

CMZ5913B THRU CMZ5956B

**SURFACE MOUNT SILICON
ZENER DIODES
1.5 WATT, 3.3 THRU 200 VOLT
± 5% TOLERANCE**



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SMA CASE

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CMZ5913B series 1.5 Watt surface mount silicon Zener diodes are highly reliable components designed for use in all types of commercial, industrial, entertainment, computer, and automotive applications where small size is required. The SMA case occupies 30% less board space than the SMB case. To order devices on 12mm Tape and Reel (5000/13" Reel), add TR13 suffix to part number.

MARKING: SEE MARKING CODE ON ELECTRICAL CHARACTERISTIC TABLE

FEATURES:

- Super miniature case
- 200 Watts of TVS power
- ± 5% Tolerance
- Superior lot to lot consistency
- Low cost
- High reliability
- "C" bend construction provides strain relief when mounted on pc board

MAXIMUM RATINGS: (T_A=25°C unless otherwise noted)

Peak Forward Surge Current, tp=8.3ms
 Power Dissipation (T_L=75°C)
 Power Dissipation (Note 1)
 Peak Power Dissipation, tp=10x1000µs (T_L<25°C)
 Peak Power Dissipation, tp=8x20µs (T_L<25°C)
 Operating and Storage Junction Temperature
 Thermal Resistance
 Thermal Resistance (Note 1)

SYMBOL

I_{FSM} 20
 P_D 1.5
 P_D 0.5
 P_{PK} 200
 P_{PK} 1000
 T_J, T_{stg} -65 to +150
 Θ_{JL} 50
 Θ_{JA} 250

UNITS

A
 W
 W
 W
 W
 °C
 °C/W
 °C/W

ELECTRICAL CHARACTERISTICS: (T_A=25°C) V_F=1.5V MAX @ I_F=200mA (for all types)

| TYPE | ZENER VOLTAGE V _Z @ I _{ZT} | | | TEST CURRENT | MAXIMUM ZENER IMPEDANCE | | | MAXIMUM REVERSE CURRENT | | MAXIMUM ZENER CURRENT (T _L =75°C) | MARKING CODE |
|----------|---|-----|-------|-----------------|-----------------------------------|-----------------------------------|---------------------------------|-------------------------|-----------------|---|--------------|
| | MIN | NOM | MAX | I _{ZT} | Z _{ZT} @ I _{ZT} | Z _{ZK} @ I _{ZK} | I _R @ V _R | | I _{ZM} | | |
| | V | V | V | mA | Ω | Ω | µA | V | mA | | |
| CMZ5913B | 3.135 | 3.3 | 3.465 | 113.6 | 10 | 500 | 1.0 | 100 | 1.0 | 454 | C5913B |
| CMZ5914B | 3.420 | 3.6 | 3.780 | 104.2 | 9.0 | 500 | 1.0 | 75 | 1.0 | 416 | C5914B |
| CMZ5915B | 3.705 | 3.9 | 4.095 | 96.1 | 7.5 | 500 | 1.0 | 25 | 1.0 | 384 | C5915B |
| CMZ5916B | 4.085 | 4.3 | 4.515 | 87.2 | 6.0 | 500 | 1.0 | 5.0 | 1.0 | 348 | C5916B |
| CMZ5917B | 4.465 | 4.7 | 4.935 | 79.8 | 5.0 | 500 | 1.0 | 5.0 | 1.5 | 319 | C5917B |
| CMZ5918B | 4.845 | 5.1 | 5.355 | 73.5 | 4.0 | 350 | 1.0 | 5.0 | 2.0 | 294 | C5918B |
| CMZ5919B | 5.320 | 5.6 | 5.880 | 66.9 | 2.0 | 250 | 1.0 | 5.0 | 3.0 | 267 | C5919B |
| CMZ5920B | 5.890 | 6.2 | 6.510 | 60.5 | 2.0 | 200 | 1.0 | 5.0 | 4.0 | 241 | C5920B |
| CMZ5921B | 6.460 | 6.8 | 7.140 | 55.1 | 2.5 | 200 | 1.0 | 5.0 | 5.2 | 221 | C5921B |
| CMZ5922B | 7.125 | 7.5 | 7.875 | 50.0 | 3.0 | 400 | 0.5 | 5.0 | 6.0 | 200 | C5922B |
| CMZ5923B | 7.790 | 8.2 | 8.610 | 45.7 | 3.5 | 400 | 0.5 | 5.0 | 6.5 | 183 | C5923B |
| CMZ5924B | 8.645 | 9.1 | 9.555 | 41.2 | 4.0 | 500 | 0.5 | 5.0 | 7.0 | 165 | C5924B |
| CMZ5925B | 9.500 | 10 | 10.50 | 37.5 | 4.5 | 500 | 0.25 | 5.0 | 8.0 | 150 | C5925B |
| CMZ5926B | 10.45 | 11 | 11.55 | 34.1 | 5.5 | 550 | 0.25 | 1.0 | 8.4 | 136 | C5926B |

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

R8 (4-April 2013)

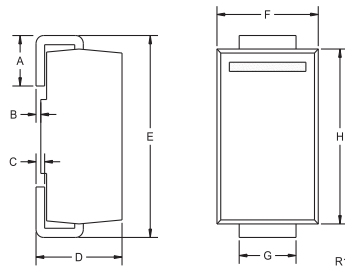
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ELECTRICAL CHARACTERISTICS - Continued: ($T_A=25^\circ\text{C}$) $V_F=1.5\text{V MAX @ } I_F=200\text{mA}$ (for all types)

| TYPE | ZENER VOLTAGE $V_Z @ I_{ZT}$ | | | TEST CURRENT I_{ZT} mA | MAXIMUM ZENER IMPEDANCE | | | MAXIMUM REVERSE CURRENT | | MAXIMUM ZENER CURRENT ($T_L=75^\circ\text{C}$) I_{ZM} mA | MARKING CODE |
|----------|---------------------------------|-----|-------|--------------------------------|-------------------------|-------------------|---------------|-------------------------|-------|---|--------------|
| | MIN | NOM | MAX | | $Z_{ZT} @ I_{ZT}$ | $Z_{ZK} @ I_{ZK}$ | $I_R @ V_R$ | | | | |
| | V | V | V | | Ω | Ω | μA | | | | |
| CMZ5927B | 11.40 | 12 | 12.60 | 31.2 | 6.5 | 550 | 0.25 | 1.0 | 9.1 | 125 | C5927B |
| CMZ5928B | 12.35 | 13 | 13.65 | 28.8 | 7.0 | 550 | 0.25 | 1.0 | 9.9 | 115 | C5928B |
| CMZ5929B | 14.25 | 15 | 15.75 | 25.0 | 9.0 | 600 | 0.25 | 1.0 | 11.4 | 100 | C5929B |
| CMZ5930B | 15.20 | 16 | 16.80 | 23.4 | 10 | 600 | 0.25 | 1.0 | 12.2 | 94 | C5930B |
| CMZ5931B | 17.10 | 18 | 18.90 | 20.8 | 12 | 650 | 0.25 | 1.0 | 13.7 | 83 | C5931B |
| CMZ5932B | 19.00 | 20 | 21.00 | 18.7 | 14 | 650 | 0.25 | 1.0 | 15.2 | 75 | C5932B |
| CMZ5933B | 20.90 | 22 | 23.10 | 17.0 | 17.5 | 650 | 0.25 | 1.0 | 16.7 | 68 | C5933B |
| CMZ5934B | 22.80 | 24 | 25.20 | 15.6 | 19 | 700 | 0.25 | 1.0 | 18.2 | 63 | C5934B |
| CMZ5935B | 25.65 | 27 | 28.35 | 13.9 | 23 | 700 | 0.25 | 1.0 | 20.6 | 56 | C5935B |
| CMZ5936B | 28.50 | 30 | 31.50 | 12.5 | 26 | 750 | 0.25 | 1.0 | 22.8 | 50 | C5936B |
| CMZ5937B | 31.35 | 33 | 34.65 | 11.4 | 33 | 800 | 0.25 | 1.0 | 25.1 | 45 | C5937B |
| CMZ5938B | 34.20 | 36 | 37.80 | 10.4 | 38 | 850 | 0.25 | 1.0 | 27.4 | 42 | C5938B |
| CMZ5939B | 37.05 | 39 | 40.95 | 9.6 | 45 | 900 | 0.25 | 1.0 | 29.7 | 38 | C5939B |
| CMZ5940B | 40.85 | 43 | 45.15 | 8.7 | 53 | 950 | 0.25 | 1.0 | 32.7 | 35 | C5940B |
| CMZ5941B | 44.65 | 47 | 49.35 | 8.0 | 67 | 1000 | 0.25 | 1.0 | 35.8 | 32 | C5941B |
| CMZ5942B | 48.45 | 51 | 53.55 | 7.3 | 70 | 1100 | 0.25 | 1.0 | 38.8 | 29 | C5942B |
| CMZ5943B | 53.20 | 56 | 58.80 | 6.7 | 86 | 1300 | 0.25 | 1.0 | 42.6 | 27 | C5943B |
| CMZ5944B | 58.90 | 62 | 65.10 | 6.0 | 100 | 1500 | 0.25 | 1.0 | 47.1 | 24 | C5944B |
| CMZ5945B | 64.60 | 68 | 71.40 | 5.5 | 120 | 1700 | 0.25 | 1.0 | 51.7 | 22 | C5945B |
| CMZ5946B | 71.25 | 75 | 78.75 | 5.0 | 140 | 2000 | 0.25 | 1.0 | 56.0 | 20 | C5946B |
| CMZ5947B | 77.90 | 82 | 86.10 | 4.6 | 160 | 2500 | 0.25 | 1.0 | 62.2 | 18 | C5947B |
| CMZ5948B | 86.45 | 91 | 95.55 | 4.1 | 200 | 3000 | 0.25 | 1.0 | 69.2 | 16 | C5948B |
| CMZ5949B | 95.00 | 100 | 105.0 | 3.7 | 250 | 3100 | 0.25 | 1.0 | 76.0 | 15 | C5949B |
| CMZ5950B | 104.5 | 110 | 115.5 | 3.4 | 300 | 4000 | 0.25 | 1.0 | 83.6 | 13 | C5950B |
| CMZ5951B | 114.0 | 120 | 126.0 | 3.1 | 360 | 4500 | 0.25 | 1.0 | 91.2 | 12 | C5951B |
| CMZ5952B | 123.5 | 130 | 136.5 | 2.9 | 450 | 5000 | 0.25 | 1.0 | 98.8 | 11 | C5952B |
| CMZ5953B | 142.5 | 150 | 157.5 | 2.5 | 600 | 6000 | 0.25 | 1.0 | 114.0 | 10 | C5953B |
| CMZ5954B | 152.0 | 160 | 168.0 | 2.3 | 700 | 6500 | 0.25 | 1.0 | 121.6 | 9.0 | C5954B |
| CMZ5955B | 171.0 | 180 | 189.0 | 2.1 | 900 | 7000 | 0.25 | 1.0 | 136.8 | 8.0 | C5955B |
| CMZ5956B | 190.0 | 200 | 210.0 | 1.9 | 1200 | 8000 | 0.25 | 1.0 | 152.0 | 7.0 | C5956B |

SMA CASE - MECHANICAL OUTLINE



| SYMBOL | DIMENSIONS | | | |
|--------|------------|-------|-------------|------|
| | INCHES | | MILLIMETERS | |
| | MIN | MAX | MIN | MAX |
| A | 0.030 | 0.060 | 0.76 | 1.52 |
| B | 0.004 | 0.008 | 0.10 | 0.20 |
| C | 0.006 | 0.012 | 0.15 | 0.30 |
| D | 0.078 | 0.103 | 1.98 | 2.62 |
| E | 0.188 | 0.220 | 4.78 | 5.59 |
| F | 0.090 | 0.115 | 2.29 | 2.92 |
| G | 0.050 | 0.070 | 1.27 | 1.78 |
| H | 0.157 | 0.181 | 3.99 | 4.60 |

SMA (REV: R1)

R8 (4-April 2013)