



**THE DATASHEET OF  
CMDZ5237B TR PBFREE**



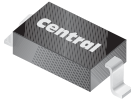
**CMDZ5221B THRU CMDZ5261B**

**SURFACE MOUNT  
SILICON ZENER DIODE  
2.4 VOLTS THRU 47 VOLTS  
250mW, 5% TOLERANCE**



[www.centrasemi.com](http://www.centrasemi.com)

**SUPERmini™**



**SOD-323 CASE**

**DESCRIPTION:**

The CENTRAL SEMICONDUCTOR CMDZ5221B Series Silicon Zener Diode is a high quality voltage regulator, manufactured in a super-mini surface mount package, designed for use in industrial, commercial, entertainment and computer applications.

**MARKING CODE: SEE MARKING CODES ON ELECTRICAL CHARACTERISTICS TABLE**

**MAXIMUM RATINGS: (T<sub>A</sub>=25°C)**

Power Dissipation  
Operating and Storage Temperature  
Thermal Resistance

**SYMBOL**

P<sub>D</sub>  
T<sub>J</sub>, T<sub>stg</sub>  
Θ<sub>JA</sub>

**UNITS**

mW  
°C  
°C/W

**ELECTRICAL CHARACTERISTICS: (T<sub>A</sub>=25°C), V<sub>F</sub>=0.9V MAX @ I<sub>F</sub>=10mA (FOR ALL TYPES)**

| TYPE      | ZENER VOLTAGE<br>V <sub>Z</sub> @ I <sub>ZT</sub> |     |       | TEST CURRENT<br>I <sub>ZT</sub> | MAXIMUM ZENER IMPEDANCE           |                                   |                                 | MAXIMUM REVERSE CURRENT |      | MAXIMUM ZENER VOLTAGE TEMPERATURE COEFFICIENT<br>ΘV <sub>Z</sub> | MARKING CODE |
|-----------|---|-----|-------|---------------------------------|-----------------------------------|-----------------------------------|---------------------------------|-------------------------|------|--|--------------|
|           | MIN   | NOM | MAX   |                                 | Z <sub>ZT</sub> @ I <sub>ZT</sub> | Z <sub>ZK</sub> @ I <sub>ZK</sub> | I <sub>R</sub> @ V <sub>R</sub> |                         |      |  |              |
|           | V   | V   | V     |                                 |                                   |                                   | μA                              | V                       | %/°C |  |              |
| CMDZ5221B | 2.280   | 2.4 | 2.520 | 20                              | 30                                | 1200                              | 0.25                            | 100                     | 1.0  | -0.085   | X1           |
| CMDZ5222B | 2.375   | 2.5 | 2.625 | 20                              | 30                                | 1250                              | 0.25                            | 100                     | 1.0  | -0.085   | X2           |
| CMDZ5223B | 2.565   | 2.7 | 2.835 | 20                              | 30                                | 1300                              | 0.25                            | 75                      | 1.0  | -0.080   | X3           |
| CMDZ5224B | 2.660   | 2.8 | 2.940 | 20                              | 30                                | 1400                              | 0.25                            | 75                      | 1.0  | -0.080   | X4           |
| CMDZ5225B | 2.850   | 3.0 | 3.150 | 20                              | 29                                | 1600                              | 0.25                            | 50                      | 1.0  | -0.075   | X5           |
| CMDZ5226B | 3.135   | 3.3 | 3.465 | 20                              | 28                                | 1600                              | 0.25                            | 25                      | 1.0  | -0.070   | X6           |
| CMDZ5227B | 3.420   | 3.6 | 3.780 | 20                              | 24                                | 1700                              | 0.25                            | 15                      | 1.0  | -0.065   | X7           |
| CMDZ5228B | 3.705   | 3.9 | 4.095 | 20                              | 23                                | 1900                              | 0.25                            | 10                      | 1.0  | -0.060   | X8           |
| CMDZ5229B | 4.085   | 4.3 | 4.515 | 20                              | 22                                | 2000                              | 0.25                            | 5.0                     | 1.0  | ±0.055   | X9           |
| CMDZ5230B | 4.465   | 4.7 | 4.935 | 20                              | 19                                | 1900                              | 0.25                            | 5.0                     | 2.0  | ±0.030   | XA           |
| CMDZ5231B | 4.845   | 5.1 | 5.355 | 20                              | 17                                | 1600                              | 0.25                            | 5.0                     | 2.0  | ±0.030   | XB           |
| CMDZ5232B | 5.320   | 5.6 | 5.880 | 20                              | 11                                | 1600                              | 0.25                            | 5.0                     | 3.0  | +0.038   | XC           |
| CMDZ5233B | 5.700   | 6.0 | 6.300 | 20                              | 7.0                               | 1600                              | 0.25                            | 5.0                     | 3.5  | +0.038   | XD           |
| CMDZ5234B | 5.890   | 6.2 | 6.510 | 20                              | 7.0                               | 1000                              | 0.25                            | 5.0                     | 4.0  | +0.045   | XE           |
| CMDZ5235B | 6.460   | 6.8 | 7.140 | 20                              | 5.0                               | 750                               | 0.25                            | 3.0                     | 5.0  | +0.050   | XF           |
| CMDZ5236B | 7.125   | 7.5 | 7.875 | 20                              | 6.0                               | 500                               | 0.25                            | 3.0                     | 6.0  | +0.058   | XG           |
| CMDZ5237B | 7.790   | 8.2 | 8.610 | 20                              | 8.0                               | 500                               | 0.25                            | 3.0                     | 6.5  | +0.062   | XH           |
| CMDZ5238B | 8.265   | 8.7 | 9.135 | 20                              | 8.0                               | 600                               | 0.25                            | 3.0                     | 6.5  | +0.065   | XJ           |
| CMDZ5239B | 8.645   | 9.1 | 9.555 | 20                              | 10                                | 600                               | 0.25                            | 3.0                     | 7.0  | +0.068   | XK           |
| CMDZ5240B | 9.500   | 10  | 10.50 | 20                              | 17                                | 600                               | 0.25                            | 3.0                     | 8.0  | +0.075   | XL           |
| CMDZ5241B | 10.45   | 11  | 11.55 | 20                              | 22                                | 600                               | 0.25                            | 2.0                     | 8.4  | +0.076   | XN           |
| CMDZ5242B | 11.40   | 12  | 12.60 | 20                              | 30                                | 600                               | 0.25                            | 1.0                     | 9.1  | +0.077   | XO           |

CMDZ5221B THRU CMDZ5261B

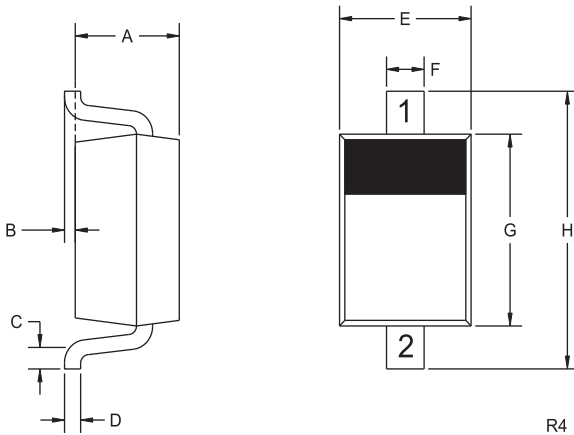
SURFACE MOUNT  
SILICON ZENER DIODE  
2.4 VOLTS THRU 47 VOLTS  
250mW, 5% TOLERANCE



ELECTRICAL CHARACTERISTICS - Continued: ( $T_A=25^\circ\text{C}$ ),  $V_F=0.9\text{V MAX @ } I_F=10\text{mA}$  (FOR ALL TYPES)

| TYPE      | ZENER VOLTAGE<br>$V_Z @ I_{ZT}$ |     |       | TEST CURRENT | MAXIMUM ZENER IMPEDANCE |                   |               | MAXIMUM REVERSE CURRENT |      | MAXIMUM ZENER VOLTAGE TEMPERATURE COEFFICIENT | MARKING CODE |
|-----------|---------------------------------|-----|-------|--------------|-------------------------|-------------------|---------------|-------------------------|------|---|--------------|
|           | MIN                             | NOM | MAX   | $I_{ZT}$     | $Z_{ZT} @ I_{ZT}$       | $Z_{ZK} @ I_{ZK}$ | $I_R @ V_R$   | $\theta_{VZ}$           |      |   |              |
|           | V                               | V   | V     | mA           | $\Omega$                | $\Omega$          | $\mu\text{A}$ | V                       | %/°C |   |              |
| CMDZ5243B | 12.35                           | 13  | 13.65 | 9.5          | 13                      | 600               | 0.25          | 0.5                     | 9.9  | +0.079  | XP           |
| CMDZ5244B | 13.30                           | 14  | 14.70 | 9.0          | 15                      | 600               | 0.25          | 0.1                     | 10   | +0.082  | XQ           |
| CMDZ5245B | 14.25                           | 15  | 15.75 | 8.5          | 16                      | 600               | 0.25          | 0.1                     | 11   | +0.082  | XR           |
| CMDZ5246B | 15.20                           | 16  | 16.80 | 7.8          | 17                      | 600               | 0.25          | 0.1                     | 12   | +0.083  | XS           |
| CMDZ5247B | 16.15                           | 17  | 17.85 | 7.4          | 19                      | 600               | 0.25          | 0.1                     | 13   | +0.084  | XT           |
| CMDZ5248B | 17.10                           | 18  | 18.90 | 7.0          | 21                      | 600               | 0.25          | 0.1                     | 14   | +0.085  | XU           |
| CMDZ5249B | 18.05                           | 19  | 19.95 | 6.6          | 23                      | 600               | 0.25          | 0.1                     | 14   | +0.086  | XV           |
| CMDZ5250B | 19.00                           | 20  | 21.00 | 6.2          | 25                      | 600               | 0.25          | 0.1                     | 15   | +0.086  | XX           |
| CMDZ5251B | 20.90                           | 22  | 23.10 | 5.6          | 29                      | 600               | 0.25          | 0.1                     | 17   | +0.087  | XY           |
| CMDZ5252B | 22.80                           | 24  | 25.20 | 5.2          | 33                      | 600               | 0.25          | 0.1                     | 18   | +0.088  | XZ           |
| CMDZ5253B | 23.75                           | 25  | 26.25 | 5.0          | 35                      | 600               | 0.25          | 0.1                     | 19   | +0.089  | Y1           |
| CMDZ5254B | 25.65                           | 27  | 28.35 | 4.6          | 41                      | 600               | 0.25          | 0.1                     | 21   | +0.090  | Y2           |
| CMDZ5255B | 26.60                           | 28  | 29.40 | 4.5          | 44                      | 600               | 0.25          | 0.1                     | 21   | +0.091  | Y3           |
| CMDZ5256B | 28.50                           | 30  | 31.50 | 4.2          | 49                      | 600               | 0.25          | 0.1                     | 23   | +0.091  | Y4           |
| CMDZ5257B | 31.35                           | 33  | 34.65 | 3.8          | 58                      | 700               | 0.25          | 0.1                     | 25   | +0.092  | Y5           |
| CMDZ5258B | 34.20                           | 36  | 37.80 | 3.4          | 70                      | 700               | 0.25          | 0.1                     | 27   | +0.093  | Y6           |
| CMDZ5259B | 37.05                           | 39  | 40.95 | 3.2          | 80                      | 800               | 0.25          | 0.1                     | 30   | +0.094  | Y7           |
| CMDZ5260B | 40.85                           | 43  | 45.15 | 3.0          | 93                      | 900               | 0.25          | 0.1                     | 33   | +0.095  | Y8           |
| CMDZ5261B | 44.65                           | 47  | 49.35 | 2.7          | 105                     | 1000              | 0.25          | 0.1                     | 36   | +0.095  | Y9           |

SOD-323 CASE - MECHANICAL OUTLINE



| SYMBOL | DIMENSIONS |       |             |      |
|--------|------------|-------|-------------|------|
|        | INCHES     |       | MILLIMETERS |      |
|        | MIN        | MAX   | MIN         | MAX  |
| A      | 0.031      | 0.039 | 0.80        | 1.00 |
| B      | 0.000      | 0.004 | 0.00        | 0.10 |
| C      | 0.008      | -     | 0.20        | -    |
| D      | 0.004      | 0.007 | 0.11        | 0.19 |
| E      | 0.045      | 0.053 | 1.15        | 1.35 |
| F      | -          | 0.014 | -           | 0.35 |
| G      | 0.063      | 0.071 | 1.60        | 1.80 |
| H      | 0.094      | 0.102 | 2.40        | 2.60 |

SOD-323 (REV: R4)

LEAD CODE:

- 1) CATHODE
- 2) ANODE

R4 (8-January 2010)

## OUTSTANDING SUPPORT AND SUPERIOR SERVICES



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### PRODUCT SUPPORT

Central's operations team provides the highest level of support to insure product is delivered on-time.

- Supply management (Customer portals)
- Inventory bonding
- Consolidated shipping options
- Custom bar coding for shipments
- Custom product packing

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### DESIGNER SUPPORT/SERVICES

Central's applications engineering team is ready to discuss your design challenges. Just ask.

- Free quick ship samples (2<sup>nd</sup> day air)
- Online technical data and parametric search
- SPICE models
- Custom electrical curves
- Environmental regulation compliance
- Customer specific screening
- Up-screening capabilities
- Special wafer diffusions
- PbSn plating options
- Package details
- Application notes
- Application and design sample kits
- Custom product and package development

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### REQUESTING PRODUCT PLATING

1. If requesting Tin/Lead plated devices, add the suffix "TIN/LEAD" to the part number when ordering (example: 2N2222A TIN/LEAD).
2. If requesting Lead (Pb) Free plated devices, add the suffix "PBFREE" to the part number when ordering (example: 2N2222A PBFREE).

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### CONTACT US

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- ✓ Shortage Management
- ✓ Alternative Solution
- ✓ Excess Inventory Management