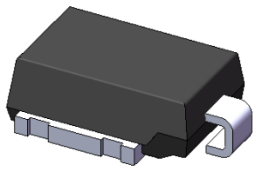
# 3600W, 10 - 43V Transient Voltage Suppressors

## Features

- AEC-Q101 qualified TVS product
- 3.6KW surge capability at 10/1000μs waveform
- Tj 175℃ high temperature performance
- Low leakage current
- Excellent clamping capability
- MSL level 1, per J-STD-020
- Halogen free and RoHS compliant

RoHS
COMPLIANT



DO-218

## Applications

- Transient over voltage protection for sensitive electrical parts from load-dump switching.

**Absolute Maximum Ratings** ($T_A$=25°C unless otherwise noted)

| Parameter | Symbol | Ratings | Unit |
|---|---|---|---|
| Peak power dissipation with a 10/1000us waveform | $P_{PPM}$ | 3600 | W |
| Peak power dissipation with a 10/10000us waveform | $P_{PPM}$ | 2800 | W |
| Peak pulse current with a 10/1000us waveform | $I_{PPM}$ | See Next Table | A |
| Power dissipation, on infinite heat sink at $T_c$=25℃ | $P_D$ | 5 | W |
| Maximum instantaneous forward voltage at 100A | $V_F$ | 2.0(1) | V |
| Peak forward surge current, 8.3ms single half-sine wave | $I_{FSM}$ | 500(1) | A |
| Typical thermal resistance , junction to case | $R_{\theta JC}$ | 1.0 | ℃/W |
| Operating junction and storage temperature range | $T_J$, $T_{STG}$ | -55 to +175 | ℃ |

## Electrical Characteristics (TA = 25 °C unless otherwise noted)

| Part Number (Uni) | Part Number (Bi) | Marking | | Breakdown Voltage VBR (Volts) | | Test Current $I_T$ (mA) | Stand off Voltage $V_{WM}$ (Volts) | Maximum reverse leakage at VWM $I_D$ (μA) | Maximum Peak Pulse Current $I_{ppM}$ (A) | Maximum Clamping Voltage at $I_{PPM}$ $V_C$(Volts) |
|---|---|---|---|---|---|---|---|---|---|---|
| | | UNI | BI | Min | Max | | | | | |
| ATVS5K10A | ATVS5K10CA | 10A | 10C | 11.1 | 12.3 | 5 | 10 | 15 | 212 | 17 |
| ATVS5K11A | ATVS5K11CA | 11A | 11C | 12.2 | 13.5 | 5 | 11 | 10 | 198 | 18.2 |
| ATVS5K12A | ATVS5K12CA | 12A | 12C | 13.3 | 14.7 | 5 | 12 | 10 | 181 | 19.9 |
| ATVS5K13A | ATVS5K13CA | 13A | 13C | 14.4 | 15.9 | 5 | 13 | 10 | 167 | 21.5 |
| ATVS5K14A | ATVS5K14CA | 14A | 14C | 15.6 | 17.2 | 5 | 14 | 10 | 155 | 23.2 |
| ATVS5K15A | ATVS5K15CA | 15A | 15C | 16.7 | 18.5 | 5 | 15 | 10 | 148 | 24.4 |
| ATVS5K16A | ATVS5K16CA | 16A | 16C | 17.8 | 19.7 | 5 | 16 | 10 | 138 | 26 |
| ATVS5K17A | ATVS5K17CA | 17A | 17C | 18.9 | 20.9 | 5 | 17 | 10 | 130 | 27.6 |
| ATVS5K18A | ATVS5K18CA | 18A | 18C | 20 | 22.1 | 5 | 18 | 10 | 123 | 29.2 |
| ATVS5K20A | ATVS5K20CA | 20A | 20C | 22.2 | 24.5 | 5 | 20 | 10 | 111 | 32.4 |
| ATVS5K22A | ATVS5K22CA | 22A | 22C | 24.4 | 26.9 | 5 | 22 | 10 | 101 | 35.5 |
| ATVS5K24A | ATVS5K24CA | 24A | 24C | 26.7 | 29.5 | 5 | 24 | 10 | 93 | 38.9 |
| ATVS5K26A | ATVS5K26CA | 26A | 26C | 28.9 | 31.9 | 5 | 26 | 10 | 86 | 42.1 |
| ATVS5K28A | ATVS5K28CA | 28A | 28C | 31.1 | 34.4 | 5 | 28 | 10 | 79 | 45.4 |
| ATVS5K30A | ATVS5K30CA | 30A | 30C | 33.3 | 36.8 | 5 | 30 | 10 | 74 | 48.4 |
| ATVS5K33A | ATVS5K33CA | 33A | 33C | 36.7 | 40.6 | 5 | 33 | 10 | 68 | 53.3 |
| ATVS5K36A | ATVS5K36CA | 36A | 36C | 40 | 44.2 | 5 | 36 | 10 | 62 | 58.1 |
| ATVS5K40A | ATVS5K40CA | 40A | 40C | 44.4 | 49.1 | 5 | 40 | 10 | 56 | 64.5 |
| ATVS5K43A | ATVS5K43CA | 43A | 43C | 47.8 | 52.8 | 5 | 43 | 10 | 52 | 69.4 |

Note (1)：Uni-directional

## Ratings and Characteristics Curves

($T_A$ = 25℃ unless otherwise noted)

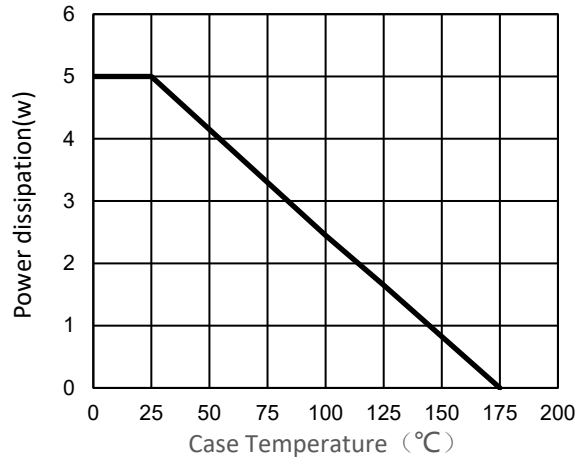



**Fig.1 – Power Derating Curve**

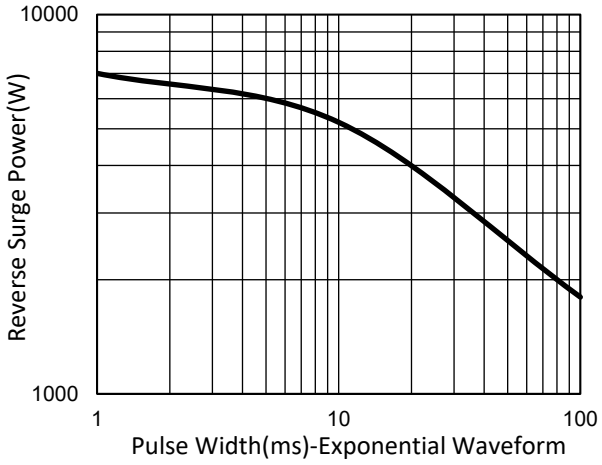



**Fig.2 – Reverse Power Capability**

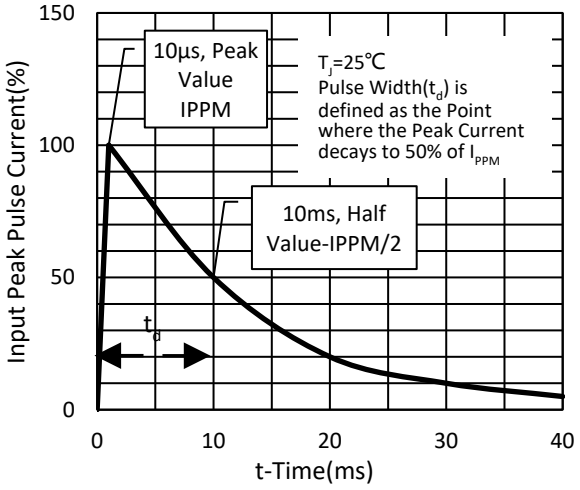



**Fig.3 – Pulse Waveform**

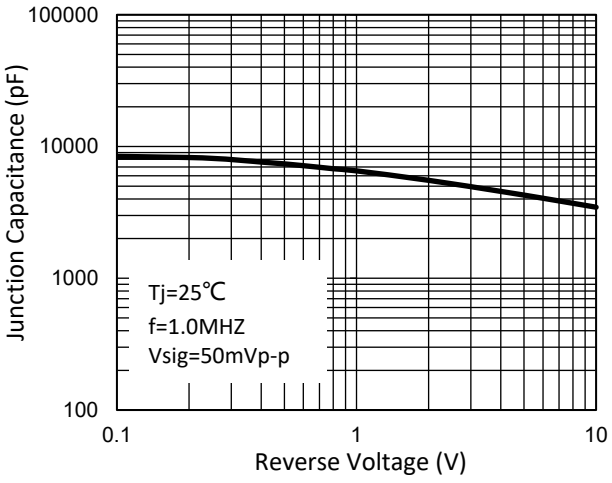
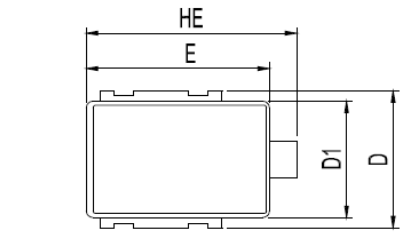
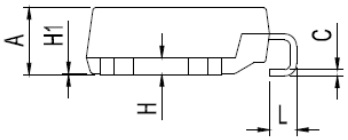


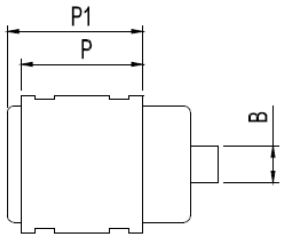

**Fig.4 – Typical Junction Capacitance**

## Package Outline Dimensions

in inches (millimeters)

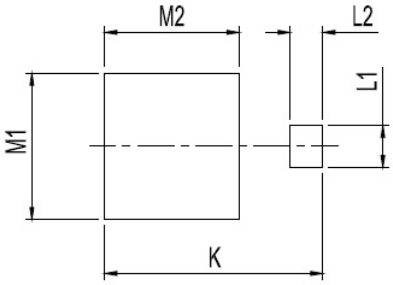



Polarity: Heatsink is anode

Footprint (reference)




| DO-218 | | | | |
|---|---|---|---|---|
| DIM | Millimeters | | Inches | |
| | MIN | MAX | MIN | MAX |
| A | 4.70 | 5.10 | 0.185 | 0.201 |
| B | 2.50 | 2.90 | 0.098 | 0.114 |
| C | 0.40 | 0.60 | 0.016 | 0.024 |
| D | 9.50 | 10.50 | 0.374 | 0.413 |
| D1 | 8.35 | 8.65 | 0.329 | 0.341 |
| E | 13.35 | 13.65 | 0.526 | 0.537 |
| H | 1.20 | 1.50 | 0.047 | 0.059 |
| H1 | 0.10 typ. | | 0.004 typ. | |
| HE | 15.00 | 16.00 | 0.591 | 0.630 |
| L | 1.50 | 2.50 | 0.059 | 0.098 |
| P | 8.70 | 9.30 | 0.343 | 0.366 |
| P1 | 9.70 | 10.30 | 0.382 | 0.406 |
| M1 | 9.50 | 10.50 | 0.374 | 0.413 |
| M2 | 8.70 | 9.30 | 0.343 | 0.366 |
| L1 | 2.40 | 3.00 | 0.094 | 0.118 |
| L2 | 1.70 | 2.30 | 0.067 | 0.091 |
| K | 15.00 | 16.00 | 0.591 | 0.630 |

## Revision History

| Document Version | Date of release | Discroption of changes |
|---|---|---|
| Rev.A | 2021.06.15 | Released Datasheet |
| Rev.B | 2023.08.31 | Modify document format |

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