

ESD5Z24A

Uni-Directional Transient Voltage Suppressors for ESD Protection



V_{RWM} : 24 V

I_{pp} : 7 A

Package: SOD-523

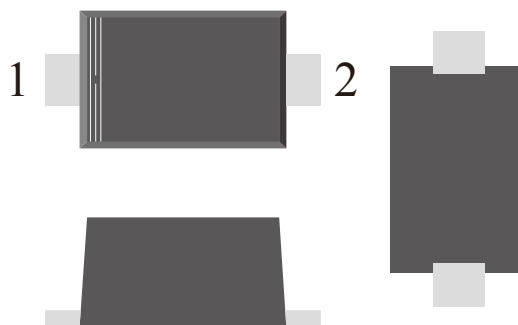
Features

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

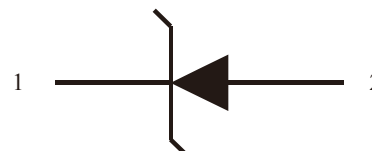
Typical Applications

- 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%

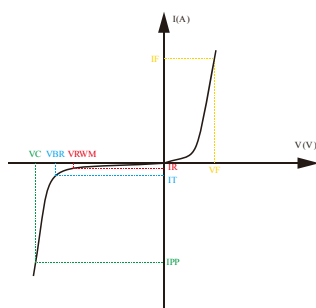
Maximum Ratings (Ta=25 °C Unless Otherwise Specified)

Parameter	Symbol	Limits	Unit
ESD per IEC 61000-4-2 (Air)	V_{ESD}	± 30	KV
ESD per IEC 61000-4-2 (Contact)		± 30	
Peak Pulse Power (tp = 8/20 μ s)	P_{PP}	200.0	W
Lead Solder Temperature – Maximum(10 Second Duration)	T_L	260.0	°C
Maximum Junction Temperature	T_J	-55 ~ 150	°C
Storage temperature range	T_{STG}	-55 ~ 150	°C

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

Parameter	Symbol	Min	Typ	Max	Unit
Reverse Working Peak Voltage	V_{RWM}	-	-	24	V
Reverse Breakdown Voltage $I_T = 1.0$ mA	V_{BR}	25.9	-	28.0	V
Reverse Current $V_{RWM} = 24$ V	I_R	-	-	0.05	μ A
Clamping Voltage (tp = 8/20 μ s) $I_{PP} = 6$ A	V_C	-	-	38.0	V
Capacitance $V_R = 0V, f = 1MHz$	C_J	-	-	50.0	Pf
Dynamic resistance	R_{DYN}	-	0.4	-	Ω

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 @ $V_R = 0$ and $f = 1.0$ MHz

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Typical Characteristics Curves

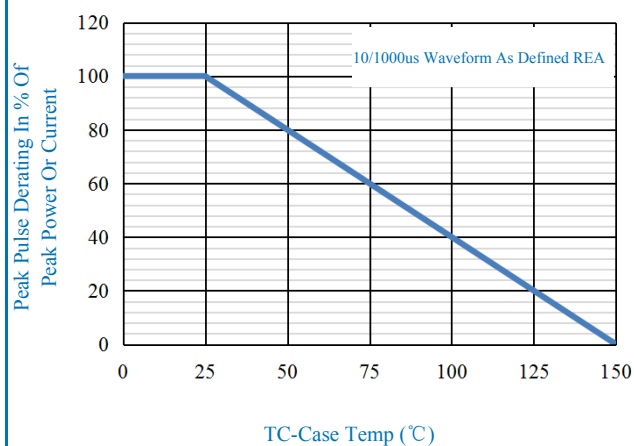


Fig.1-Peak Power Or Current vs.Tc

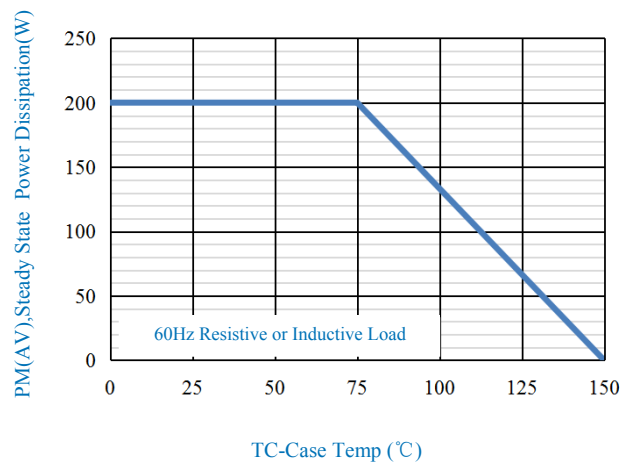


Fig.2-Steady State Power Derating Curve

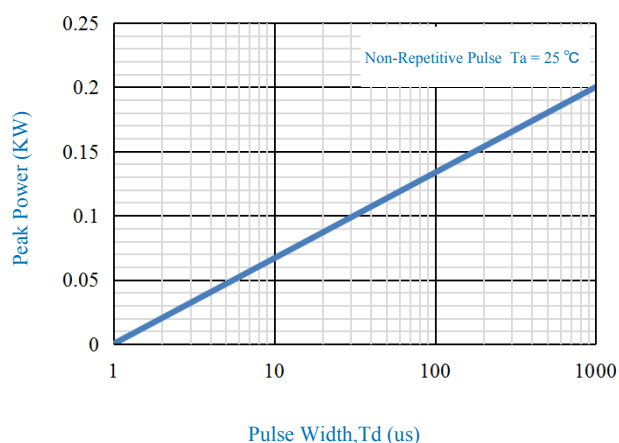


Fig.3-Peak Pulse Power Rating Curve

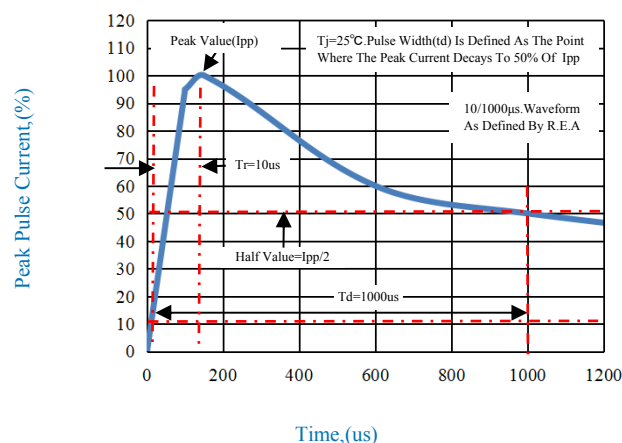


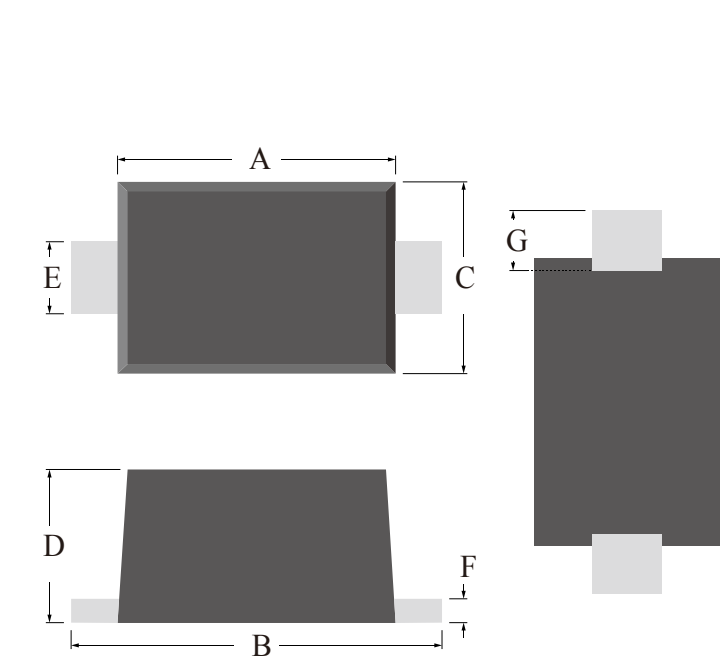
Fig.4-Pulse Waveform

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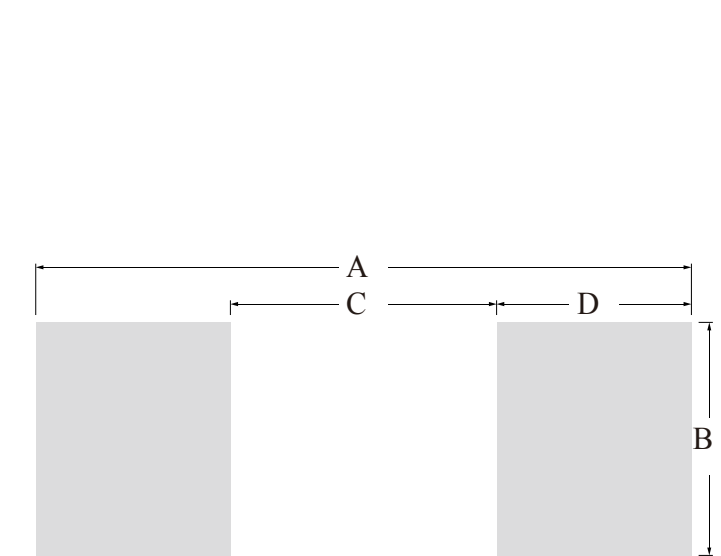
OUTLINE DRAWINGS



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	-

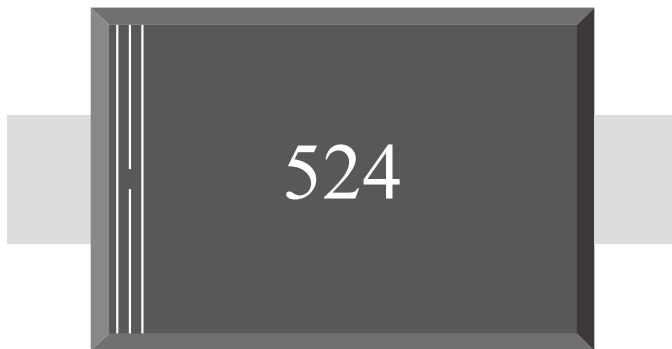
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MARKING

MARKING INSTRUCTION



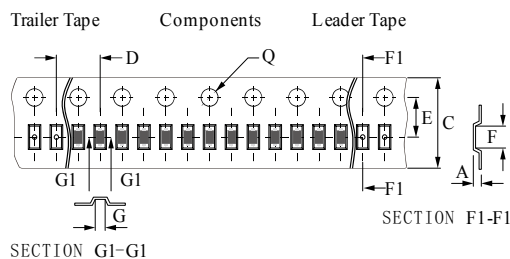
524=mark

White band denotes cathode

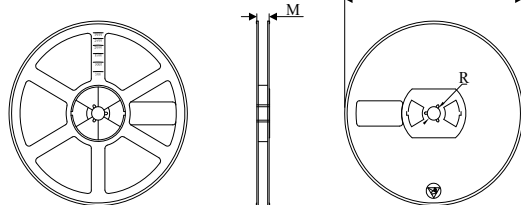
PACKAGING

SOD-523

TAPE



REEL



OUTLINE DIMENSIONS

Dim.	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
TAPE						
A	0.63	0.73	0.83	0.0248	-	0.0327
C	7.70	8.00	8.30	0.3031	-	0.3268
D	1.90	2.00	2.10	0.0748	-	0.0827
E	3.40	3.50	3.60	0.1339	-	0.1417
F	1.84	1.94	2.04	0.0724	-	0.0803
G	0.80	0.90	1.00	0.0315	-	0.0394
Q Φ	1.40	1.50	1.60	0.0551	-	0.0630
REEL						
L Φ	176.00	-	180.00	6.929	-	7.087
R	12.00	-	14.00	0.4724	-	0.5512
M	11.00	-	13.00	0.4331	-	0.5118

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

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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 (T _S min) -Temperature Max (T _S max) -Time(t _s min to t _s max)	100°C 150°C 60-120 seconds	150°C 200°C 60-180 seconds
	Time maintained above: -Temperature (T _L) - Time (t _L)	183°C 60-150 seconds	217°C 60-150 seconds
	Peak Temperature(T _P)	240 +0/-5 °C	260 +0/-5 °C
	Time within 5°C of actual peak temperature (t _p)	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.

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Specification Revision History

Rev.	Date	Changed Items	Pre-Changed Content	Changed Content
A/1	2014-10-20	First Issue		
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