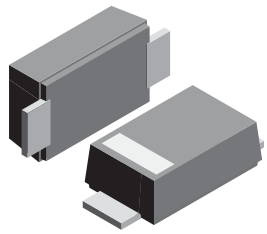
# SMBF3Z3.9 - SMBF3Z400

## SURFACE MOUNT SILICON ZENER DIODES

**VOLTAGE RANGE: 3.9 - 400V**
**POWER: 3.0Watts**



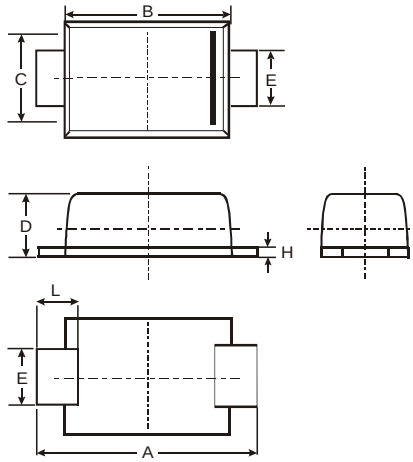
## Features

- Complete Voltage Range 3.9 to 400 Volts
- High peak reverse power dissipation
- High reliability
- Low leakage current

## Mechanical Data

- Case:SMBF , Molded Plastic
- Terminals: Solder Plated, Solderable per MIL-STD-750, Method 2026
- Polarity: Cathode Band or Cathode Notch
- Marking: Type Number
- Weight: 0.0018 ounces,0.05grams

RoHS COMPLIANT



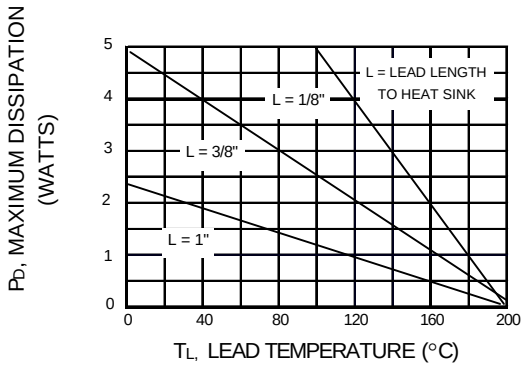

| SMBF | | | |
|---|---|---|---|
| Dim | Min | Max | Typ |
| A | 5.45 | 5.55 | 5.50 |
| B | 4.27 | 4.33 | 4.30 |
| C | 3.57 | 3.63 | 3.60 |
| D | 1.32 | 1.38 | 1.35 |
| E | 1.96 | 2.00 | 1.98 |
| H | 0.019 | 0.021 | 0.20 |
| L | 0.73 | 0.77 | 0.75 |
| All Dimensions in mm | | | |

## Maximum Ratings $T_A$ = 25°C unless otherwise specified

| Rating | Symbol | Value | Unit |
|---|---|---|---|
| DC Power Dissipation at $T_L$ = 75 °C (Note1) | $P_D$ | 3.0 | Watts |
| Maximum Forward Voltage at $I_F$ = 200 mA | $V_F$ | 1.5 | Volts |
| Maximum Thermal Resistance Junction to Ambient Air (Note2) | $R_{\theta JA}$ | 60 | K / W |
| Junction Temperature Range | $T_J$ | - 55 to + 175 | °C |
| Storage Temperature Range | Ts | - 55 to + 175 | °C |

**Note :**
(1) $T_L$ = Lead temperature at 3/8 " (9.5mm) from body
(2) Valid provided that leads are kept at ambient temperature at a distance of 10 mm from case.

**Fig. 1 Power Temperature Derating Curve**



| TYPE | Nominal Zener Voltage | | Maximum Zener Impedance | | | Maximum Reverse Leakage Current | | Maximum DC Zener Current |
|---|---|---|---|---|---|---|---|---|
| | $V_Z$ @ $I_{ZT}$ | $I_{ZT}$ | $Z_{ZT}$ @ $I_{ZT}$ | $Z_{ZK}$ @ $I_{ZK}$ | $I_{ZK}$ | $I_R$ @ $V_R$ | | $I_{ZM}$ |
| | (V) | (mA) | (Ω) | (Ω) | (mA) | (μA) | (V) | (mA) |
| **SMBF3Z3.9** | 3.9 | 192 | 4.5 | 400 | 1.0 | 80 | 1.0 | 630 |
| **SMBF3Z4.3** | 4.3 | 174 | 4.5 | 400 | 1.0 | 30 | 1.0 | 590 |
| **SMBF3Z4.7** | 4.7 | 160 | 4.0 | 500 | 1.0 | 20 | 1.0 | 550 |
| **SMBF3Z5.1** | 5.1 | 147 | 3.5 | 550 | 1.0 | 5.0 | 1.0 | 520 |
| **SMBF3Z5.6** | 5.6 | 134 | 2.5 | 600 | 1.0 | 5.0 | 2.0 | 480 |
| **SMBF3Z6.2** | 6.2 | 121 | 1.5 | 700 | 1.0 | 5.0 | 3.0 | 435 |
| **SMBF3Z6.8** | 6.8 | 110 | 2.0 | 700 | 1.0 | 50 | 4.0 | 393 |
| **SMBF3Z7.5** | 7.5 | 100 | 2.0 | 700 | 0.5 | 50 | 5.0 | 360 |
| **SMBF3Z8.2** | 8.2 | 91 | 2.3 | 700 | 0.5 | 50 | 6.0 | 330 |
| **SMBF3Z9.1** | 9.1 | 82 | 2.5 | 700 | 0.5 | 50 | 7.0 | 297 |
| **SMBF3Z10** | 10 | 75 | 3.5 | 700 | 0.3 | 50 | 7.6 | 270 |
| **SMBF3Z11** | 11 | 68 | 4.0 | 700 | 0.25 | 50 | 8.4 | 225 |
| **SMBF3Z12** | 12 | 63 | 4.5 | 700 | 0.25 | 1.0 | 9.1 | 246 |
| **SMBF3Z13** | 13 | 58 | 4.5 | 700 | 0.25 | 0.5 | 9.1 | 208 |
| **SMBF3Z14** | 14 | 53 | 5.0 | 700 | 0.25 | 0.5 | 10.6 | 193 |
| **SMBF3Z15** | 15 | 50 | 5.5 | 700 | 0.25 | 0.5 | 11.4 | 180 |
| **SMBF3Z16** | 16 | 47 | 5.5 | 700 | 0.25 | 0.5 | 12.2 | 169 |
| **SMBF3Z17** | 17 | 44 | 6.0 | 750 | 0.25 | 0.5 | 13.0 | 159 |
| **SMBF3Z18** | 18 | 42 | 6.0 | 750 | 0.25 | 0.5 | 13.7 | 150 |
| **SMBF3Z19** | 19 | 40 | 7.0 | 750 | 0.25 | 0.5 | 14.4 | 142 |
| **SMBF3Z20** | 20 | 37 | 7.0 | 750 | 0.25 | 0.5 | 15.2 | 135 |
| **SMBF3Z22** | 22 | 34 | 8.0 | 750 | 0.25 | 0.5 | 16.7 | 123 |
| **SMBF3Z24** | 24 | 31 | 9.0 | 750 | 0.25 | 0.5 | 18.2 | 112 |
| **SMBF3Z27** | 27 | 28 | 10 | 750 | 0.25 | 0.5 | 20.6 | 100 |
| **SMBF3Z28** | 28 | 27 | 12 | 750 | 0.25 | 0.5 | 21.0 | 96 |
| **SMBF3Z30** | 30 | 25 | 16 | 1000 | 0.25 | 0.5 | 22.5 | 90 |
| **SMBF3Z33** | 33 | 23 | 20 | 1000 | 0.25 | 0.5 | 25.1 | 82 |
| **SMBF3Z36** | 36 | 21 | 22 | 1000 | 0.25 | 0.5 | 27.4 | 75 |
| **SMBF3Z39** | 39 | 19 | 28 | 1000 | 0.25 | 0.5 | 29.7 | 69 |
| **SMBF3Z43** | 43 | 17 | 33 | 1500 | 0.25 | 0.5 | 32.7 | 63 |
| **SMBF3Z47** | 47 | 16 | 38 | 1500 | 0.25 | 0.5 | 35.6 | 57 |
| **SMBF3Z51** | 51 | 15 | 45 | 1500 | 0.25 | 0.5 | 38.8 | 53 |
| **SMBF3Z56** | 56 | 13 | 50 | 2000 | 0.25 | 0.5 | 42.6 | 48 |
| **SMBF3Z62** | 62 | 12 | 55 | 2000 | 0.25 | 0.5 | 47.1 | 44 |
| **SMBF3Z68** | 68 | 11 | 70 | 2000 | 0.25 | 0.5 | 51.7 | 40 |
| **SMBF3Z75** | 75 | 10 | 85 | 2000 | 0.25 | 0.5 | 56.0 | 36 |
| **SMBF3Z82** | 82 | 9.1 | 95 | 3000 | 0.25 | 0.5 | 62.2 | 33 |
| **SMBF3Z91** | 91 | 8.2 | 115 | 3000 | 0.25 | 0.5 | 69.2 | 30 |
| **SMBF3Z100** | 100 | 7.5 | 160 | 3000 | 0.25 | 0.5 | 76.0 | 27 |

| TYPE | Nominal Zener Voltage | | Maximum Zener Impedance | | | Maximum Reverse Leakage Current | | Maximum DC Zener Current |
|---|---|---|---|---|---|---|---|---|
| | $V_Z$ @ $I_{ZT}$ | $I_{ZT}$ | $Z_{ZT}$ @ $I_{ZT}$ | $Z_{ZK}$ @ $I_{ZK}$ | $I_{ZK}$ | $I_R$ @ $V_R$ | | $I_{ZM}$ |
| | (V) | (mA) | (Ω) | (Ω) | (mA) | (μA) | (V) | (mA) |
| **SMBF3Z110** | 110 | 6.8 | 225 | 4000 | 0.25 | 0.5 | 83.6 | 25 |
| **SMBF3Z120** | 120 | 6.3 | 300 | 4500 | 0.25 | 0.5 | 91.2 | 22 |
| **SMBF3Z130** | 130 | 5.8 | 375 | 5000 | 0.25 | 0.5 | 98.8 | 21 |
| **SMBF3Z140** | 140 | 5.3 | 475 | 5000 | 0.25 | 0.5 | 106.4 | 19 |
| **SMBF3Z150** | 150 | 5.0 | 550 | 6000 | 0.25 | 0.5 | 114.0 | 18 |
| **SMBF3Z160** | 160 | 4.7 | 625 | 6500 | 0.25 | 0.5 | 121.6 | 17 |
| **SMBF3Z170** | 170 | 4.4 | 650 | 7000 | 0.25 | 0.5 | 130.4 | 16 |
| **SMBF3Z180** | 180 | 4.2 | 700 | 7000 | 0.25 | 0.5 | 136.8 | 15 |
| **SMBF3Z190** | 190 | 4.0 | 800 | 8000 | 0.25 | 0.5 | 144.8 | 14 |
| **SMBF3Z200** | 200 | 3.7 | 875 | 8000 | 0.25 | 0.5 | 152.0 | 13 |
| **SMBF3Z220** | 220 | 3.4 | 1600 | 9000 | 0.25 | 1 | 167.0 | 12 |
| **SMBF3Z240** | 240 | 3.1 | 1700 | 9000 | 0.25 | 1 | 182.0 | 11 |
| **SMBF3Z270** | 270 | 2.8 | 1800 | 9000 | 0.25 | 1 | 205.0 | 10 |
| **SMBF3Z300** | 300 | 2.5 | 1900 | 9000 | 0.25 | 1 | 228.0 | 9 |
| **SMBF3Z330** | 330 | 2.3 | 2200 | 9000 | 0.25 | 1 | 251.0 | 8 |
| **SMBF3Z360** | 360 | 2.1 | 2700 | 9000 | 0.25 | 1 | 274.0 | 8 |
| **SMBF3Z400** | 400 | 1.9 | 3500 | 9000 | 0.25 | 1 | 304.0 | 7 |

**Note :**

( 1 ) Suffix " 5 " indicates ± 5.0% tolerance, suffix " 10 " indicates ± 10.0% tolerance.

( 2 ) " EZ " will be omitted in marking on the diode