




SPECIFICATION SHEET

| | | |
|---|---|--|
| SPECIFICATION SHEET NO. | Q1030-1SMA4767AS767A | |
| DATE | Oct. 30, 2023 | |
| REVISION | A0 | Updated With Most Recent Data - Official First Release |
| DESCRIPTION AND MAIN PARAMETRICS | <p>SMD Zener Diodes, DO-214AC/SMA, 1SMA series, 1SMA4767A Type, 2 Pads Voltage - Zener (Nom) (Vz): 135V, Peak Pulse Power: 1.0 Watts Operating Temp. Range -55°C ~+150°C Package in Tape/Reel, 5000pcs/Reel RoHS III/REACH Compliant and Halogen Free (HF)</p> | |
| CUSTOMER | | |
| CUSTOMER PART NO. | | |
| CROSS REF. PART NO. | | |
| ORIGINAL MFG/PART NO. | MDD/1SMA4767A | |
| PART CODE | 1SMA4767AS767A | |

| | | | |
|-------------------------|---|--|---|
| VENDOR APPROVE | | | |
| Issued/Checked/Approved |  |  |  |
| DATE: Oct. 30, 2023 | | | |

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

SMD ZENER DIODES 1SMA SERIES

MAIN FEATURE

- Low Profile Package
- Built-in Strain Relief
- Glass Passivated Junction
- Low Inductance
- 1.0W Peak Pulse Power
- Typical IR Less Than 5.0μA Above 11V
- High Temperature Soldering Guaranteed: 260°C/10 Seconds At Terminals
- Plastic Package Has Underwriters Laboratory Flammability 94V-0
- REACH/RoHS III Complaint and Halogen Free
- Cross Main Competitor Parts in Market



APPLICATION

- For SMD application

RFQ

[Request For Quotation](#)

PART CODE GUIDE

| 1SMA | 4767A | S | 767A |
|------|-------|---|------|
| 1 | 2 | 3 | 4 |

1. 1SMA: SMD Zener SERIES Diodes, Package Case DO-214AC/SMA, 1SMA series
2. 4767A: Specification code for Voltage - Zener (Nom) (Vz): 135V
3. S: Package code, Tape/Reel
4. 767A: Marking code for “767A” on the case surface, Different Marking for different specification

ELECTRICAL CHARACTERISTICS

See Page 5 ~ Page 7 For Different Part Code

HOW TO ORDER

Please indicate part code and send us your RFQ by E-mail, sales@nextgencomponent.com

SMD ZENER DIODES 1SMA SERIES

DIMENSION - Unit: Inch/mm

Image for reference

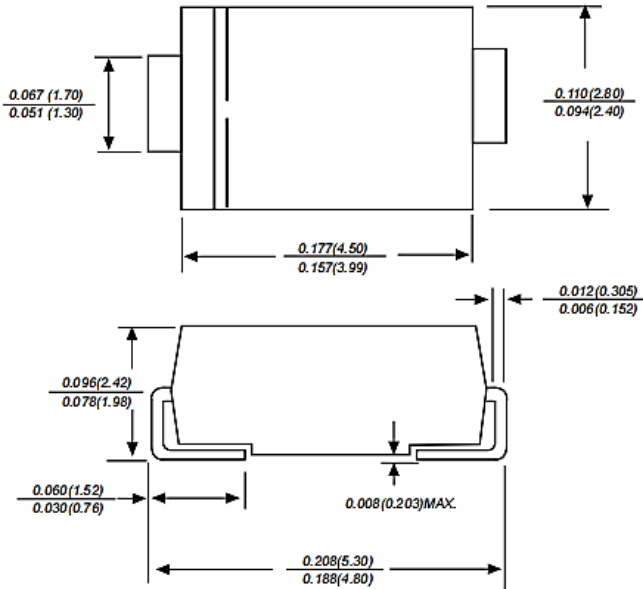


Marking: Standard

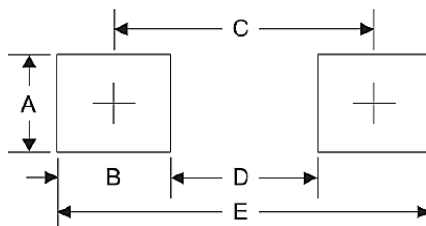
* See Marking Code List

page 5~ Page 7

Case Dimension:
SMA/DO-214AC



Recommend Pad Layout



| Symbol | Unit (Inch) | Unit (mm) |
|--------|-------------|-----------|
| A | 0.066 | 1.680 |
| B | 0.060 | 1.520 |
| C | 0.154 | 3.900 |
| D | 0.095 | 2.410 |
| E | 0.215 | 5.450 |

SMD ZENER DIODES 1SMA SERIES
MECHANICAL DATA

| Case | Terminals | Polarity | Mounting Position | Marking | Weight per piece |
|--|---|---------------------------------|-------------------|--|------------------------------|
| JEDEC SMA/DO-214AC molded plastic body | Solderable per MIL-STD-750, Method 2026 | Polarity symbol marking on body | ANY | See Marking Code List (Page 5~Page 7) | 0.0019 ounce, 0.055 grams |

MAX. RATING & CHARACTERISTICS - Ratings at 25°C Ambient Temperature Unless Otherwise Specified.

| Parameter | SYMBOLS | VALUE | UNITS |
|---|---------|------------|-------|
| Peak Pulse Power Dissipation at TA=50°C | P D | 1.0 | W |
| Derate above 50°C (Note 1) | | 6.67 | mW/°C |
| Peak Forward Surge Current, 8.3ms Single Half Sine-wave Superimposed On Rated Load, (JEDEC Method) (Note 2) | I FSM | 10.0 | A |
| Forward Voltage @ I FSM | V F | 1.2 | V |
| Operating Junction Temperature Range | T J | -55 ~ +150 | °C |
| Storage Temperature Range | T stg | -55 ~ +150 | °C |

Notes

1. Mounted on 5.0mm² (0.013mm thick) land Area.
2. Measured on 8.3ms Single Half Sine Wave Or Equivalent Square Wave, Duty Cycle=4 Pulses Per Minute Max.

SMD ZENER DIODES 1SMA SERIES
ELECTRICAL CHARACTERISTICS UNIDIRECTIONAL TYPE - Ta = 25°C

| Part Code | Zener Voltage Range (See Note 1) V _{ZT} @ I _{ZT} (V) | | | Test Current I _{ZT} (mA) | Dynamic Impedance Max. Z _{ZT} @ I _{ZT} (Ω) | Reverse Current | | Admissible Zener Current I _{ZM} (mA) | Marking Code |
|----------------|---|-----|------|---|---|-----------------------------|-------------------------|---|--------------|
| | Min. | Nom | Max. | | | Max. I _R (μA) | @ V _R (V) | | |
| 1SMA4728AS728A | 3.1 | 3.3 | 3.5 | 75 | 10 | 100 | 1 | 285 | 728A |
| 1SMA4729AS729A | 3.4 | 3.6 | 3.8 | 69 | 10 | 100 | 1 | 263 | 729A |
| 1SMA4730AS730A | 3.7 | 3.9 | 4.1 | 64 | 9 | 50 | 1 | 243 | 730A |
| 1SMA4731AS731A | 4.06 | 4.3 | 4.56 | 58 | 9 | 25 | 1 | 219 | 731A |
| 1SMA4732AS732A | 4.5 | 4.7 | 4.93 | 53 | 8 | 10 | 1 | 203 | 732A |
| 1SMA4733AS733A | 4.84 | 5.1 | 5.36 | 49 | 7 | 10 | 1 | 186 | 733A |
| 1SMA4734AS734A | 5.32 | 5.6 | 5.92 | 45 | 5 | 10 | 2 | 170 | 734A |
| 1SMA4735AS735A | 5.86 | 6.2 | 6.51 | 41 | 2 | 10 | 3 | 154 | 735A |
| 1SMA4736AS736A | 6.46 | 6.8 | 7.18 | 37 | 3.5 | 10 | 4 | 140 | 736A |
| 1SMA4737AS737A | 7.12 | 7.5 | 7.88 | 34 | 4 | 10 | 5 | 127 | 737A |
| 1SMA4738AS738A | 7.79 | 8.2 | 8.67 | 31 | 4.5 | 10 | 6 | 116 | 738A |
| 1SMA4739AS739A | 8.6 | 9.1 | 9.59 | 28 | 5 | 10 | 7 | 104 | 739A |
| 1SMA4740AS740A | 9.5 | 10 | 10.5 | 25 | 7 | 10 | 7 | 95 | 740A |
| 1SMA4741AS741A | 10.4 | 11 | 11.6 | 23 | 8 | 5 | 8 | 86 | 741A |
| 1SMA4742AS742A | 11.4 | 12 | 12.6 | 21 | 9 | 5 | 9 | 79 | 742A |
| 1SMA4743AS743A | 12.4 | 13 | 14.1 | 19 | 10 | 5 | 10 | 71 | 743A |
| 1SMA4744AS744A | 13.8 | 15 | 15.8 | 17 | 14 | 5 | 11 | 63 | 744A |
| 1SMA4745AS745A | 15.2 | 16 | 17.1 | 16 | 16 | 5 | 12 | 58 | 745A |
| 1SMA4746AS746A | 16.8 | 18 | 19.2 | 14 | 20 | 5 | 13 | 52 | 746A |
| 1SMA4747AS747A | 19 | 20 | 21.2 | 13 | 22 | 5 | 15 | 47 | 747A |
| 1SMA4748AS748A | 20.8 | 22 | 23.3 | 12 | 23 | 5 | 17 | 43 | 748A |

SMD ZENER DIODES 1SMA SERIES
ELECTRICAL CHARACTERISTICS UNIDIRECTIONAL TYPE - Ta = 25°C

| Part Code | Zener Voltage Range (See Note 1) V _{ZT} @ I _{ZT} (V) | | | Test Current I _{ZT} (mA) | Dynamic Impedance Max. Z _{ZT} @ I _{ZT} (Ω) | Reverse Current | | Admissible Zener Current I _{ZM} (mA) | Marking Code |
|-----------------------|---|------------|------------|---|---|-----------------------------|-------------------------|---|--------------|
| | Min. | Nom | Max. | | | Max. I _R (μA) | @ V _R (V) | | |
| 1SMA4749AS749A | 22.8 | 24 | 26 | 11 | 25 | 5 | 18 | 38 | 749A |
| 1SMA4750AS750A | 25.3 | 27 | 28.9 | 9.5 | 35 | 5 | 21 | 35 | 750A |
| 1SMA4751AS751A | 28.2 | 30 | 32 | 8.5 | 40 | 5 | 23 | 31 | 751A |
| 1SMA4752AS752A | 31.3 | 33 | 34.9 | 7.5 | 45 | 5 | 25 | 28 | 752A |
| 1SMA4753AS753A | 34.2 | 36 | 37.9 | 7 | 50 | 5 | 27 | 26 | 753A |
| 1SMA4754AS754A | 37.2 | 39 | 41.5 | 6.5 | 60 | 5 | 30 | 24 | 754A |
| 1SMA4755AS755A | 40.9 | 43 | 45.6 | 6 | 70 | 1 | 32 | 22 | 755A |
| 1SMA4756AS756A | 44.9 | 47 | 49.8 | 5.5 | 80 | 1 | 35 | 20 | 756A |
| 1SMA4757AS757A | 48.6 | 51 | 54 | 5 | 95 | 1 | 38 | 18 | 757A |
| 1SMA4758AS758A | 53.6 | 56 | 58.8 | 4.5 | 110 | 1 | 42 | 17 | 758A |
| 1SMA4759AS759A | 58.9 | 62 | 65.6 | 4 | 125 | 1 | 47 | 15 | 759A |
| 1SMA4760AS760A | 64.6 | 68 | 71.7 | 3.7 | 150 | 1 | 52 | 14 | 760A |
| 1SMA4761AS761A | 71.2 | 75 | 78.8 | 3.3 | 175 | 1 | 56 | 12 | 761A |
| 1SMA4762AS762A | 77.9 | 82 | 87 | 3 | 200 | 1 | 62 | 11 | 762A |
| 1SMA4763AS763A | 86 | 91 | 96 | 2.8 | 250 | 1 | 69 | 10 | 763A |
| 1SMA4764AS764A | 95 | 100 | 105 | 2.5 | 350 | 1 | 76 | 9.5 | 764A |
| 1SMA4765AS765A | 104 | 110 | 116 | 2.3 | 450 | 1 | 84 | 8.6 | 765A |
| 1SMA4766AS766A | 114 | 120 | 127 | 2 | 550 | 1 | 91 | 7.8 | 766A |
| 1SMA4767AS767A | 125 | 135 | 142 | 1.9 | 700 | 1 | 100 | 7 | 767A |
| 1SMA4768AS768A | 140 | 150 | 157 | 1.7 | 900 | 1 | 110 | 6.3 | 768A |
| 1SMA4769AS769A | 155 | 165 | 172 | 1.6 | 1100 | 1 | 120 | 5.8 | 769A |

SMD ZENER DIODES 1SMA SERIES
ELECTRICAL CHARACTERISTICS UNIDIRECTIONAL TYPE - Ta = 25°C

| Part Code | Zener Voltage Range (See Note 1) V _{ZT} @ I _{ZT} (V) | | | Test Current I _{ZT} (mA) | Dynamic Impedance Max. Z _{VT} @ I _{ZT} (Ω) | Reverse Current | | Admissible Zener Current I _{ZM} (mA) | Marking Code |
|----------------|---|-----|------|---|---|-----------------------------|-------------------------|---|--------------|
| | Min. | Nom | Max. | | | Max. I _R (μA) | @ V _R (V) | | |
| 1SMA4770AS770A | 170 | 180 | 191 | 1.4 | 1200 | 1 | 135 | 5.2 | 770A |
| 1SMA4771AS771A | 189 | 200 | 211 | 1.2 | 1400 | 1 | 150 | 4.7 | 771A |
| 1SMA4772AS772A | 209 | 220 | 231 | 1 | 1600 | 1 | 165 | 4.3 | 772A |
| 1SMA4773AS773A | 229 | 240 | 251 | 1 | 1800 | 1 | 180 | 3.9 | 773A |
| 1SMA4774AS774A | 249 | 260 | 271 | 1 | 2000 | 1 | 190 | 3.7 | 774A |
| 1SMA4775AS775A | 269 | 280 | 291 | 1 | 2100 | 1 | 205 | 3.4 | 775A |
| 1SMA4776AS776A | 289 | 300 | 315 | 1 | 2300 | 1 | 230 | 3.1 | 776A |
| 1SMA4777AS777A | 313 | 330 | 346 | 1 | 2500 | 1 | 250 | 2.8 | 777A |

Notes 1: V_{ZT} is tested with pulses (20 ms)

SMD ZENER DIODES 1SMA SERIES

RATINGS AND CHARACTERISTIC CURVES (For Reference Only) - $T_a = 25^\circ\text{C}$ Unless Otherwise Specified

Figure 1. Power Temperature Derating Curve

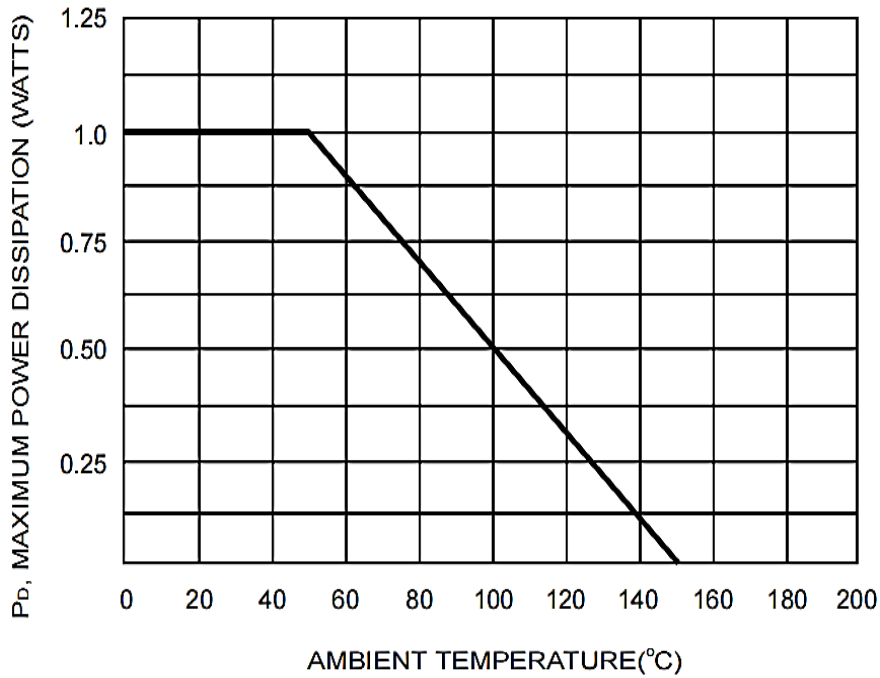
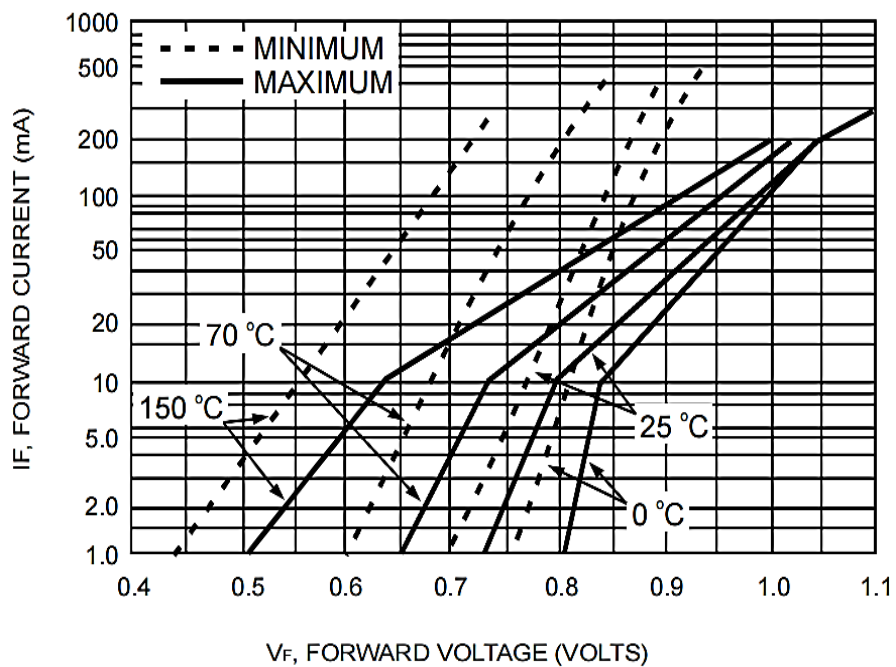


Figure 2. Typical Forward Characteristics Curve



SMD ZENER DIODES 1SMA SERIES

RATINGS AND CHARACTERISTIC CURVES (For Reference Only) - $T_a = 25^\circ\text{C}$ Unless Otherwise Specified

Figure 3. Effect Of Zener Current On Zener Impedance Curve

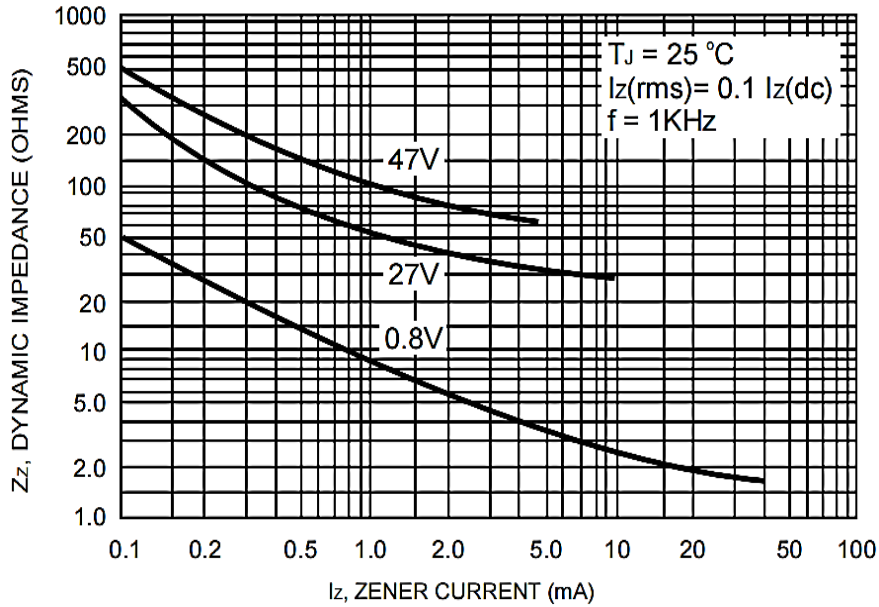
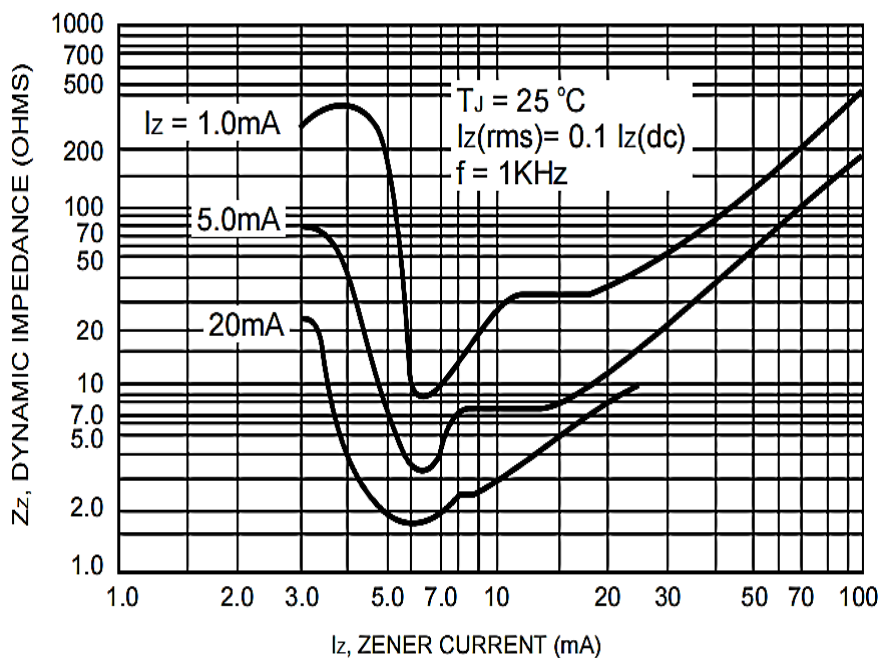


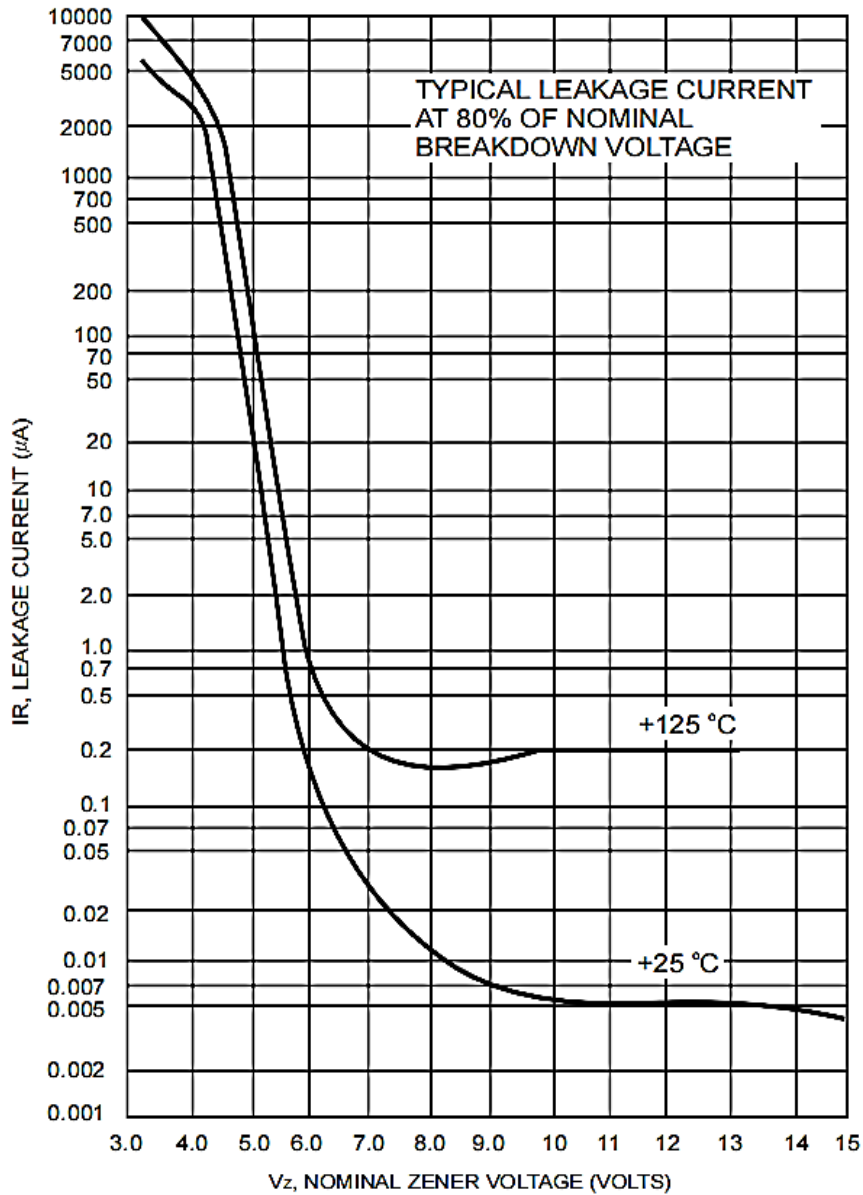
Figure 4. - Effect Of Zener Voltage On Zener Impedance Curve



SMD ZENER DIODES 1SMA SERIES

RATINGS AND CHARACTERISTIC CURVES (For Reference Only) - Ta= 25°C Unless Otherwise Specified

Figure 5. Typical Leakage Current Curve



RATINGS AND CHARACTERISTIC CURVES (For Reference Only) - $T_a = 25^\circ\text{C}$ Unless Otherwise Specified

Figure 6. Typical Capacitance versus V_z Curve

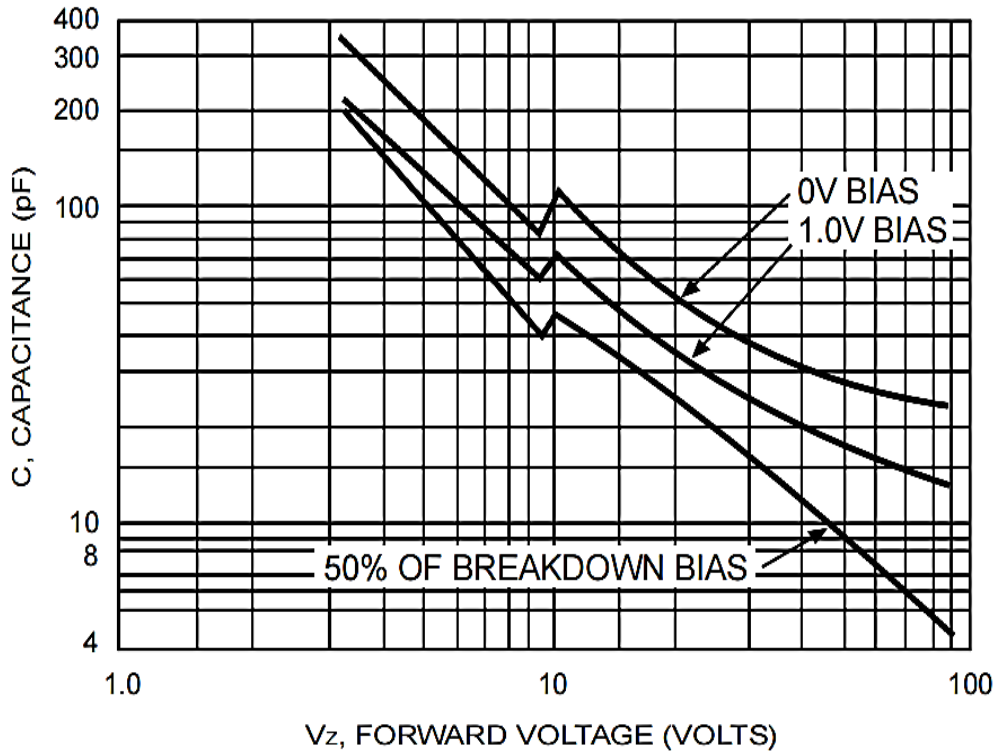
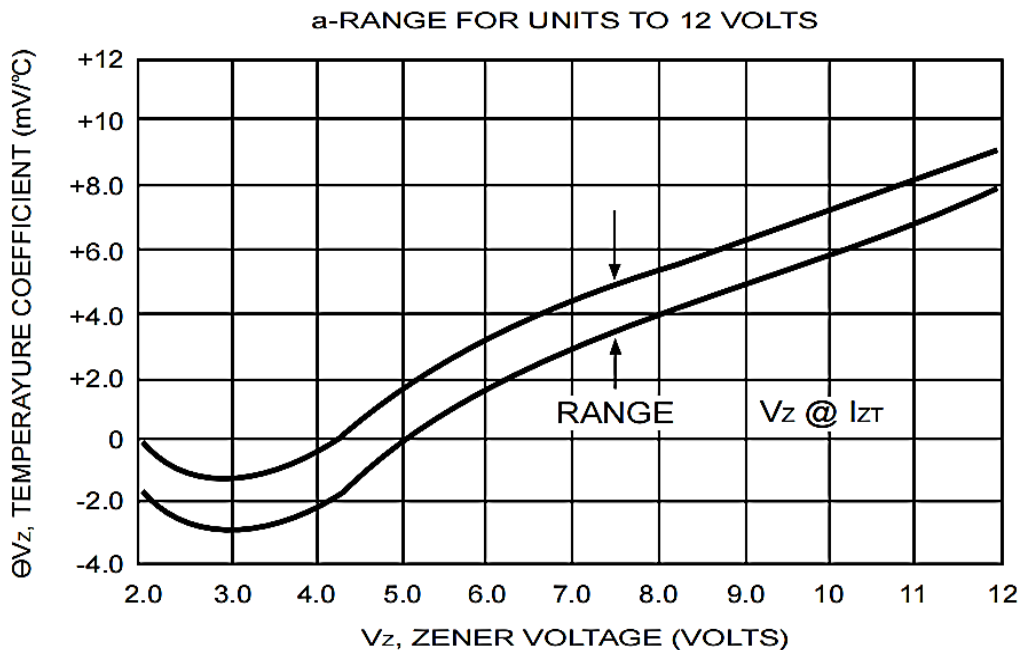


Figure 7. Temperature Coefficients Curve



SMD ZENER DIODES 1SMA SERIES

RATINGS AND CHARACTERISTIC CURVES (For Reference Only) - $T_a = 25^\circ\text{C}$ Unless Otherwise Specified

Figure 8. Temperature Coefficients Curve

b-RANGE FOR UNITS 12 TO 100 VOLTS

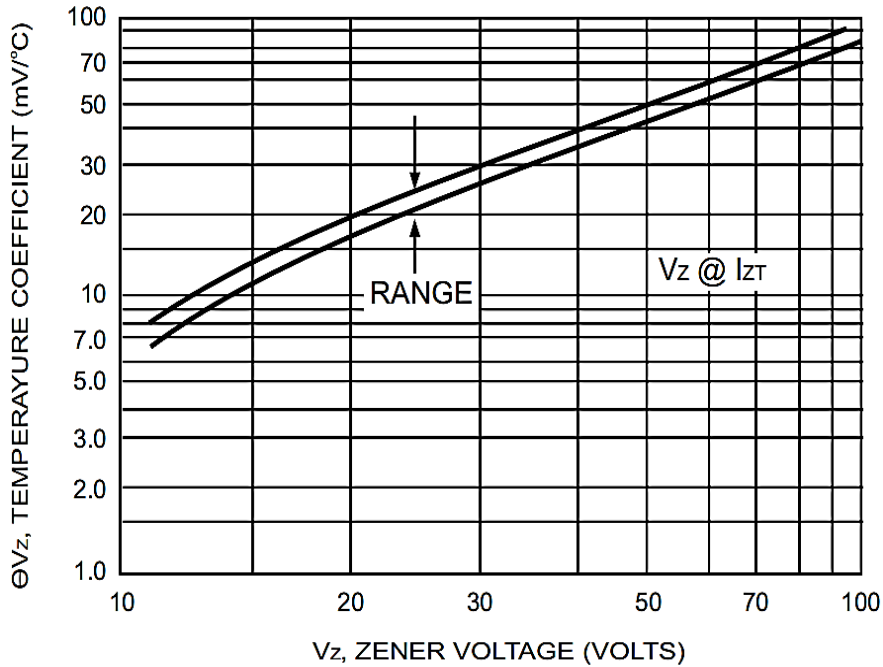
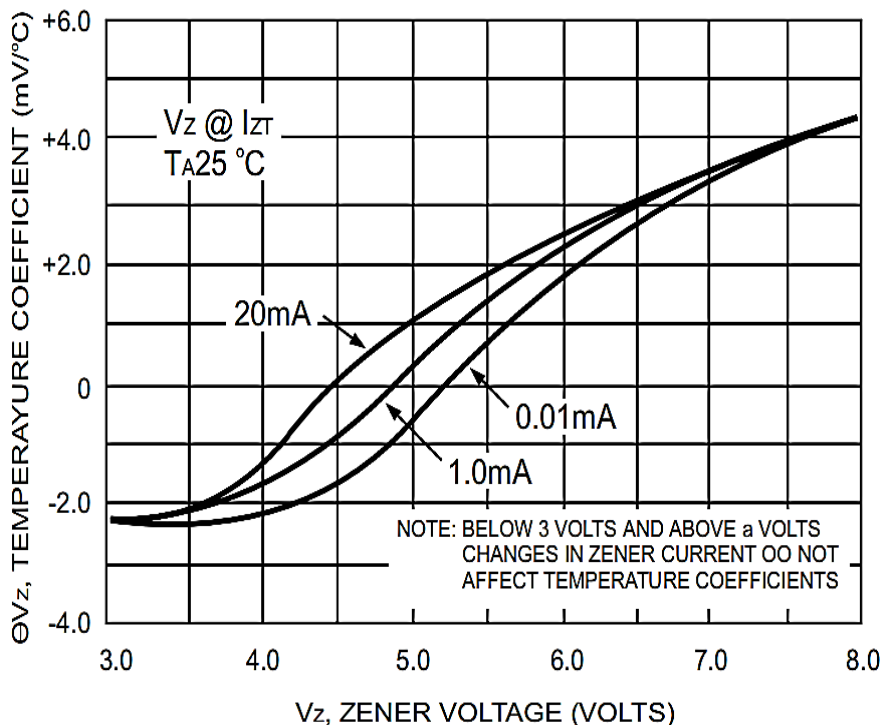


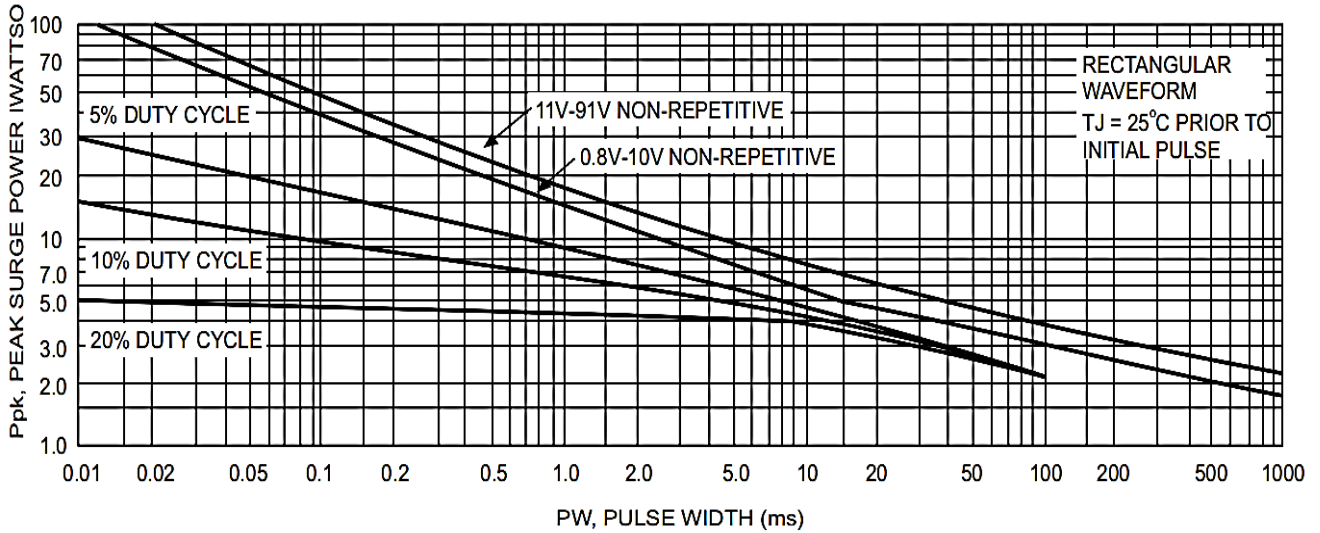
Figure 9. Effect Of Zener Current Curve



SMD ZENER DIODES 1SMA SERIES

RATINGS AND CHARACTERISTIC CURVES (For Reference Only) - $T_a = 25^\circ\text{C}$ Unless Otherwise Specified

Figure 10. Maximum Surge Power Curve



SMD ZENER DIODES 1SMA 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 ZENER DIODES 1SMA SERIES

SUGGESTED REFLOW PROFILE - For Reference Only

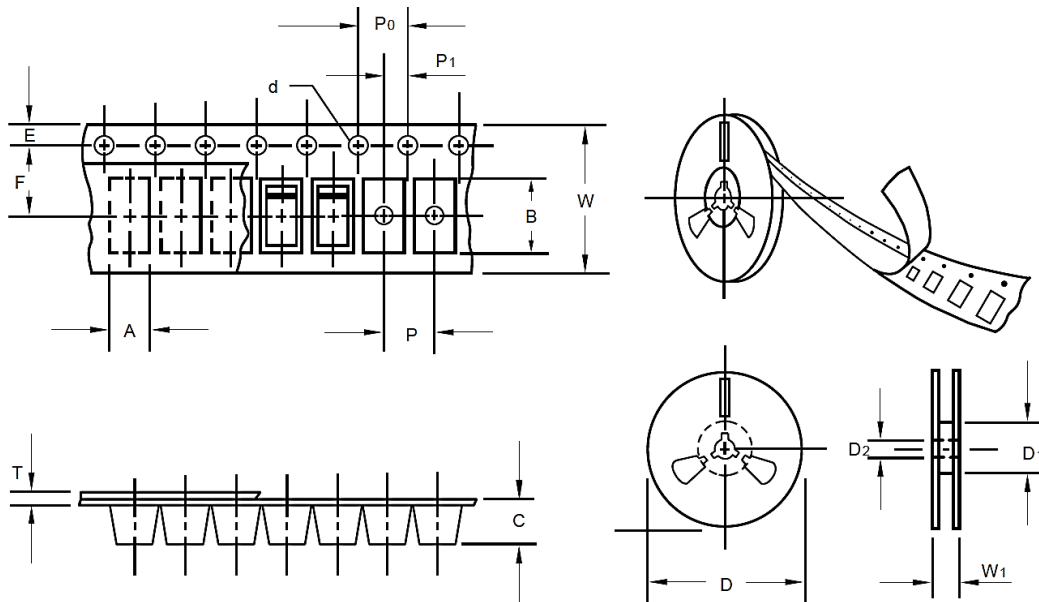


| Profile Feature | | Pb-Free Assembly |
|---|---------------------------|-------------------|
| Average Ramp-up Rate (Ts Max to Tp) | | 3°C/second Max |
| Preheat | Temperature Min (Ts Min.) | 150°C |
| | Temperature Max (Ts Max.) | 200°C |
| | Time (ts Min. to ts Max.) | 60 ~ 180 seconds |
| Time maintained 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 | | 8 minutes Max. |
| Suggest reflow times | | 3 Times Max. |

SMD ZENER DIODES 1SMA SERIES

TAPE/REEL (Unit: mm)

All Devices are packed in accordance with EIA standard RS-481-A and Tape 12mm, Component Spacing 4.0mm



| Item | Symbol | Tolerance | SMA/DO-214AC |
|--------------------------|--------|-----------|--------------|
| Carrier width | A | 0.1 | 2.8 |
| Carrier Length | B | 0.1 | 5.33 |
| Carrier Depth | C | 0.1 | 2.36 |
| Sprocket hole | d | 0.05 | 1.50 |
| 13"Reel outside diameter | D | 2.0 | 330.0 |
| 13"Reel inner diameter | D1 | - | 50.0Min. |
| 7"Reel outside diameter | D | - | - |
| 7"Reel inner diameter | D1 | - | - |
| Feed hole diameter | D2 | 0.5 | 13.00 |
| Sprocket hole position | E | 0.1 | 1.75 |
| Punch hole position | F | 0.1 | 5.50 |
| Punch hole pitch | P | 0.1 | 4.00 |
| Sprocket hole pitch | P0 | 0.1 | 4.00 |
| Embossment center | P1 | 0.1 | 2.0 |
| Overall tape thickness | T | 0.1 | 0.28 |
| Tape width | W | 0.3 | 12.00 |
| Reel width | W1 | 1.0 | 18.0 |

ROHS COMPLIANCE

- The levels of RoHS restricted materials in this product are below the maximum concentration values (also referred to as the threshold limits) permitted for such substances, or are used in an exempted application, in accordance with EU RoHS Directive (EU) 2015/863 EC (RoHS3). [RoHS Test Report](#) for this product can be obtained after clicked.

REACH COMPLIANCE

- REACH substances of high concern (SVHCs) information is available for this product. Since the European Chemical Agency (ECHA) has published notice of their intent to frequently revise the SVHC listing for the foreseeable future, [REACH Test Report](#) for this product can be obtained after clicked.

IMPORTANT NOTES AND DISCLAIMER

1. All Product parametric performance is indicated in the Electrical Characteristics for the listed herein test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.
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