NextGen Components,Inc.

# PART CODE: MMSZ5250BS00J5

## SPECIFICATION SHEET

| | | |
|---|---|---|
| **SPECIFICATION SHEET NO.** | Q1226-MMSZ5250BS00J5 | |
| **DATE** | Dec. 26, 2023 | |
| **REVISION** | A0 | Updated With Most Recent Data - Official First Release |
| **DESCRIPTION AND MAIN PARAMETRICS** | SMD Zener Diodes, MMSZ series, Case SOD-123, 2 Pads<br>MMSZ5250B Type,<br>Voltage - Zener (Nom) (Vz): 20V, Power Dissipation: 0.5 Watts<br>Junction temperature: +150°C<br>Package in Tape/Reel, 3000pcs/Reel<br>RoHS/RoHS III compliant, RoHS Annex III lead Exemption<br>(Exempt per RoHS EU 2015/863) | |
| **CUSTOMER** | | |
| **CUSTOMER PART NO.** | | |
| **CROSS REF. PART NO.** | | |
| **ORIGINAL MFG/PART NO.** | MDD Diodes/MMSZ5250B | |
| **PART CODE** | MMSZ5250BS00J5 | |

| **VENDOR APPROVE** |
|---|
| Issued/Checked/Approved       |
| DATE: Dec. 26, 2023 |

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

NextGen Components,Inc.

PART CODE: **MMSZ5250BS00J5**

# SMD ZENER DIODES CASE SOD-123 MMSZ SERIES

## MAIN FEATURE

- Small Plastic Package Suitable For Surface Mounted Design.
- Wide Zener Reverse Voltage Range 2.4V To 43V.
- Glass Passivated Junction
- Tolerance Approximately ±5%
- 0.5W Max. Peak Pulse Power
- High Temperature Soldering Guaranteed: 260℃/10 Seconds At Terminals
- RoHS/RoHS III compliant, RoHS Annex III lead Exemption (Exempt per RoHS EU 2015/863)
- Cross Main Competitor Parts In Market

## APPLICATION

- For SMD Application

## PART CODE GUIDE

RFQ
Request For Quotation

| MMSZ | 5250B | S | 00J5 |
|---|---|---|---|
| 1 | 2 | 3 | 4 |

1. MMSZ: SMD Zener Diodes, MMSZ series Code, Package Case SOD-123
2. 5250B: Specification code for Voltage - Zener (Nom) (Vz): 20V
3. S: Package Code, Tape/Reel
4. 00J5: Internal Control Code Or Special Parameters Code, Letter A~Z Or Digits (1-9); Blank: N/A

## ELECTRICAL CHARACTERISTICS

See Page 5 ~ Page 6 For Different Part Code

## HOW TO ORDER

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

# SMD ZENER DIODES CASE SOD-123 MMSZ SERIES

**DIMENSION** - Unit: Inch/mm

**Image for reference**

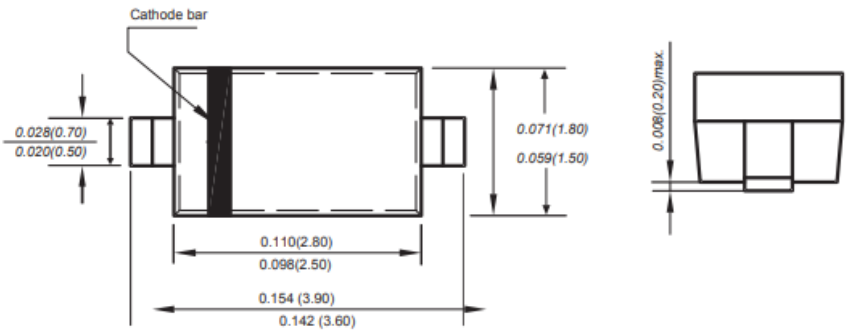
**Marking:** Standard

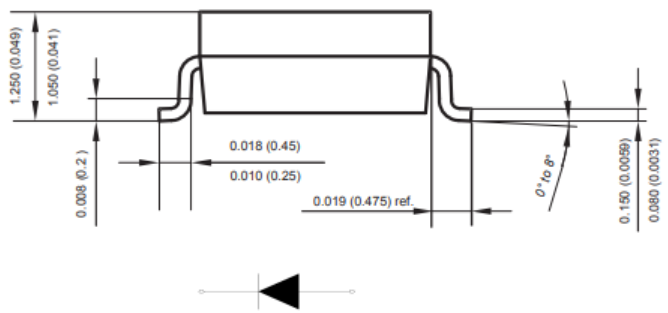
- See Marking Code

List at Page 5~ Page 6

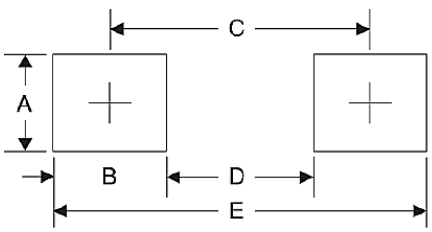
**Case Dimension:**

SOD-123




**Recommend Pad Layout**




| SYMBOL | UNIT (INCH) | UNIT (MM) |
|---|---|---|
| A | 0.047 | 1.20 |
| B | 0.047 | 1.20 |
| C | 0.126 | 3.20 |
| D | 0.079 | 2.00 |
| E | 0.173 | 4.40 |

# SMD ZENER DIODES CASE SOD-123 MMSZ SERIES

## MECHANICAL DATA

| CASE | TERMINALS | POLARITY | MOUNTING POSITION | MARKING | WEIGHT PER PIECE |
|---|---|---|---|---|---|
| JEDEC SOD-123 molded plastic body | Solderable per MIL-STD-750, Method 2026 | Polarity symbol marking on body | ANY | See Marking Code List (Page 5~Page 6) | 0.00056 ounce 0.016 grams |

## MAX. RATING & CHARACTERISTICS - Ratings at 25℃ Ambient Temperature Unless Otherwise Specified.

| PARAMETER | SYMBOLS | VALUE | UNITS |
|---|---|---|---|
| Forward Voltage @ $I_F$=10mA | $V_F$ | 0.9 | V |
| Power Dissipation | $P_d$ | 0.5 | W |
| Thermal resistance, junction to ambient air | $R_{\theta JA}$ | 350 | °C/W |
| Junction Temperature | $T_J$ | +150 | °C |
| Storage Temperature Range | $T_{stg}$ | -65 ~ +150 | °C |

Notes

1. Device mounted on ceramic PCB; 7.6 mm x 9.4 mm x 0.87 mm with pad areas 25 $mm^2$ .

2. Tested with pulses, Tp ≤1.0ms.

# SMD ZENER DIODES CASE SOD-123 MMSZ SERIES

**ELECTRICAL CHARACTERISTICS** - Ta = 25℃

| Part Code | Zener Voltage Range Vz @ Izt | | | Test Current Izt (mA) | Max. Reverse Leakage Current | | Max. Zener Impedance | | Marking Code |
|---|---|---|---|---|---|---|---|---|---|
| | Nom. (V) | Min. (V) | Max. (V) | | Ir (μA) | @ Vr (V) | Zzt@ Izt (Ω) | Zzk@ Izk=0.25 mA (Ω) | |
| MMSZ5221BS00C1 | 2.4 | 2.28 | 2.52 | 20 | 100 | 1.0 | 30 | 1200 | C1 |
| MMSZ5223BS00C3 | 2.7 | 2.57 | 2.84 | 20 | 75 | 1.0 | 30 | 1300 | C3 |
| MMSZ5225BS00C5 | 3.0 | 2.85 | 3.15 | 20 | 50 | 1.0 | 30 | 1600 | C5 |
| MMSZ5226BS00G1 | 3.3 | 3.14 | 3.47 | 20 | 25 | 1.0 | 28 | 1600 | G1 |
| MMSZ5227BS00G2 | 3.6 | 3.42 | 3.78 | 20 | 15 | 1.0 | 24 | 1700 | G2 |
| MMSZ5228BS00G3 | 3.9 | 3.71 | 4.10 | 20 | 10 | 1.0 | 23 | 1900 | G3 |
| MMSZ5229BS00G4 | 4.3 | 4.09 | 4.52 | 20 | 5.0 | 1.0 | 22 | 2000 | G4 |
| MMSZ5230BS00G5 | 4.7 | 4.47 | 4.94 | 20 | 5.0 | 2.0 | 19 | 1900 | G5 |
| MMSZ5231BS00E1 | 5.1 | 4.85 | 5.36 | 20 | 5.0 | 2.0 | 17 | 1600 | E1 |
| MMSZ5232BS00E2 | 5.6 | 5.32 | 5.88 | 20 | 5.0 | 3.0 | 11 | 1600 | E2 |
| MMSZ5233BS00E3 | 6.0 | 5.70 | 6.30 | 20 | 5.0 | 3.5 | 7 | 1600 | E3 |
| MMSZ5234BS00E4 | 6.2 | 5.89 | 6.51 | 20 | 5.0 | 4.0 | 7 | 1000 | E4 |
| MMSZ5235BS00E5 | 6.8 | 6.46 | 7.14 | 20 | 3.0 | 5.0 | 5 | 750 | E5 |
| MMSZ5236BS00F1 | 7.5 | 7.13 | 7.88 | 20 | 3.0 | 6.0 | 6 | 500 | F1 |
| MMSZ5237BS00F2 | 8.2 | 7.79 | 8.61 | 20 | 3.0 | 6.5 | 8 | 500 | F2 |
| MMSZ5238BS00F3 | 8.7 | 8.27 | 9.14 | 20 | 3.0 | 6.5 | 8 | 600 | F3 |
| MMSZ5239BS00F4 | 9.1 | 8.65 | 9.56 | 20 | 3.0 | 7.0 | 10 | 600 | F4 |
| MMSZ5240BS00F5 | 10 | 9.50 | 10.50 | 20 | 3.0 | 8.0 | 17 | 600 | F5 |
| MMSZ5241BS00H1 | 11 | 10.45 | 11.55 | 20 | 2.0 | 8.4 | 22 | 600 | H1 |
| MMSZ5242BS00H2 | 12 | 11.40 | 12.60 | 20 | 1.0 | 9.1 | 30 | 600 | H2 |

# SMD ZENER DIODES CASE SOD-123 MMSZ SERIES

**ELECTRICAL CHARACTERISTICS** - Ta = 25℃

| Part Code | Zener Voltage Range Vz @ Izt | | | Test Current Izt (mA) | Max. Reverse Leakage Current | | Max. Zener Impedance | | Marking Code |
|---|---|---|---|---|---|---|---|---|---|
| | Nom. (V) | Min. (V) | Max. (V) | | Ir (μA) | @ Vr (V) | Zzt@ Izt (Ω) | Zzk@ Izk=0.25 mA (Ω) | |
| MMSZ5243BS00H3 | 13 | 12.35 | 13.65 | 9.5 | 0.5 | 9.9 | 13 | 600 | H3 |
| MMSZ5245BS00H5 | 15 | 14.25 | 15.75 | 8.5 | 0.1 | 11 | 16 | 600 | H5 |
| MMSZ5246BS00J1 | 16 | 15.20 | 16.80 | 7.8 | 0.1 | 12 | 17 | 600 | J1 |
| MMSZ5248BS00J3 | 18 | 17.10 | 18.90 | 7.0 | 0.1 | 14 | 21 | 600 | J3 |
| MMSZ5250BS00J5 | 20 | 19.00 | 21.00 | 6.2 | 0.1 | 15 | 25 | 600 | J5 |
| MMSZ5251BS00K1 | 22 | 20.90 | 23.10 | 5.6 | 0.1 | 17 | 29 | 600 | K1 |
| MMSZ5252BS00K2 | 24 | 22.80 | 25.20 | 5.2 | 0.1 | 18 | 33 | 600 | K2 |
| MMSZ5254BS00K4 | 27 | 25.65 | 28.35 | 5.0 | 0.1 | 21 | 41 | 600 | K4 |
| MMSZ5255BS00K5 | 28 | 26.60 | 29.40 | 4.5 | 0.1 | 21 | 44 | 600 | K5 |
| MMSZ5256BS00M1 | 30 | 28.50 | 31.5 | 4.2 | 0.1 | 23 | 49 | 600 | M1 |
| MMSZ5257BS00M2 | 33 | 31.35 | 34.65 | 3.8 | 0.1 | 25 | 58 | 700 | M2 |
| MMSZ5258BS00M3 | 36 | 34.20 | 37.80 | 3.4 | 0.1 | 27 | 70 | 700 | M3 |
| MMSZ5259BS00M4 | 39 | 37.05 | 40.95 | 3.2 | 0.1 | 30 | 80 | 800 | M4 |
| MMSZ5260BS00M5 | 43 | 40.85 | 45.15 | 3.0 | 0.1 | 33 | 93 | 900 | M5 |

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

Figure 1. Power Dissipation vs Ambient Temperature Curve

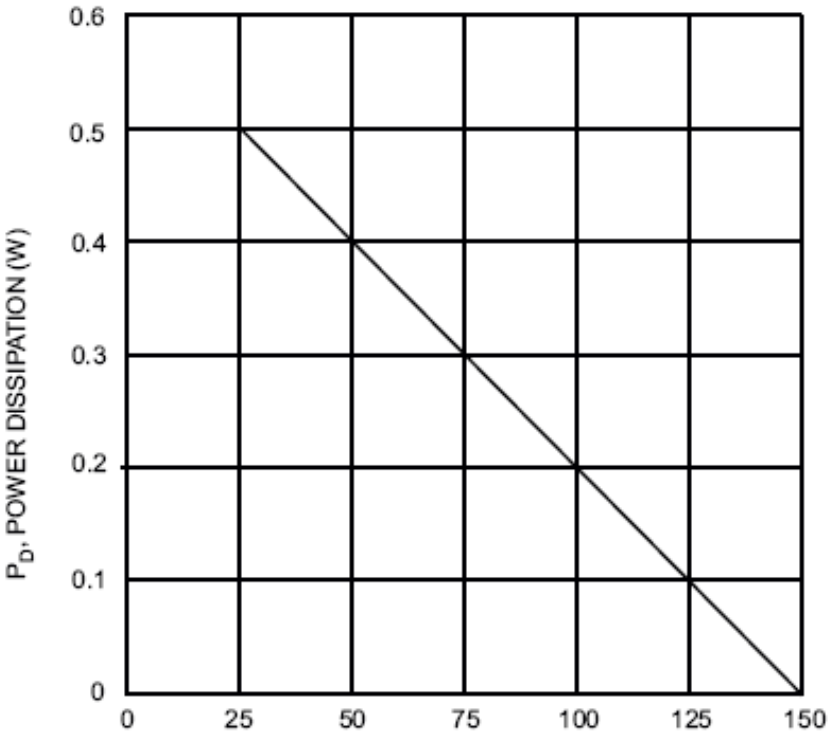
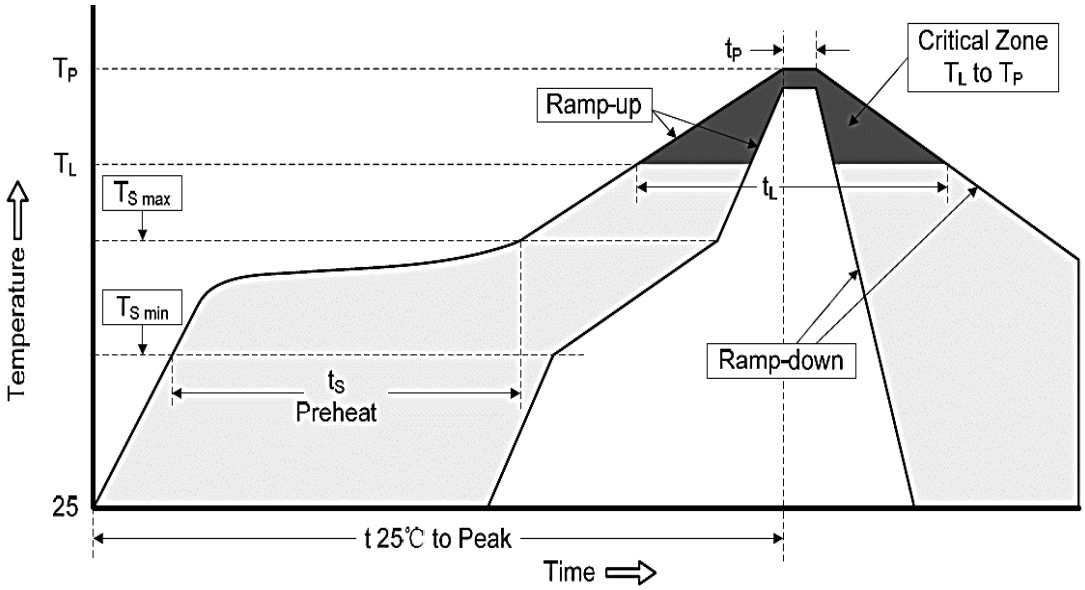



Fig. 1 Power Dissipation vs Ambient Temperature

**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 | $T_A$=100°C for 1000 Hours at $V_R$=80% Rated $V_R$ | 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, $T_A$=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 | $T_A$=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 |

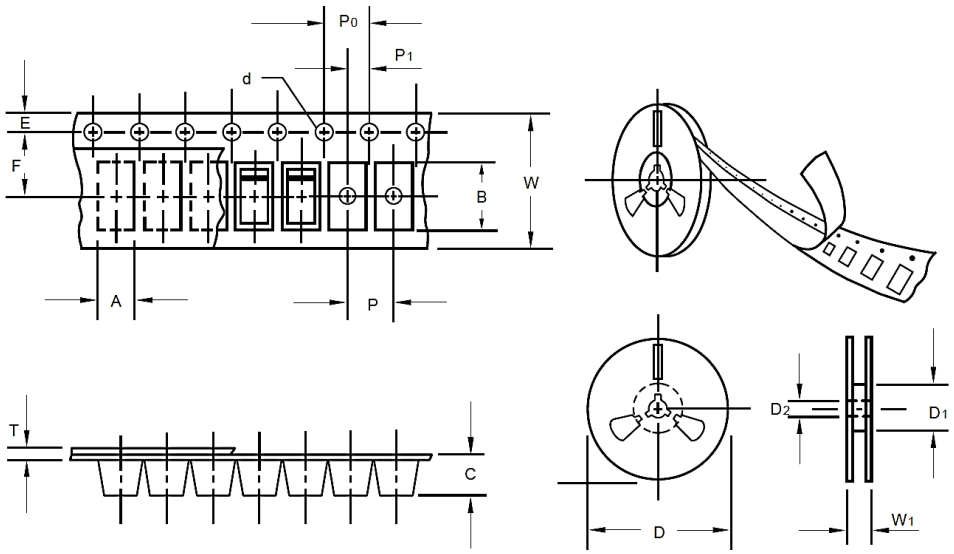
**SUGGESTED REFLOW PROFILE** - For Reference Only




| PROFILE FEATURE | | PB-FREE ASSEMBLY |
|---|---|---|
| Average Ramp-up Rate (Ts Max to Tp) | | 3℃/second Max |
| Preheat | Temperature Min (Ts Min.) | 150℃ |
| | Temperature Max (Ts Max.) | 200℃ |
| | Time (ts Min. to ts Max.) | 60 ~ 180 seconds |
| Time maintained above | Temperature (TL) | 217℃ |
| | Time (tL) | 60 ~ 150 seconds |
| Peak/Classification Temperature (Tp) | | 260 ℃ |
| Time within 5℃ of actual Peak Temperature (tp) | | 20 ~ 40 seconds |
| Ramp-down rate | | 6 ℃ /Second Max. |
| Time 25 ℃ to Peak Temperature | | 8 minutes Max. |
| Suggest reflow times | | 3 Times Max. |

# SMD ZENER DIODES CASE SOD-123 MMSZ SERIES

**TAPE/REEL** (Unit: mm) - All Devices are packed in accordance with EIA standard RS-481-A.




| ITEM | SYMBOL | TOLERANCE | CASE SOD-123 |
|---|---|---|---|
| Carrier width | A | 0.1 | 2.10 |
| Carrier Length | B | 0.1 | 4.00 |
| Carrier Depth | C | 0.1 | 1.60 |
| Sprocket hole | d | 0.05 | 1.55 |
| 13”Reel outside diameter | - | - | - |
| 13”Reel inner diameter | - | - | - |
| 7”Reel outside diameter | D | 2.0 | 178.00 |
| 7”Reel inner diameter | D1 | Min. | 50.00 |
| Feed hole diameter | D2 | 0.5 | 13.00 |
| Sprocket hole position | E | 0.1 | 1.75 |
| Punch hole position | F | 0.1 | 3.50 |
| Punch hole pitch | P | 0.1 | 4.00 |
| Sprocket hole pitch | P0 | 0.1 | 4.00 |
| Embossment center | P1 | 0.1 | 2.00 |
| Overall tape thickness | T | 0.1 | 0.25 |
| Tape width | W | 0.3 | 8.15 |
| Reel width | W1 | 1.0 | 10.50 |
| Component Spacing | 4.0 | | |
| Qty. Per Reel (pcs) | 3000 | | |

## IMPORTANT NOTES AND DISCLAIMER

1. 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 can be obtained at Download Center.
2. 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 can be obtained at Download Center.
3. 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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