

# CD5221B thru CD5272B



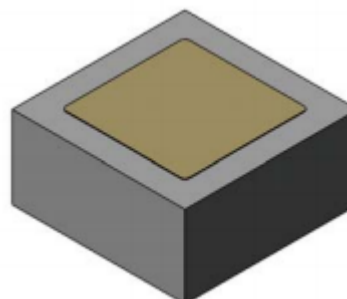
## Zener Diode Chip Series

Rev. V1

### Features

- All Junctions Completely Protected with Silicon Dioxide
- 0.5 W Capability with Proper Heat Sinking
- Electrically Equivalent to 1N5221B - 1N5272B

### Die



### Description

These 0.5 W zener diodes are electrically equivalent to the 1N5221B - 1N5272B series diodes. They are compatible with all wire bonding and die attach techniques with the exception of solder reflow.

### Electrical Specifications: $T_A = +25^\circ\text{C}$

| Part #  | Zener Voltage<br>$V_Z @ I_{ZT}$<br>(Note 1 & 3) | Zener Test<br>Current<br>$I_{ZT}$ | Zener<br>Impedance<br>$Z_{ZT} @ I_{ZT} / Z_{ZK} @ I_{ZK} = 250 \mu\text{A}$<br>(Note 2) |      | Reverse Current<br>$I_R @ V_R$ |       |
|---------|---|-----------------------------------|---|------|--------------------------------|-------|
|         | Nominal   |                                   | Maximum   |      | Maximum                        |       |
|         | V   | mA                                | Ohms  | Ohms | $\mu\text{A}$                  | VOLTS |
| CD5221B | 2.4   | 20                                | 30  | 1200 | 100                            | 1.0   |
| CD5222B | 2.5   | 20                                | 30  | 1250 | 100                            | 1.0   |
| CD5223B | 2.7   | 20                                | 30  | 1300 | 75                             | 1.0   |
| CD5224B | 2.8   | 20                                | 30  | 1400 | 75                             | 1.0   |
| CD5225B | 3.0   | 20                                | 29  | 1600 | 50                             | 1.0   |
| CD5226B | 3.3   | 20                                | 28  | 1600 | 25                             | 1.0   |
| CD5227B | 3.6   | 20                                | 24  | 1700 | 15                             | 1.0   |
| CD5228B | 3.9   | 20                                | 23  | 1900 | 10                             | 1.0   |
| CD5229B | 4.3   | 20                                | 22  | 2000 | 5.0                            | 1.0   |
| CD5230B | 4.7   | 20                                | 19  | 1900 | 5.0                            | 2.0   |
| CD5231B | 5.1   | 20                                | 17  | 600  | 5.0                            | 2.0   |
| CD5232B | 5.6   | 20                                | 11  | 1600 | 5.0                            | 3.0   |
| CD5233B | 6.0   | 20                                | 7.0   | 1600 | 5.0                            | 3.5   |
| CD5234B | 6.2   | 20                                | 7.0   | 1000 | 5.0                            | 4.0   |
| CD5235B | 6.8   | 20                                | 5.0   | 750  | 3.0                            | 5.0   |
| CD5236B | 7.5   | 20                                | 6.0   | 500  | 3.0                            | 6.0   |
| CD5237B | 8.2   | 20                                | 8.0   | 500  | 3.0                            | 6.5   |
| CD5238B | 8.7   | 20                                | 8.0   | 600  | 3.0                            | 6.5   |
| CD5239B | 9.1   | 20                                | 10  | 600  | 3.0                            | 7.0   |
| CD5240B | 10  | 20                                | 17  | 600  | 3.0                            | 8.0   |

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1 \* Restrictions on Hazardous Substances, European Union Directive 2011/65/EU.

# CD5221B thru CD5272B



## Zener Diode Chip Series

Rev. V1

### Electrical Specifications: $T_A = +25^\circ\text{C}$

| Part #  | Zener Voltage<br>$V_Z @ I_{ZT}$<br>(Note 1 & 3) | Zener Test Current<br>$I_{ZT}$ | Zener Impedance<br>$Z_{ZT} @ I_{ZT} / Z_{ZK} @ I_{ZK} = 250 \mu\text{A}$<br>(Note 2) |      | Reverse Current<br>$I_R @ V_R$ |       |
|---------|---|--------------------------------|--|------|--------------------------------|-------|
|         | Nominal   |                                | Maximum  |      | Maximum                        |       |
|         | V   | mA                             | Ohms   | Ohms | $\mu\text{A}$                  | VOLTS |
| CD5241B | 11  | 20                             | 22   | 600  | 2.0                            | 8.4   |
| CD5242B | 12  | 20                             | 30   | 600  | 1.0                            | 9.1   |
| CD5243B | 13  | 9.5                            | 13   | 600  | 0.5                            | 9.9   |
| CD5244B | 14  | 9.0                            | 15   | 600  | 0.1                            | 10    |
| CD5245B | 15  | 8.5                            | 16   | 600  | 0.1                            | 11    |
| CD5246B | 16  | 7.8                            | 17   | 600  | 0.1                            | 12    |
| CD5247B | 17  | 7.4                            | 19   | 600  | 0.1                            | 13    |
| CD5248B | 18  | 7.0                            | 21   | 600  | 0.1                            | 14    |
| CD5249B | 19  | 6.6                            | 23   | 600  | 0.1                            | 14    |
| CD5250B | 20  | 6.2                            | 25   | 600  | 0.1                            | 15    |
| CD5251B | 22  | 5.6                            | 29   | 600  | 0.1                            | 17    |
| CD5252B | 24  | 5.2                            | 33   | 600  | 0.1                            | 18    |
| CD5253B | 25  | 5.0                            | 35   | 600  | 0.1                            | 19    |
| CD5254B | 27  | 4.6                            | 41   | 600  | 0.1                            | 21    |
| CD5255B | 28  | 4.5                            | 44   | 600  | 0.1                            | 21    |
| CD5256B | 30  | 4.2                            | 49   | 600  | 0.1                            | 23    |
| CD5257B | 33  | 3.8                            | 58   | 700  | 0.1                            | 25    |
| CD5258B | 36  | 3.4                            | 70   | 700  | 0.1                            | 27    |
| CD5259B | 39  | 3.2                            | 80   | 800  | 0.1                            | 30    |
| CD5260B | 43  | 3.0                            | 93   | 900  | 0.1                            | 33    |
| CD5261B | 47  | 2.7                            | 105  | 1000 | 0.1                            | 36    |
| CD5262B | 51  | 2.5                            | 125  | 1100 | 0.1                            | 39    |
| CD5263B | 56  | 2.2                            | 150  | 1300 | 0.1                            | 43    |
| CD5264B | 60  | 2.1                            | 170  | 1400 | 0.1                            | 46    |
| CD5265B | 62  | 2.0                            | 185  | 1400 | 0.1                            | 47    |
| CD5266B | 68  | 1.8                            | 230  | 1600 | 0.1                            | 52    |
| CD5267B | 75  | 1.7                            | 270  | 1700 | 0.1                            | 56    |
| CD5268B | 82  | 1.5                            | 330  | 2000 | 0.1                            | 62    |
| CD5269B | 87  | 1.4                            | 370  | 2200 | 0.1                            | 68    |
| CD5270B | 91  | 1.4                            | 400  | 2300 | 0.1                            | 69    |
| CD5271B | 100   | 1.3                            | 500  | 2600 | 0.1                            | 76    |
| CD5272B | 110   | 1.1                            | 750  | 3000 | 0.1                            | 84    |

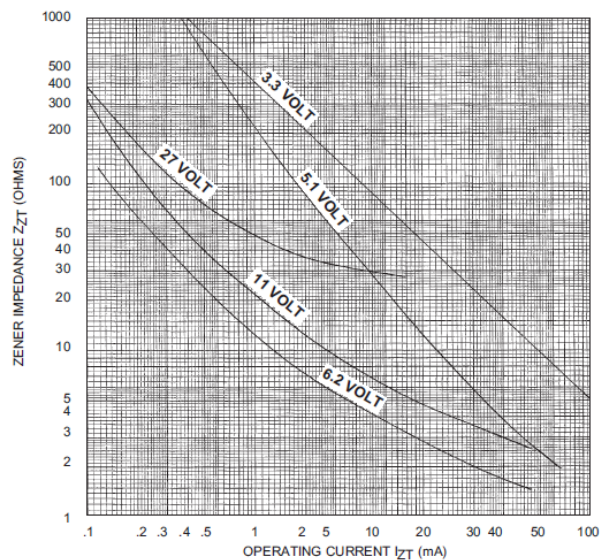
1. Zener voltage range equals "nominal Zener voltage" (see table) +5%, for "B" Suffix types. "A" Suffix denotes +10%. No Suffix denotes +20%. "C" suffix = +2% tolerance and "D" suffix = +1% tolerance.
2. Zener impedance is derived by superimposing on IZTA 60 Hz rms AC current equal to 250  $\mu\text{A}$ .
3. Zener voltage is read using a pulse measurement, 10 milliseconds maximum.

### Absolute Maximum Ratings<sup>4,5</sup>

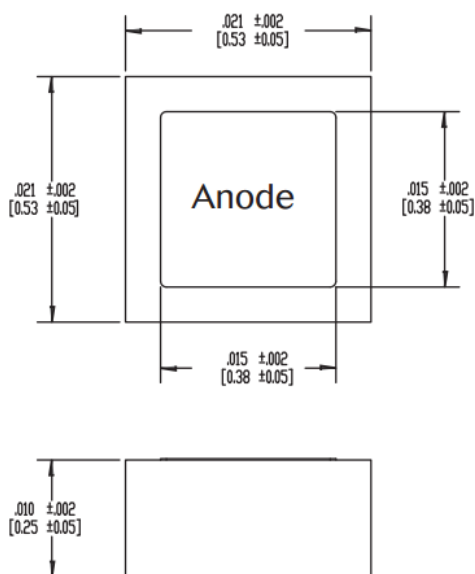
| Parameter             | Absolute Maximum |
|-----------------------|------------------|
| Forward Voltage       | 1.5 V @ 200 mA   |
| Operating Temperature | -65°C to +175°C  |
| Storage Temperature   | -65°C to +175°C  |

- Exceeding any one or combination of these limits may cause permanent damage to this device.
- MACOM does not recommend sustained operation near these survivability limits.

### Zener Impedance vs. Operating Current



### Die



Metallization: Top: (anode) AL  
Back: (cathode) Au

AL Thickness: 25,000 Å Minimum

Gold Thickness: 4,000 Å Minimum

Chip Thickness: 10 mils

Circuit Layout Data: For Zener operation, cathode must be operated positive with respect to anode.

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