

# MSKSEMI 美森科

SEMICONDUCTOR



ESD



TVS



TSS



MOV



GDT



PLED


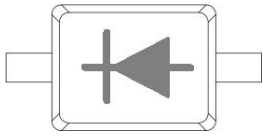
## MMSZ5221BS-MMSZ5259BS

Product specification

**FEATURES**

- Planar Die Construction
- Ultra-Small Surface Mount Package
- General purpose, Medium Current
- Ideally Suited for Automated Assembly Processes

**Reference News**

PACKAGE OUTLINE	PIN CONFIGURATION
	
SOD-323	

**Maximum Ratings (Ta=25°C unless otherwise specified )**

Characteristic	Symbol	Value	Unit
Forward Voltage (Note 2) @ I <sub>F</sub> = 10mA	V <sub>F</sub>	0.9	V
Power Dissipation(Note 1)	P <sub>D</sub>	200	mW
Thermal Resistance, Junction to Ambient Air	R <sub>θJA</sub>	625	°C/W
Operation Junction and Storage Temperature Range	T <sub>J</sub> , T <sub>stg</sub>	-55~+150	°C

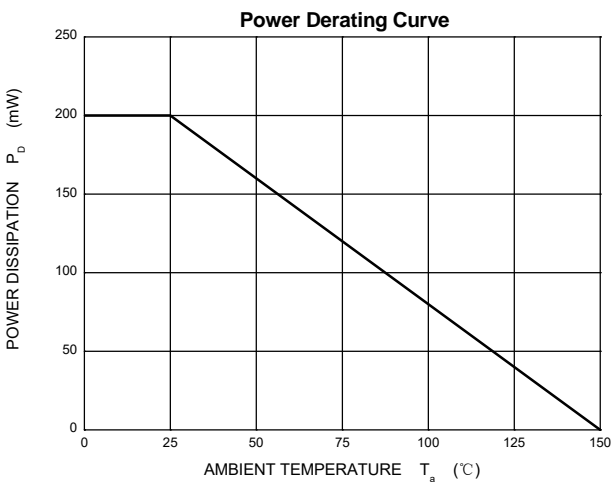
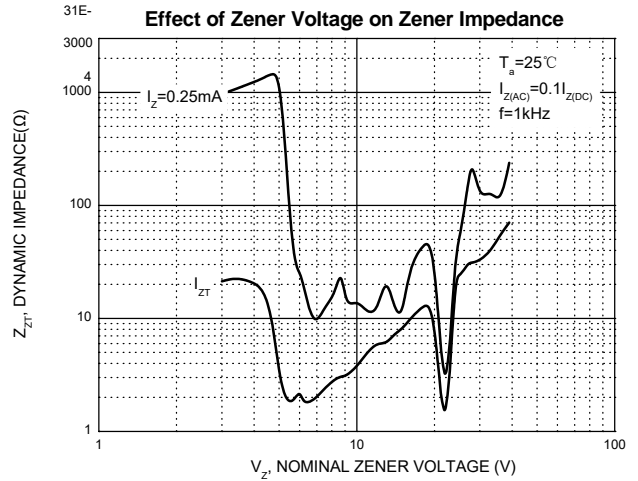
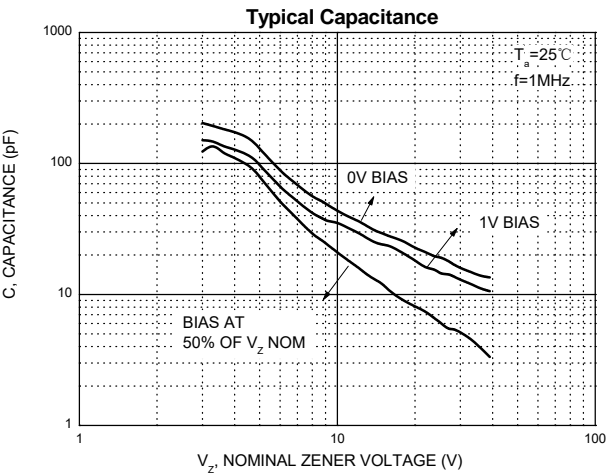
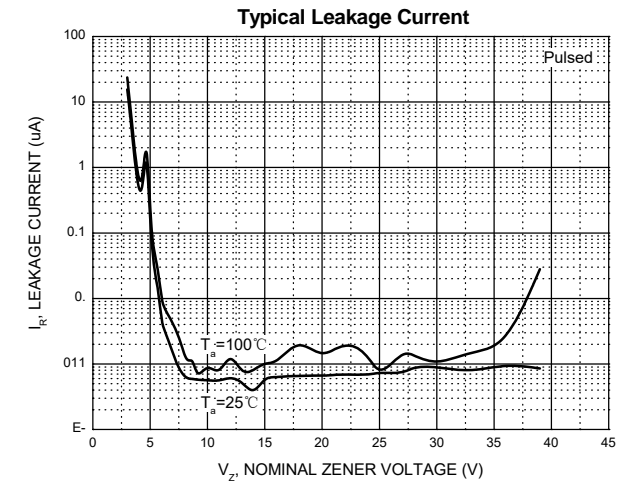
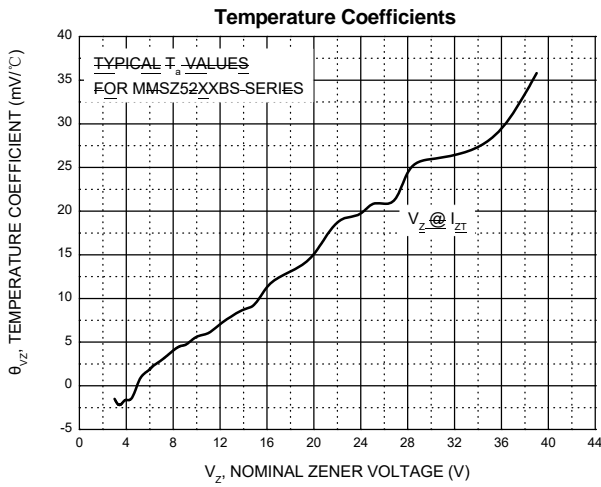
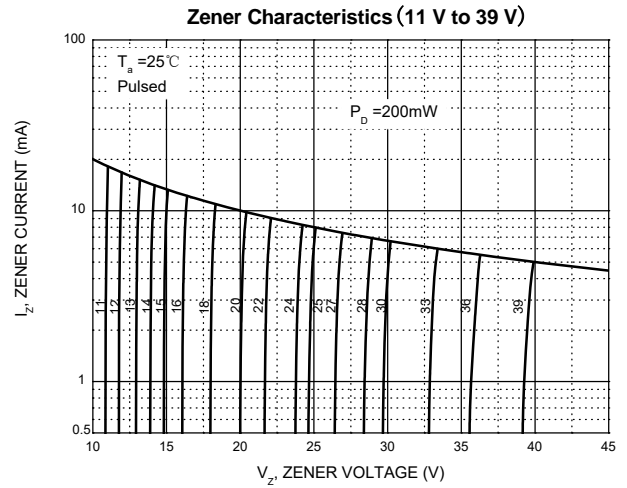
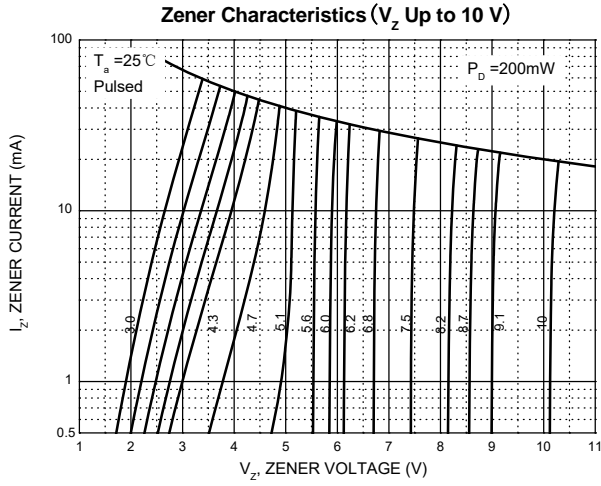
Notes:1. Device mounted on ceramic PCBs; 7.6 mm x 9.4 mm x 0.87 mm with pad areas 25 mm<sup>2</sup>.

2. Tested with pulses, T<sub>p</sub> ≤ 1.0ms.

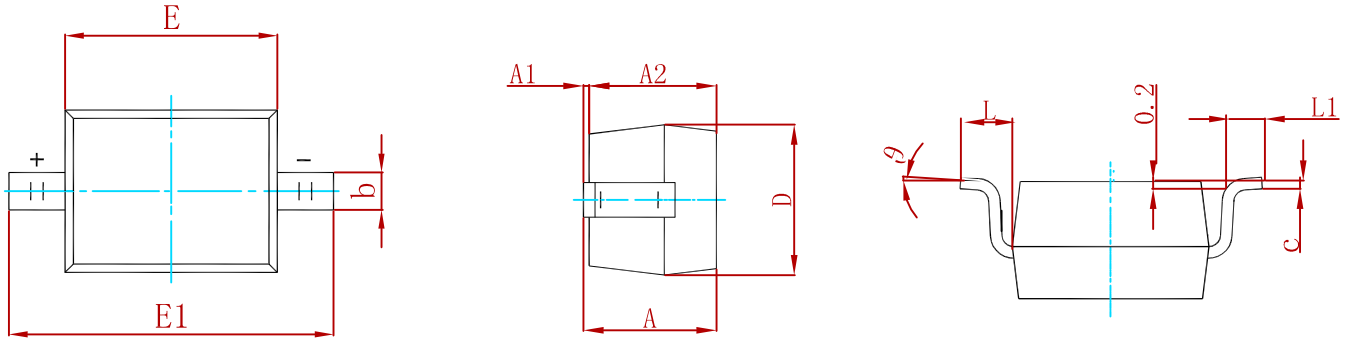
**ELECTRICAL CHARACTERISTICS**

 T<sub>a</sub>=25°C unless otherwise specified

Type Number	Code	Zener Voltage Range (Note 2)				Maximum Zener Impedance (Note 4)			Maximum Reverse Current	
		V <sub>Z</sub> @ I <sub>ZT</sub>			I <sub>ZT</sub>	Z <sub>ZT</sub> @I <sub>ZT</sub>	Z <sub>ZK</sub> @I <sub>ZK</sub>	I <sub>ZK</sub>	I <sub>R</sub>	V <sub>R</sub>
		Nom(V)	Min(V)	Max(V)	mA	Ω		mA	uA	V
MMSZ5221BS	C1	2.4	2.28	2.52	20	30	1200	0.25	100	1.0
MMSZ5223BS	C3	2.7	2.57	2.84	20	30	1300	0.25	75	1.0
MMSZ5225BS	C5	3.0	2.85	3.15	20	30	1600	0.25	50	1.0
MMSZ5226BS	G1	3.3	3.14	3.47	20	28	1600	0.25	25	1.0
MMSZ5227BS	G2	3.6	3.42	3.78	20	24	1700	0.25	15	1.0
MMSZ5228BS	G3	3.9	3.71	4.10	20	23	1900	0.25	10	1.0
MMSZ5229BS	G4	4.3	4.09	4.52	20	22	2000	0.25	5	1.0
MMSZ5230BS	G5	4.7	4.47	4.94	20	19	1900	0.25	5	2.0
MMSZ5231BS	E1	5.1	4.85	5.36	20	17	1600	0.25	5	2.0
MMSZ5232BS	E2	5.6	5.32	5.88	20	11	1600	0.25	5	3.0
MMSZ5233BS	E3	6.0	5.70	6.30	20	7	1600	0.25	5	3.5
MMSZ5234BS	E4	6.2	5.89	6.51	20	7	1000	0.25	5	4.0
MMSZ5235BS	E5	6.8	6.46	7.14	20	5	750	0.25	3	5.0
MMSZ5236BS	F1	7.5	7.13	7.88	20	6	500	0.25	3	6.0
MMSZ5237BS	F2	8.2	7.79	8.61	20	8	500	0.25	3	6.5
MMSZ5238BS	F3	8.7	8.27	9.14	20	8	600	0.25	3	6.5
MMSZ5239BS	F4	9.1	8.65	9.56	20	10	600	0.25	3	7.0
MMSZ5240BS	F5	10	9.50	10.50	20	17	600	0.25	3	8.0
MMSZ5241BS	H1	11	10.45	11.55	20	22	600	0.25	2.0	8.4
MMSZ5242BS	H2	12	11.40	12.60	20	30	600	0.25	1.0	9.1
MMSZ5243BS	H3	13	12.35	13.65	9.5	13	600	0.25	0.5	9.9
MMSZ5244BS	H4	14	13.30	14.70	9.0	15	600	0.25	0.1	10
MMSZ5245BS	H5	15	14.25	15.75	8.5	16	600	0.25	0.1	11
MMSZ5246BS	J1	16	15.20	16.80	7.8	17	600	0.25	0.1	12
MMSZ5248BS	J3	18	17.10	18.90	7.0	21	600	0.25	0.1	14
MMSZ5250BS	J5	20	19.00	21.00	6.2	25	600	0.25	0.1	15
MMSZ5251BS	K1	22	20.90	23.10	5.6	29	600	0.25	0.1	17
MMSZ5252BS	K2	24	22.80	25.20	5.2	33	600	0.25	0.1	18
MMSZ5253BS	K3	25	23.75	26.25	5.0	35	600	0.25	0.1	19
MMSZ5254BS	K4	27	25.65	28.35	5.0	41	600	0.25	0.1	21
MMSZ5255BS	K5	28	26.60	29.40	4.5	44	600	0.25	0.1	21
MMSZ5256BS	M1	30	28.50	31.50	4.2	49	600	0.25	0.1	23
MMSZ5257BS	M2	33	31.35	34.65	3.8	58	700	0.25	0.1	25
MMSZ5258BS	M3	36	34.20	37.80	3.4	70	700	0.25	0.1	27
MMSZ5259BS	M4	39	37.05	40.95	3.2	80	800	0.25	0.1	30

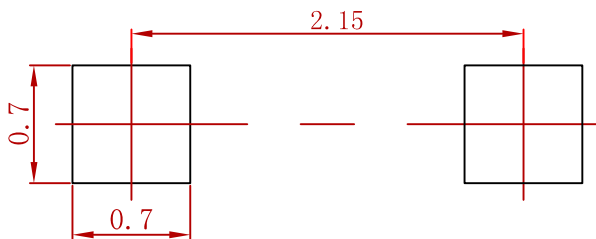


**PACKAGE MECHANICAL DATA**



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A		1.000		0.039
A1	0.000	0.100	0.000	0.004
A2	0.800	0.900	0.031	0.035
b	0.250	0.350	0.010	0.014
c	0.080	0.150	0.003	0.006
D	1.200	1.400	0.047	0.055
E	1.600	1.800	0.063	0.071
E1	2.550	2.750	0.100	0.108
L	0.475 REF.		0.019 REF.	
L1	0.250	0.400	0.010	0.016
$\theta$	0°	8°	0°	8°

**Suggested Pad Layout**



Note:  
 1. Controlling dimension: in millimeters.  
 2. General tolerance:  $\pm 0.05$  mm.  
 3. The pad layout is for reference purposes only.

**REEL SPECIFICATION**

P/N	PKG	QTY
MMSZ5221BS-MMSZ5259BS	SOD-323	3000

## Attention

- Any and all MSKSEMI Semiconductor products described or contained herein do not have specifications that can handle applications that require extremely high levels of reliability, such as life-support systems, aircraft's control systems, or other applications whose failure can be reasonably expected to result in serious physical and/or material damage. Consult with your MSKSEMI Semiconductor representative nearest you before using any MSKSEMI Semiconductor products described or contained herein in such applications.
- MSKSEMI Semiconductor assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all MSKSEMI Semiconductor products described or contained herein.
- Specifications of any and all MSKSEMI Semiconductor products described or contained herein stipulate the performance, characteristics, and functions of the described products in the independent state, and are not guarantees of the performance, characteristics, and functions of the described products as mounted in the customer's products or equipment. To verify symptoms and states that cannot be evaluated in an independent device, the customer should always evaluate and test devices mounted in the customer's products or equipment.
- MSKSEMI Semiconductor strives to supply high-quality high-reliability products. However, any and all semiconductor products fail with some probability. It is possible that these probabilistic failures could give rise to accidents or events that could endanger human lives, that could give rise to smoke or fire, or that could cause damage to other property. When designing equipment, adopt safety measures so that these kinds of accidents or events cannot occur. Such measures include but are not limited to protective circuits and error prevention circuits for safe design, redundant design, and structural design.
- In the event that any or all MSKSEMI Semiconductor products (including technical data, services) described or contained herein are controlled under any of applicable local export control laws and regulations, such products must not be exported without obtaining the export license from the authorities concerned in accordance with the above law.
- No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying and recording, or any information storage or retrieval system, or otherwise, without the prior written permission of MSKSEMI Semiconductor.
- Information (including circuit diagrams and circuit parameters) herein is for example only ; it is not guaranteed for volume production. MSKSEMI Semiconductor believes information herein is accurate and reliable, but no guarantees are made or implied regarding its use or any infringement of intellectual property rights or other rights of third parties.
- Any and all information described or contained herein are subject to change without notice due to product/technology improvement, etc. When designing equipment, refer to the "Delivery Specification" for the MSKSEMI Semiconductor product that you intend to use.