



# SEMICONDUCTOR

## TECHNICAL SPECIFICATION

### 5% SOT-23 SURFACE MOUNT ZENER DIODE

**CMBZ5221B  
THRU  
CMBZ5260B**

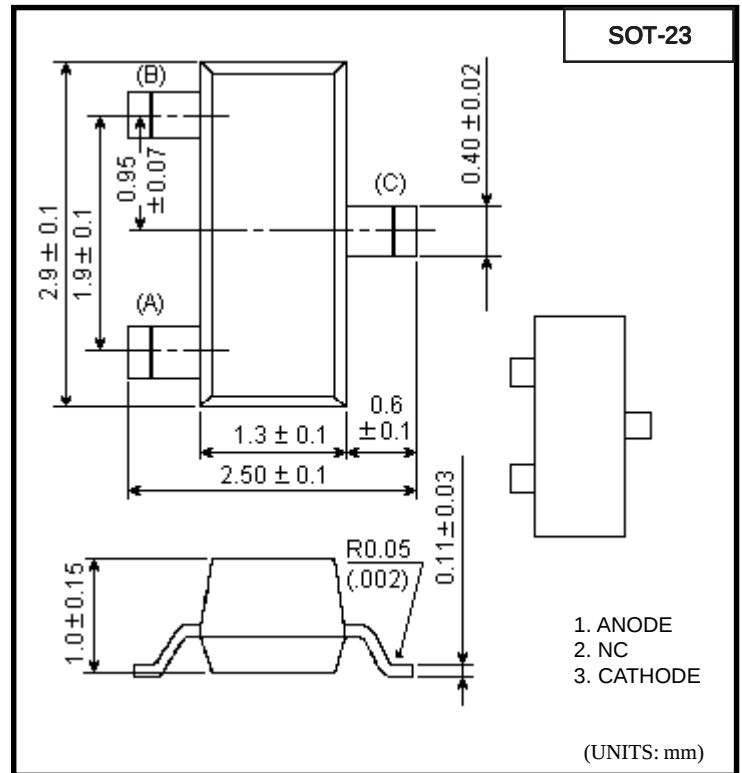
#### Absolute Maximum Ratings (Ta=25°C)

| Items                                      | Symbol           | Ratings    | Unit |
|--------------------------------------------|------------------|------------|------|
| Power Dissipation                          | P <sub>TOT</sub> | 300        | mW   |
| Tolerance                                  |                  | 5          | %    |
| Voltage Range                              | V <sub>Z</sub>   | 2.4 - 43   | V    |
| Forward Voltage<br>@ I <sub>F</sub> = 10mA | V <sub>F</sub>   | 250        | V    |
| Rep. Peak Fwd.<br>Current                  | I <sub>FRM</sub> | 250        | mA   |
| Junction Temp.                             | T <sub>J</sub>   | -55 to 125 | °C   |
| Storage Temp.                              | T <sub>STG</sub> | -55 to 150 | °C   |

#### Mechanical Data

| Items       | Materials      |
|-------------|----------------|
| Package     | SOT-23         |
| Lead Frame  | 42 Alloy       |
| Lead Finish | Solder Plating |
| Bond Wire   | Au             |
| Mold Resin  | Epoxy          |
| Chip        | Silicon        |

#### Dimensions



#### Electrical Characteristics (Ta=25°C)

| TYPE      | ZENER VOLTAGE      |                      | MAX ZENER IMPEDANCE   |                      | MAX ZENER IMPEDANCE<br>I <sub>zt</sub> = 1.0mA | MAXIMUM REVERSE CURRENT |                     | TEMP. COEFF.               |
|-----------|--------------------|----------------------|-----------------------|----------------------|------------------------------------------------|-------------------------|---------------------|----------------------------|
|           | V <sub>Z</sub> (V) | I <sub>zt</sub> (mA) | R <sub>Z</sub> (ohms) | I <sub>zt</sub> (mA) | R <sub>Z</sub> (ohms)                          | V <sub>R</sub> (V)      | I <sub>R</sub> (uA) | dV <sub>Z</sub><br>(%/ °C) |
| CMBZ5221B | 2.4                | 20                   | 30                    | 20                   | 1200                                           | 1.0                     | 100                 | -0.085                     |
| CMBZ5222B | 2.5                | 20                   | 30                    | 20                   | 1250                                           | 1.0                     | 100                 | -0.085                     |
| CMBZ5223B | 2.7                | 20                   | 30                    | 20                   | 1300                                           | 1.0                     | 75                  | -0.080                     |
| CMBZ5224B | 2.8                | 20                   | 30                    | 20                   | 1400                                           | 1.0                     | 75                  | -0.080                     |
| CMBZ5225B | 3.0                | 20                   | 29                    | 20                   | 1600                                           | 1.0                     | 50                  | -0.075                     |
| CMBZ5226B | 3.3                | 20                   | 28                    | 20                   | 1600                                           | 1.0                     | 25                  | -0.070                     |
| CMBZ5227B | 3.6                | 20                   | 24                    | 20                   | 1700                                           | 1.0                     | 15                  | -0.065                     |
| CMBZ5228B | 3.9                | 20                   | 23                    | 20                   | 1900                                           | 1.0                     | 10                  | -0.060                     |
| CMBZ5229B | 4.3                | 20                   | 22                    | 20                   | 2000                                           | 1.0                     | 5                   | +/-0.055                   |
| CMBZ5230B | 4.7                | 20                   | 19                    | 20                   | 1900                                           | 2.0                     | 5                   | +/-0.030                   |
| CMBZ5231B | 5.1                | 20                   | 17                    | 20                   | 1600                                           | 2.0                     | 5                   | +/-0.030                   |

| TYPE      | ZENER VOLTAGE |         | MAX ZENER IMPEDANCE |         | MAX ZENER IMPEDANCE<br>Izt = 1.0mA | MAXIMUM REVERSE CURRENT |         | TEMP. COEFF.   |
|-----------|---------------|---------|---------------------|---------|------------------------------------|-------------------------|---------|----------------|
|           | Vz(V)         | Izt(mA) | Rz (ohms)           | Izt(mA0 | Rz (ohms)                          | VR (V)                  | IR (uA) | dvz<br>(%/ °C) |
| CMBZ5232B | 5.6           | 20      | 11                  | 20      | 1600                               | 3.0                     | 5.0     | +/-0.038       |
| CMBZ5233B | 6.0           | 20      | 7                   | 20      | 1600                               | 3.5                     | 5.0     | +/-0.038       |
| CMBZ5234B | 6.2           | 20      | 7                   | 20      | 1000                               | 4.0                     | 5.0     | +0.045         |
| CMBZ5235B | 6.8           | 20      | 7                   | 20      | 750                                | 5.6                     | 3.0     | +0.050         |
| CMBZ5236B | 7.5           | 20      | 6                   | 20      | 500                                | 6.0                     | 3.0     | +0.058         |
| CMBZ5237B | 8.2           | 20      | 8                   | 20      | 500                                | 6.5                     | 3.0     | +0.062         |
| CMBZ5238B | 8.7           | 20      | 8                   | 20      | 600                                | 6.5                     | 3.0     | +0.065         |
| CMBZ5239B | 9.1           | 20      | 10                  | 20      | 600                                | 7.0                     | 3.0     | +0.068         |
| CMBZ5240B | 10            | 20      | 17                  | 20      | 600                                | 8.0                     | 3.0     | +0.075         |
| CMBZ5241B | 11            | 20      | 22                  | 20      | 600                                | 8.4                     | 2.0     | +0.076         |
| CMBZ5242B | 12            | 20      | 30                  | 20      | 600                                | 9.1                     | 1.0     | +0.077         |
| CMBZ5243B | 13            | 9.5     | 13                  | 9.5     | 600                                | 9.9                     | 0.5     | +0.079         |
| CMBZ5244B | 14            | 9.0     | 15                  | 9.0     | 600                                | 10                      | 0.1     | +0.082         |
| CMBZ5245B | 15            | 8.5     | 16                  | 8.5     | 600                                | 11                      | 0.1     | +0.082         |
| CMBZ5246B | 16            | 7.8     | 17                  | 8.5     | 600                                | 12                      | 0.1     | +0.083         |
| CMBZ5247B | 17            | 7.4     | 19                  | 7.4     | 600                                | 13                      | 0.1     | +0.084         |
| CMBZ5248B | 18            | 7.0     | 21                  | 7.0     | 600                                | 14                      | 0.1     | +0.085         |
| CMBZ5249B | 19            | 6.6     | 23                  | 6.6     | 600                                | 14                      | 0.1     | +0.086         |
| CMBZ5250B | 20            | 6.2     | 25                  | 6.2     | 600                                | 15                      | 0.1     | +0.087         |
| CMBZ5251B | 22            | 5.6     | 29                  | 5.6     | 600                                | 17                      | 0.1     | +0.088         |
| CMBZ5252B | 24            | 5.2     | 33                  | 5.2     | 600                                | 18                      | 0.1     | +0.089         |
| CMBZ5253B | 25            | 5.0     | 35                  | 5.0     | 600                                | 19                      | 0.1     | +0.090         |
| CMBZ5254B | 27            | 4.6     | 41                  | 4.6     | 600                                | 21                      | 0.1     | +0.091         |
| CMBZ5255B | 28            | 4.5     | 44                  | 4.5     | 600                                | 21                      | 0.1     | +0.091         |
| CMBZ5256B | 30            | 4.2     | 49                  | 4.2     | 600                                | 23                      | 0.1     | +0.092         |
| CMBZ5257B | 33            | 3.8     | 58                  | 3.8     | 700                                | 25                      | 0.1     | +0.093         |
| CMBZ5258B | 36            | 3.4     | 70                  | 3.4     | 700                                | 27                      | 0.1     | +0.094         |
| CMBZ5259B | 39            | 3.2     | 80                  | 3.2     | 800                                | 30                      | 0.1     | +0.095         |
| CMBZ5260B | 43            | 3.0     | 93                  | 3.0     | 900                                | 33                      | 0.1     | +0.095         |