




SPECIFICATION SHEET

| | |
|--------------------------------|---|
| SPECIFICATION SHEET NO. | N1115 - DO218ABSM8S36A |
| DATE | Nov. 15, 2021 |
| REVISION | A0 |
| DESCRIPTION | <p>SMD Transient Voltage Suppressor (TVs) Diodes, DO-218AB series, SM8S36A Type, 2 Pads, Uni-directional Stand-off Voltage 36V. Reverse Surge Current. 114A Max. Operating Temp. Range -55°C ~+175°C Package in Tape/Reel, 750pcs/13" Reel RoHS/RoHS III compliant</p> |
| CUSTOMER | |
| CUSTOMER PART NUMBER | |
| CROSS REF. PART NUMBER | |
| ORIGINAL PART NUMBER | MDD SM8S36A |
| PART CODE | DO218ABSM8S36A |

| | | | |
|-------------------------|---|--|---|
| VENDOR APPROVE | | | |
| Issued/Checked/Approved |  |  |  |
| DATE: Nov. 15, 2021 | | | |

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|-------------------------|--|
| CUSTOMER APPROVE | |
| | |
| DATE: | |

SMD TRANSIENT VOLTAGE SUPPRESSORS DO-218AB SERIES



MAIN FEATURE

- Round Chip Produced By Chemical Method
- Junction Passivated By Polyimide
- T J – 175 °C Capability Suitable For High Reliability And Automotive Requirement
- Available In both Uni-directional and Bi-directional Polarity
- Low Leakage Current
- Low Forward Voltage Drop
- High Surge Capability
- Meet ISO7637-2 Surge Specification (Varied By Test Condition)
- Meet MSL Level 1, Per J-STD_020, LF Max. Peak Of 245 °C
- AEC – Q101 Quality

APPLICATION

- Use In Sensitive Electronics Protection Against Voltage Transients Included By Inductive Load Switching And Lighting, Especially For Automotive Load Dump Protection Application

RFQ
Request For Quotation

PART CODE GUIDE

| DO218AB | SM8S36A |
|---------|---------|
| 1 | 2 |

1) **DO218AB**: SMD Transient Voltage Suppressor (TVs) Diodes, DO218AB series

2) **SM8S36A**: Type code for original part number SM8S36A

SMD TRANSIENT VOLTAGE SUPPRESSORS DO-218AB SERIES

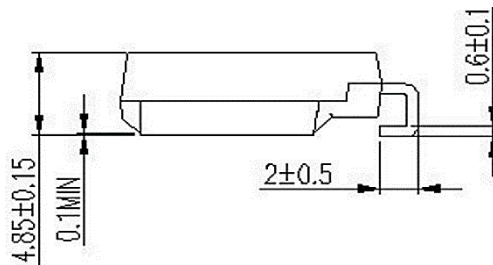
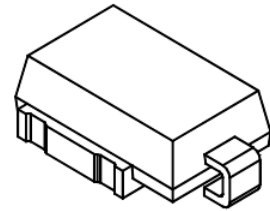
DIMENSION (Unit: mm)

Image for reference

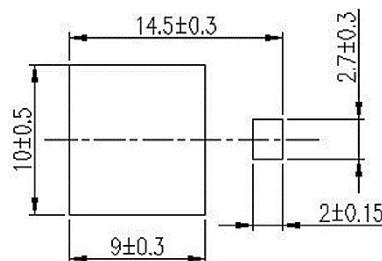


Marking: SM8S36A

DO-218AB



Recommend Pad Layout



SMD TRANSIENT VOLTAGE SUPPRESSORS DO-218AB SERIES
MECHANICAL DATA

| Case | Terminals | Polarity | Mounting Position | Unit Weight |
|-------------------------------|--|-------------------|---|-------------|
| JEDEC DO-218AB molded plastic | Matte tin plated leads, solderable per J-STD-002 & JESD22-B102 | Heatsink is Anode | Meets UL 94 V-0 flammability rating base P/NHE3_X – RoHS Compliant & AEC – Q101 qualified (X: denotes revision code e. g A, B...) | 2.60 g/pc |

MAX. RATING & CHARACTERISTICS - Ratings at 25°C ambient temperature unless otherwise specified.

| Parameter | SYMBOLS | VALUE | | | UNITS |
|---|------------------|-------|---------|------|-------|
| | | Min. | Typical | Max. | |
| Peak Pulse Power Dissipation @10/1000µs Waveform | P _{ppm} | | 6600 | | W |
| Peak Pulse Power Dissipation @10/1000µs Waveform | P _{ppm} | | 5200 | | W |
| Power Dissipation On Infinite Heatsink @ T _c = 25 °C (Fig. 1) | P _D | | 8.0 | | W |
| Peak Pulse Current On 10/1000µs Waveform (Note 1) | I _{ppm} | | | 114 | A |
| Peak Forward Surge Current 8.3 Ms Single Half Sine- Wave | I _{FSM} | | 700 | | A |
| Thermal Resistance Junction To Case | R _{θJA} | | 0.90 | | °C/W |
| Operating Junction Temperature Range | T _J | -55 | | +175 | °C |
| Storage Temperature Range | T _{STG} | -55 | | +175 | °C |

Note

1. Non-repetitive current pulse derated above TA=25 °C

SMD TRANSIENT VOLTAGE SUPPRESSORS DO-218AB SERIES

ELECTRICAL CHARACTERISTICS - Ratings at 25°C

| Parameter | SYMBOLS | VALUE | | | UNITS |
|---|------------------|-------|-------------|------------|-------|
| | | Min. | Typical | Max. | |
| Breakdown Voltage | V _{BR} | 40.0 | 42.1 | 44.2 | V |
| Test Current | I _T | | 5.0 | | mA |
| Reverse Stand-Off | V _{WM} | | 36.0 | | V |
| Reverse Leakage @ V _{WM} | I _D | | | 10.0 | μA |
| Reverse Leakage @ V _{WM} , T _J = 175 °C | I _D | | | 150 | μA |
| Peak Pulse Current @ 10/1000 μs Wave-form | I _{PPM} | | | 114 | A |
| Clamping Voltage @ I _{PPM} | V _C | | | 58.1 | V |
| Temp. Coefficient of V _{BR} (Note 1) | α _T | | 0.091 | | %/ °C |

Note

1. To calculate V_{BR} vs Junction temperature, use the following formula: V_{BR} at T_J = V_{BR} at 25 °C x 1+ α_T x (T_J -25)
2. For all type Max. V_F = 1.8V at I_F = 100 A measured on 8.3ms single half Sine-wave or equivalent square wave, duty cycle = 4 pulses per minute Max.

SMD TRANSIENT VOLTAGE SUPPRESSORS DO-218AB SERIES
RELIABILITY

| Number | Experiment Items | Experiment Method And Conditions | Reference Documents |
|--------|------------------------------------|--|---------------------------------|
| 1 | Solder Resistance Test | Test 260°C± 5°C for 10 ± 2 sec. Immerse body into solder 1/16" ± 1/32" | MIL-STD-750D METHOD-2031.2 |
| 2 | Solderability Test | 230°C ±5°C for 5 sec. | MIL-STD-750D METHOD-2026.1 0 |
| 3 | Pull Test | 1 kg in axial lead direction for 10 sec. | MIL-STD-750D METHOD-2036.4 |
| 4 | Bend Test | 0.5Kg Weight Applied To Each Lead, Bending Arcs 90 °C ± 5 °C For 3 Times | MIL-STD-750D METHOD-2036.4 |
| 5 | High Temperature Reverse Bias Test | TA=100°C for 1000 Hours at VR=80% Rated VR | MIL-STD-750D METHOD-1038.4 |
| 6 | Forward Operation Life Test | TA=25°C Rated Average Rectified Current | MIL-STD-750D METHOD-1027.3 |
| 7 | Intermittent Operation Life Test | On state: 5 min with rated IRMS Power Off state: 5 min with Cool Forced Air. On and off for 1000 cycles. | MIL-STD-750D METHOD-1036.3 |
| 8 | Pressure Cooker Test | 15 PSIG, TA=121°C, 4 hours | MIL-S-19500 APPENOIXC |
| 9 | Temperature Cycling Test | -55°C~+125°C; 30 Minutes For Dwelled Time 5 minutes for transferred time. Total: 10 cycles. | MIL-STD-750D METHOD-1051.7 |
| 10 | Thermal Shock Test | 0°C for 5 minutes., 100°C for 5minutes, Total: 10 cycles | MIL-STD-750D METHOD-1056.7 |
| 11 | Forward Surge Test | 8.3ms Single Sale Sine-wave One Surge. | MIL-STD-750D METHOD-4066.4 |
| 12 | Humidity Test | TA=65°C, RH=98% for 1000 hours. | MIL-STD-750D METHOD-1021.3 |
| 13 | High Temperature Storage life Test | 150°C for 1000 Hours | MIL-STD-750D METHOD-1031.5 |

SMD TRANSIENT VOLTAGE SUPPRESSORS DO-218AB SERIES

SUGGESTED REFLOW PROFILE (For Reference Only)



| | | |
|--|----------------------------------|-------------------|
| Profile Feature | | Pb-Free Assembly |
| Average Ramp-up Rate (Ts Max to Tp) | | 3°C/second Max |
| Preheat | Temperature Min (Ts Min.) | 150°C |
| | Temperature Max (Ts Max.) | 200°C |
| | Time (ts Min. to ts Max.) | 60 ~ 180 seconds |
| Time maintained above | Temperature (Tl) | 217°C |
| | Time (tl) | 60 ~ 150 seconds |
| Peak/Classification Temperature (Tp) | | 260 °C |
| Time within 5°C of actual Peak Temperature (tp) | | 20 ~ 40 seconds |
| Ramp-down rate | | 6 °C /Second Max. |
| Time 25 °C to Peak Temperature | | 6 minutes Max. |
| Suggest reflow times | | 3 Times Max. |

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RATINGS AND CHARACTERISTIC CURVES (For Reference Only)

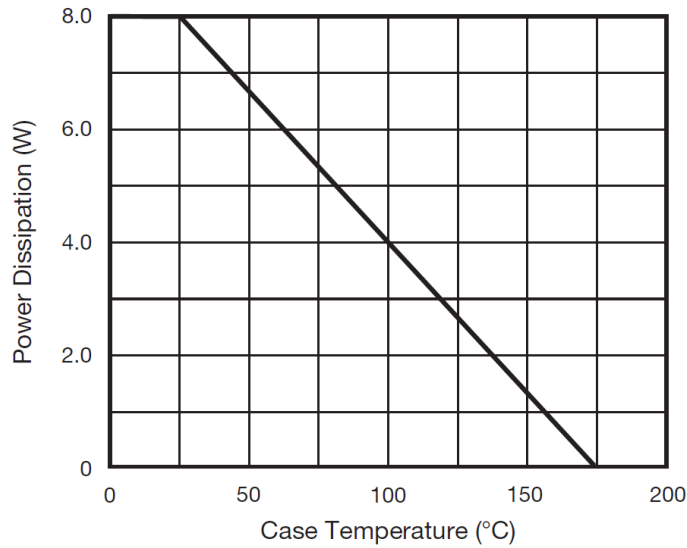


Fig. 1 - Power Derating Curve

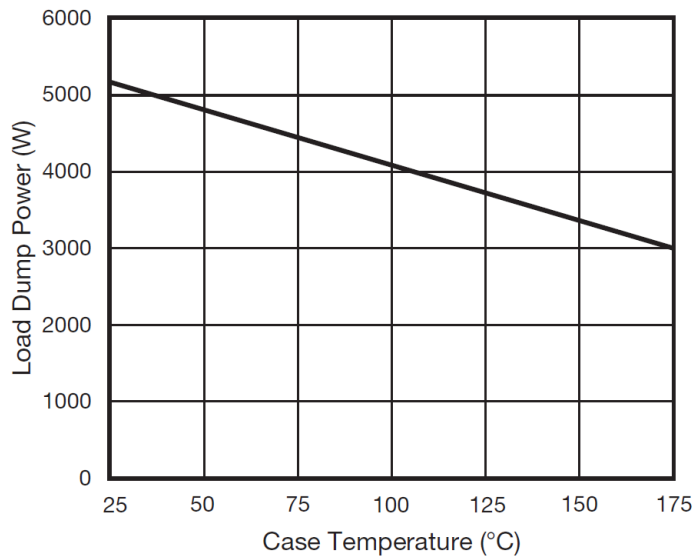


Fig. 2 - Load Dump Power Characteristics
(10 ms Exponential Waveform)

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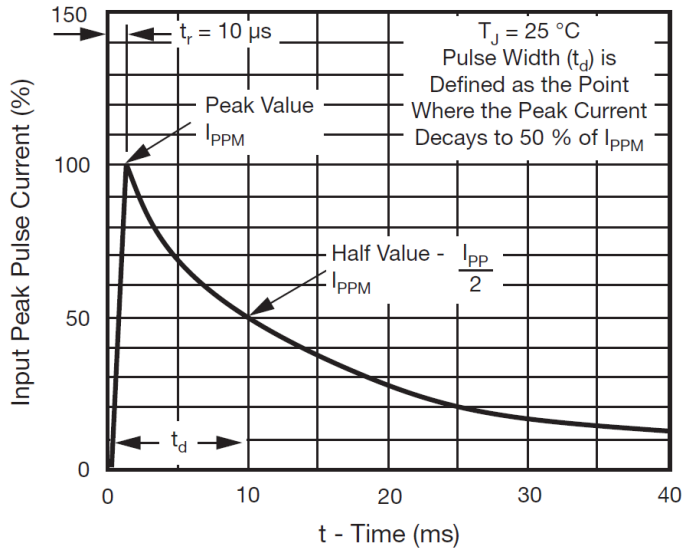


Fig. 3 - Pulse Waveform

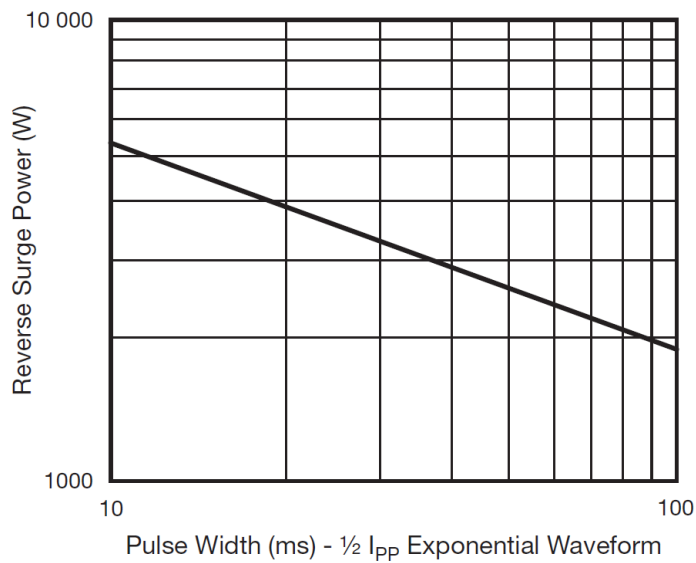


Fig. 4 - Reverse Power Capability

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RATINGS AND CHARACTERISTIC CURVES (For Reference Only)

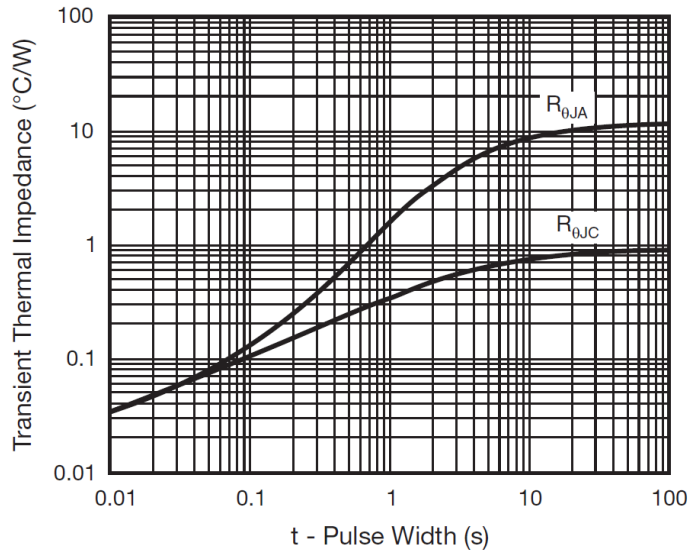


Fig. 5 - Typical Transient Thermal Impedance

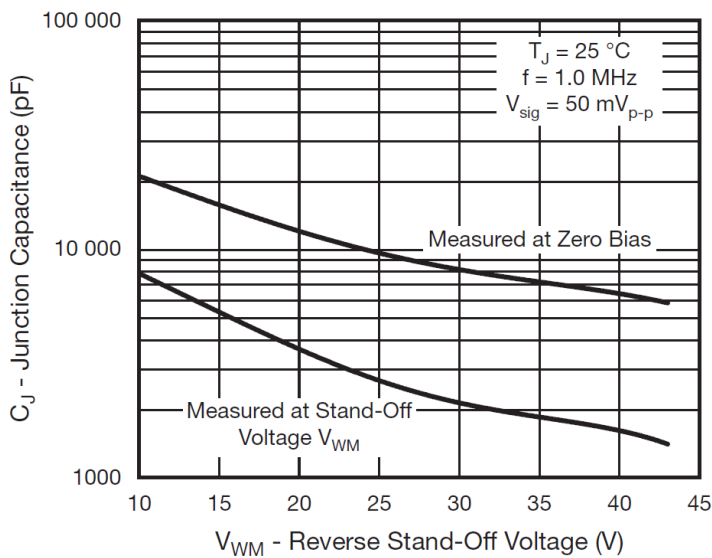


Fig. 6 - Typical Junction Capacitance

SMD TRANSIENT VOLTAGE SUPPRESSORS DO-218AB SERIES

TAPE/REEL (Unit: mm)

All Devices are packed in accordance with EIA standard RS-481-A and specifications. 750pcs/Reel



| Item | Symbol | Tolerance | DO-218AB |
|--------------------------|--------|-----------|------------|
| Carrier width | A | +/-0.30 | 10.80 |
| Carrier Length | B | +/-0.30 | 16.13 |
| Carrier Depth | C | +/-0.20 | 6.00 |
| Sprocket hole | d | +/-0.20 | 1.55 |
| 13"Reel outside diameter | D | +/-0.30 | 330.00 |
| 13"Reel inner diameter | D1 | - | 50.0 Min. |
| Feed hole diameter | D2 | - | 20.2 Min. |
| Sprocket hole position | E | +/-0.2 | 1.75 |
| Punch hole position | F | +/-0.20 | 11.50 |
| Punch hole pitch | P | +/-0.20 | 16.0 |
| Sprocket hole pitch | P0 | +/-0.20 | 4.00 |
| Embossment center | P1 | +/-0.20 | 2.00 |
| Overall tape thickness | T | - | - |
| Tape width | W | +/-0.20 | 24.00 |
| Reel width | W1 | - | 30.40 Max. |

SMD TRANSIENT VOLTAGE SUPPRESSORS DO-218AB SERIES

PACKAGE for reference

| Case Code | DO- 218AB |
|-----------|-----------|
| Reel Size | 13" |
| Reel Size | 330 mm |
| MPQ/Reel | 750 pcs |
| Qty. /Box | 1500 pcs |
| G.W/Box | 5.5 kgs |

DISCLAIMER

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