



# CHENMKO ENTERPRISE CO.,LTD

## AXIAL LEAD

SILICON PLANAR POWER ZENER DIODES  
VOLTAGE RANGE 0.8V TO 200V

BZX55C 0V8PT

THRU

BZX55C 200PT

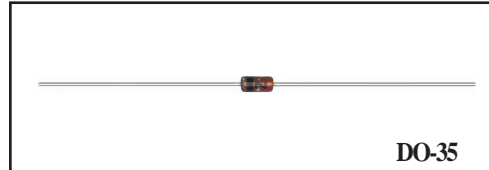
Lead free devices

### FEATURE

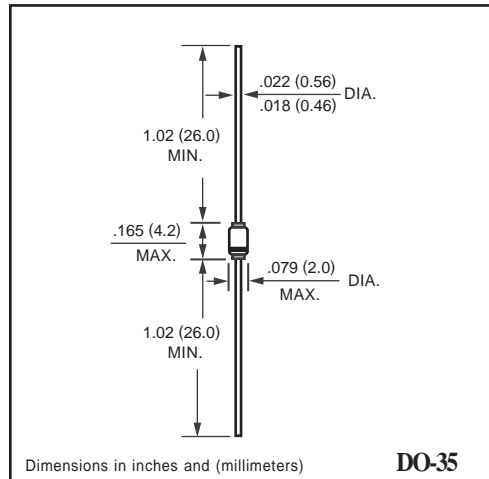
- \* High temperature soldering type.
- \* ESD rating of class 3(>16 kV) per human body model.
- \* Silicon planar zener diodes.
- \* Silicon-oxide passivated junction.
- \* Low temperature coefficient voltage

### MECHANICAL

- \* Axial-lead hermetically sealed package.
- \* DO-35 Packaging.
- \* Cathode indicated by polarity band.
- \* Mounting position: Any.
- \* Weight: Approx. 0.13g.



DO-35



DO-35

### MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.

#### MAXIMUM RATINGS ( At TA = 25°C unless otherwise noted )

| RATINGS   | SYMBOL           | VALUE       | UNITS |
|---|------------------|-------------|-------|
| Zener Current ( see Table "Characteristics" )                   | -                | -           | -     |
| Max. Steady State Power Dissipation @ TL=75°C, Lead Length=3/8" | P <sub>D</sub>   | 500         | mW    |
| Max. Operating Temperature Range                                | T <sub>J</sub>   | +175        | °C    |
| Storage Temperature Range                                       | T <sub>STG</sub> | -55 to +175 | °C    |

#### ELECTRICAL CHARACTERISTICS ( At TA = 25°C unless otherwise noted )

| CHARACTERISTICS                                 | SYMBOL | MIN. | TYP. | MAX. | UNITS |
|---|--------|------|------|------|-------|
| Thermal Resistance Junction to Ambient          | R θJA  | -    | -    | 300  | °C/W  |
| Max. Instantaneous Forward Voltage at IF= 100mA | VF     | -    | -    | 1.0  | Volts |

- NOTES :
1. The numbers listed have a standard tolerance on the normal zener voltage of ±5%, Suffix " B " = ±2% tolerance.
  2. The zener impedance is derived from 1KHz AC voltage, which results when an AC current having an RMS value equal to 10% of DC zener current (I<sub>ZT</sub> or I<sub>ZK</sub>) is superimposed on I<sub>ZT</sub> or I<sub>ZK</sub>. Zener impedance is measured at two points to insure a sharp knee on the breakdown curve to eliminate unstable units.
  3. Valid provided that electrodes at distance of 8mm from case are kept ambient temperature.
  4. Measured under thermal equilibrium and DC test conditions.
  5. The rating listed in the electrical characteristics table is maximum peak, non-repetitive, reverse surge current of 1/2 square wave or equivalent sine wave pulse of 1/120 second duration superimposed on the test current, I<sub>ZT</sub>.

2001-6

## ELECTRICAL CHARACTERISTIC ( BZX55C 0V8PT THRU BZX55C 200PT )

| TYPE         | Nominal Zener voltage at I <sub>ZT</sub> V <sub>Z</sub> (V) | Zener Voltage Range                  |                                  | Maximum Zener impedance                |                     |                         | Maximum reverse leakage current |                                    |                       | Type temperature coefficient at T <sub>A</sub> = 25°C θ <sub>VZ</sub> (%/°C) | Maximum regulator current at Note 2 I <sub>ZM</sub> (mA) |
|--------------|---|--------------------------------------|----------------------------------|--|---------------------|-------------------------|---------------------------------|------------------------------------|-----------------------|--|--|
|              |   | Test current at I <sub>ZT</sub> (mA) | Zener Voltage V <sub>Z</sub> (V) | Z <sub>ZT</sub> at I <sub>ZT</sub> (Ω) | Z <sub>ZK</sub> (Ω) | at I <sub>ZK</sub> (mA) | I <sub>R</sub> (uA)             | I <sub>R</sub> <sup>(2)</sup> (uA) | at V <sub>R</sub> (V) |  |  |
| BZX55C 0V8PT | 0.8   | 5                                    | 0.73 ~ 0.83                      | 8                                      | 50                  | 1.0                     | -                               | -                                  | -                     | -  | -  |
| BZX55C 2V0PT | 2.0   | 5                                    | 1.9 ~ 2.1                        | 85                                     | 600                 | 1.0                     | 100                             | 200                                | 1                     | -0.09~-0.06  | 175  |
| BZX55C 2V4PT | 2.4   | 5                                    | 2.28 ~ 2.56                      | 85                                     | 600                 | 1.0                     | 50                              | 100                                | 1                     | -0.09~-0.06  | 145  |
| BZX55C 2V7PT | 2.7   | 5                                    | 2.5 ~ 2.9                        | 85                                     | 600                 | 1.0                     | 10                              | 50                                 | 1                     | -0.09~-0.06  | 135  |
| BZX55C 3V0PT | 3.0   | 5                                    | 2.8 ~ 3.2                        | 85                                     | 600                 | 1.0                     | 4                               | 40                                 | 1                     | -0.08~-0.05  | 125  |
| BZX55C 3V3PT | 3.3   | 5                                    | 3.1 ~ 3.5                        | 85                                     | 600                 | 1.0                     | 2                               | 40                                 | 1                     | -0.08~-0.05  | 115  |
| BZX55C 3V6PT | 3.6   | 5                                    | 3.4 ~ 3.8                        | 85                                     | 600                 | 1.0                     | 2                               | 40                                 | 1                     | -0.08~-0.05  | 105  |
| BZX55C 3V9PT | 3.9   | 5                                    | 3.7 ~ 4.1                        | 85                                     | 600                 | 1.0                     | 2                               | 40                                 | 1                     | -0.08~-0.05  | 95   |
| BZX55C 4V3PT | 4.3   | 5                                    | 4.0 ~ 4.6                        | 75                                     | 600                 | 1.0                     | 1                               | 20                                 | 1                     | -0.06~-0.03  | 90   |
| BZX55C 4V7PT | 4.7   | 5                                    | 4.4 ~ 5.0                        | 60                                     | 600                 | 1.0                     | 0.5                             | 10                                 | 1                     | -0.05~+0.02  | 85   |
| BZX55C 5V1PT | 3.6   | 5                                    | 4.8 ~ 5.4                        | 35                                     | 550                 | 1.0                     | 0.1                             | 2                                  | 1                     | -0.02~+0.02  | 80   |
| BZX55C 5V6PT | 5.6   | 5                                    | 5.2 ~ 6.0                        | 25                                     | 450                 | 1.0                     | 0.1                             | 2                                  | 1                     | -0.05~+0.05  | 70   |
| BZX55C 6V2PT | 6.2   | 5                                    | 5.8 ~ 6.6                        | 10                                     | 200                 | 1.0                     | 0.1                             | 2                                  | 2                     | 0.03~0.06  | 64   |
| BZX55C 6V8PT | 6.8   | 5                                    | 6.4 ~ 7.2                        | 8                                      | 150                 | 1.0                     | 0.1                             | 2                                  | 3                     | 0.03~0.07  | 58   |
| BZX55C 7V5PT | 7.5   | 5                                    | 7.0 ~ 7.9                        | 7                                      | 50                  | 1.0                     | 0.1                             | 2                                  | 5                     | 0.03~0.07  | 53   |
| BZX55C 8V2PT | 8.2   | 5                                    | 7.7 ~ 8.7                        | 7                                      | 50                  | 1.0                     | 0.1                             | 2                                  | 6.2                   | 0.03~0.08  | 47   |
| BZX55C 9V1PT | 9.1   | 5                                    | 8.5 ~ 9.6                        | 10                                     | 50                  | 1.0                     | 0.1                             | 2                                  | 6.8                   | 0.03~0.09  | 43   |
| BZX55C 10PT  | 10  | 5                                    | 9.4 ~ 10.6                       | 15                                     | 70                  | 1.0                     | 0.1                             | 2                                  | 7.5                   | 0.03~0.11  | 40   |
| BZX55C 11PT  | 11  | 5                                    | 10.4 ~ 11.6                      | 20                                     | 70                  | 1.0                     | 0.1                             | 2                                  | 8.2                   | 0.03~0.11  | 36   |
| BZX55C 12PT  | 12  | 5                                    | 11.4 ~ 12.7                      | 20                                     | 90                  | 1.0                     | 0.1                             | 2                                  | 9.1                   | 0.03~0.11  | 32   |
| BZX55C 13PT  | 13  | 5                                    | 12.4 ~ 14.1                      | 26                                     | 110                 | 1.0                     | 0.1                             | 2                                  | 10                    | 0.03~0.11  | 29   |
| BZX55C 15PT  | 15  | 5                                    | 13.8 ~ 15.6                      | 30                                     | 110                 | 1.0                     | 0.1                             | 2                                  | 11                    | 0.03~0.11  | 27   |
| BZX55C 16PT  | 16  | 5                                    | 15.3 ~ 17.1                      | 40                                     | 170                 | 1.0                     | 0.1                             | 2                                  | 12                    | 0.03~0.11  | 24   |
| BZX55C 18PT  | 18  | 5                                    | 16.8 ~ 19.1                      | 50                                     | 170                 | 1.0                     | 0.1                             | 2                                  | 13                    | 0.03~0.11  | 21   |
| BZX55C 20PT  | 20  | 5                                    | 18.8 ~ 21.2                      | 55                                     | 220                 | 1.0                     | 0.1                             | 2                                  | 15                    | 0.03~0.11  | 20   |
| BZX55C 22PT  | 22  | 5                                    | 20.8 ~ 23.3                      | 55                                     | 220                 | 1.0                     | 0.1                             | 2                                  | 16                    | 0.04~0.12  | 18   |
| BZX55C 24PT  | 24  | 5                                    | 22.8 ~ 25.6                      | 80                                     | 220                 | 1.0                     | 0.1                             | 2                                  | 18                    | 0.04~0.12  | 16   |
| BZX55C 27PT  | 27  | 5                                    | 25.1 ~ 28.9                      | 80                                     | 220                 | 1.0                     | 0.1                             | 2                                  | 20                    | 0.04~0.12  | 14   |
| BZX55C 30PT  | 30  | 5                                    | 28 ~ 32                          | 80                                     | 220                 | 1.0                     | 0.1                             | 2                                  | 22                    | 0.04~0.12  | 13   |
| BZX55C 33PT  | 33  | 5                                    | 31 ~ 35                          | 80                                     | 220                 | 1.0                     | 0.1                             | 2                                  | 24                    | 0.04~0.12  | 12   |
| BZX55C 36PT  | 36  | 5                                    | 34 ~ 38                          | 80                                     | 220                 | 1.0                     | 0.1                             | 2                                  | 27                    | 0.04~0.12  | 11   |
| BZX55C 39PT  | 39  | 2.5                                  | 37 ~ 41                          | 90                                     | 500                 | 0.5                     | 0.1                             | 5                                  | 30                    | 0.04~0.12  | 10   |
| BZX55C 43PT  | 43  | 2.5                                  | 40 ~ 46                          | 90                                     | 500                 | 0.5                     | 0.1                             | 5                                  | 33                    | 0.04~0.12  | 9.2  |
| BZX55C 47PT  | 47  | 2.5                                  | 44 ~ 50                          | 110                                    | 600                 | 0.5                     | 0.1                             | 5                                  | 36                    | 0.04~0.12  | 8.5  |
| BZX55C 51PT  | 51  | 2.5                                  | 48 ~ 54                          | 125                                    | 700                 | 0.5                     | 0.1                             | 10                                 | 39                    | 0.04~0.12  | 7.8  |
| BZX55C 56PT  | 56  | 2.5                                  | 52 ~ 60                          | 135                                    | 700                 | 0.5                     | 0.1                             | 10                                 | 43                    | 0.04~0.12  | 7.0  |
| BZX55C 62PT  | 62  | 2.5                                  | 58 ~ 66                          | 150                                    | 1000                | 0.5                     | 0.1                             | 10                                 | 47                    | 0.04~0.12  | 6.4  |

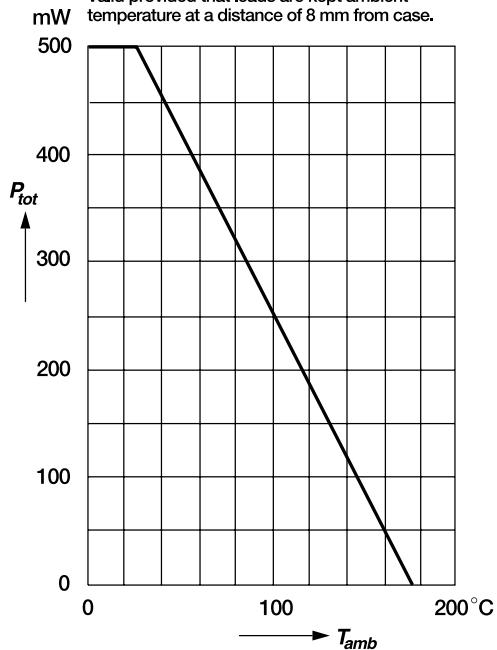
## ELECTRICAL CHARACTERISTIC ( BZX55C 0V8PT THRU BZX55C 200PT )

| TYPE         | Nominal Zener voltage at $I_{zT}$ $V_z$ (V) | Zener Voltage Range           |                         | Maximum Zener impedance           |                       |                  | Maximum reverse leakage current |                               |              | Type temperature coefficient at $T_A = 25^\circ\text{C}$ $\theta_{Vz}$ (%/°C) | Maximum regulator current at Note 2 $I_{zM}$ (mA) |
|--------------|---|-------------------------------|-------------------------|-----------------------------------|-----------------------|------------------|---------------------------------|-------------------------------|--------------|---|---|
|              |   | Test current at $I_{zT}$ (mA) | Zener Voltage $V_z$ (V) | $Z_{zT}$ at $I_{zT}$ ( $\Omega$ ) | $Z_{zK}$ ( $\Omega$ ) | at $I_{zK}$ (mA) | $I_R$ ( $\mu\text{A}$ )         | $I_R^{(2)}$ ( $\mu\text{A}$ ) | at $V_R$ (V) |   |   |
| BZX55C 68PT  | 68  | 2.5                           | 64 ~ 72                 | 200                               | 1000                  | 0.5              | 0.1                             | 10                            | 51           | 0.04-0.12   | 5.9   |
| BZX55C 75PT  | 75  | 2.5                           | 70 ~ 79                 | 250                               | 1000                  | 0.5              | 0.1                             | 10                            | 56           | 0.04-0.12   | 5.3   |
| BZX55C 82PT  | 82  | 2.5                           | 77 ~ 87                 | 300                               | 1500                  | 0.25             | 0.1                             | 10                            | 62           | 0.05-0.12   | 4.8   |
| BZX55C 91PT  | 91  | 1                             | 85 ~ 96                 | 450                               | 2000                  | 0.1              | 0.1                             | 10                            | 68           | 0.05-0.12   | 4.4   |
| BZX55C 100PT | 100   | 1                             | 94 ~ 106                | 450                               | 5000                  | 0.1              | 0.1                             | 10                            | 75           | 0.05-0.12   | 4.0   |
| BZX55C 110PT | 110   | 1                             | 104 ~ 116               | 600                               | 5000                  | 0.1              | 0.1                             | 10                            | 82           | 0.05-0.12   | 3.6   |
| BZX55C 120PT | 120   | 1                             | 114 ~ 117               | 800                               | 5500                  | 0.1              | 0.1                             | 10                            | 91           | 0.05-0.12   | 3.3   |
| BZX55C 130PT | 130   | 1                             | 124 ~ 141               | 950                               | 6000                  | 0.1              | 0.1                             | 10                            | 100          | 0.05-0.12   | 3.0   |
| BZX55C 150PT | 150   | 1                             | 138 ~ 156               | 1250                              | 6500                  | 0.1              | 0.1                             | 10                            | 110          | 0.05-0.12   | 2.7   |
| BZX55C 160PT | 160   | 1                             | 153 ~ 171               | 1400                              | 7000                  | 0.1              | 0.1                             | 10                            | 120          | 0.05-0.12   | 2.4   |
| BZX55C 180PT | 180   | 1                             | 168 ~ 191               | 1700                              | 8500                  | 0.1              | 0.1                             | 10                            | 130          | 0.05-0.12   | 2.2   |
| BZX55C 200PT | 200   | 1                             | 188 ~ 212               | 2000                              | 10000                 | 0.1              | 0.1                             | 10                            | 150          | 0.05-0.12   | 2.0   |

- NOTES : 1. Tested with pulse  $t_p=20\text{ms}$ .  
 2. Valid provided that leads are kept at ambient temperature at a distance of 8 mm from case.  
 3. The BZX55C 0V8 is a silicon diode with operation in forward direction. hence, the index of all parameter should be "F" instead of "Z". Connect the cathode lead to the negative pole.

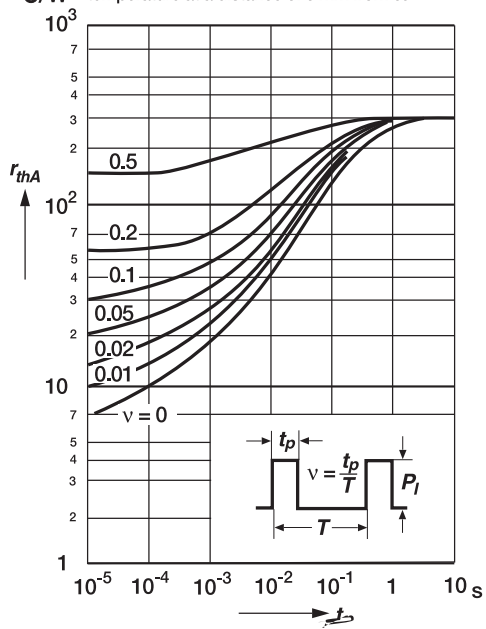
### Admissible power dissipation versus ambient temperature

Valid provided that leads are kept ambient temperature at a distance of 8 mm from case.



### Pulse thermal resistance versus pulse duration

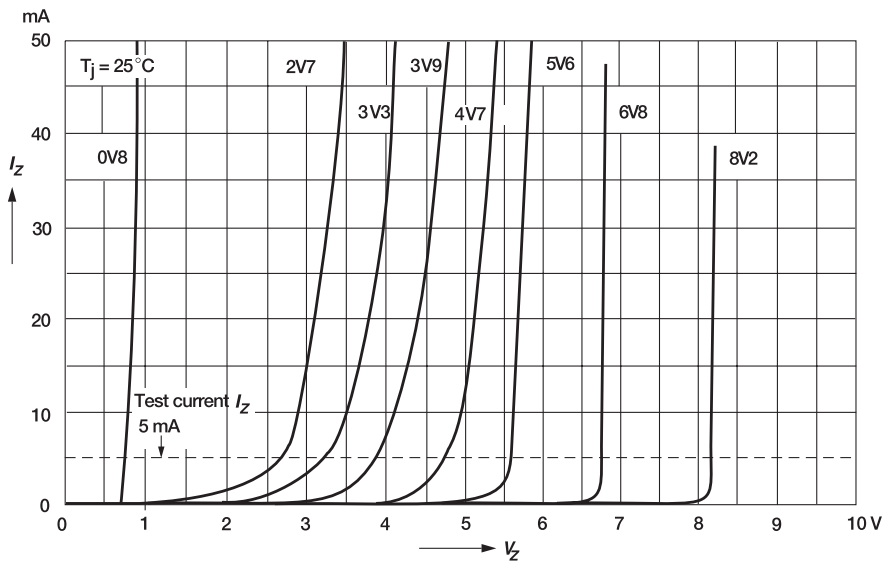
Valid provided that leads are kept at ambient temperature at a distance of 8 mm from case.



# RATING CHARACTERISTIC CURVE ( BZX55C 0V8PT THRU BZX55C 200PT )

## Breakdown characteristics

at  $T_j = \text{constant (pulsed)}$



## Breakdown characteristics

at  $T_j = \text{constant (pulsed)}$

