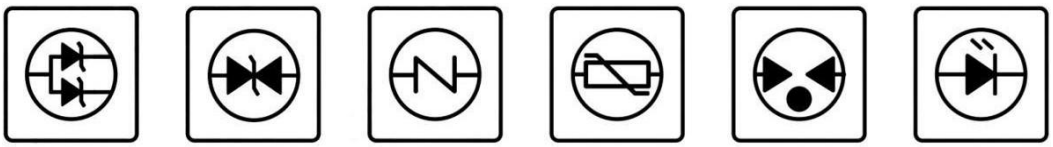
MSKSEMI 美森科
SEMICONDUCTOR



ESD9X5.0ST5G-MS

Product specification

ESD9X5.0ST5G-MS

Features

- 80W peak pulse power per line (tP = 8/20μs)
- SOD-923 package
- Replacement for MLV(0402)
- Bidirectional configurations
- Response time is typically < 1ns
- Low clamping voltage
- RoHS compliant
- Transient protection for data lines to
  IEC61000-4-2(ESD) ±30KV(air), ±30KV(contact);
  IEC61000-4-4 (EFT) 40A (5/50ns)

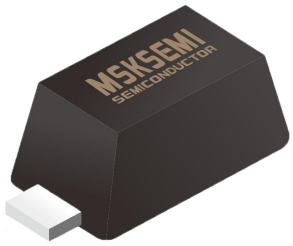
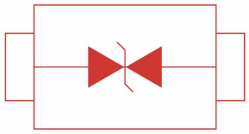
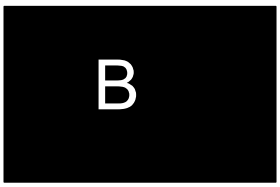
Mechanical Characteristics

- Lead finish:100% matte Sn(Tin)
- Mounting position: Any
- Qualified max reflow temperature:260C
- Device meets MSL 1 requirements
- Pure tin plating: 7 ~ 17 um
- Pin flatness:≤3mil

Applications

- Cellular phones
- Portable devices
- Digital cameras
- Power supplies

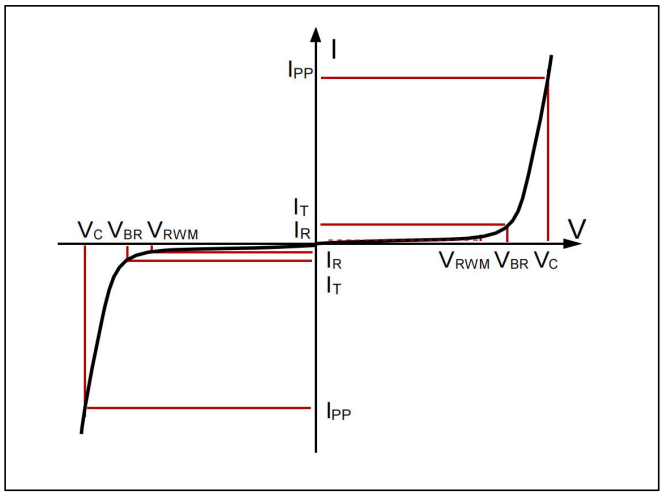
Reference News

PACKAGE OUTLINE	Pin Configuration	Marking
		
SOD-923		

Copyright© Msksemi Incorporated

Electronics Parameter

Symbol	Parameter
V_{RWM}	Peak Reverse Working Voltage
I_R	Reverse Leakage Current @ V_{RWM}
V_{BR}	Breakdown Voltage @ I_T
I_T	Test Current
I_{PP}	Maximum Reverse Peak Pulse Current
V_C	Clamping Voltage @ I_{PP}
P_{PP}	Peak Pulse Power
C_J	Junction Capacitance
I_F	Forward Current
V_F	Forward Voltage @ I_F



Electrical characteristics per line@25C (unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Peak Reverse Working Voltage	V_{RWM}				5	V
Breakdown Voltage	V_{BR}	I_t = 1mA	5.6	6.7	7.8	V
Reverse Leakage Current	I_R	V_{RWM} = 5V T=25℃			1.0	uA
Maximum Reverse Peak Pulse Current	I_{PP}			5		A
Clamping Voltage	V_C	I_{PP}=1A			8	V
Clamping Voltage	V_C	I_{PP}=3A			13	V
Clamping Voltage	V_C	I_{PP}=5A			15	V
Junction Capacitance	C_j	V_R=0V f = 1MHz		12	15	pF

Absolute maximum rating@25℃

Rating	Symbol	Value	Units
Peak Pulse Power (t_p=8/20μs)	P_{pp}	80	W
Operating Temperature	T_J	-55 to + 150	℃
Storage Temperature	T_{STG}	-55 to + 150	℃

Copyright© Msksemi Incorporated

Typical Characteristics

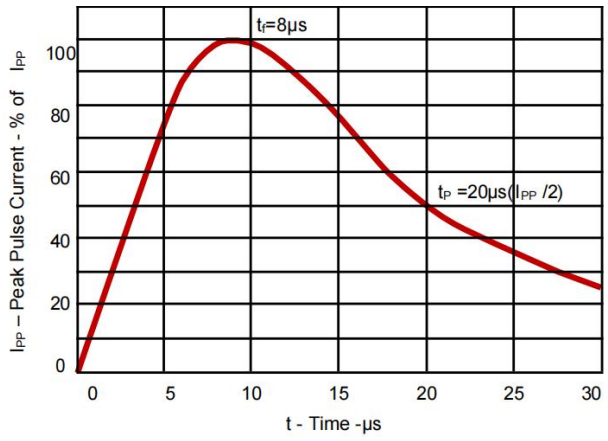


Fig 1.Pulse Waveform

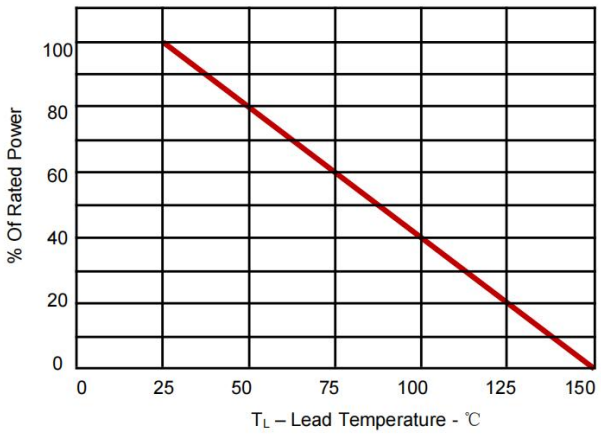


Fig 2.Power Derating Curve

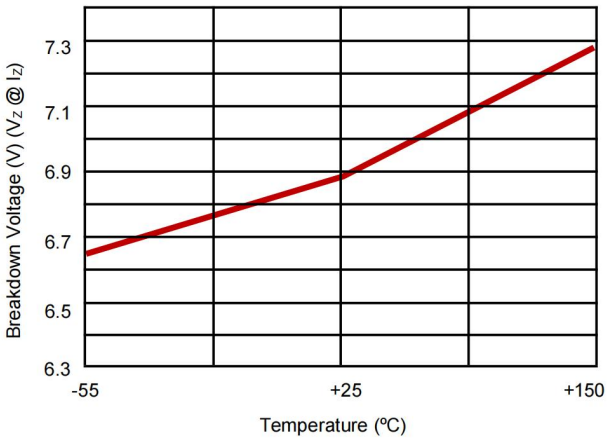


Fig 3.Typical Breakdown Voltage vs. Temperature

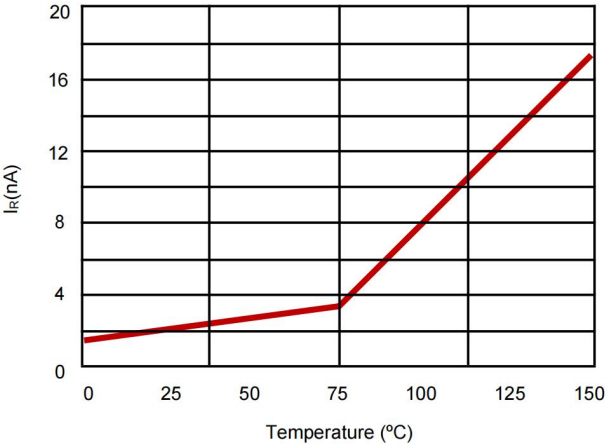


Fig 4.Typical Leakage Current vs. Temperature

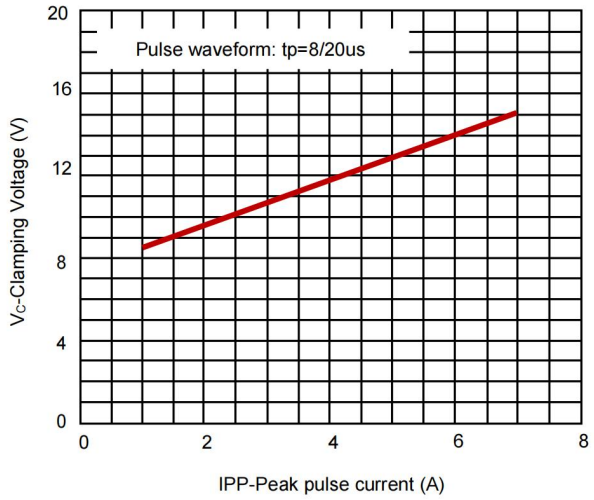


Fig 5. Clamping voltage vs. Peak pulse current

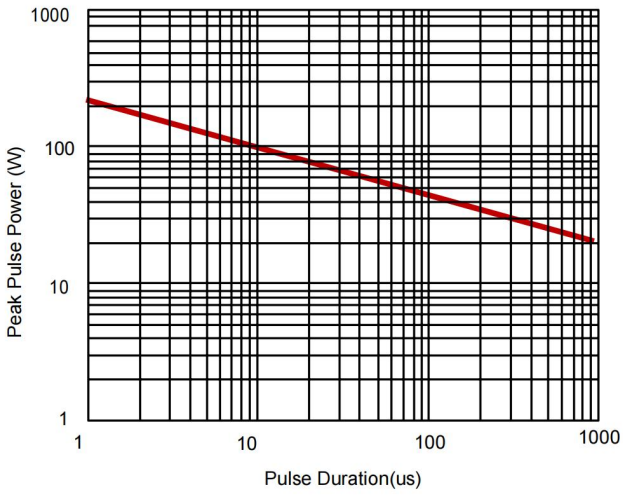


Fig 6. Non-Repetitive Peak Pulse Power vs. Pulse time

Copyright© Msksemi Incorporated

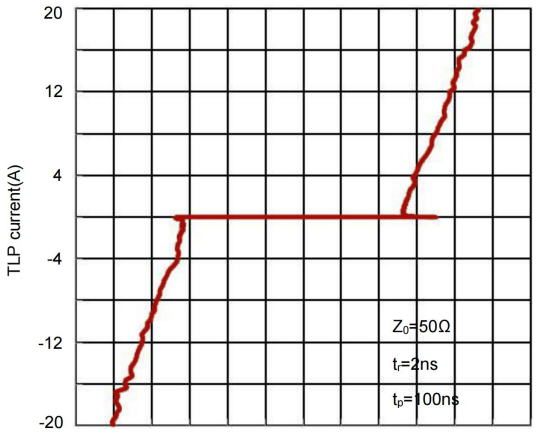
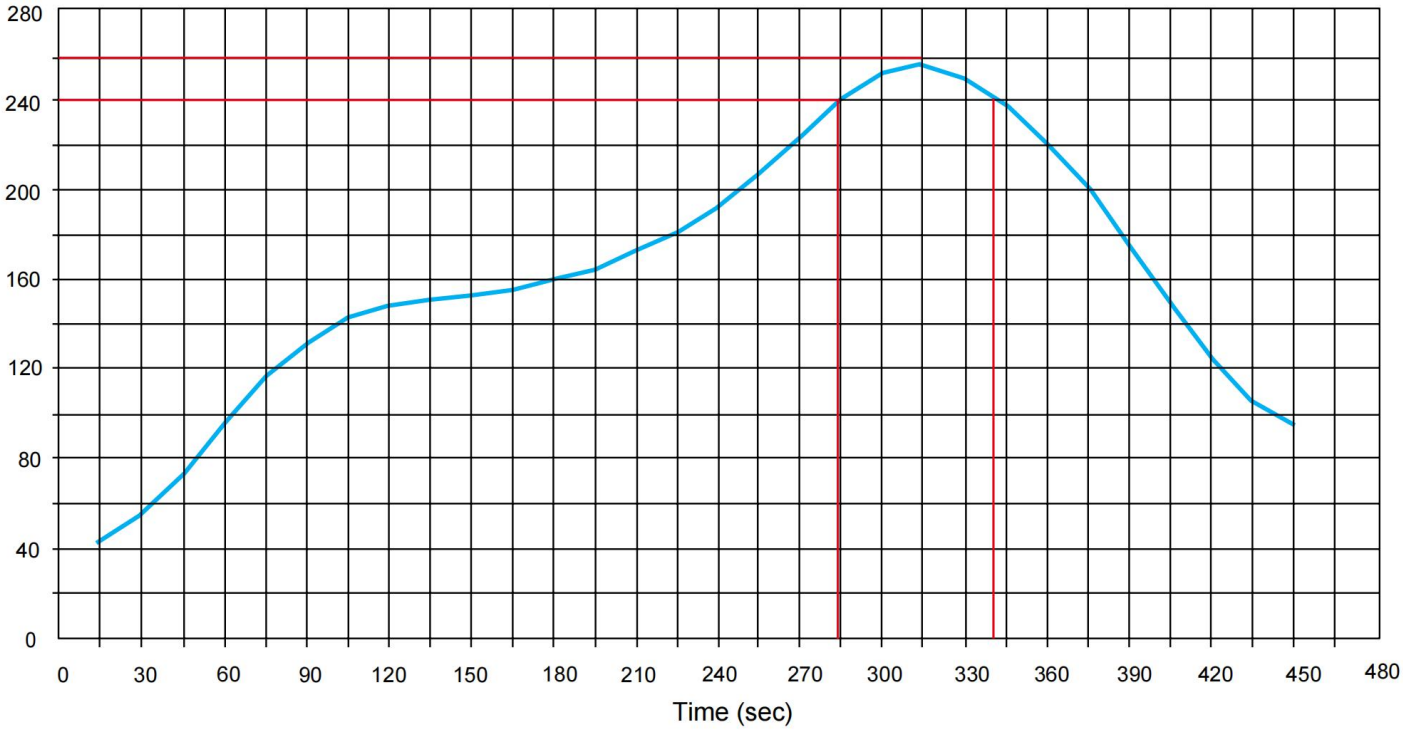


Fig 7 TLP Measuremen

Solder Reflow Recommendation

Peak Temp=257℃, Ramp Rate=0.802deg. ℃/sec



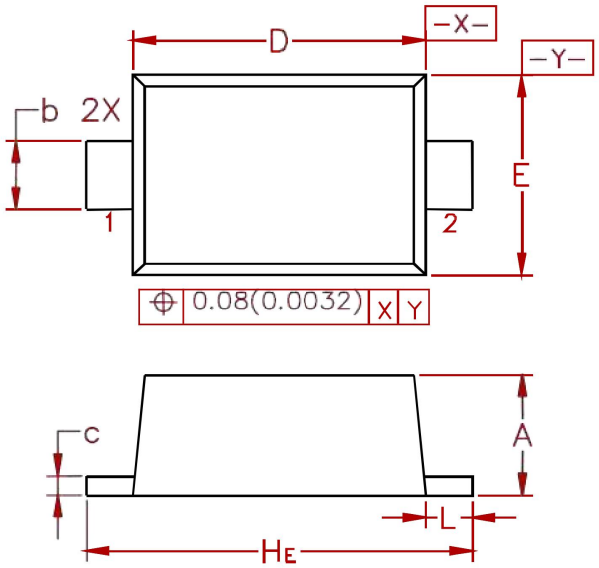
PCB Design

For TVS diodes a low-ohmic and low-inductive path to chassis earth is absolutely mandatory in order to achieve good ESD protection. Novices in the area of ESD protection should take following suggestions to heart:

- Do not use stubs, but place the cathode of the TVS diode directly on the signal trace.
- Do not make false economies and save copper for the ground connection.
- Place via holes to ground as close as possible to the anode of the TVS diode.
- Use as many via holes as possible for the ground connection.
- Keep the length of via holes in mind! The longer the more inductance they will have.

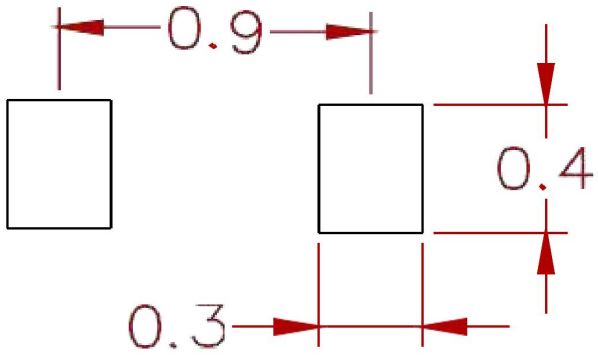
Copyright© Msksemi Incorporated

PACKAGE MECHANICAL DATA



Dim	Millimeters			Inches		
	Min	Nom	Max	Min	Nom	Max
A	0.36	0.40	0.43	0.014	0.016	0.017
b	0. 15	0.20	0.25	0.006	0.008	0.010
c	0.07	0. 12	0. 17	0.003	0.005	0.007
D	0.75	0.80	0.85	0.030	0.031	0.033
E	0.55	0.60	0.65	0.022	0.024	0.026
HE	0.95	1.00	1.05	0.037	0.039	0.041
L	0.05	0. 10	0. 15	0.002	0.004	0.006

Suggested Pad Layout



Note:

1.Controlling dimension:in millimeters.

2.General tolerance:±0.05mm.

3.The pad layout is for reference purposes only.

REEL SPECIFICATION

P/N	PKG	QTY
ESD9X5.0ST5G-MS	SOD-923	8000

Copyright© Msksemi Incorporated

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 specificationsof any andall MSKSEMI Semiconductor products described orcontained 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'sproducts orequipment.

■ MSKSEMI Semiconductor. strives to supply high-quality high-reliability products. However, any and all semiconductor products fail with someprobability. It is possiblethat 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 anderror prevention circuitsfor safedesign, 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 theauthorities 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 infringementsof intellectual property rights or other rightsof third parties.

■ Any and all information described or contained herein are subject to change without notice due to product/technology improvement, etc. Whendesigning equipment, referto the "Delivery Specification" for the MSKSEMI Semiconductor productthat you intend to use.

Copyright© Msksemi Incorporated

Unikeyic Electronics

Global Electronic Components Distributor

Click to view pricing, inventory, delivery, and lifecycle information:

MSKSEMI:

1SMA5925BT3G-MS BZV55C13-MS ESD5B5CU MURS240T3G-MS XC6219B282MR-MS 1SMA4736A-MS 1SMA4750A-MS ESD3Z5.0T1G-MS PTVS6V5S1UR-MS SMBJ5358B-MS ZMM5242B ZMM6B2 SMBJ5349B-MS ESDBW712C2-MS HT7233-MS MM3Z3V9-MS MS78L06 PESD5V0S1BLN-MS DS16W-MS MMST5551 MS0603ESDA-24 BAS19W F1M MCP1700T-1802E/TT(MS) MCP1700T-3002E/TT(MS) SPX3819M5-L-5-0(MS) XC6228D122VR-G(MS) AMS1117-1.5(MS) LNZ8F12VT5G-MS XC6206P332PR-MS