

STBN06I - STBN5D0

V_{BR} : 6.8 - 200 Volts
PPK : 1500 Watts

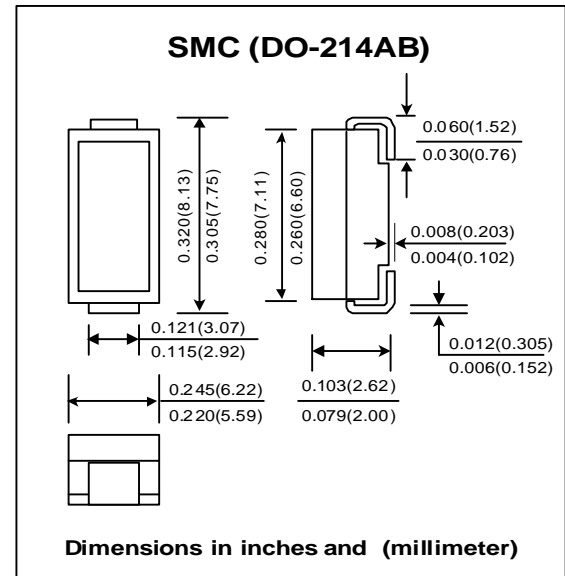
FEATURES :

- * 1500W surge capability at 1ms
- * Excellent clamping capability
- * Low zener impedance
- * Fast response time : typically less than 1.0 ps from 0 volt to V_{BR(min.)}
- * Typical I_R less than 1µA above 10V
- * **Pb / RoHS Free**

MECHANICAL DATA

- * Case : SMC Molded plastic
- * Epoxy : UL94V-O rate flame retardant
- * Lead : Lead Formed for Surface Mount
- * Polarity : Color band denotes cathode end except Bipolar.
- * Mounting position : Any
- * Weight : 0.21 grams

SURFACE MOUNT BIDIRECTIONAL TRANSIENT VOLTAGE SUPPRESSOR



DEVICES FOR UNIPOLAR APPLICATIONS

For Uni-directional altered the third letter of type from "B" to be "U".
 Electrical characteristics apply in both directions

MAXIMUM RATINGS

Rating at 25 °C ambient temperature unless otherwise specified.

| Rating | Symbol | Value | Unit |
|---|----------|---------------|------|
| Peak Power Dissipation at Ta = 25 °C, Tp=1ms (Note1) | PPK | Minimum 1500 | W |
| Steady State Power Dissipation at TL = 75 °C (Note 2) | PD | 5.0 | W |
| Operating and Storage Temperature Range | TJ, TSTG | - 55 to + 150 | °C |

Note :

- (1) Non-repetitive Current pulse, per Fig. 2 and derated above Ta = 25 °C per Fig. 1
- (2) Mounted on copper Lead area at 5.0 mm² (0.013 mm thick).



Certificate Number: Q10561

Certificate Number: E17276

ELECTRICAL CHARACTERISTICS

Rating at 25 °C ambient temperature unless otherwise specified

| TYPE | Breakdown Voltage @ It (Note 1) | | Working Peak Reverse Voltage | Maximum Reverse Leakage @ V _{VRWM} | Maximum Reverse Current | Maximum Clamping Voltage @ I _{RSM} | Maximum Temperature Co-efficient of V _{BR} | |
|---------|--------------------------------------|------|------------------------------------|---|-------------------------------|---|--|----------|
| | V _{BR} (V) | | | | | | | It |
| | Min. | Max. | (mA) | (V) | (μA) | (A) | (V) | (% / °C) |
| STBN06I | 6.12 | 7.48 | 10 | 5.50 | 2000 | 139 | 10.8 | 0.057 |
| STBN56I | 6.45 | 7.14 | 10 | 5.80 | 2000 | 143 | 10.5 | 0.057 |
| STBN07F | 6.75 | 8.25 | 10 | 6.05 | 1000 | 128 | 11.7 | 0.061 |
| STBN57F | 7.13 | 7.88 | 10 | 6.40 | 1000 | 132 | 11.3 | 0.061 |
| STBN08C | 7.38 | 9.02 | 10 | 6.63 | 400 | 120 | 12.5 | 0.065 |
| STBN58C | 7.79 | 8.61 | 10 | 7.02 | 400 | 124 | 12.1 | 0.065 |
| STBN09B | 8.19 | 10.0 | 1.0 | 7.37 | 100 | 109 | 13.8 | 0.068 |
| STBN59B | 8.65 | 9.55 | 1.0 | 7.78 | 100 | 112 | 13.4 | 0.068 |
| STBN010 | 9.00 | 11.0 | 1.0 | 8.10 | 10 | 100 | 15.0 | 0.073 |
| STBN510 | 9.50 | 10.5 | 1.0 | 8.55 | 10 | 103 | 14.5 | 0.073 |
| STBN011 | 9.90 | 12.1 | 1.0 | 8.92 | 10 | 93.0 | 16.2 | 0.075 |
| STBN511 | 10.5 | 11.6 | 1.0 | 9.40 | 10 | 96.0 | 15.6 | 0.075 |
| STBN012 | 10.8 | 13.2 | 1.0 | 9.72 | 5.0 | 87.0 | 17.3 | 0.078 |
| STBN512 | 11.4 | 12.6 | 1.0 | 10.2 | 5.0 | 90.0 | 16.7 | 0.078 |
| STBN013 | 11.7 | 14.3 | 1.0 | 10.5 | 5.0 | 79.0 | 19.0 | 0.081 |
| STBN513 | 12.4 | 13.7 | 1.0 | 11.1 | 5.0 | 82.0 | 18.2 | 0.081 |
| STBN015 | 13.5 | 16.5 | 1.0 | 12.1 | 5.0 | 68.0 | 22.0 | 0.084 |
| STBN515 | 14.3 | 15.8 | 1.0 | 12.8 | 5.0 | 71.0 | 21.2 | 0.084 |
| STBN016 | 14.4 | 17.6 | 1.0 | 12.9 | 5.0 | 64.0 | 23.5 | 0.086 |
| STBN516 | 15.2 | 16.8 | 1.0 | 13.6 | 5.0 | 67.0 | 22.5 | 0.086 |
| STBN018 | 16.2 | 19.8 | 1.0 | 14.5 | 5.0 | 56.5 | 26.5 | 0.088 |
| STBN518 | 17.1 | 18.9 | 1.0 | 15.3 | 5.0 | 59.5 | 25.2 | 0.088 |
| STBN020 | 18.0 | 22.0 | 1.0 | 16.2 | 5.0 | 51.5 | 29.1 | 0.090 |
| STBN520 | 19.0 | 21.0 | 1.0 | 17.1 | 5.0 | 54.0 | 27.7 | 0.090 |
| STBN022 | 19.8 | 24.2 | 1.0 | 17.8 | 5.0 | 47.0 | 31.9 | 0.092 |
| STBN522 | 20.9 | 23.1 | 1.0 | 18.8 | 5.0 | 49.0 | 30.6 | 0.092 |
| STBN024 | 21.6 | 26.4 | 1.0 | 19.4 | 5.0 | 43.0 | 34.7 | 0.094 |
| STBN524 | 22.8 | 25.2 | 1.0 | 20.5 | 5.0 | 45.0 | 33.2 | 0.094 |
| STBN027 | 24.3 | 29.7 | 1.0 | 21.8 | 5.0 | 38.5 | 39.1 | 0.096 |
| STBN527 | 25.7 | 28.4 | 1.0 | 23.1 | 5.0 | 40.0 | 37.5 | 0.096 |
| STBN030 | 27.0 | 33.0 | 1.0 | 24.3 | 5.0 | 34.5 | 43.5 | 0.097 |
| STBN530 | 28.5 | 31.5 | 1.0 | 25.6 | 5.0 | 36.0 | 41.4 | 0.097 |
| STBN033 | 29.7 | 36.3 | 1.0 | 26.8 | 5.0 | 31.5 | 47.7 | 0.098 |
| STBN533 | 31.4 | 34.7 | 1.0 | 28.2 | 5.0 | 33.0 | 45.7 | 0.098 |
| STBN036 | 32.4 | 39.6 | 1.0 | 29.1 | 5.0 | 29.0 | 52.0 | 0.099 |
| STBN536 | 34.2 | 37.8 | 1.0 | 30.8 | 5.0 | 30.0 | 49.9 | 0.099 |
| STBN039 | 35.1 | 42.9 | 1.0 | 31.6 | 5.0 | 26.5 | 56.4 | 0.100 |
| STBN539 | 37.1 | 41.0 | 1.0 | 33.3 | 5.0 | 28.0 | 53.9 | 0.100 |
| STBN043 | 38.7 | 47.3 | 1.0 | 34.8 | 5.0 | 24.0 | 61.9 | 0.101 |
| STBN543 | 40.9 | 45.2 | 1.0 | 36.8 | 5.0 | 25.3 | 59.3 | 0.101 |
| STBN047 | 42.3 | 51.7 | 1.0 | 38.1 | 5.0 | 22.2 | 67.8 | 0.101 |
| STBN547 | 44.7 | 49.4 | 1.0 | 40.2 | 5.0 | 23.2 | 64.8 | 0.101 |
| STBN051 | 45.9 | 56.1 | 1.0 | 41.3 | 5.0 | 20.4 | 73.5 | 0.102 |
| STBN551 | 48.5 | 53.6 | 1.0 | 43.6 | 5.0 | 21.4 | 70.1 | 0.102 |
| STBN056 | 50.4 | 61.6 | 1.0 | 45.4 | 5.0 | 18.6 | 80.5 | 0.103 |
| STBN556 | 53.2 | 58.8 | 1.0 | 47.8 | 5.0 | 19.5 | 77.0 | 0.103 |

ELECTRICAL CHARACTERISTICS

Rating at 25 °C ambient temperature unless otherwise specified

| TYPE | Breakdown Voltage @ I_t (Note 1) | | Working Peak Reverse Voltage | Maximum Reverse Leakage @ V_{RWM} | Maximum Reverse Current | Maximum Clamping Voltage @ I_{RSM} | Maximum Temperature Co-efficient of V_{BR} | |
|---------|---|------|------------------------------------|---|-------------------------------|--|---|----------|
| | V_{BR} (V) | | | | | | | I_t |
| | Min. | Max. | (mA) | (V) | (μ A) | (A) | (V) | (% / °C) |
| STBN062 | 55.8 | 68.2 | 1.0 | 50.2 | 5.0 | 16.9 | 89.0 | 0.104 |
| STBN562 | 58.9 | 65.1 | 1.0 | 53.0 | 5.0 | 17.7 | 85.0 | 0.104 |
| STBN068 | 61.2 | 74.8 | 1.0 | 55.1 | 5.0 | 15.3 | 98.0 | 0.104 |
| STBN568 | 64.6 | 71.4 | 1.0 | 58.1 | 5.0 | 16.3 | 92.0 | 0.104 |
| STBN075 | 67.5 | 82.5 | 1.0 | 60.7 | 5.0 | 13.9 | 108 | 0.105 |
| STBN575 | 71.3 | 78.8 | 1.0 | 64.1 | 5.0 | 14.6 | 103 | 0.105 |
| STBN082 | 73.8 | 90.2 | 1.0 | 66.4 | 5.0 | 12.7 | 118 | 0.105 |
| STBN582 | 77.9 | 86.1 | 1.0 | 70.1 | 5.0 | 13.3 | 113 | 0.105 |
| STBN091 | 81.9 | 100 | 1.0 | 73.7 | 5.0 | 11.4 | 131 | 0.106 |
| STBN591 | 86.5 | 95.5 | 1.0 | 77.8 | 5.0 | 12.0 | 125 | 0.106 |
| STBN0B0 | 90.0 | 110 | 1.0 | 81.0 | 5.0 | 10.4 | 144 | 0.106 |
| STBN5B0 | 95.0 | 105 | 1.0 | 85.5 | 5.0 | 11.0 | 137 | 0.106 |
| STBN0B1 | 99.0 | 121 | 1.0 | 89.2 | 5.0 | 9.5 | 158 | 0.107 |
| STBN5B1 | 105 | 116 | 1.0 | 94.0 | 5.0 | 9.9 | 152 | 0.107 |
| STBN0B2 | 108 | 132 | 1.0 | 97.2 | 5.0 | 8.7 | 173 | 0.107 |
| STBN5B2 | 114 | 126 | 1.0 | 102 | 5.0 | 9.1 | 165 | 0.107 |
| STBN0B3 | 117 | 143 | 1.0 | 105 | 5.0 | 8.0 | 187 | 0.107 |
| STBN5B3 | 124 | 137 | 1.0 | 111 | 5.0 | 8.4 | 179 | 0.107 |
| STBN0B5 | 135 | 165 | 1.0 | 121 | 5.0 | 7.0 | 215 | 0.108 |
| STBN5B5 | 143 | 158 | 1.0 | 128 | 5.0 | 7.2 | 207 | 0.108 |
| STBN0B6 | 144 | 176 | 1.0 | 130 | 5.0 | 6.5 | 230 | 0.108 |
| STBN5B6 | 152 | 168 | 1.0 | 136 | 5.0 | 6.8 | 219 | 0.108 |
| STBN0B7 | 153 | 187 | 1.0 | 138 | 5.0 | 6.2 | 244 | 0.108 |
| STBN5B7 | 162 | 179 | 1.0 | 145 | 5.0 | 6.4 | 234 | 0.108 |
| STBN0B8 | 162 | 198 | 1.0 | 146 | 5.0 | 5.8 | 258 | 0.108 |
| STBN5B8 | 171 | 189 | 1.0 | 154 | 5.0 | 6.1 | 246 | 0.108 |
| STBN0D0 | 180 | 220 | 1.0 | 162 | 5.0 | 5.2 | 287 | 0.108 |
| STBN5D0 | 190 | 210 | 1.0 | 171 | 5.0 | 5.5 | 274 | 0.108 |

Note:

- (1) V_{BR} measured after I_t applied for 300 μ s., I_t = square wave pulse or equivalent.
- (2) "STB" will be omitted in marking on the diode.

RATING AND CHARACTERISTIC CURVES (STBN06I - STBN5D0)

FIG.1 - PULSE DERATING CURVE

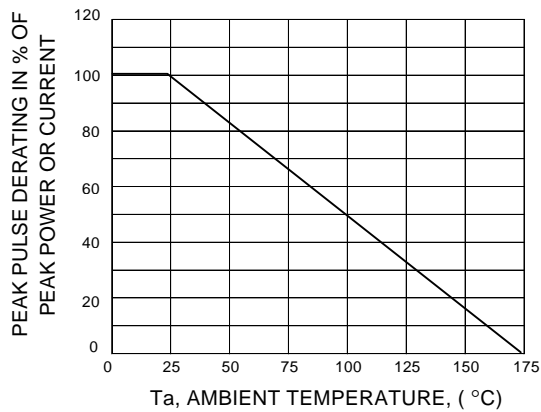


FIG.2 - PULSE WAVEFORM

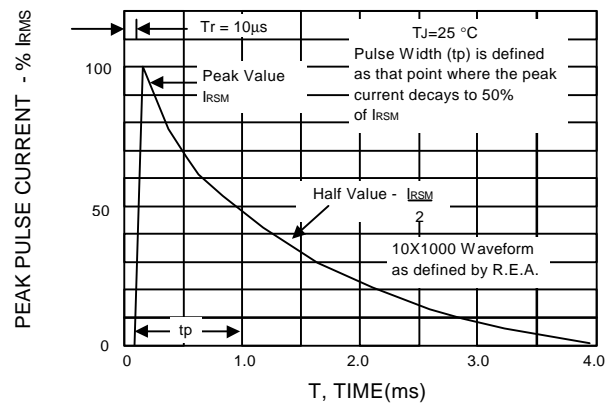


FIG.3 - STEADY STATE POWER DERATING

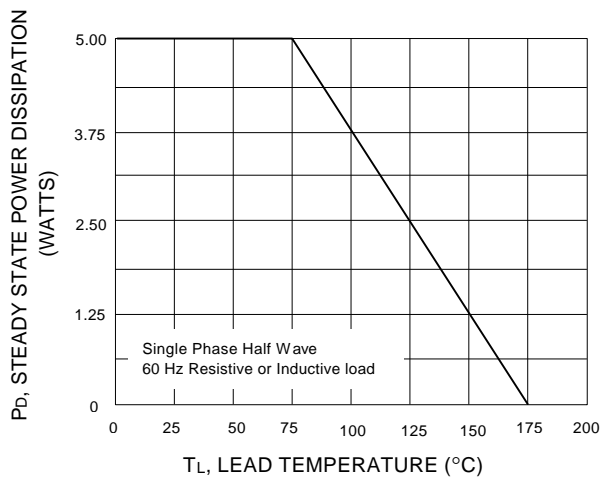


FIG.4 - PULSE RATING CURVE

