R                       | R    | mV/ °C  |      |
|           |      | Nom(V)                           | Min(V) | Max(V) | (mA)           | (Ω)                               |                                   | (mA)           | (pA)                    | (V)  | Min   | Max  |
| BZX84C2V4 | Z11  | 2.4                              | 2.20   | 2.60   | 5              | 100                               | 600                               | 1.0            | 50                      | 1.0  | -3.5  | 0    |
| BZX84C2V7 | Z12  | 2.7                              | 2.5    | 2.9    | 5              | 100                               | 600                               | 1.0            | 20                      | 1.0  | -3.5  | 0    |
| BZX84C3V0 | Z13  | 3.0                              | 2.8    | 3.2    | 5              | 95                                | 600                               | 1.0            | 10                      | 1.0  | -3.5  | 0    |
| BZX84C3V3 | Z14  | 3.3                              | 3.1    | 3.5    | 5              | 95                                | 600                               | 1.0            | 5                       | 1.0  | -3.5  | 0    |
| BZX84C3V6 | Z15  | 3.6                              | 3.4    | 3.8    | 5              | 90                                | 600                               | 1.0            | 5                       | 1.0  | -3.5  | 0    |
| BZX84C3V9 | Z16  | 3.9                              | 3.7    | 4.1    | 5              | 90                                | 600                               | 1.0            | 3                       | 1.0  | -3.5  | 0    |
| BZX84C4V3 | Z17  | 4.3                              | 4.0    | 4.6    | 5              | 90                                | 600                               | 1.0            | 3                       | 1.0  | -3.5  | 0    |
| BZX84C4V7 | Z1   | 4.7                              | 4.4    | 5.0    | 5              | 80                                | 500                               | 1.0            | 3                       | 2.0  | -3.5  | 0.2  |
| BZX84C5V1 | Z2   | 5.1                              | 4.8    | 5.4    | 5              | 60                                | 480                               | 1.0            | 2                       | 2.0  | -2.7  | 1.2  |
| BZX84C5V6 | Z3   | 5.6                              | 5.2    | 6.0    | 5              | 40                                | 400                               | 1.0            | 1                       | 2.0  | -2.0  | 2.5  |
| BZX84C6V2 | Z4   | 6.2                              | 5.8    | 6.6    | 5              | 10                                | 150                               | 1.0            | 3                       | 4.0  | 0.4   | 3.7  |
| BZX84C6V8 | Z5   | 6.8                              | 6.4    | 7.2    | 5              | 15                                | 80                                | 1.0            | 2                       | 4.0  | 1.2   | 4.5  |
| BZX84C7V5 | Z6   | 7.5                              | 7.0    | 7.9    | 5              | 15                                | 80                                | 1.0            | 1                       | 5.0  | 2.5   | 5.3  |
| BZX84C8V2 | Z7   | 8.2                              | 7.7    | 8.7    | 5              | 15                                | 80                                | 1.0            | 0.7                     | 5.0  | 3.2   | 6.2  |
| BZX84C9V1 | Z8   | 9.1                              | 8.5    | 9.6    | 5              | 15                                | 100                               | 1.0            | 0.5                     | 6.0  | 3.8   | 7.0  |
| BZX84C10  | Z9   | 10                               | 9.4    | 10.6   | 5              | 20                                | 150                               | 1.0            | 0.2                     | 7.0  | 4.5   | 8.0  |
| BZX84C11  | Y1   | 11                               | 10.4   | 11.6   | 5              | 20                                | 150                               | 1.0            | 0.1                     | 8.0  | 5.4   | 9.0  |
| BZX84C12  | Y2   | 12                               | 11.4   | 12.7   | 5              | 25                                | 150                               | 1.0            | 0.1                     | 8.0  | 6.0   | 10.0 |
| BZX84C13  | Y3   | 13                               | 12.4   | 14.1   | 5              | 30                                | 170                               | 1.0            | 0.1                     | 8.0  | 7.0   | 11.0 |
| BZX84C15  | Y4   | 15                               | 13.8   | 15.6   | 5              | 30                                | 200                               | 1.0            | 0.1                     | 10.5 | 9.2   | 13.0 |
| BZX84C16  | Y5   | 16                               | 15.3   | 17.1   | 5              | 40                                | 200                               | 1.0            | 0.1                     | 11.2 | 10.4  | 14.0 |
| BZX84C18  | Y6   | 18                               | 16.8   | 19.1   | 5              | 45                                | 225                               | 1.0            | 0.1                     | 12.6 | 12.4  | 16.0 |
| BZX84C20  | Y7   | 20                               | 18.8   | 21.2   | 5              | 55                                | 225                               | 1.0            | 0.1                     | 14.0 | 14.4  | 18.0 |
| BZX84C22  | Y8   | 22                               | 20.8   | 23.3   | 5              | 55                                | 250                               | 1.0            | 0.1                     | 15.4 | 16.4  | 20.0 |
| BZX84C24  | Y9   | 24                               | 22.8   | 25.6   | 5              | 70                                | 250                               | 1.0            | 0.1                     | 16.8 | 18.4  | 22.0 |
| BZX84C27  | Y10  | 27                               | 25.1   | 28.9   | 2              | 80                                | 300                               | 0.5            | 0.1                     | 18.9 | 21.4  | 25.3 |
| BZX84C30  | Y11  | 30                               | 28.0   | 32.0   | 2              | 80                                | 300                               | 0.5            | 0.1                     | 21.0 | 24.4  | 29.4 |
| BZX84C33  | Y12  | 33                               | 31.0   | 35.0   | 2              | 80                                | 325                               | 0.5            | 0.1                     | 23.1 | 27.4  | 33.4 |
| BZX84C36  | Y13  | 36                               | 34.0   | 38.0   | 2              | 90                                | 350                               | 0.5            | 0.1                     | 25.2 | 30.4  | 37.4 |
| BZX84C39  | Y14  | 39                               | 37.0   | 41.0   | 2              | 130                               | 350                               | 0.5            | 0.1                     | 27.3 | 33.4  | 41.2 |
| BZX84C43  | Y15  | 43                               | 40.0   | 46.0   | 2              | 100                               | 700                               | 1              | 0.1                     | 32   | 10  | 12   |
| BZX84C47  | Y16  | 47                               | 44.65  | 49.35  | 2              | 170                               | 375                               | 1              | 0.1                     | 32.9 | --  | --   |
| BZX84C51  | Y17  | 51                               | 48.45  | 53.55  | 5              | 100                               | 400                               | 1              | 0.1                     | 35.7 | --  | --   |
| BZX84C56  | Y18  | 56                               | 53     | 59     | 2              | 200                               | 425                               | 0.5            | 0.5                     | 39.2 | --  | --   |
| BZX84C62  | Y19  | 62                               | 58     | 66     | 2              | 215                               | 450                               | 0.5            | 0.05                    | 43.4 | --  | --   |
| BZX84C68  | Y20  | 68                               | 64.6   | 71.4   | 2              | 240                               | 1600                              | 0.25           | 0.1                     | 52   | --  | --   |
| BZX84C75  | Y21  | 75                               | 71.25  | 78.75  | 2              | 265                               | 1700                              | 0.25           | 0.1                     | 56   | --  | --   |

**Notes:**

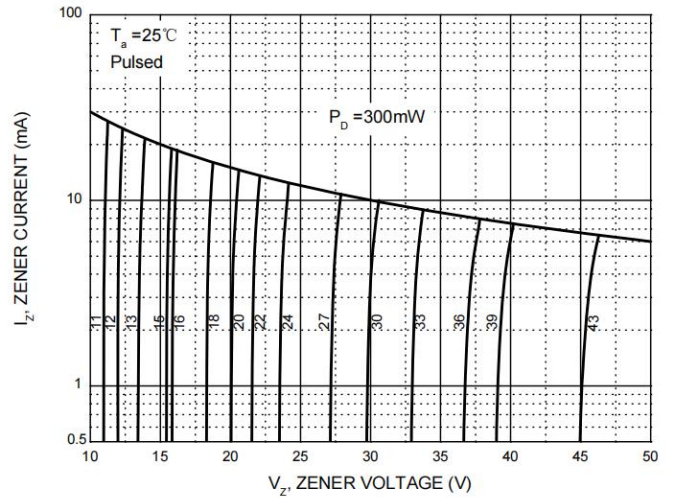
1. Valid provided that device terminals are kept at ambient temperature.
2. Tested with pulses, period=5ms, pulse width =300ps.
3. f = 1kHz

**ELECTRICAL CHARACTERISTICS**

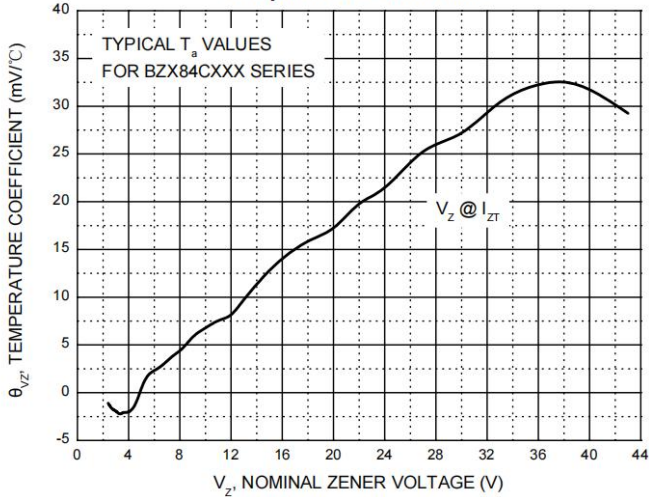
**Zener Characteristics ( $V_z$  Up to 10 V)**



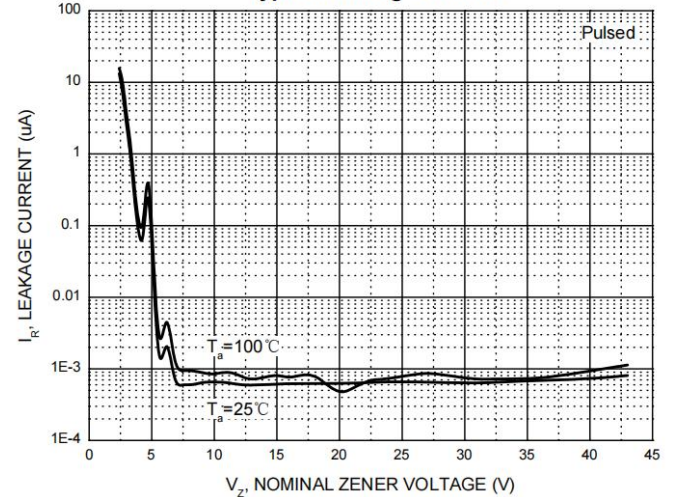
**Zener Characteristics (11 V to 43 V)**



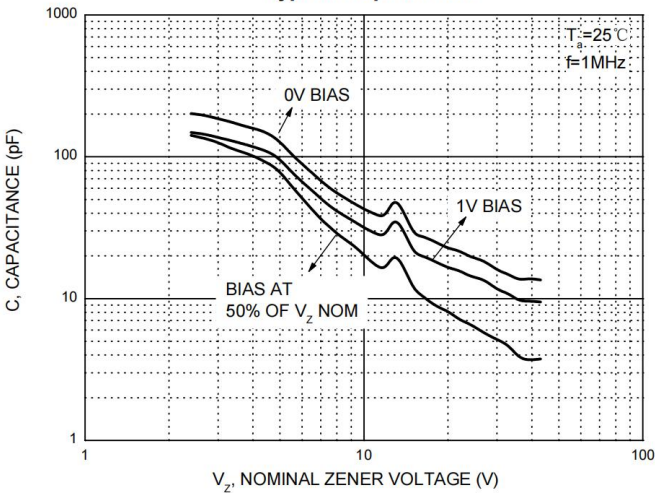
**Temperature Coefficients**



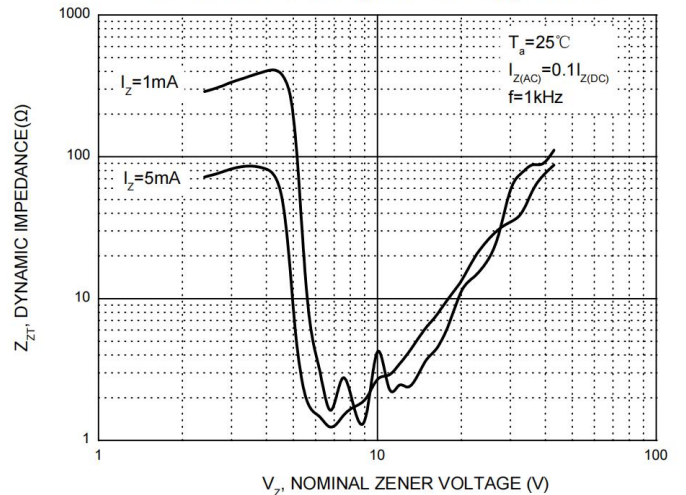
**Typical Leakage Current**

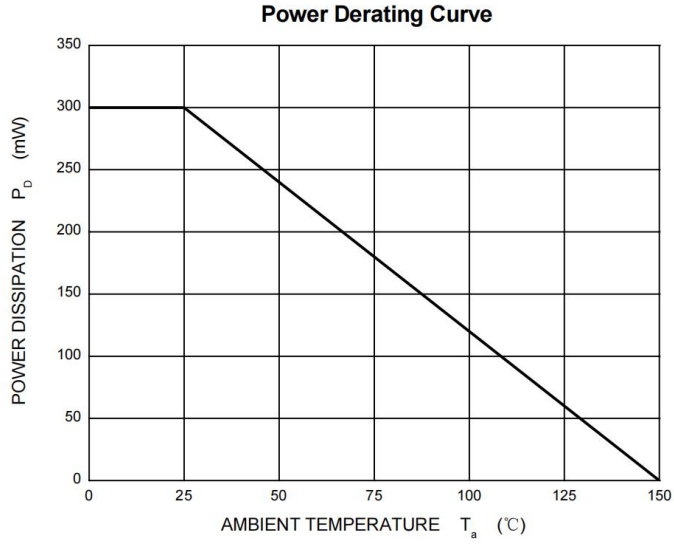


**Typical Capacitance**

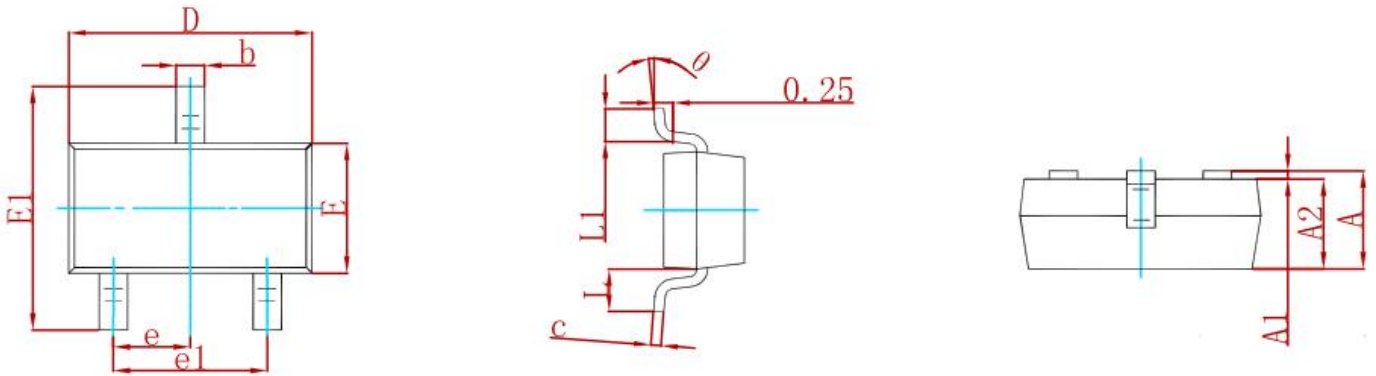


**Effect of Zener Voltage on Zener Impedance**



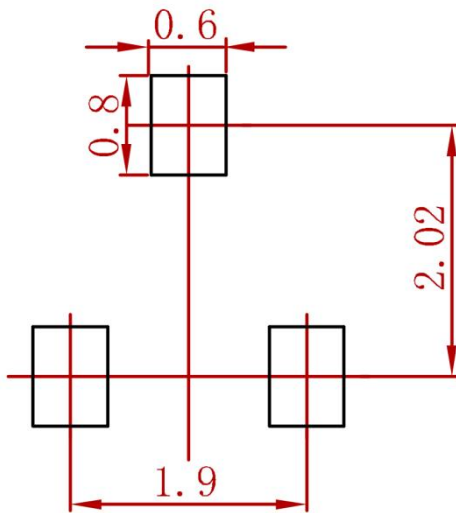


**PACKAGE MECHANICAL DATA**



| Symbol | Dimensions In Millimeters |       | Dimensions In Inches |       |
|--------|---------------------------|-------|----------------------|-------|
|        | Min                       | Max   | Min                  | Max   |
| A      | 0.900                     | 1.150 | 0.035                | 0.045 |
| A1     | 0.000                     | 0.100 | 0.000                | 0.004 |
| A2     | 0.900                     | 1.050 | 0.035                | 0.041 |
| b      | 0.300                     | 0.500 | 0.012                | 0.020 |
| c      | 0.080                     | 0.150 | 0.003                | 0.006 |
| D      | 2.800                     | 3.000 | 0.110                | 0.118 |
| E      | 1.200                     | 1.400 | 0.047                | 0.055 |
| E1     | 2.250                     | 2.550 | 0.089                | 0.100 |
| e      | 0.950 TYP                 |       | 0.037 TYP            |       |
| e1     | 1.800                     | 2.000 | 0.071                | 0.079 |
| L      | 0.550 REF                 |       | 0.022 REF            |       |
| L1     | 0.300                     | 0.500 | 0.012                | 0.020 |
| θ      | 0°                        | 8°    | 0°                   | 8°    |

**Suggested Pad Layout**



Note:

1. Controlling dimension: in millimeters.
2. General tolerance: ±0.05mm.
3. The pad layout is for reference purposes only.

**REEL SPECIFICATION**

| P/N                | PKG    | QTY  |
|--------------------|--------|------|
| BZX84C2V4-BZX84C75 | SOT-23 | 3000 |



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