# CHENMKO ENTERPRISE CO.,LTD

## AXIAL LEAD

Halogens free devices

SILICON PLANAR POWER ZENER DIODES

VOLTAGE RANGE 2.7V TO 200V

**BZX85C 2V7GP**

**THRU**

**BZX85C 200GP**

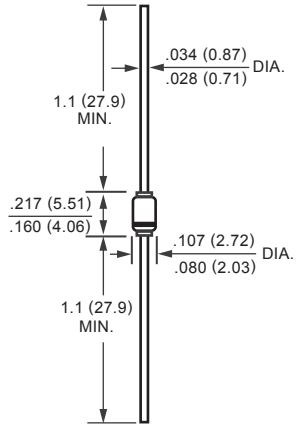
### FEATURE

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

### MECHANICAL

* Axial-lead hermetically sealed package.
* DO-41 Packaging.
* Cathode indicated by polarity band.
* Mounting position: Any.
* Weight: Approx. 0.35g.

DO-41




Dimensions in inches and (millimeters)

DO-41

### MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.

**MAXIMUM RATINGES** ( At $T_A$ = 25°C unless otherwise noted )

| RATINGS | SYMBOL | VALUE | UNITS |
|---|---|---|---|
| Zener Current ( see Table "Characteristics" ) | - | - | - |
| Max. Steady State Power Dissipation @$T_L$=75°C,Lead Length=3/8" | $P_D$ | 1.0 | W |
| Max. Operating Temperature Range | $T_J$ | +200 | °C |
| Storage Temperature Range | $T_{STG}$ | -65 to +200 | °C |

**ELECTRICAL CHARACTERISTICS** ( At $T_A$ = 25°C unless otherwise noted )

| CHARACTERISTICS | SYMBOL | MIN. | TYP. | MAX. | UNITS |
|---|---|---|---|---|---|
| Thermal Resistance Junction to Ambient | $R_{\theta JA}$ | - | - | 130 | °C/W |
| Max. Instantaneous Forward Voltage at $I_F$= 100mA | $V_F$ | - | - | 1.0 | Volts |

2008-6

NOTES :
1. The numbers listd have a standaerd tolerance on the normal zener voltage of ±5%.
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 ($I_{ZT}$ or $I_{ZK}$) is superimposed on $I_{ZT}$ or $I_{ZK}$. 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 10mm from case are kept ambient temperature.
4. Measured under thermal equilibrium and DC test conditions.
5. The rating listd 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, $I_{ZT}$.

# ELECTRICAL CHARACTERISTIC ( BZX85C 2V7GP THRU BZX85C 200GP )

| 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°C $\theta_{VZ}$ (%/°C) | Maximum regulator current at $T_A$= 50°C $I_{ZM}$ (mA) |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Test current at $I_{ZT}$ (mA) | Zener Voltage $V_Z$ (V) | $Z_{ZT}$ at $I_{ZT}$ (Ω) | $Z_{ZK}$ (Ω) | at $I_{ZK}$ (mA) | $I_R$ (uA) | at $V_R$ (V) | | |
| BZX85C 2V7GP | 2.7 | 80 | 2.5 ~ 2.9 | 20 | 400 | 1.0 | 150 | 1 | -0.08~-0.05 | 390 |
| BZX85C 3V0GP | 3.0 | 80 | 2.8 ~ 3.2 | 20 | 400 | 1.0 | 100 | 1 | -0.08~-0.05 | 350 |
| BZX85C 3V3GP | 3.3 | 70 | 3.1 ~ 3.5 | 20 | 400 | 1.0 | 40 | 1 | -0.08~-0.05 | 315 |
| BZX85C 3V6GP | 3.6 | 60 | 3.4 ~ 3.8 | 15 | 500 | 1.0 | 20 | 1 | -0.08~-0.05 | 290 |
| BZX85C 3V9GP | 3.9 | 60 | 3.7 ~ 4.1 | 15 | 500 | 1.0 | 10 | 1 | -0.07~-0.02 | 280 |
| BZX85C 4V3GP | 4.3 | 50 | 4.0 ~ 4.6 | 13 | 500 | 1.0 | 3 | 1 | -0.07~-0.01 | 250 |
| BZX85C 4V7GP | 4.7 | 45 | 4.4 ~ 5.0 | 13 | 600 | 1.0 | 3 | 1 | -0.03~+0.04 | 215 |
| BZX85C 5V1GP | 5.1 | 45 | 4.8 ~ 5.4 | 10 | 500 | 1.0 | 1 | 1.5 | 0~+0.045 | 200 |
| BZX85C 5V6GP | 5.6 | 45 | 5.2 ~ 6.0 | 7 | 400 | 1.0 | 1 | 2 | 0.01~0.055 | 190 |
| BZX85C 6V2GP | 6.2 | 35 | 5.8 ~ 6.6 | 4 | 300 | 1.0 | 1 | 3 | 0.015~0.06 | 170 |
| BZX85C 6V8GP | 6.8 | 35 | 6.4 ~ 7.2 | 3.5 | 300 | 1.0 | 1 | 4 | 0.03~0.07 | 155 |
| BZX85C 7V5GP | 7.5 | 35 | 7.0 ~ 7.9 | 3 | 200 | 0.50 | 1 | 4.5 | 0.04~0.08 | 140 |
| BZX85C 8V2GP | 8.2 | 25 | 7.7 ~ 8.7 | 5 | 200 | 0.50 | 1 | 6.2 | 0.045~0.08 | 130 |
| BZX85C 9V1GP | 9.1 | 25 | 8.5 ~ 9.6 | 5 | 200 | 0.50 | 1 | 6.8 | 0.045~0.085 | 120 |
| BZX85C 10GP | 10 | 25 | 9.4 ~ 10.6 | 7 | 200 | 0.50 | 0.5 | 7 | 0.05~0.085 | 105 |
| BZX85C 11GP | 11 | 20 | 10.4 ~ 11.6 | 8 | 300 | 0.50 | 0.5 | 8.2 | 0.055~0.09 | 97 |
| BZX85C 12GP | 12 | 20 | 11.4 ~ 12.7 | 9 | 350 | 0.50 | 0.5 | 9.1 | 0.05~0.09 | 88 |
| BZX85C 13GP | 13 | 20 | 12.4 ~ 14.1 | 10 | 400 | 0.50 | 0.5 | 10 | 0.06~0.09 | 79 |
| BZX85C 15GP | 15 | 15 | 13.8 ~ 15.6 | 15 | 500 | 0.50 | 0.5 | 11 | 0.06~0.09 | 71 |
| BZX85C 16GP | 16 | 15 | 15.3 ~ 17.1 | 15 | 500 | 0.50 | 0.5 | 12 | 0.06~0.095 | 66 |
| BZX85C 18GP | 18 | 15 | 16.8 ~ 19.1 | 20 | 500 | 0.50 | 0.5 | 13 | 0.06~0.095 | 62 |
| BZX85C 20GP | 20 | 10 | 18.8 ~ 21.2 | 24 | 600 | 0.50 | 0.5 | 15 | 0.06~0.095 | 56 |
| BZX85C 22GP | 22 | 10 | 20.8 ~ 23.3 | 25 | 600 | 0.50 | 0.5 | 16 | 0.06~0.095 | 52 |
| BZX85C 24GP | 24 | 10 | 22.8 ~ 25.6 | 25 | 600 | 0.50 | 0.5 | 18 | 0.06~0.095 | 47 |
| BZX85C 27GP | 27 | 8 | 25.1 ~ 28.9 | 30 | 750 | 0.25 | 0.5 | 20 | 0.06~0.095 | 41 |
| BZX85C 30GP | 30 | 8 | 28 ~ 32 | 30 | 1000 | 0.25 | 0.5 | 22 | 0.06~0.095 | 36 |
| BZX85C 33GP | 33 | 8 | 31 ~ 35 | 35 | 1000 | 0.25 | 0.5 | 24 | 0.06~0.095 | 33 |
| BZX85C 36GP | 36 | 8 | 34 ~ 38 | 40 | 1000 | 0.25 | 0.5 | 27 | 0.06~0.095 | 30 |
| BZX85C 39GP | 39 | 6 | 37 ~ 41 | 50 | 1000 | 0.25 | 0.5 | 30 | 0.06~0.095 | 28 |
| BZX85C 43GP | 43 | 6 | 40 ~ 46 | 50 | 1000 | 0.25 | 0.5 | 33 | 0.06~0.095 | 26 |
| BZX85C 47GP | 47 | 4 | 44 ~ 50 | 90 | 1500 | 0.25 | 0.5 | 36 | 0.06~0.095 | 23 |
| BZX85C 51GP | 51 | 4 | 48 ~ 54 | 115 | 1500 | 0.25 | 0.5 | 39 | 0.06~0.095 | 21 |
| BZX85C 56GP | 56 | 4 | 52 ~ 60 | 120 | 2000 | 0.25 | 0.5 | 43 | 0.06~0.095 | 19 |
| BZX85C 62GP | 62 | 4 | 58 ~ 66 | 125 | 2000 | 0.25 | 0.5 | 47 | 0.06~0.095 | 16 |
| BZX85C 68GP | 68 | 4 | 64 ~ 72 | 130 | 2000 | 0.25 | 0.5 | 51 | 0.06~0.095 | 14 |
| BZX85C 75GP | 75 | 4 | 70 ~ 79 | 135 | 3000 | 0.25 | 0.5 | 56 | 0.06~0.095 | 13 |
| BZX85C 82GP | 82 | 2.7 | 77 ~ 87 | 200 | 3000 | 0.25 | 0.5 | 62 | 0.07~0.11 | 12 |

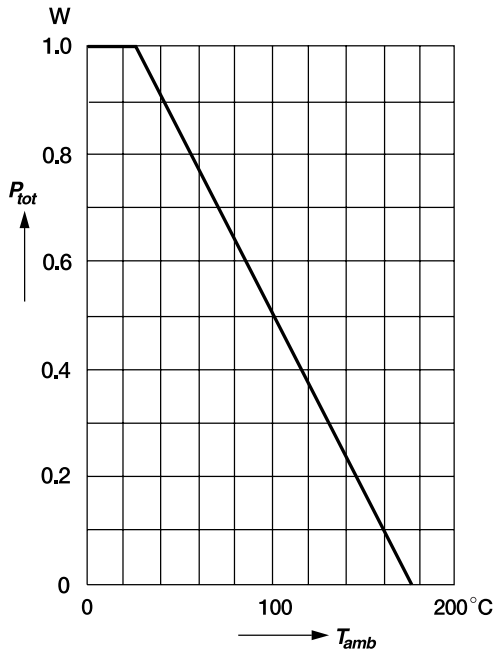
## ELECTRICAL CHARACTERISTIC ( BZX85C 2V7GP THRU BZX85C 200GP )

| 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°C $\theta_{VZ}$ (%/°C) | Maximum regulator current at $T_A$= 50°C $I_{ZM}$ (mA) |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Test current at $I_{ZT}$ (mA) | Zener Voltage $V_Z$ (V) | $Z_{ZT}$ at $I_{ZT}$ (Ω) | $Z_{ZK}$ (Ω) | at $I_{ZK}$ (mA) | $I_R$ (uA) | at $V_R$ (V) | | |
| BZX85C 91GP | 91 | 2.7 | 85 ~ 96 | 250 | 3000 | 0.25 | 0.5 | 68 | 0.07~0.11 | 11 |
| BZX85C 100GP | 100 | 2.7 | 94 ~ 106 | 350 | 3000 | 0.25 | 0.5 | 75 | 0.07~0.11 | 10 |
| BZX85C 110GP | 110 | 2.7 | 104 ~116 | 450 | 4000 | 0.25 | 0.5 | 82 | 0.07~0.11 | 9 |
| BZX85C 120GP | 120 | 2 | 114 ~ 127 | 550 | 4500 | 0.25 | 0.5 | 91 | 0.07~0.11 | 8 |
| BZX85C 130GP | 130 | 2 | 124 ~ 141 | 700 | 5000 | 0.25 | 0.5 | 100 | 0.07~0.11 | 7.5 |
| BZX85C 150GP | 150 | 2 | 138 ~ 156 | 1000 | 6000 | 0.25 | 0.5 | 110 | 0.07~0.11 | 6.5 |
| BZX85C 160GP | 160 | 1.5 | 153 ~ 171 | 1000 | 6500 | 0.25 | 0.5 | 120 | 0.07~0.11 | 6.25 |
| BZX85C 180GP | 180 | 1.5 | 168 ~ 191 | 1200 | 7000 | 0.25 | 0.5 | 130 | 0.07~0.11 | 5.5 |
| BZX85C 200GP | 200 | 1.5 | 188 ~212 | 1500 | 8000 | 0.25 | 0.5 | 150 | 0.07~0.11 | 5 |

## RATING CHARACTERISTIC CURVE ( BZX85C 2V7GP THRU BZX85C 200GP )

**Admissible power dissipation versus ambient temperature**

Valid provided that leads are kept ambient temperature at a distance of 10 mm from case.




**Pulse thermal resistance versus pulse duration**

Valid provided that leads are kept at ambient temperature at a distance of 10 mm from case.