

# CMZ5334B THRU CMZ5388B

**SURFACE MOUNT SILICON  
HIGH POWER ZENER DIODES  
5.0 WATT, 3.6 THRU 200 VOLT  
±5% TOLERANCE**



**SMC CASE**



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

## DESCRIPTION:

The CENTRAL SEMICONDUCTOR CMZ5334B series silicon Zener diodes are voltage regulators, manufactured in an epoxy molded surface mount package, and designed for use in industrial, commercial, entertainment and computer applications.

## MARKING: SEE MARKING CODE ON ELECTRICAL CHARACTERISTICS TABLE

### MAXIMUM RATINGS:

Power Dissipation ( $T_L=50^\circ\text{C}$ )  
Power Dissipation ( $T_L=100^\circ\text{C}$ )  
Power Dissipation ( $T_A=25^\circ\text{C}$ ) (Note 1)  
Operating Junction Temperature  
Storage Temperature  
Thermal Resistance  
Thermal Resistance (Note 1)

### SYMBOL

$P_D$  10  
 $P_D$  5.0  
 $P_D$  2.0  
 $T_J$  -65 to +150  
 $T_{stg}$  -65 to +200  
 $\theta_{JL}$  10  
 $\theta_{JA}$  62.5

### UNITS

W  
W  
W  
 $^\circ\text{C}$   
 $^\circ\text{C}$   
 $^\circ\text{C/W}$   
 $^\circ\text{C/W}$

**ELECTRICAL CHARACTERISTICS:** ( $T_A=25^\circ\text{C}$ )  $V_F=1.2\text{V MAX}$  @  $I_F=1.0\text{A}$  (for all types)

| TYPE     | ZENER VOLTAGE<br>$V_Z @ I_{ZT}$ |     |       | TEST CURRENT<br>$I_{ZT}$ | MAXIMUM ZENER IMPEDANCE |                   |               | MAXIMUM REVERSE CURRENT |               | MAXIMUM SURGE CURRENT<br>(Note 2) | MAXIMUM VOLTAGE REGULATION<br>(Note 3) | MAXIMUM REGULATOR CURRENT<br>( $T_L=75^\circ\text{C}$ ) | MARKING CODE |
|----------|---------------------------------|-----|-------|--------------------------|-------------------------|-------------------|---------------|-------------------------|---------------|-----------------------------------|----------------------------------------|---------------------------------------------------------|--------------|
|          | MIN                             | NOM | MAX   |                          | $Z_{ZT} @ I_{ZT}$       | $Z_{ZK} @ I_{ZK}$ | $I_R @ V_R$   |                         |               |                                   |                                        |                                                         |              |
|          | V                               | V   | V     |                          | $\Omega$                | $\Omega$          | $\mu\text{A}$ | $\mu\text{A}$           | $\mu\text{A}$ |                                   | $\Delta V_Z$                           | $I_{ZM}$                                                |              |
| CMZ5334B | 3.420                           | 3.6 | 3.780 | 350                      | 3.0                     | 500               | 1.0           | 150                     | 1.0           | 18.7                              | 0.80                                   | 1320                                                    | C5334B       |
| CMZ5335B | 3.705                           | 3.9 | 4.095 | 320                      | 2.0                     | 500               | 1.0           | 50                      | 1.0           | 17.6                              | 0.54                                   | 1220                                                    | C5335B       |
| CMZ5336B | 4.085                           | 4.3 | 4.515 | 290                      | 2.0                     | 500               | 1.0           | 10                      | 1.0           | 16.4                              | 0.49                                   | 1100                                                    | C5336B       |
| CMZ5337B | 4.465                           | 4.7 | 4.935 | 264                      | 2.0                     | 450               | 1.0           | 10                      | 1.0           | 15.3                              | 0.44                                   | 1010                                                    | C5337B       |
| CMZ5338B | 4.845                           | 5.1 | 5.355 | 240                      | 2.0                     | 400               | 1.0           | 10                      | 1.0           | 14.4                              | 0.39                                   | 930                                                     | C5338B       |
| CMZ5339B | 5.320                           | 5.6 | 5.880 | 220                      | 1.0                     | 400               | 1.0           | 10                      | 2.0           | 13.4                              | 0.25                                   | 865                                                     | C5339B       |
| CMZ5340B | 5.700                           | 6.0 | 6.300 | 200                      | 1.0                     | 300               | 1.0           | 10                      | 3.0           | 12.7                              | 0.25                                   | 790                                                     | C5340B       |
| CMZ5342B | 6.460                           | 6.8 | 7.140 | 175                      | 1.0                     | 200               | 1.0           | 100                     | 5.2           | 11.5                              | 0.15                                   | 700                                                     | C5342B       |
| CMZ5343B | 7.125                           | 7.5 | 7.875 | 175                      | 1.5                     | 200               | 1.0           | 100                     | 5.7           | 10.7                              | 0.15                                   | 630                                                     | C5343B       |
| CMZ5344B | 7.790                           | 8.2 | 8.610 | 150                      | 1.5                     | 200               | 1.0           | 100                     | 6.2           | 10.0                              | 0.20                                   | 580                                                     | C5344B       |
| CMZ5345B | 8.265                           | 8.7 | 9.135 | 150                      | 2.0                     | 200               | 1.0           | 100                     | 6.6           | 7.5                               | 0.20                                   | 545                                                     | C5345B       |
| CMZ5346B | 8.645                           | 9.1 | 9.555 | 150                      | 2.0                     | 150               | 1.0           | 7.5                     | 6.9           | 9.2                               | 0.22                                   | 520                                                     | C5346B       |
| CMZ5347B | 9.500                           | 10  | 10.50 | 125                      | 2.0                     | 125               | 1.0           | 5.0                     | 7.6           | 8.6                               | 0.22                                   | 475                                                     | C5347B       |
| CMZ5348B | 10.45                           | 11  | 11.55 | 125                      | 2.5                     | 125               | 1.0           | 5.0                     | 8.4           | 8.0                               | 0.25                                   | 430                                                     | C5348B       |
| CMZ5349B | 11.40                           | 12  | 12.60 | 100                      | 2.5                     | 125               | 1.0           | 2.0                     | 9.1           | 7.5                               | 0.25                                   | 395                                                     | C5349B       |
| CMZ5350B | 12.35                           | 13  | 13.65 | 100                      | 2.5                     | 100               | 1.0           | 1.0                     | 9.9           | 7.0                               | 0.25                                   | 365                                                     | C5350B       |
| CMZ5351B | 13.30                           | 14  | 14.70 | 100                      | 2.5                     | 75                | 1.0           | 1.0                     | 10.6          | 6.7                               | 0.25                                   | 340                                                     | C5351B       |
| CMZ5352B | 14.25                           | 15  | 15.75 | 75                       | 2.5                     | 75                | 1.0           | 1.0                     | 11.5          | 6.3                               | 0.25                                   | 315                                                     | C5352B       |
| CMZ5353B | 15.20                           | 16  | 16.80 | 75                       | 2.5                     | 75                | 1.0           | 1.0                     | 12.2          | 6.0                               | 0.30                                   | 295                                                     | C5353B       |
| CMZ5354B | 16.15                           | 17  | 17.85 | 70                       | 2.5                     | 75                | 1.0           | 0.5                     | 12.9          | 5.8                               | 0.35                                   | 280                                                     | C5354B       |
| CMZ5355B | 17.10                           | 18  | 18.90 | 65                       | 2.5                     | 75                | 1.0           | 0.5                     | 13.7          | 5.5                               | 0.40                                   | 264                                                     | C5355B       |
| CMZ5356B | 18.05                           | 19  | 19.95 | 65                       | 3.0                     | 75                | 1.0           | 0.5                     | 14.4          | 5.3                               | 0.40                                   | 250                                                     | C5356B       |
| CMZ5357B | 19.00                           | 20  | 21.00 | 65                       | 3.0                     | 75                | 1.0           | 0.5                     | 15.2          | 5.1                               | 0.40                                   | 237                                                     | C5357B       |
| CMZ5358B | 20.90                           | 22  | 23.10 | 50                       | 3.5                     | 75                | 1.0           | 0.5                     | 16.7          | 4.7                               | 0.45                                   | 216                                                     | C5358B       |

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**ELECTRICAL CHARACTERISTICS - Continued:** ( $T_A=25^\circ\text{C}$ )  $V_F=1.2\text{V MAX @ } I_F=1.0\text{A}$  (for all types)

| TYPE     | ZENER VOLTAGE<br>$V_Z @ I_{ZT}$ |     |       | TEST CURRENT<br>$I_{ZT}$ | MAXIMUM ZENER IMPEDANCE |                   |               | MAXIMUM REVERSE CURRENT |      | MAXIMUM SURGE CURRENT<br>(Note 2) | MAXIMUM VOLTAGE REGULATION<br>(Note 3) | MAXIMUM REGULATOR CURRENT<br>( $T_L=75^\circ\text{C}$ ) | MARKING CODE |
|----------|---------------------------------|-----|-------|--------------------------|-------------------------|-------------------|---------------|-------------------------|------|-----------------------------------|----------------------------------------|---------------------------------------------------------|--------------|
|          | MIN                             | NOM | MAX   |                          | $Z_{ZT} @ I_{ZT}$       | $Z_{ZK} @ I_{ZK}$ | $I_R @ V_R$   |                         |      |                                   |                                        |                                                         |              |
|          | V                               | V   | V     |                          | $\Omega$                | $\Omega$          | $\mu\text{A}$ | V                       | A    | V                                 | V                                      | mA                                                      |              |
| CMZ5359B | 22.80                           | 24  | 25.20 | 50                       | 3.5                     | 100               | 1.0           | 0.5                     | 18.2 | 4.4                               | 0.55                                   | 198                                                     | C5359B       |
| CMZ5360B | 23.75                           | 25  | 26.25 | 50                       | 4.0                     | 110               | 1.0           | 0.5                     | 19.0 | 4.3                               | 0.55                                   | 190                                                     | C5360B       |
| CMZ5361B | 25.65                           | 27  | 28.35 | 50                       | 5.0                     | 120               | 1.0           | 0.5                     | 20.6 | 4.1                               | 0.60                                   | 176                                                     | C5361B       |
| CMZ5362B | 26.60                           | 28  | 29.40 | 50                       | 6.0                     | 130               | 1.0           | 0.5                     | 21.2 | 3.9                               | 0.60                                   | 170                                                     | C5362B       |
| CMZ5363B | 28.50                           | 30  | 31.50 | 40                       | 8.0                     | 140               | 1.0           | 0.5                     | 22.8 | 3.7                               | 0.60                                   | 158                                                     | C5363B       |
| CMZ5364B | 31.35                           | 33  | 34.65 | 40                       | 10                      | 150               | 1.0           | 0.5                     | 25.1 | 3.5                               | 0.65                                   | 144                                                     | C5364B       |
| CMZ5365B | 34.20                           | 36  | 37.80 | 30                       | 11                      | 160               | 1.0           | 0.5                     | 27.4 | 3.3                               | 0.65                                   | 132                                                     | C5365B       |
| CMZ5366B | 37.05                           | 39  | 40.95 | 30                       | 14                      | 170               | 1.0           | 0.5                     | 29.7 | 3.1                               | 0.65                                   | 122                                                     | C5366B       |
| CMZ5367B | 40.85                           | 43  | 45.15 | 30                       | 20                      | 190               | 1.0           | 0.5                     | 32.7 | 2.8                               | 0.70                                   | 110                                                     | C5367B       |
| CMZ5368B | 44.65                           | 47  | 49.35 | 25                       | 25                      | 210               | 1.0           | 0.5                     | 35.8 | 2.7                               | 0.80                                   | 100                                                     | C5368B       |
| CMZ5369B | 48.45                           | 51  | 53.55 | 25                       | 27                      | 230               | 1.0           | 0.5                     | 38.8 | 2.5                               | 0.90                                   | 93.0                                                    | C5369B       |
| CMZ5370B | 53.20                           | 56  | 58.80 | 20                       | 35                      | 280               | 1.0           | 0.5                     | 42.6 | 2.3                               | 1.00                                   | 86.0                                                    | C5370B       |
| CMZ5371B | 57.00                           | 60  | 63.00 | 20                       | 40                      | 350               | 1.0           | 0.5                     | 45.5 | 2.2                               | 1.20                                   | 79.0                                                    | C5371B       |
| CMZ5372B | 58.90                           | 62  | 65.10 | 20                       | 42                      | 400               | 1.0           | 0.5                     | 47.1 | 2.1                               | 1.35                                   | 76.0                                                    | C5372B       |
| CMZ5373B | 64.60                           | 68  | 71.40 | 20                       | 44                      | 500               | 1.0           | 0.5                     | 51.7 | 2.0                               | 1.50                                   | 70.0                                                    | C5373B       |
| CMZ5374B | 71.25                           | 75  | 78.75 | 20                       | 45                      | 620               | 1.0           | 0.5                     | 56.0 | 1.9                               | 1.60                                   | 63.0                                                    | C5374B       |
| CMZ5375B | 77.90                           | 82  | 86.10 | 15                       | 65                      | 720               | 1.0           | 0.5                     | 62.2 | 1.8                               | 1.80                                   | 58.0                                                    | C5375B       |
| CMZ5376B | 82.65                           | 87  | 91.35 | 15                       | 75                      | 760               | 1.0           | 0.5                     | 66.0 | 1.7                               | 2.00                                   | 54.5                                                    | C5376B       |
| CMZ5377B | 86.45                           | 91  | 95.55 | 15                       | 75                      | 760               | 1.0           | 0.5                     | 69.2 | 1.6                               | 2.20                                   | 52.5                                                    | C5377B       |
| CMZ5378B | 95.00                           | 100 | 105.0 | 12                       | 90                      | 800               | 1.0           | 0.5                     | 76.0 | 1.5                               | 2.50                                   | 47.5                                                    | C5378B       |
| CMZ5379B | 104.5                           | 110 | 115.5 | 12                       | 125                     | 1000              | 1.0           | 0.5                     | 83.6 | 1.4                               | 2.50                                   | 43.0                                                    | C5379B       |
| CMZ5380B | 114.0                           | 120 | 126.0 | 10                       | 170                     | 1150              | 1.0           | 0.5                     | 91.2 | 1.3                               | 2.50                                   | 39.5                                                    | C5380B       |
| CMZ5381B | 123.5                           | 130 | 136.5 | 10                       | 190                     | 1250              | 1.0           | 0.5                     | 98.8 | 1.2                               | 2.50                                   | 36.6                                                    | C5381B       |
| CMZ5382B | 133.0                           | 140 | 147.0 | 8.0                      | 230                     | 1500              | 1.0           | 0.5                     | 106  | 1.2                               | 2.50                                   | 34.0                                                    | C5382B       |
| CMZ5383B | 142.5                           | 150 | 157.5 | 8.0                      | 330                     | 1500              | 1.0           | 0.5                     | 114  | 1.1                               | 3.00                                   | 31.6                                                    | C5383B       |
| CMZ5384B | 152.0                           | 160 | 168.0 | 8.0                      | 350                     | 1650              | 1.0           | 0.5                     | 122  | 1.1                               | 3.00                                   | 29.4                                                    | C5384B       |
| CMZ5385B | 161.5                           | 170 | 178.5 | 8.0                      | 380                     | 1750              | 1.0           | 0.5                     | 129  | 1.0                               | 3.00                                   | 28.0                                                    | C5385B       |
| CMZ5386B | 171.0                           | 180 | 189.0 | 5.0                      | 430                     | 1750              | 1.0           | 0.5                     | 137  | 1.0                               | 4.00                                   | 26.4                                                    | C5386B       |
| CMZ5387B | 180.5                           | 190 | 199.5 | 5.0                      | 450                     | 1850              | 1.0           | 0.5                     | 144  | 0.9                               | 5.00                                   | 25.0                                                    | C5387B       |
| CMZ5388B | 190.0                           | 200 | 210.0 | 5.0                      | 480                     | 1850              | 1.0           | 0.5                     | 152  | 0.9                               | 5.00                                   | 23.6                                                    | C5388B       |

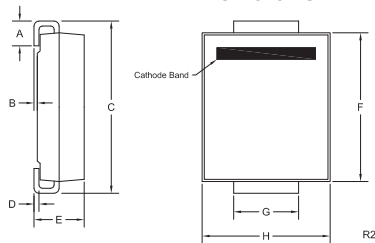
Notes: (1) Mounted on 2 inch square FR-4 PCB with minimum recommended SMC copper pad area.

(2) Surge Current ( $i_p$ ) - Maximum allowable peak, non-recurrent square wave current ( $t_p=8.3\text{ms}$ ).

(3) Voltage Regulation ( $\Delta V_Z$ ) -  $V_Z$  Measurements are made at 10% and then at 50% of the  $I_Z$  max value listed in the electrical characteristics table.

The test current time duration for each  $V_Z$  measurement is  $40\pm 10\text{ms}$  ( $T_A=25^\circ\text{C}$ ).

## SMC CASE - MECHANICAL OUTLINE



| SYMBOL | DIMENSIONS |       |             |      |
|--------|------------|-------|-------------|------|
|        | INCHES     |       | MILLIMETERS |      |
|        | MIN        | MAX   | MIN         | MAX  |
| A      | 0.030      | 0.060 | 0.76        | 1.52 |
| B      | 0.002      | 0.008 | 0.05        | 0.20 |
| C      | 0.305      | 0.320 | 7.75        | 8.13 |
| D      | 0.006      | 0.012 | 0.15        | 0.31 |
| E      | 0.079      | 0.103 | 2.00        | 2.62 |
| F      | 0.260      | 0.280 | 6.60        | 7.11 |
| G      | 0.108      | 0.128 | 2.75        | 3.25 |
| H      | 0.220      | 0.245 | 5.59        | 6.22 |

SMC (REV: R2)

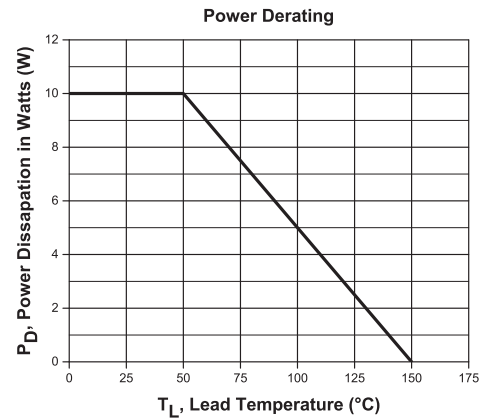
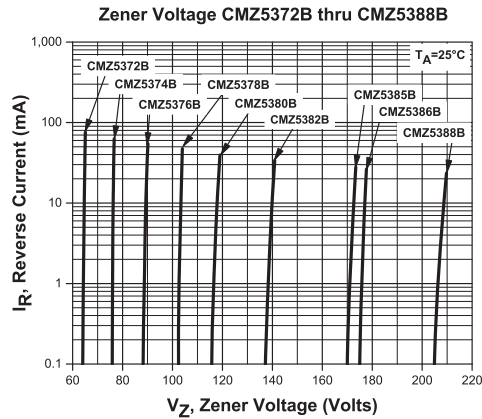
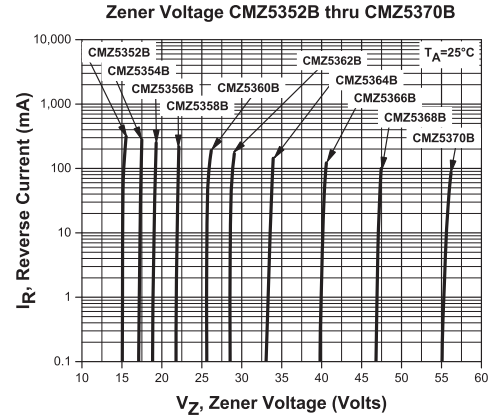
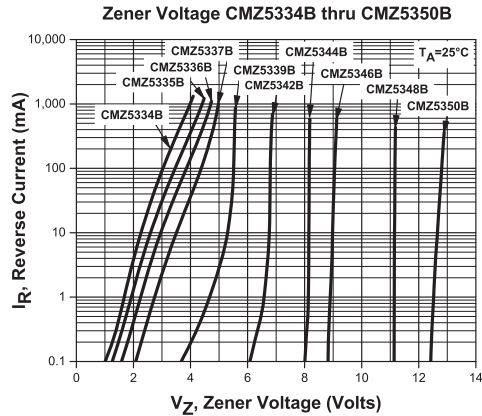
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## TYPICAL ELECTRICAL CHARACTERISTICS



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#### **SERVICES**

- Bonded Inventory
- Custom Electrical Screening
- Custom Electrical Characteristic Curves
- SPICE Models
- Custom Packaging
- Package Base Options
- Custom Device Development/ Multi Discrete Modules (MDM™)
- Bare Die Available for Hybrid Applications

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In no event shall Central's aggregate liability from any warranty, indemnity, or other obligation arising out of or in connection with a purchase order or contract, or any use of any Central product provided hereunder, exceed the total amount paid to Central for the specific products sold under a purchase order or contract with respect to which losses or damages are claimed. The existence of more than one (1) claim against the specific products sold to Buyer under a purchase order or contract shall not enlarge or extend this limit.

Buyer understands and agrees that the foregoing liability limitations are essential elements of a purchase order or contract and that in the absence of such limitations, the material and economic terms of the purchase order or contract would be substantially different.

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