

Silicon Planar Zener Diodes

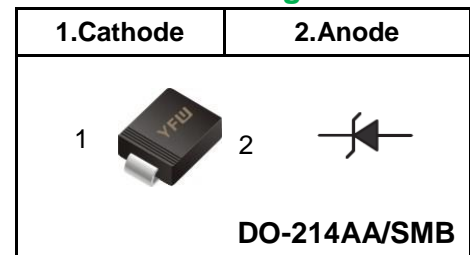
FEATURES

- ◆ Total power dissipation: Max. 5 W.
- ◆ Wide zener reverse voltage range 3.3V to 200V.
- ◆ plastic package suitable for surface mounted design.
- ◆ Lead free in comply with EU RoHS 2011/65/EU directives

MECHANICAL DATA

- ◆ Case: DO-214AA/SMB
- ◆ Terminals: Solderable per MIL-STD-750, Method 2026
- ◆ Approx. Weight: 0.095g / 0.003oz

Pinning



Absolute Maximum Ratings And Characteristics (Ta = 25 °C)

| Rating | Symbol | Value | Unit |
|---|-----------------------------------|---------------|------|
| Power Dissipation at T _L = 25 °C | P _D | 5 | W |
| Maximum Forward Voltage at I _F = 1.0 A | V _F | 1.2 | V |
| Thermal Resistance, Junction to Ambient (Note 1) | R _{θJA} | 90 | °C/W |
| Thermal Resistance, Junction to Lead (Note 1) | R _{θJL} | 25 | °C/W |
| Operating and Storage Temperature Range | T _J , T _{STG} | - 65 to + 150 | °C |

Note :

- (1) When mounted on FR4 PC board (1 oz Cu) with recommended footprint.

Fig. 1 POWER DERATING CURVE

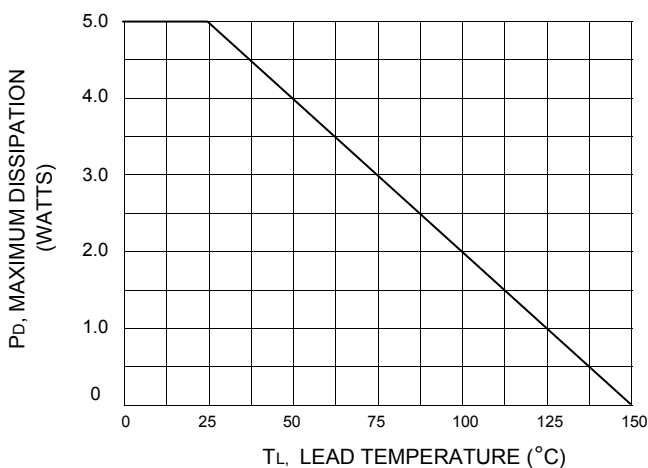
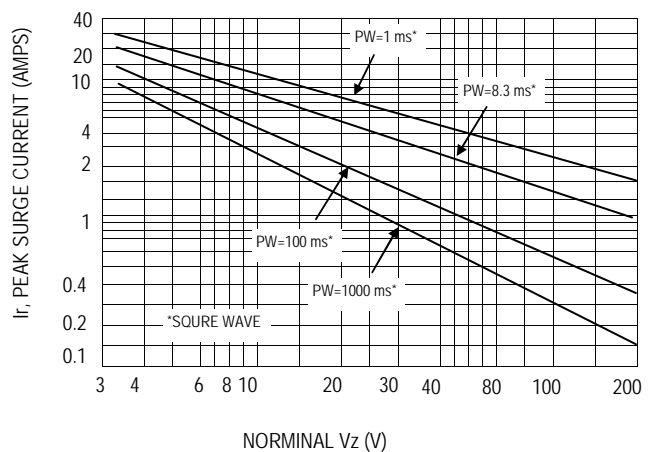


Fig.2 Maximum Non-Repetitive Surg Current versus Nominal Zener Voltage



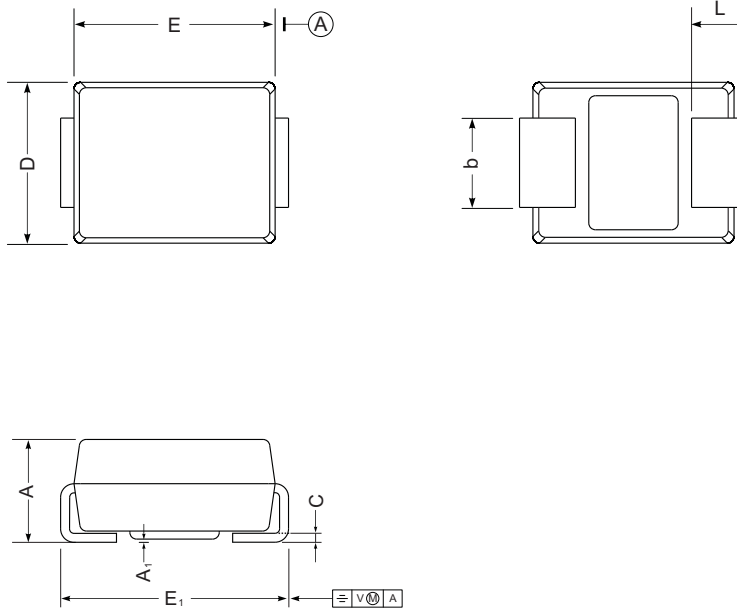
ELECTRICAL CHARACTERISTICS (Rating at 25 °C ambient temperature unless otherwise specified)

| TYPE | Regulator Voltage | | Maximum Zener Impedance | | | Maximum Reverse Leakage Current | | Maximum Zener Current | Maximum Surge Current | Maximum Voltage Regulator |
|-----------|-------------------|----------|-------------------------|-------------------|----------|---------------------------------|----------|-----------------------|-----------------------|---------------------------|
| | $V_Z @ I_{ZT}$ | I_{ZT} | $Z_{ZT} @ I_{ZT}$ | $Z_{ZK} @ I_{ZK}$ | I_{ZK} | $I_R @ V_R$ | I_{ZM} | I_{ZSM} | ΔV_Z | |
| | (V) | (mA) | (Ω) | (Ω) | (mA) | (μ A) (V) | (mA) | (A) | | |
| 1SMB5333B | 3.3 | 380 | 3.0 | 400 | 1.0 | 300 | 1.0 | 1440 | 20.0 | 0.85 |
| 1SMB5334B | 3.6 | 350 | 2.5 | 500 | 1.0 | 150 | 1.0 | 1320 | 18.7 | 0.80 |
| 1SMB5335B | 3.9 | 320 | 2.0 | 500 | 1.0 | 50 | 1.0 | 1220 | 17.6 | 0.54 |
| 1SMB5336B | 4.3 | 290 | 2.0 | 500 | 1.0 | 10 | 1.0 | 1100 | 16.4 | 0.49 |
| 1SMB5337B | 4.7 | 260 | 2.0 | 450 | 1.0 | 5.0 | 1.0 | 1010 | 15.3 | 0.44 |
| 1SMB5338B | 5.1 | 240 | 1.5 | 400 | 1.0 | 1.0 | 1.0 | 930 | 14.4 | 0.39 |
| 1SMB5339B | 5.6 | 220 | 1.0 | 400 | 1.0 | 1.0 | 2.0 | 856 | 13.4 | 0.25 |
| 1SMB5340B | 6.0 | 200 | 1.0 | 300 | 1.0 | 1.0 | 3.0 | 790 | 12.7 | 0.19 |
| 1SMB5341B | 6.2 | 200 | 1.0 | 200 | 1.0 | 1.0 | 3.0 | 765 | 12.4 | 0.10 |
| 1SMB5342B | 6.8 | 175 | 1.0 | 200 | 1.0 | 10 | 5.2 | 700 | 11.5 | 0.15 |
| 1SMB5343B | 7.5 | 175 | 1.5 | 200 | 1.0 | 10 | 5.7 | 630 | 10.7 | 0.15 |
| 1SMB5344B | 8.2 | 150 | 1.5 | 200 | 1.0 | 10 | 6.2 | 580 | 10.0 | 0.20 |
| 1SMB5345B | 8.7 | 150 | 2.0 | 200 | 1.0 | 10 | 6.6 | 545 | 9.5 | 0.20 |
| 1SMB5346B | 9.1 | 150 | 2.0 | 150 | 1.0 | 7.5 | 6.9 | 520 | 9.2 | 0.22 |
| 1SMB5347B | 10 | 125 | 2.0 | 125 | 1.0 | 5.0 | 7.6 | 475 | 8.6 | 0.22 |
| 1SMB5348B | 11 | 125 | 2.5 | 125 | 1.0 | 5.0 | 8.4 | 430 | 8.0 | 0.25 |
| 1SMB5349B | 12 | 100 | 2.5 | 125 | 1.0 | 2.0 | 9.1 | 395 | 7.5 | 0.25 |
| 1SMB5350B | 13 | 100 | 2.5 | 100 | 1.0 | 1.0 | 9.9 | 365 | 7.0 | 0.25 |
| 1SMB5351B | 14 | 100 | 2.5 | 75 | 1.0 | 1.0 | 10.6 | 340 | 6.7 | 0.25 |
| 1SMB5352B | 15 | 75 | 2.5 | 75 | 1.0 | 1.0 | 11.5 | 315 | 6.3 | 0.25 |
| 1SMB5353B | 16 | 75 | 2.5 | 75 | 1.0 | 1.0 | 12.2 | 295 | 6.0 | 0.30 |
| 1SMB5354B | 17 | 70 | 2.5 | 75 | 1.0 | 0.5 | 12.9 | 280 | 5.8 | 0.35 |
| 1SMB5355B | 18 | 65 | 2.5 | 75 | 1.0 | 0.5 | 13.7 | 265 | 5.5 | 0.40 |
| 1SMB5356B | 19 | 65 | 3.0 | 75 | 1.0 | 0.5 | 14.4 | 250 | 5.3 | 0.40 |
| 1SMB5357B | 20 | 65 | 3.0 | 75 | 1.0 | 0.5 | 15.2 | 237 | 5.1 | 0.40 |
| 1SMB5358B | 22 | 50 | 3.5 | 75 | 1.0 | 0.5 | 16.7 | 216 | 4.7 | 0.45 |
| 1SMB5359B | 24 | 50 | 3.5 | 100 | 1.0 | 0.5 | 18.2 | 198 | 4.4 | 0.55 |
| 1SMB5360B | 25 | 50 | 4.0 | 110 | 1.0 | 0.5 | 19.0 | 190 | 4.3 | 0.55 |
| 1SMB5361B | 27 | 50 | 5.0 | 120 | 1.0 | 0.5 | 20.6 | 176 | 4.1 | 0.60 |
| 1SMB5362B | 28 | 50 | 6.0 | 130 | 1.0 | 0.5 | 21.2 | 170 | 3.9 | 0.60 |
| 1SMB5363B | 30 | 40 | 8.0 | 140 | 1.0 | 0.5 | 22.8 | 158 | 3.7 | 0.60 |
| 1SMB5364B | 33 | 40 | 10 | 150 | 1.0 | 0.5 | 25.1 | 144 | 3.5 | 0.60 |
| 1SMB5365B | 36 | 30 | 11 | 160 | 1.0 | 0.5 | 27.4 | 132 | 3.3 | 0.65 |
| 1SMB5366B | 39 | 30 | 14 | 170 | 1.0 | 0.5 | 29.7 | 122 | 3.1 | 0.65 |
| 1SMB5367B | 43 | 30 | 20 | 190 | 1.0 | 0.5 | 32.7 | 110 | 2.8 | 0.70 |
| 1SMB5368B | 47 | 25 | 25 | 210 | 1.0 | 0.5 | 35.8 | 100 | 2.7 | 0.80 |
| 1SMB5369B | 51 | 25 | 27 | 230 | 1.0 | 0.5 | 38.8 | 93.0 | 2.5 | 0.90 |
| 1SMB5370B | 56 | 20 | 35 | 280 | 1.0 | 0.5 | 42.6 | 86.0 | 2.3 | 1.00 |
| 1SMB5371B | 60 | 20 | 40 | 350 | 1.0 | 0.5 | 45.5 | 79.0 | 2.2 | 1.20 |
| 1SMB5372B | 62 | 20 | 42 | 400 | 1.0 | 0.5 | 47.1 | 76.0 | 2.1 | 1.35 |
| 1SMB5373B | 68 | 20 | 44 | 500 | 1.0 | 0.5 | 51.7 | 70.0 | 2.0 | 1.50 |
| 1SMB5374B | 75 | 20 | 45 | 620 | 1.0 | 0.5 | 56.0 | 63.0 | 1.9 | 1.60 |
| 1SMB5375B | 82 | 15 | 65 | 720 | 1.0 | 0.5 | 62.2 | 58.0 | 1.8 | 1.80 |
| 1SMB5376B | 87 | 15 | 75 | 760 | 1.0 | 0.5 | 66.0 | 54.5 | 1.7 | 2.00 |
| 1SMB5377B | 91 | 15 | 75 | 760 | 1.0 | 0.5 | 69.2 | 52.5 | 1.6 | 2.20 |
| 1SMB5378B | 100 | 12 | 90 | 800 | 1.0 | 0.5 | 76.0 | 47.5 | 1.5 | 2.30 |
| 1SMB5379B | 110 | 12 | 125 | 1000 | 1.0 | 0.5 | 83.6 | 43.0 | 1.4 | 2.50 |
| 1SMB5380B | 120 | 10 | 170 | 1150 | 1.0 | 0.5 | 91.2 | 39.5 | 1.3 | 2.50 |
| 1SMB5381B | 130 | 10 | 190 | 1250 | 1.0 | 0.5 | 98.8 | 36.6 | 1.2 | 2.50 |
| 1SMB5382B | 140 | 8.0 | 230 | 1500 | 1.0 | 0.5 | 106 | 34.0 | 1.2 | 2.50 |
| 1SMB5383B | 150 | 8.0 | 330 | 1500 | 1.0 | 0.5 | 114 | 31.6 | 1.1 | 3.00 |
| 1SMB5384B | 160 | 8.0 | 350 | 1650 | 1.0 | 0.5 | 122 | 29.4 | 1.1 | 3.00 |
| 1SMB5385B | 170 | 8.0 | 380 | 1750 | 1.0 | 0.5 | 129 | 28.0 | 1.0 | 3.00 |
| 1SMB5386B | 180 | 5.0 | 430 | 1750 | 1.0 | 0.5 | 137 | 26.4 | 1.0 | 4.00 |
| 1SMB5387B | 190 | 5.0 | 450 | 1850 | 1.0 | 0.5 | 144 | 25.0 | 0.9 | 5.00 |
| 1SMB5388B | 200 | 5.0 | 480 | 1850 | 1.0 | 0.5 | 152 | 23.6 | 0.9 | 5.00 |

- Notes : (1) Suffix " B " indicates $\pm 5\%$ tolerance, suffix " A " indicates $\pm 10\%$ tolerance.
 (2) The surge current (I_{ZSM}) is specified as the maximum peak of a non- recurrent half-sin wave of 8.3 ms duration.
 (3) Voltage regulation (V_Z) is the difference between the voltage measured at 10% and 50% of I

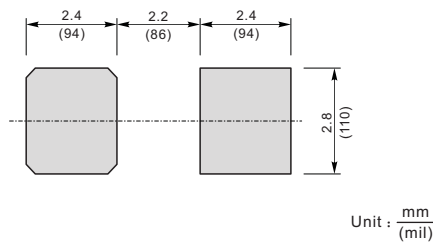
Package Outline DO-214AA SMB

Plastic surface mounted package; 2 leads



| UNIT | | A | E | D | E ₁ | A ₁ | L | C | b |
|------|-----|------|------|------|----------------|----------------|-----|-------|-----|
| mm | max | 2.44 | 4.70 | 3.94 | 5.59 | 0.20 | 1.5 | 0.305 | 2.2 |
| | min | 2.13 | 4.06 | 3.3 | 5.08 | 0.05 | 0.8 | 0.152 | 1.9 |
| mil | max | 96 | 185 | 155 | 220 | 7.9 | 59 | 12 | 87 |
| | min | 84 | 160 | 130 | 200 | 2.0 | 32 | 6 | 75 |

The recommended mounting pad size



Summary of Packing Options

| Package | Packing Description | Packing Quantity | Industry Standard |
|--------------|---------------------|------------------|-------------------|
| DO-214AA SMB | Tape/Reel, 13" reel | 3000 | EIA-481-1 |