# THE DATASHEET OF

# SMB10J11A R5G

# 1000W Surface Mount Transient Voltage Suppressor

## FEATURES

- Low profile package
- Ideal for automated placement
- Glass passivated junction
- Excellent clamping capability
- Fast response time: typically less than 1.0ps
- Compliant to RoHS Directive 2011/65/EU and in accordance to WEEE 2002/96/EC
- Halogen-free according to IEC 61249-2-21

**DO-214AA (SMB)**

Pb-Free

RoHS COMPLIANT

## MECHANICAL DATA

**Case:** DO-214AA (SMB)

Molding compound: UL flammability classification rating 94V-0

Moisture sensitivity level: level 1, per J-STD-020

Part no. with suffix "H" means AEC-Q101 qualified

Packing code with suffix "G" means green compound (halogen-free)

**Terminal:** Matte tin plated leads, solderable per JESD22-B102

Meet JESD 201 class 2 whisker test

**Weight:** 0.11 g (approximately)

| MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS ($T_A$=25°C unless otherwise noted) | | | |
|---|---|---|---|
| PARAMETER | SYMBOL | VALUE | UNIT |
| Peak power dissipation at $T_A$=25°C, tp=1ms (Note 1) | $P_{PK}$ | 1000 | W |
| Steady state power dissipation | $P_D$ | 5 | W |
| Peak forward surge current, 8.3 ms single half sine-wave superimposed on rated load | $I_{FSM}$ | 100 | A |
| Maximum instantaneous forward voltage at 50 A for unidirectional only | $V_F$ | 3.5 | V |
| Typical thermal resistance | $R_{\theta JL}$<br>$R_{\theta JA}$ | 20<br>100 | °C/W |
| Operating junction temperature range | $T_J$ | - 55 to +175 | °C |
| Storage temperature range | $T_{STG}$ | - 55 to +175 | °C |

Note 1: Non-repetitive current pulse per fig. 3 and derated above $T_A$=25°C per fig. 2

Devices for bipolar applications

1. For bidirectional use CA suffix

| ORDERING INFORMATION | | | | | |
|---|---|---|---|---|---|
| PART NO. | PART NO. SUFFIX | PACKING CODE | PACKING CODE SUFFIX (*) | PACKAGE | PACKING |
| SMB10J30A | H | R5 | G | SMB | 850 / 7" Plastic reel |
| | | R4 | | SMB | 3,000 / 13" Paper reel |
| | | M4 | | SMB | 3,000 / 13" Plastic reel |

*: Optional available

| EXAMPLE | | | | | |
|---|---|---|---|---|---|
| EXAMPLE P/N | PART NO. | PART NO. SUFFIX | PACKING CODE | PACKING CODE SUFFIX | DESCRIPTION |
| SMB10J30AHR5G | SMB10J30A | H | R5 | G | AEC-Q101 qualified Green compound |

## RATINGS AND CHARACTERISTICS CURVES

($T_A$=25°C unless otherwise noted)

FIG. 1 PEAK PULSE POWER RATING CURVE

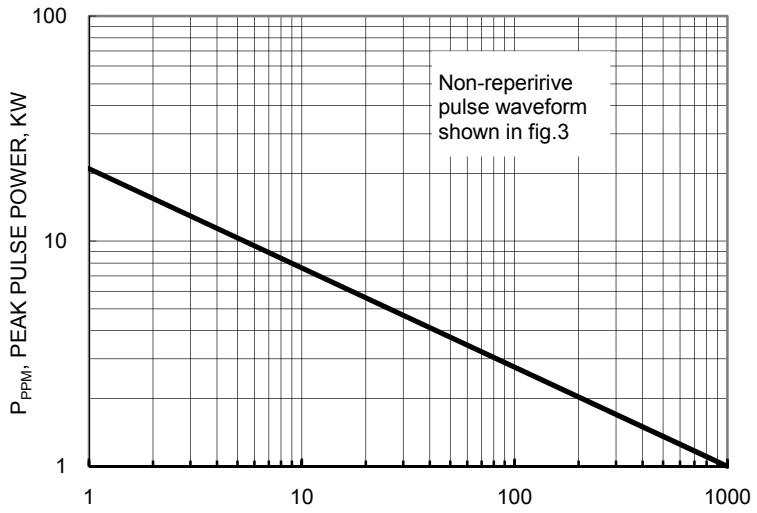



FIG.2 PULSE DERATING CURVE

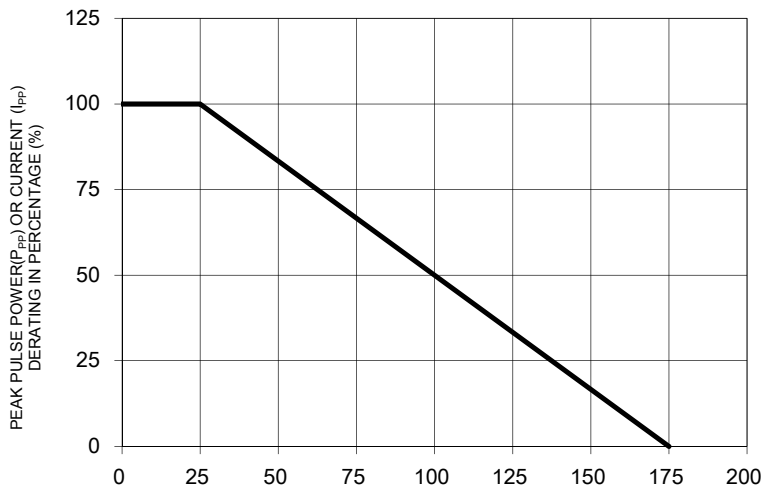



FIG. 3 CLAMPING POWER PULSE WAVEFORM

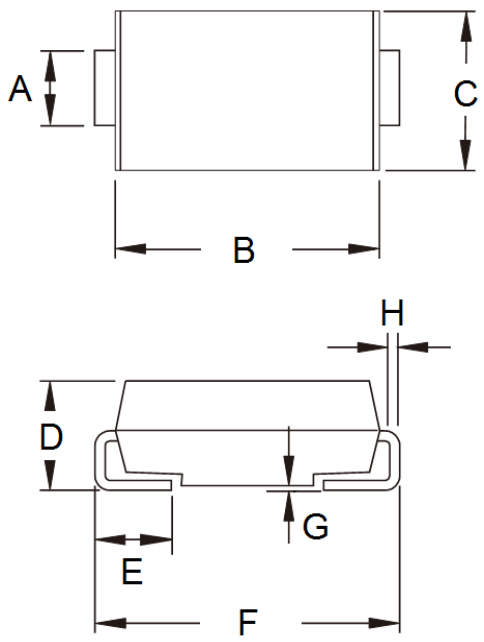



FIG. 4 MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT UNIDIRECTIONAL ONLY

| Device | | Device Marking Code | | Breakdown Voltage $V_{BR}$ (V) | | Test Current $I_T$ (mA) | Stand-Off Voltage $V_{WM}$ (V) | Maximum Reverse Leakage @ $V_{WM}$ $I_R$ (μA) | Maximum Peak Pulse Current $I_{PPM}$ (A) | Maximum Clamping Voltage @ $I_{PPM}$ $V_C$ (V) |
|---|---|---|---|---|---|---|---|---|---|---|
| UNI | BI | UNI | BI | Min | Max | | | | | |
| SMB10J9.0A | SMB10J9.0CA | 1KV | KVC | 10.0 | 11.1 | 1 | 9 | 10 | 64.9 | 15.4 |
| SMB10J10A | SMB10J10CA | 1KX | KXC | 11.1 | 12.3 | 1 | 10 | 8 | 58.8 | 17.0 |
| SMB10J11A | SMB10J11CA | 1KZ | KZC | 12.2 | 13.5 | 1 | 11 | 5 | 54.9 | 18.2 |
| SMB10J12A | SMB10J12CA | 1LE | LEC | 13.3 | 14.7 | 1 | 12 | 5 | 50.3 | 19.9 |
| SMB10J13A | SMB10J13CA | 1LG | LGC | 14.4 | 15.9 | 1 | 13 | 5 | 46.5 | 21.5 |
| SMB10J14A | SMB10J14CA | 1LK | LKC | 15.6 | 17.2 | 1 | 14 | 5 | 43.1 | 23.2 |
| SMB10J15A | SMB10J15CA | 1LM | LMC | 16.7 | 18.5 | 1 | 15 | 1 | 41.0 | 24.4 |
| SMB10J16A | SMB10J16CA | 1LP | LPC | 17.8 | 19.7 | 1 | 16 | 1 | 38.5 | 26.0 |
| SMB10J17A | SMB10J17CA | 1LR | LRC | 18.9 | 20.9 | 1 | 17 | 1 | 36.2 | 27.6 |
| SMB10J18A | SMB10J18CA | 1LT | LTC | 20.0 | 22.1 | 1 | 18 | 1 | 34.2 | 29.2 |
| SMB10J20A | SMB10J20CA | 1LV | LVC | 22.2 | 24.5 | 1 | 20 | 1 | 30.9 | 32.4 |
| SMB10J22A | SMB10J22CA | 1LX | LXC | 24.4 | 26.9 | 1 | 22 | 1 | 28.2 | 35.5 |
| SMB10J24A | SMB10J24CA | 1LZ | LZC | 26.7 | 29.5 | 1 | 24 | 1 | 25.7 | 38.9 |
| SMB10J26A | SMB10J26CA | 1ME | MEC | 28.9 | 31.9 | 1 | 26 | 1 | 23.8 | 42.1 |
| SMB10J28A | SMB10J28CA | 1MG | MGC | 31.1 | 34.4 | 1 | 28 | 1 | 22.0 | 45.4 |
| SMB10J30A | SMB10J30CA | 1MK | MKC | 33.3 | 36.8 | 1 | 30 | 1 | 20.7 | 48.4 |
| SMB10J33A | SMB10J33CA | 1MM | MMC | 36.7 | 40.6 | 1 | 33 | 1 | 18.8 | 53.3 |
| SMB10J36A | SMB10J36CA | 1MP | MPC | 40.0 | 44.2 | 1 | 36 | 1 | 17.2 | 58.1 |
| SMB10J40A | SMB10J40CA | 1MR | MRC | 44.4 | 49.1 | 1 | 40 | 1 | 15.5 | 64.5 |

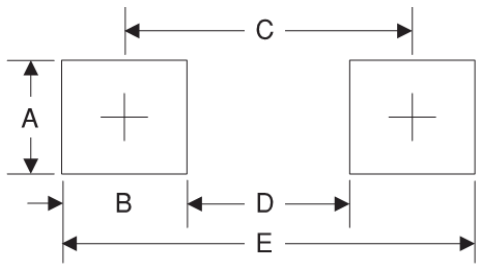
## PACKAGE OUTLINE DIMENSIONS

**DO-214AA (SMB)**




| DIM. | Unit (mm) | | Unit (inch) | |
|---|---|---|---|---|
| | Min | Max | Min | Max |
| A | 1.95 | 2.10 | 0.077 | 0.083 |
| B | 4.25 | 4.75 | 0.167 | 0.187 |
| C | 3.48 | 3.73 | 0.137 | 0.147 |
| D | 1.99 | 2.61 | 0.078 | 0.103 |
| E | 0.90 | 1.41 | 0.035 | 0.056 |
| F | 5.10 | 5.30 | 0.201 | 0.209 |
| G | 0.10 | 0.20 | 0.004 | 0.008 |
| H | 0.15 | 0.31 | 0.006 | 0.012 |

## SUGGESTED PAD LAYOUT




| Symbol | Unit (mm) | Unit (inch) |
|---|---|---|
| A | 2.3 | 0.091 |
| B | 2.5 | 0.098 |
| C | 4.3 | 0.169 |
| D | 1.8 | 0.071 |
| E | 6.8 | 0.268 |

## MARKING DIAGRAM

P/N = Specific Device Code
G = Green Compound
YW = Date Code
F = Factory Code

Note: Cathode band for uni-directional products only

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Version: A1511

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