

## SM5S14A-AU ~ SM5S48A-AU Series

### 3.6kW Surface Mount Transient Voltage Suppressor

**Stand-Off Voltage**

**14~48V**

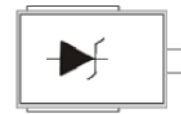
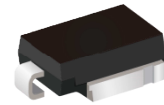
DO-218AB

#### Features

- ISO10605(C=330 pF,R=330Ω):  $\pm 30\text{kV}$  Air,  $\pm 30\text{kV}$  Contact
- HBM  $\geq \pm 8\text{ kV}$  & CDM  $\geq \pm 2\text{ kV}$
- Rated for load dump protection in automotive applications
- Meets ISO 7637-2 / ISO16750-2 Surge specification (varies by test condition)
- Meets MSL Level 1 per J-STD-020
- AEC-Q101 qualified
- Lead free in compliance with EU RoHS 2.0
- Green molding compound as per IEC 61249 standard

#### Mechanical Data

- Case : Molded plastic, DO-218AB
- Terminals : Solder plated, solderable per MIL-STD-750, Method 2026
- Approx. Weight : 0.099 ounces, 2.821 grams



### Maximum Ratings and Thermal Characteristics ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

| PARAMETER                                                                       | SYMBOL          | LIMIT   | UNITS              |
|---------------------------------------------------------------------------------|-----------------|---------|--------------------|
| 10/1,000us Peak Pulse Power Dissipation on $T_A = 25^\circ\text{C}$<br>(Note 1) | $P_{PPM1}$      | 3600    | W                  |
| 10/10,000us Peak Pulse Power Dissipation on $T_A = 25^\circ\text{C}$            | $P_{PPM2}$      | 2800    | W                  |
| Peak Surge Current (60Hz half wave)                                             | $I_{FSM}$       | 500     | A                  |
| Typical Thermal Resistance Junction to Case                                     | $R_{\theta JC}$ | 1       | $^\circ\text{C/W}$ |
| Power Dissipation on infinite heatsink $T_C = 25^\circ\text{C}$                 | $P_D$           | 5       | W                  |
| ISO10605(C=330 pF,R=330Ω) Contact                                               | $V_{ESD}$       | 30      | kV                 |
| ISO10605(C=330 pF,R=330Ω) Air                                                   | $V_{ESD}$       | 30      | kV                 |
| Operating and Storage Temperature Range                                         | $T_J, T_{STG}$  | -55~175 | $^\circ\text{C}$   |



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### Electrical Characteristics ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

| Part Number                        | V <sub>RWM</sub> | V <sub>BR</sub> |      |                | Reverse Leakage                  |                                                            | V <sub>C</sub> @I <sub>PP</sub> (Note 1) |     | Marking Code |
|------------------------------------|------------------|-----------------|------|----------------|----------------------------------|------------------------------------------------------------|------------------------------------------|-----|--------------|
|                                    |                  | Min.            | Max. | I <sub>T</sub> | I <sub>R</sub> @V <sub>RWM</sub> | I <sub>R</sub> @V <sub>RWM</sub><br>T <sub>J</sub> =175 °C |                                          |     |              |
|                                    | V                | V               | V    | mA             | µA                               | µA                                                         | V                                        | A   |              |
| 3600W Transient Voltage Suppressor |                  |                 |      |                |                                  |                                                            |                                          |     |              |
| SM5S14A-AU                         | 14               | 15.6            | 17.2 | 5              | 1                                | 150                                                        | 23.2                                     | 155 | 6ENM         |
| SM5S15A-AU                         | 15               | 16.7            | 18.5 | 5              | 1                                | 150                                                        | 24.4                                     | 148 | 6ENN         |
| SM5S16A-AU                         | 16               | 17.8            | 19.7 | 5              | 1                                | 150                                                        | 26                                       | 138 | 6ENP         |
| SM5S17A-AU                         | 17               | 18.9            | 20.9 | 5              | 1                                | 150                                                        | 27.6                                     | 130 | 6ENQ         |
| SM5S18A-AU                         | 18               | 20              | 22.1 | 5              | 0.5                              | 150                                                        | 29.2                                     | 123 | 6ENR         |
| SM5S20A-AU                         | 20               | 22.2            | 24.5 | 5              | 0.5                              | 150                                                        | 32.4                                     | 111 | 6ENS         |
| SM5S22A-AU                         | 22               | 24.4            | 26.9 | 5              | 0.5                              | 150                                                        | 35.5                                     | 101 | 6ENT         |
| SM5S24A-AU                         | 24               | 26.7            | 29.5 | 5              | 0.5                              | 150                                                        | 38.9                                     | 93  | 6ENU         |
| SM5S26A-AU                         | 26               | 28.9            | 31.9 | 5              | 0.5                              | 150                                                        | 42.1                                     | 86  | 6ENV         |
| SM5S28A-AU                         | 28               | 31.1            | 34.4 | 5              | 0.5                              | 150                                                        | 45.4                                     | 79  | 6ENW         |
| SM5S30A-AU                         | 30               | 33.3            | 36.8 | 5              | 0.5                              | 150                                                        | 48.4                                     | 74  | 6ENX         |
| SM5S33A-AU                         | 33               | 36.7            | 40.6 | 5              | 0.5                              | 150                                                        | 53.3                                     | 68  | 6ENY         |
| SM5S36A-AU                         | 36               | 40              | 44.2 | 5              | 0.5                              | 150                                                        | 58.1                                     | 62  | 6ENZ         |
| SM5S40A-AU                         | 40               | 44.4            | 49.1 | 5              | 0.5                              | 150                                                        | 64.5                                     | 56  | 6EPD         |
| SM5S43A-AU                         | 43               | 47.8            | 52.8 | 5              | 0.5                              | 150                                                        | 69.4                                     | 52  | 6EPE         |
| SM5S48A-AU                         | 48               | 53.3            | 58.7 | 5              | 0.5                              | 150                                                        | 80.6                                     | 45  | 6EPF         |

#### NOTES:

1. Non-repetitive current pulse, per Fig.3 and derated above  $T_A = 25^\circ\text{C}$  per Fig.1
2. TVS is a transient protection device, it is strongly recommended not to use as a Zener.

## SM5S14A-AU ~ SM5S48A-AU Series

### TYPICAL CHARACTERISTIC CURVES

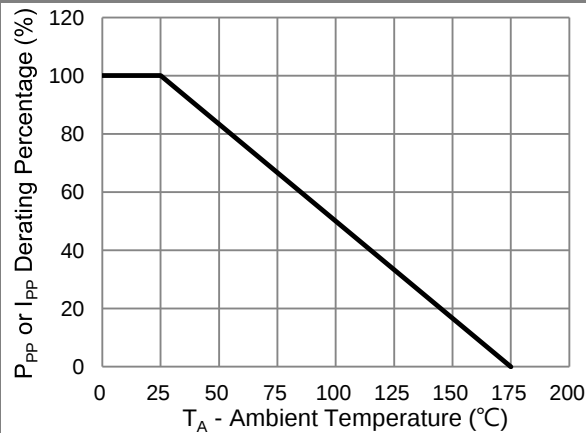


Fig.1 Pulse Power Rating Curve

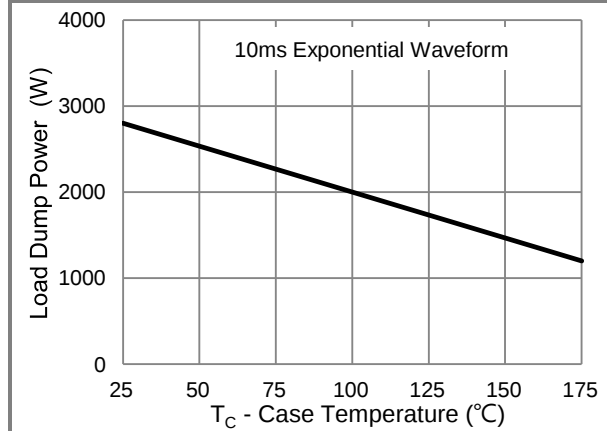


Fig.2 Load Dump Power Characteristics

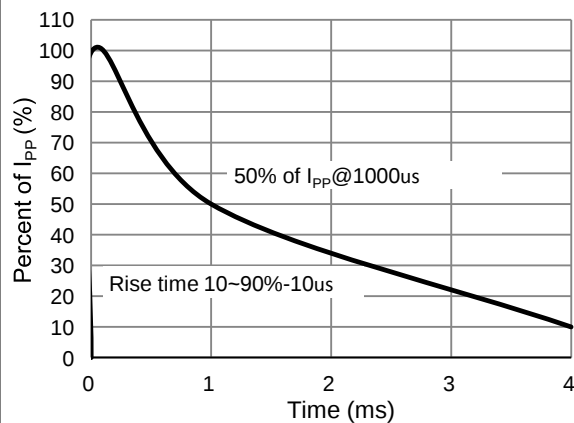


Fig.3 Pulse Waveform

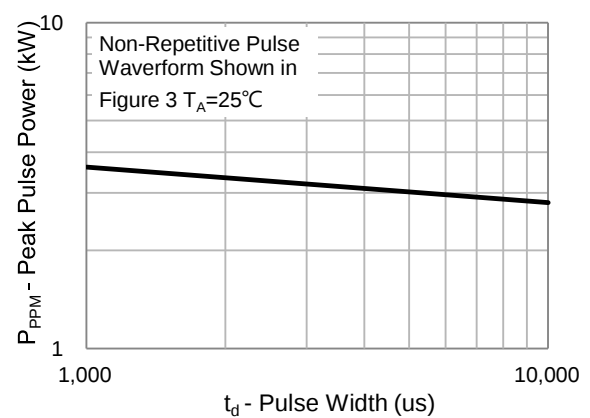


Fig.4 Peak Pulse Power Rating Curve

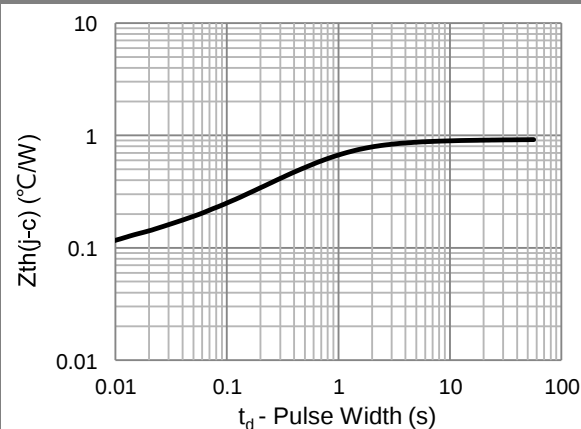


Fig.5 Typical Transient Thermal Impedance

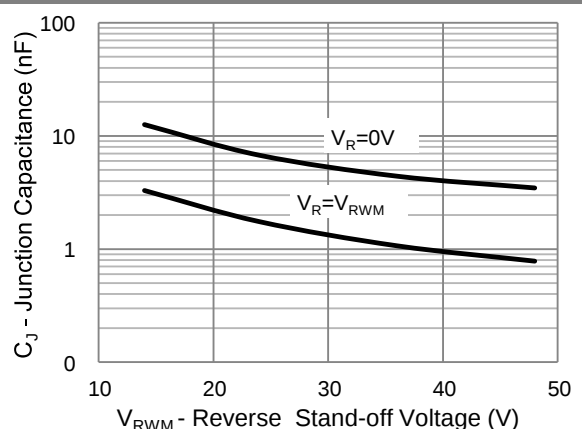


Fig.6 Typical Capacitance

## SM5S14A-AU ~ SM5S48A-AU Series

### TYPICAL CHARACTERISTIC CURVES

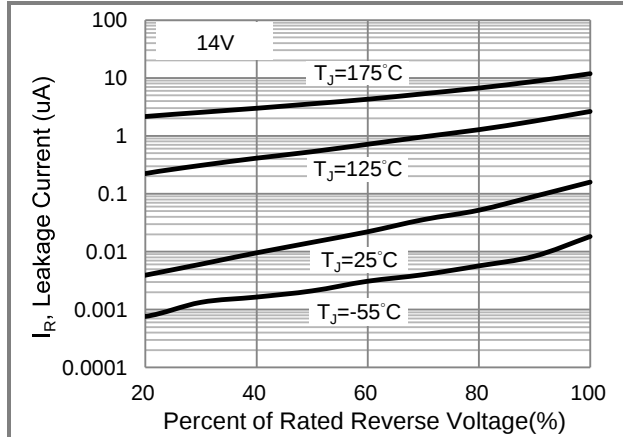


Fig.7 Typical Reverse Characteristics

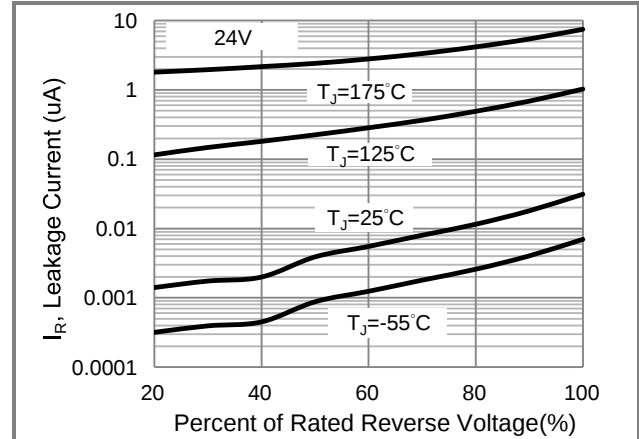


Fig.8 Typical Reverse Characteristics

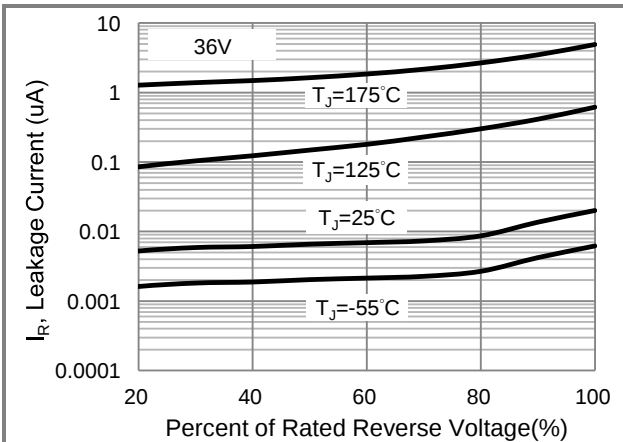


Fig.9 Typical Reverse Characteristics

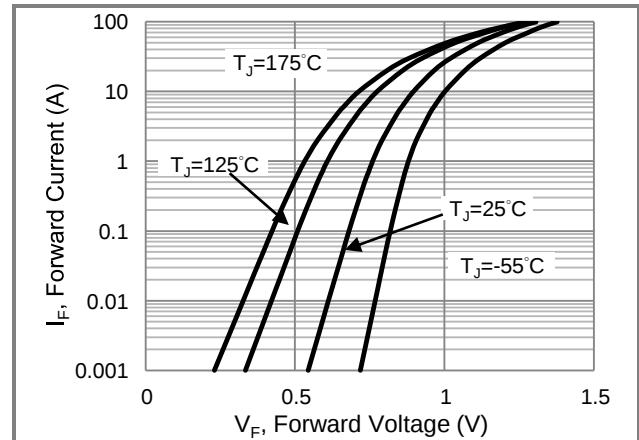


Fig.10 Typical Forward Characteristics

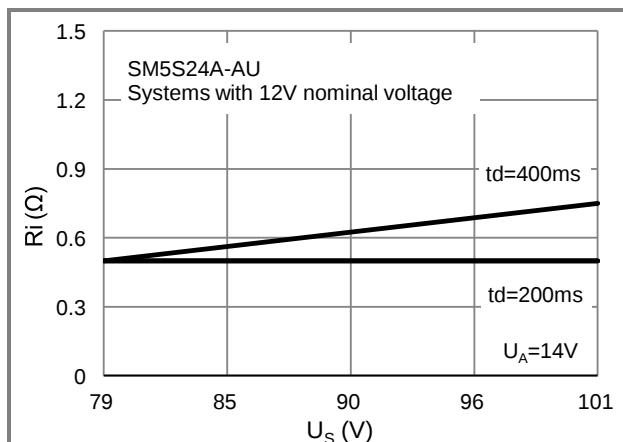


Fig.11 ISO-16750-2 TYPE A

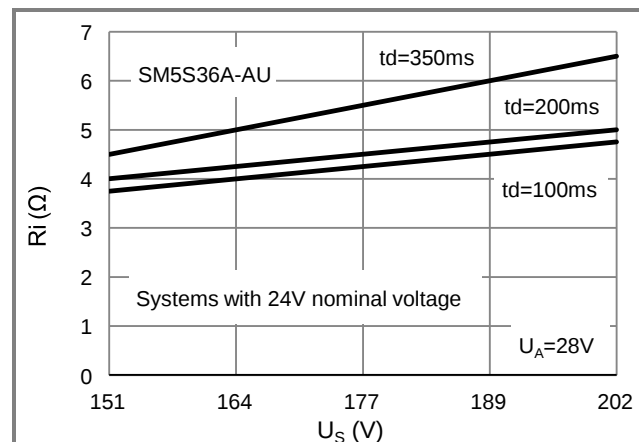


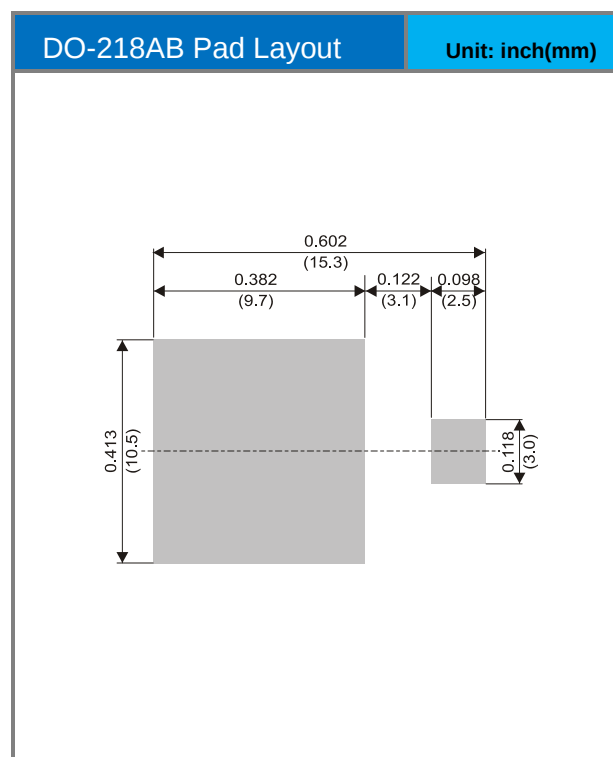
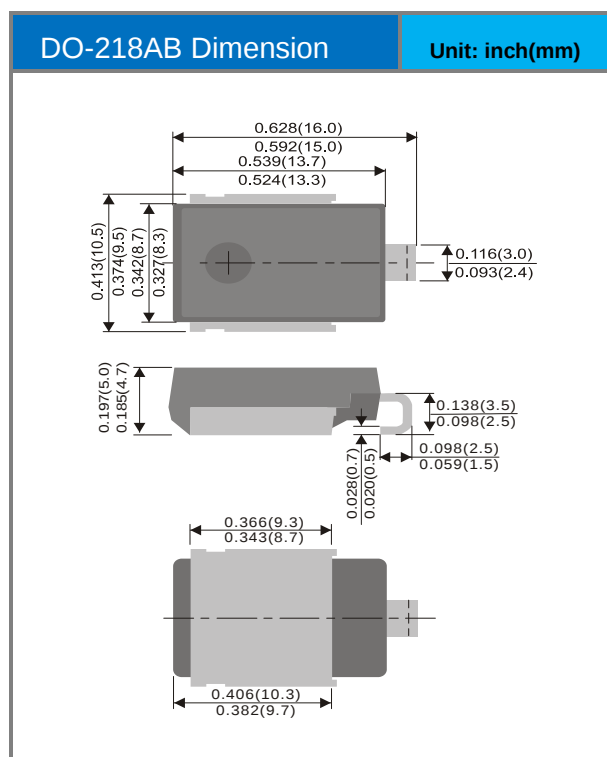
Fig.12 ISO-16750-2 TYPE A

## SM5S14A-AU ~ SM5S48A-AU Series

Part No. Packing Code Version

| Part No. Packing Code | Package Type | Packing Type       | Marking   | Version      |
|-----------------------|--------------|--------------------|-----------|--------------|
| SM5SxxA-AU_R2_000A1   | DO-218AB     | 600 pcs / 13" reel | See Table | Halogen free |

### Packaging Information & Mounting Pad Layout





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