

ESD5Z5.0CA



Bi-Directional Transient Voltage Suppressors for ESD Protection

V_{RWM}: ±5 V

I_{pp}: 5 A

Package: SOD-523

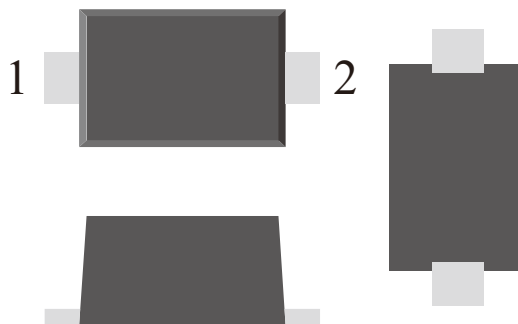
Features

- NH'S Glass Passivated Chip Technology
- Wave And Reflow Solderable
- Low Reverse Leakage
- Very Fast Response Time
- Excellent Clamping Capability
- 10/1000μs Waveform, Repetition Rate(Duty Cycle):0.01 %
- ESD Immunity Acc. IEC 61000-4-2

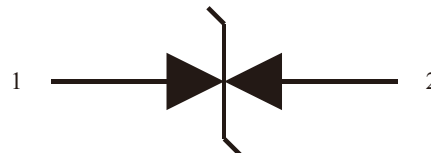
Typical Applications

- Power Port
- Communication And Data Port
- ESD Protection And Automotive Electronics
- Industrial Control and Automation

Diagram:



Polarity:



Single Phase, Half Wave, 60Hz, Resistive Or Inductive Load. For Capacitive Load, Derate Current By 20%

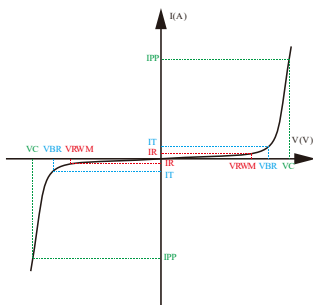
Maximum Ratings (Ta=25℃ Unless Otherwise Specified)

Parameter	Symbol	Limits	Unit
ESD Per IEC 61000-4-2 (Air)	V _{ESD}	±15	KV
ESD Per IEC 61000-4-2 (Contact)		±8	
Peak Pulse Power (tp = 8/20μs)	P _{PP}	55	W
Lead Solder Temperature – Maximum(10 Second Duration)	T _L	260.0	℃
Maximum Junction Temperature	T _J	-55 ~ 150	℃
Storage temperature range	T _{STG}	-55 ~ 150	℃

Electrical Characteristics (Ta = 25 °C unless otherwise noted)

Parameter	Symbol	Min	Typ	Max	Unit
Reverse Working Peak Voltage	V _{RWM}	-	-	±5	V
Reverse Breakdown Voltage I _T = 1.0 mA	V _{BR}	5.6	-	8.2	V
Reverse Current V _{RWM} = ±5 V	I _R	-	-	1.0	uA
Clamping Voltage(tp = 8/20μs) I _{pp} = 5 A	V _C	-	-	11.0	V
Capacitance VR=0V, f=1MHz	C _J	-	13.0	-	P _F

C-V Curve Chart



Symbol Instruction

Symbol	Instruction
I _{PP}	Maximum Reverse Peak Pulse Current
V _C	Clamping Voltage @ I _{pp}
P _{PP}	Peak Power Dissipation
V _{RWM}	Working Peak Reverse Voltage
I _R	Maximum Reverse Leakage Current @ V _{RWM}
V _{BR}	Breakdown Reverse Voltage
I _T	Test Current @ V _{RWM}
I _F	Maximum Average Forward Rectified Current
V _F	Maximum Instantaneous Forward Voltage
C _J	Junction Capacitance @ VR = 0 and f = 1.0 MHz

Bi-Directional Transient Voltage Suppressors for ESD Protection

Typical Characteristics Curves

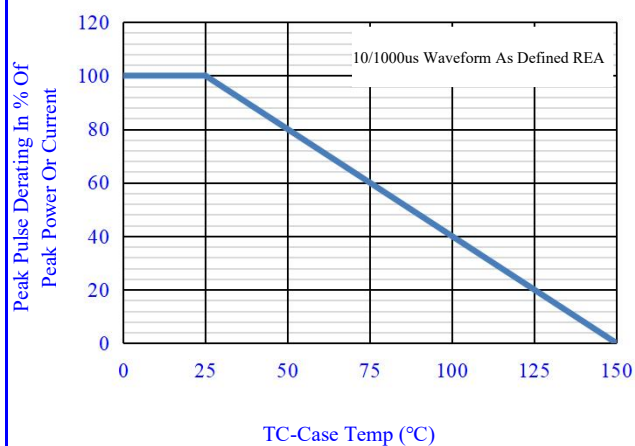


Fig.1-Peak Power Or Current vs.Tc

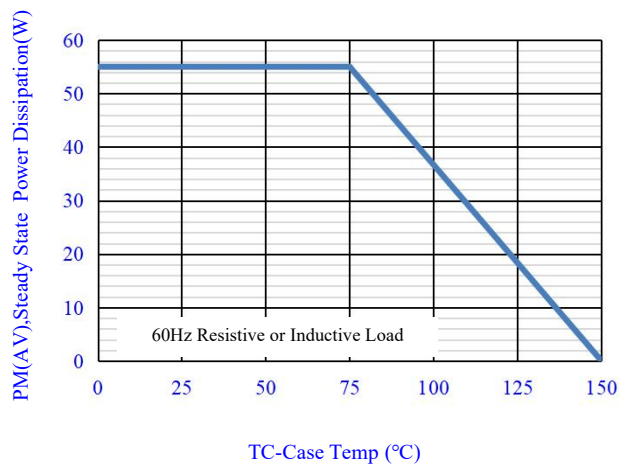


Fig.2-Steady State Power Derating Curve



Fig.3-Peak Pulse Power Rating Curve

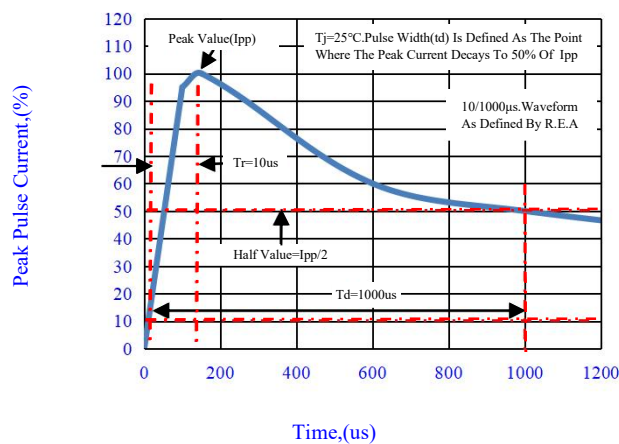


Fig.4-Pulse Waveform

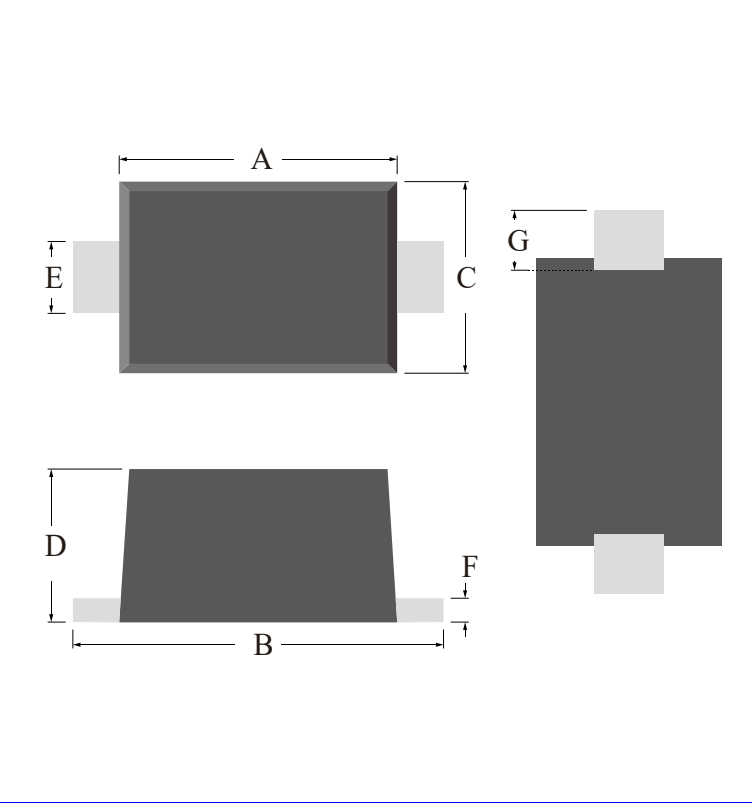
ESD5Z5.0CA

Bi-Directional Transient Voltage Suppressors for ESD Protection



OUTLINE DRAWINGS

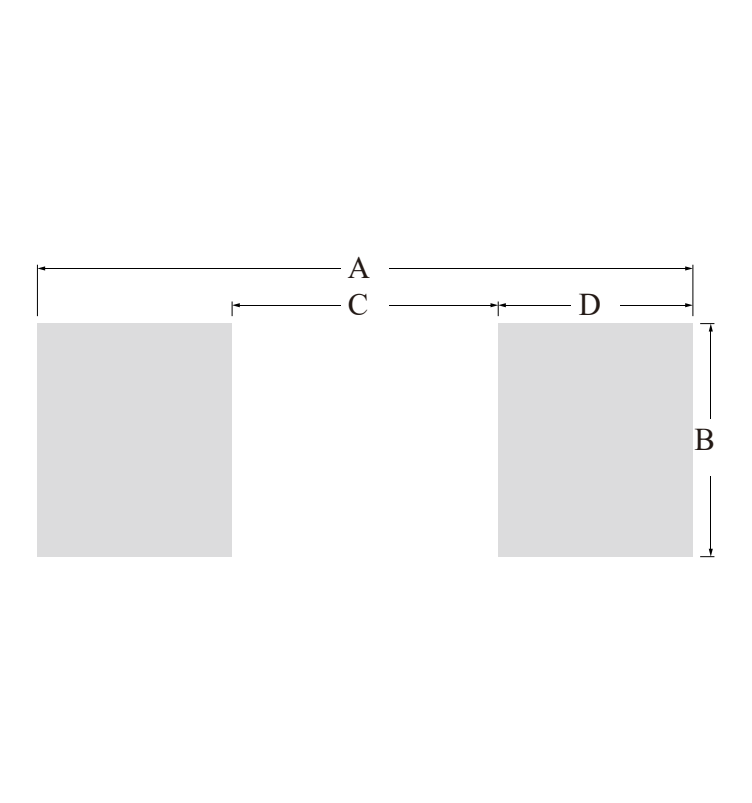
SOD-523



OUTLINE DIMENSIONS						
Dim.	Milimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	1.10	-	1.30	0.0433	-	0.0512
B	1.50	-	1.70	0.0591	-	0.0669
C	0.75	-	0.85	0.0295	-	0.0335
D	0.51	-	0.77	0.0201	-	0.0303
E	0.25	-	0.35	0.0098	-	0.0138
F	0.03	-	0.15	0.0012	-	0.0059
G	-	0.25	-	-	0.0098	-

RECOMMEDND LAYOUT DRAWINGS

SOD-523



OUTLINE DIMENSIONS						
Dim.	Milimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	-	2.02	-	-	0.0795	-
B	--	0.70	--	--	0.0276	--
C	--	0.82	--	--	0.0323	--
D	--	0.60	--	--	0.0236	--

ESD5Z5.0CA

Bi-Directional Transient Voltage Suppressors for ESD Protection



MARKING

MARKING INSTRUCTION



5C=Make

PACKING INFORMATION

Package Type	Package Code	Product Weight Approx(g/Pcs)	Package Method	Quantity (Pcs/Min. Pack.)	Quantity (Pcs/Inner Box)	Quantity (Pcs/Carton)
SOD-523	P1	0.02	7" Reel	8000	40000	480000

ESD5Z5.0CA

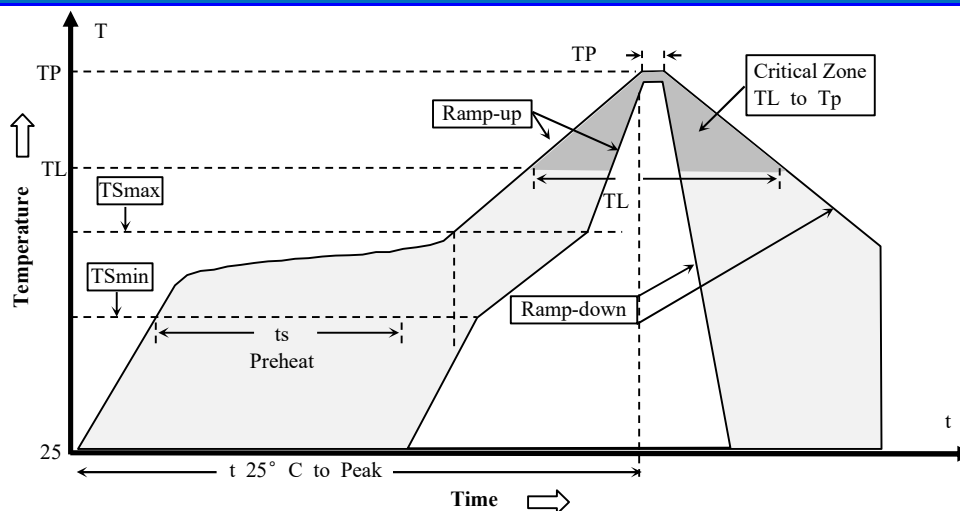
Bi-Directional Transient Voltage Suppressors for ESD Protection



Recommended wave soldering condition

Product	Peak Temperature	Soldering Time
Pb-free devices	260 +0/-5 °C	5 +1/-1 seconds

Recommended temperature profile for IR reflow



Profile feature	Sn-Pb eutectic Assembly	Pb-free Assembly
Average ramp-up rate (T _{smax} to T _p)	3°C/second max.	3°C/second max.
Preheat -Temperature Min(TS min) -Temperature Max(TS max) -Time(ts min to ts max)	100°C 150°C 60-120 seconds	150°C 200°C 60-180 seconds
Time maintained above: -Temperature (TL) - Time (tL)	183°C 60-150 seconds	217°C 60-150 seconds
Peak Temperature(TP)	240 +0/-5 °C	260 +0/-5 °C
Time within 5°C of actual peak temperature(tp)	10-30 seconds	20-40 seconds
Ramp down rate	6°C/second max.	6°C/second max.
Time 25 °C to peak temperature	6 minutes max.	8 minutes max.

Note : All temperatures refer to topside of the package, measured on the package body surface.

Bi-Directional Transient Voltage Suppressors for ESD Protection

Disclaimer

- Reproducing and modifying information of the document is prohibited without permission from Niuhan Electronics Technology Co., LTD
- Niuhan Electronics Technology Co., LTD. reserves the rights to make changes of the content herein the document anytime without notification.
- Niuhan Electronics Technology Co., LTD. disclaims any and all liability arising out of the application or use of any product including damages incidentally and consequentially occurred.
- Niuhan Electronics Technology Co., LTD. does not assume any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.
- Applications shown on the herein document are examples of standard use and operation. Customers are responsible in comprehending the suitable use in particular applications. Niuhan Electronics Technology Co., LTD. makes no representation or warranty that such applications will be suitable for the specified use without further testing or modification.
- The products shown herein are not designed and authorized for equipments requiring high level of reliability or relating to human life and for any applications concerning life-saving or life-sustaining, such as medical instruments, transportation equipment, aerospace machinery et cetera. Customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify Niuhan Electronics Technology Co., LTD. for any damages resulting from such improper use or sale.
- When the appearance of the product and chip size does not change, in order to produce the customer quality, change the internal structure and the production process Niuhan can not notify