NextGen Components,Inc.

PART CODE: MMSZ5221BS00C1

SPECIFICATION SHEET

SPECIFICATION SHEET NO.	Q1226-MMSZ5221BS00C1	
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 MMSZ5221B Type, Voltage - Zener (Nom) (Vz): 2.4V, Power Dissipation: 0.5 Watts Junction temperature: +150°C Package in Tape/Reel, 3000pcs/Reel RoHS/RoHS III compliant, RoHS Annex III lead Exemption (Exempt per RoHS EU 2015/863)	
CUSTOMER		
CUSTOMER PART NO.		
CROSS REF. PART NO.		
ORIGINAL MFG/PART NO.	MDD Diodes/MMSZ5221B	
PART CODE	MMSZ5221BS00C1	

VENDOR APPROVE
Issued/Checked/Approved NextGen Components, Inc. Jack Zhang NextGen Components, Inc. Mandy Xu NextGen Components, Inc. Ruby Zhang
DATE: Dec. 26, 2023

CUSTOMER APPROVE
DATE:

NextGen Components, Inc. sales@NextGenComponent.com www.NextGenComponent.com

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PART CODE: **MMSZ5221BS00C1**

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	5221B	S	00C1
1	2	3	4

1. MMSZ: SMD Zener Diodes, MMSZ series Code, Package Case SOD-123
2. 5221B: Specification code for Voltage - Zener (Nom) (Vz): 2.4V
3. S: Package Code, Tape/Reel
4. 00C1: 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



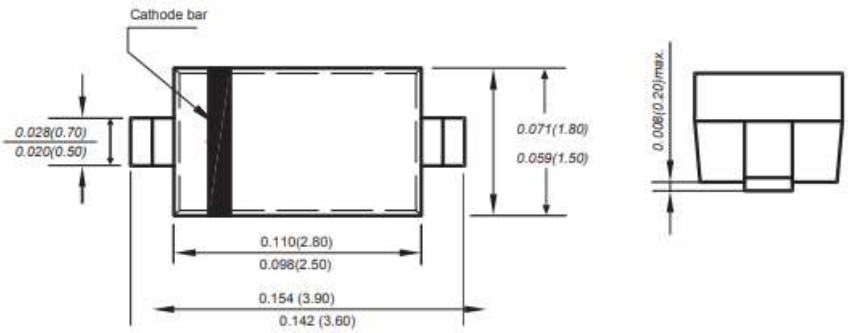
Marking: Standard

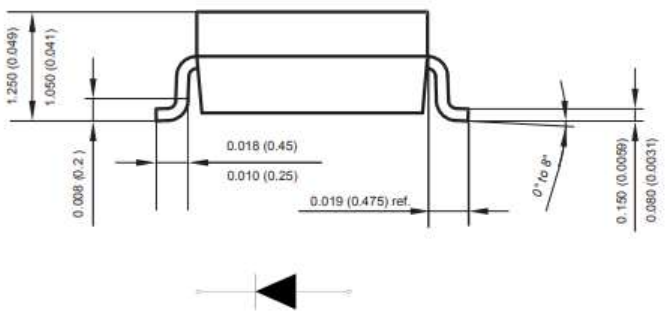
- See Marking Code

List at Page 5~ Page 6

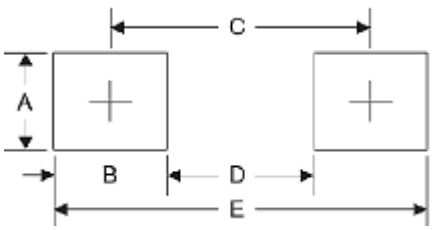
Case Dimension:

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.

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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

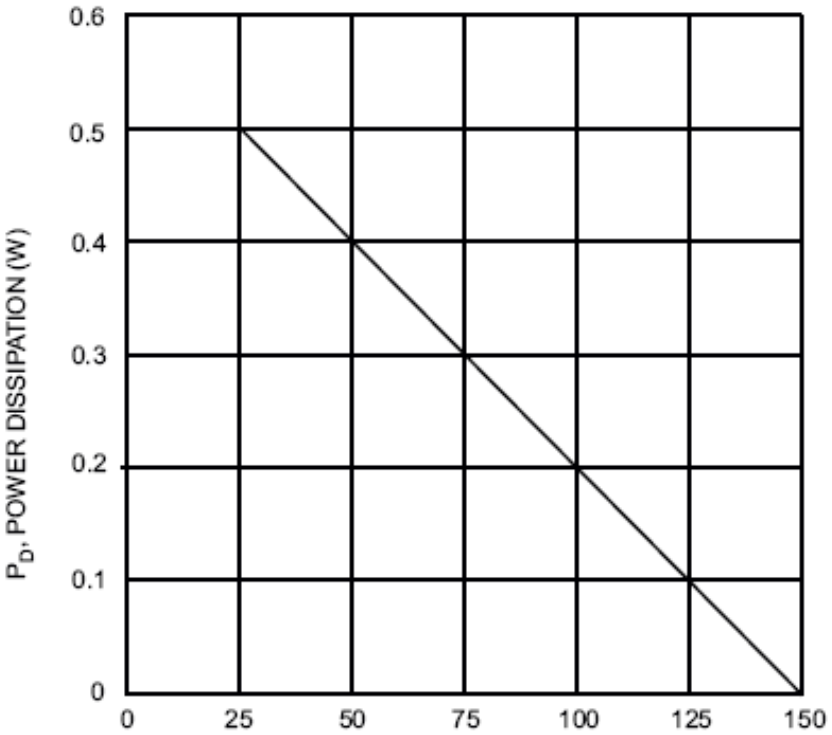
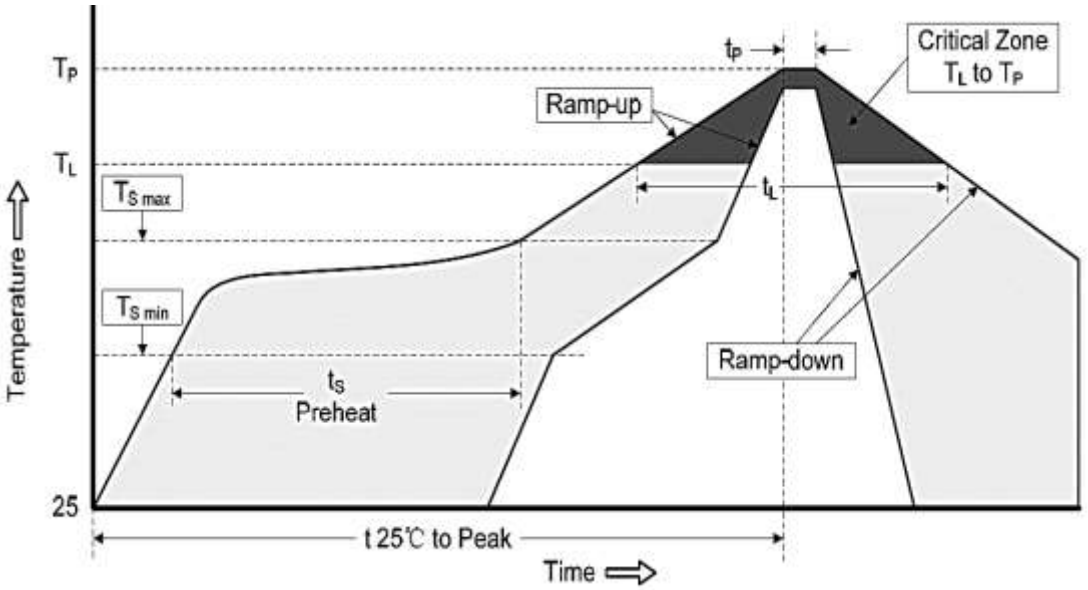


Fig. 1 Power Dissipation vs Ambient Temperature

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

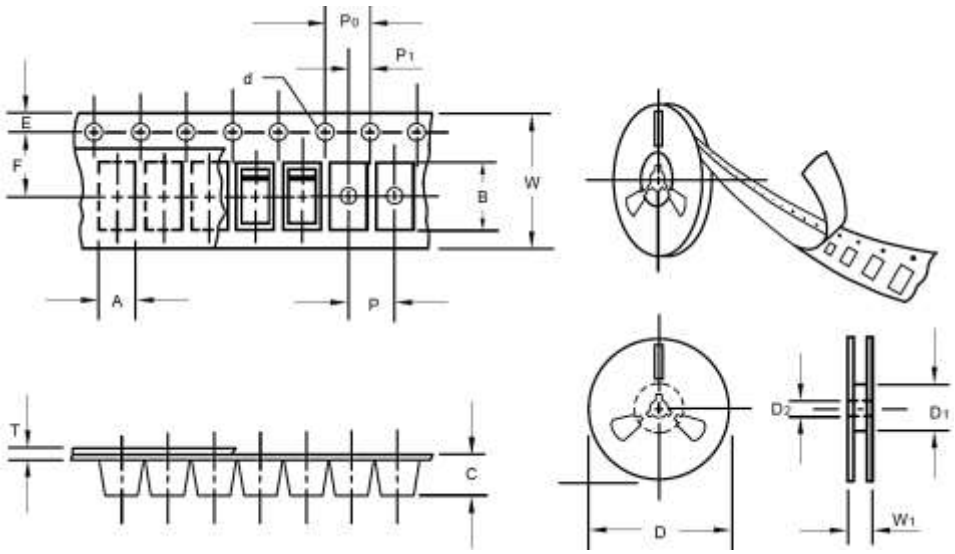
SUGGESTED REFLOW PROFILE - For Reference Only



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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BZT52C8V2S P4SMA12A P4SMA30A SAR303M825S032 SMDJ30CA BZT52C24 P4SMA68CA SDR319M508S012 1SMA4751A P6SMB24CA SIR315M000S042 BZT52B7V5 P6SMB150CA P6SMB200A SMDJ43CA BZT52B13 FK10M70000S0AJ MMSZ5252B P6SMB150A YP32K76800S601 MDD3401 MM1W16 SDR303M825S012 P6SMB27A SMDJ6.5A YP32K76800S103 1SMA4745A P4SMA15CA P4SMA39CA BZT52B47