

SMBJ5338A - SMBJ5388A

SURFACE MOUNT SILICON ZENER DIODES

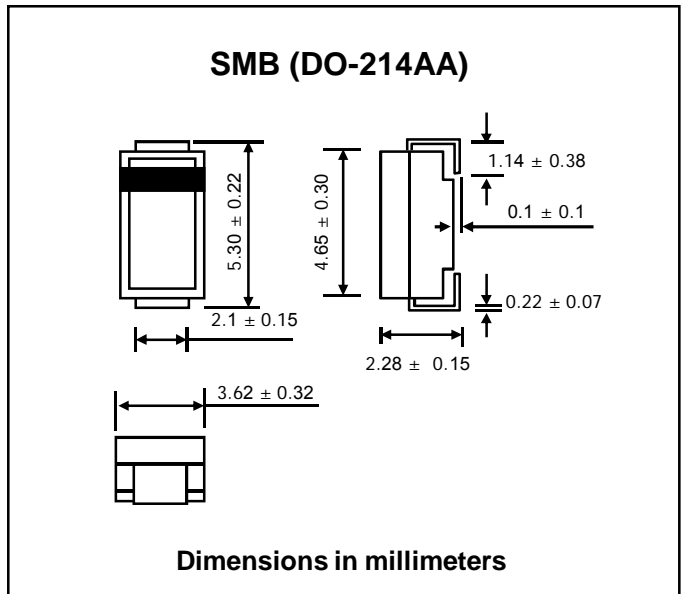
V_Z : 5.1 - 200 Volts
P_D : 5 Watts

FEATURES :

- * Complete Voltage Range 3.3 to 200 Volts
- * High peak reverse power dissipation
- * High reliability
- * Low leakage current
- * **Pb / RoHS Free**

MECHANICAL DATA

- * Case : SMB Molded plastic
- * Epoxy : UL94V-0 rate flame retardant
- * Lead : Lead Formed for Surface Mount
- * Polarity : Color band denotes cathode end
- * Mounting position : Any
- * Weight : 0.108 gram



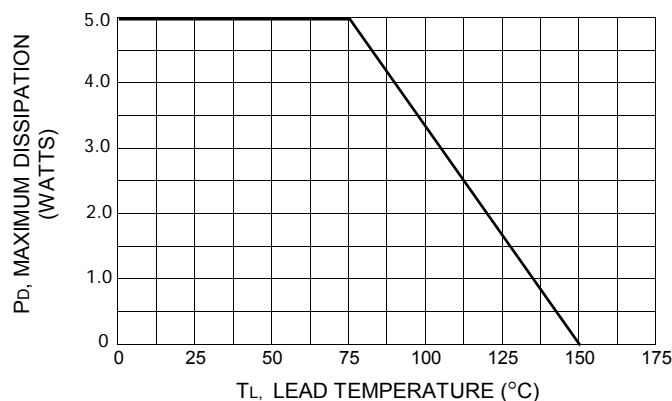
MAXIMUM RATINGS

Rating at 25 °C ambient temperature unless otherwise specified

| Rating | Symbol | Value | Unit |
|---|-----------------------------------|---------------|------|
| Power Dissipation at T _L = 75 °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



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 |
|-----------|-------------------|----------|-------------------------|-------------------|----------|---------------------------------|------|-----------------------|-----------------------|-----------------|
| | $V_Z @ I_{ZT}$ | I_{ZT} | $Z_{ZT} @ I_{ZT}$ | $Z_{ZK} @ I_{ZK}$ | I_{ZK} | $I_R @ V_R$ | | I_{ZM} | I_{ZSM} | Regulator |
| | (V) | (mA) | (Ω) | (Ω) | (mA) | (μA) | (V) | (mA) | (A) | ΔV_Z |
| SMBJ5338A | 5.1 | 240 | 1.5 | 400 | 1.0 | 1.0 | 1.0 | 930 | 14.4 | 0.39 |
| SMBJ5339A | 5.6 | 220 | 1.0 | 400 | 1.0 | 1.0 | 2.0 | 865 | 13.4 | 0.25 |
| SMBJ5340A | 6.0 | 200 | 1.0 | 300 | 1.0 | 1.0 | 3.0 | 790 | 12.7 | 0.19 |
| SMBJ5341A | 6.2 | 200 | 1.0 | 200 | 1.0 | 1.0 | 3.0 | 765 | 12.4 | 0.10 |
| SMBJ5342A | 6.8 | 175 | 1.0 | 200 | 1.0 | 10 | 4.9 | 700 | 11.5 | 0.15 |
| SMBJ5343A | 7.5 | 175 | 1.5 | 200 | 1.0 | 10 | 5.4 | 630 | 10.7 | 0.15 |
| SMBJ5344A | 8.2 | 150 | 1.5 | 200 | 1.0 | 10 | 5.9 | 580 | 10.0 | 0.20 |
| SMBJ5345A | 8.7 | 150 | 2.0 | 200 | 1.0 | 10 | 6.25 | 545 | 9.5 | 0.20 |
| SMBJ5346A | 9.1 | 150 | 2.0 | 150 | 1.0 | 7.5 | 6.6 | 520 | 9.2 | 0.22 |
| SMBJ5347A | 10 | 125 | 2.0 | 125 | 1.0 | 5.0 | 7.2 | 475 | 8.6 | 0.22 |
| SMBJ5348A | 11 | 125 | 2.5 | 125 | 1.0 | 5.0 | 8.0 | 430 | 8.0 | 0.25 |
| SMBJ5349A | 12 | 100 | 2.5 | 125 | 1.0 | 2.0 | 8.6 | 395 | 7.5 | 0.25 |
| SMBJ5350A | 13 | 100 | 2.5 | 100 | 1.0 | 1.0 | 9.4 | 365 | 7.0 | 0.25 |
| SMBJ5351A | 14 | 100 | 2.5 | 75 | 1.0 | 1.0 | 10.1 | 340 | 6.7 | 0.25 |
| SMBJ5352A | 15 | 75 | 2.5 | 75 | 1.0 | 1.0 | 10.8 | 315 | 6.3 | 0.25 |
| SMBJ5353A | 16 | 75 | 2.5 | 75 | 1.0 | 1.0 | 11.5 | 295 | 6.0 | 0.30 |
| SMBJ5354A | 17 | 70 | 2.5 | 75 | 1.0 | 0.5 | 12.2 | 280 | 5.8 | 0.35 |
| SMBJ5355A | 18 | 65 | 2.5 | 75 | 1.0 | 0.5 | 13.0 | 265 | 5.5 | 0.40 |
| SMBJ5356A | 19 | 65 | 3.0 | 75 | 1.0 | 0.5 | 13.7 | 250 | 5.3 | 0.40 |
| SMBJ5357A | 20 | 65 | 3.0 | 75 | 1.0 | 0.5 | 14.4 | 237 | 5.1 | 0.40 |
| SMBJ5358A | 22 | 50 | 3.5 | 75 | 1.0 | 0.5 | 15.8 | 216 | 4.7 | 0.45 |
| SMBJ5359A | 24 | 50 | 3.5 | 100 | 1.0 | 0.5 | 17.3 | 198 | 4.4 | 0.55 |
| SMBJ5360A | 25 | 50 | 4.0 | 110 | 1.0 | 0.5 | 18.0 | 190 | 4.3 | 0.55 |
| SMBJ5361A | 27 | 50 | 5.0 | 120 | 1.0 | 0.5 | 19.4 | 176 | 4.1 | 0.60 |
| SMBJ5362A | 28 | 50 | 6.0 | 130 | 1.0 | 0.5 | 20.1 | 170 | 3.9 | 0.60 |
| SMBJ5363A | 30 | 40 | 8.0 | 140 | 1.0 | 0.5 | 21.6 | 158 | 3.7 | 0.60 |
| SMBJ5364A | 33 | 40 | 10 | 150 | 1.0 | 0.5 | 23.8 | 144 | 3.5 | 0.60 |
| SMBJ5365A | 36 | 30 | 11 | 160 | 1.0 | 0.5 | 25.9 | 132 | 3.3 | 0.65 |
| SMBJ5366A | 39 | 30 | 14 | 170 | 1.0 | 0.5 | 28.1 | 122 | 3.1 | 0.65 |
| SMBJ5367A | 43 | 30 | 20 | 190 | 1.0 | 0.5 | 31.0 | 110 | 2.8 | 0.70 |
| SMBJ5368A | 47 | 25 | 25 | 210 | 1.0 | 0.5 | 33.8 | 100 | 2.7 | 0.80 |
| SMBJ5369A | 51 | 25 | 27 | 230 | 1.0 | 0.5 | 36.7 | 93.0 | 2.5 | 0.90 |
| SMBJ5370A | 56 | 20 | 35 | 280 | 1.0 | 0.5 | 40.3 | 86.0 | 2.3 | 1.00 |
| SMBJ5371A | 60 | 20 | 40 | 350 | 1.0 | 0.5 | 43.0 | 79.0 | 2.2 | 1.20 |
| SMBJ5372A | 62 | 20 | 42 | 400 | 1.0 | 0.5 | 44.6 | 76.0 | 2.1 | 1.35 |
| SMBJ5373A | 68 | 20 | 44 | 500 | 1.0 | 0.5 | 49.0 | 70.0 | 2.0 | 1.50 |
| SMBJ5374A | 75 | 20 | 45 | 620 | 1.0 | 0.5 | 54.0 | 63.0 | 1.9 | 1.60 |
| SMBJ5375A | 82 | 15 | 65 | 720 | 1.0 | 0.5 | 59.0 | 58.0 | 1.8 | 1.80 |
| SMBJ5376A | 87 | 15 | 75 | 760 | 1.0 | 0.5 | 63.0 | 54.5 | 1.7 | 2.00 |
| SMBJ5377A | 91 | 15 | 75 | 760 | 1.0 | 0.5 | 65.5 | 52.5 | 1.6 | 2.20 |
| SMBJ5378A | 100 | 12 | 90 | 800 | 1.0 | 0.5 | 72.0 | 47.5 | 1.5 | 2.30 |
| SMBJ5379A | 110 | 12 | 125 | 1000 | 1.0 | 0.5 | 79.2 | 43.0 | 1.4 | 2.50 |
| SMBJ5380A | 120 | 10 | 170 | 1150 | 1.0 | 0.5 | 86.4 | 39.5 | 1.3 | 2.50 |
| SMBJ5381A | 130 | 10 | 190 | 1250 | 1.0 | 0.5 | 93.2 | 36.6 | 1.2 | 2.50 |
| SMBJ5382A | 140 | 8.0 | 230 | 1500 | 1.0 | 0.5 | 101 | 34.0 | 1.2 | 2.50 |
| SMBJ5383A | 150 | 8.0 | 330 | 1500 | 1.0 | 0.5 | 108 | 31.6 | 1.1 | 3.00 |
| SMBJ5384A | 160 | 8.0 | 350 | 1650 | 1.0 | 0.5 | 115 | 29.4 | 1.1 | 3.00 |
| SMBJ5385A | 170 | 8.0 | 380 | 1750 | 1.0 | 0.5 | 122 | 28.0 | 1.0 | 3.00 |
| SMBJ5386A | 180 | 5.0 | 430 | 1750 | 1.0 | 0.5 | 130 | 26.4 | 1.0 | 4.00 |
| SMBJ5387A | 190 | 5.0 | 450 | 1850 | 1.0 | 0.5 | 137 | 25.0 | 0.9 | 5.00 |
| SMBJ5388A | 200 | 5.0 | 480 | 1850 | 1.0 | 0.5 | 144 | 23.6 | 0.9 | 5.00 |

Notes : (1) Suffix " A " indicates ± 10% tolerance, suffix " B " indicates ± 5% 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_{ZM}