SOD-523 Plastic-Encapsulate ESD Protection Diodes

Features

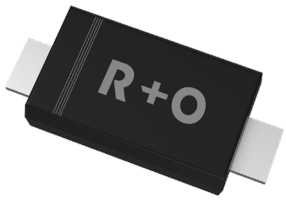
- Low leakage current
- SOD-523 surface mount package
- IEC 61000-4-2 (ESD Air): ±25kV
- IEC 61000-4-2 (ESD Contact): ±20kV
- IEC 61000-4-5 (Lightning 8/20μs): 5A

Reverse Working Voltage
5V Max.
Ultra Small capacitance
0.8pF(Max.)

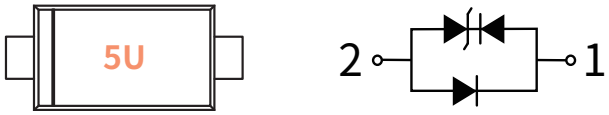
Applications

- Cellular Handsets and Accessories
- Personal Digital Assistants
- Notebooks and Handhelds
- Portable Instrumentation,Digital Cameras
- Peripherals, Audio Players
- Industrial Equipment

SOD-523



Function Diagram

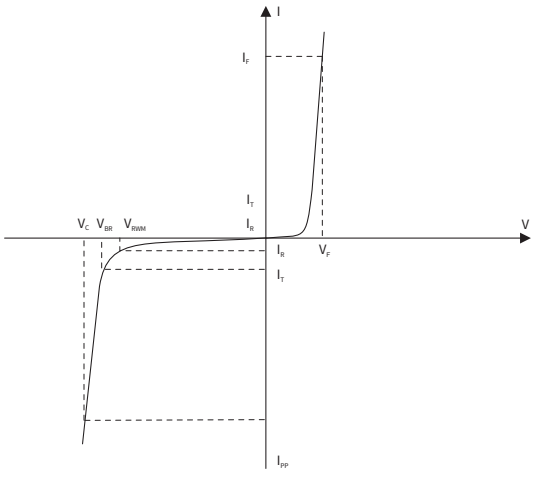


Maximum Ratings (Ta=25°C Unless otherwise specified)

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
V_{ESD}	Electrostatic Discharge Voltage	ESD per IEC 61000-4-2(Air)	±25	KV
		ESD per IEC 61000-4-2(Contact)	±20	KV
P_{PP}	Peak Pulse Power	tp = 8/20 μs	75	W
I_{PP}	Rated Peak Pulse Current	tp = 8/20 μs	5.0	A
T_J	Operating JunctionTemperature Range	—	-55 to +125	°C
T_{STG}	Operating JunctionTemperature Range	—	-55 to +150	°C

Electrical Parameter

SYMBOL	PARAMETER
V_C	Clamping Voltage @ I_{PP}
V_{BR}	Breakdown Voltage @ I_T
I_{PP}	Peak Pulse Current
I_T	Test Current
I_R	Reverse Leakage Current @ VRWM
V_{RWM}	Peak Reverse Working Voltage
P_{PP}	Peak Pulse Power Dissipation
C_J	Junction Capacitance @ V_R=0V,f=1MHz
I_F	Forward Current
V_F	Forward Voltage @I_F



Electrical Characteristics (Ta=25°C Unless otherwise specified)

PARAMETER	SYMBOL	CONDITION	Min	Typ	Max	UNIT
Peak Reverse Working Voltage	V_{RWM}	T_a=25°C	—	—	5.0	V
Breakdown Voltage	V_{BR}	I_R=1mA,T_a=25°C	6.0	—	9.0	V
Reverse Leakage Current	I_R	V_R=5V,T_a=25°C	—	—	0.2	μA
Clamping Voltage	V_C	I_{PP}=1A, t_p=8/20μs	—	—	10	V
		I_{PP}=5A,t_p=8/20μs	—	—	15	
Junction Capacitance	C_J	V_R=0V,f=1MHz	—	0.6	0.8	pF

Ratings And Characteristics Curves (Ta=25°C Unless otherwise specified)

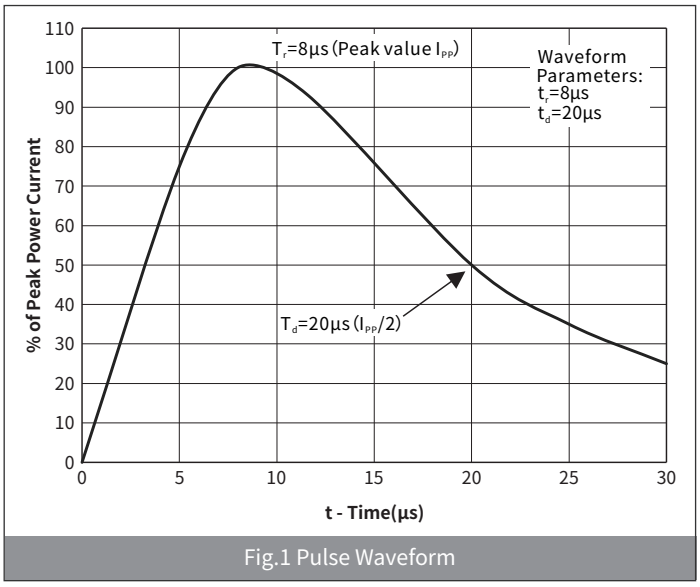


Fig.1 Pulse Waveform

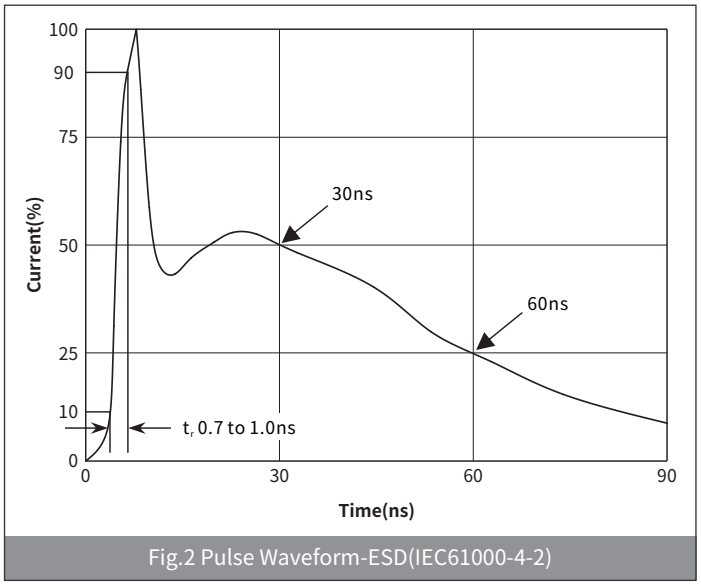


Fig.2 Pulse Waveform-ESD(IEC61000-4-2)

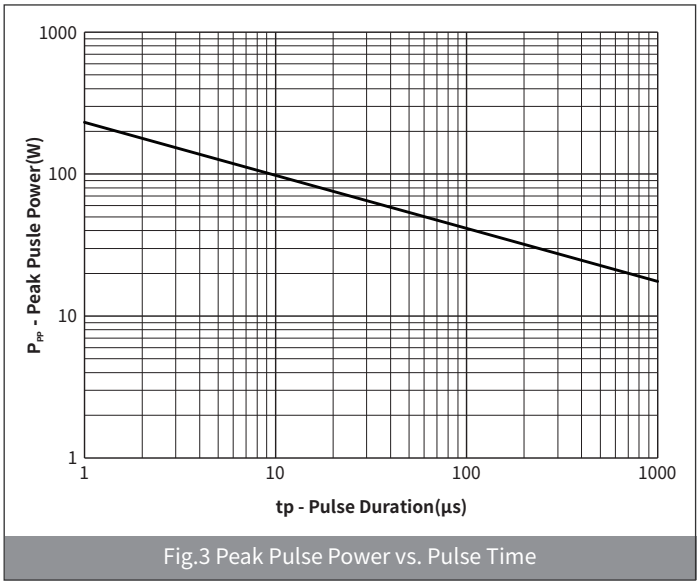


Fig.3 Peak Pulse Power vs. Pulse Time

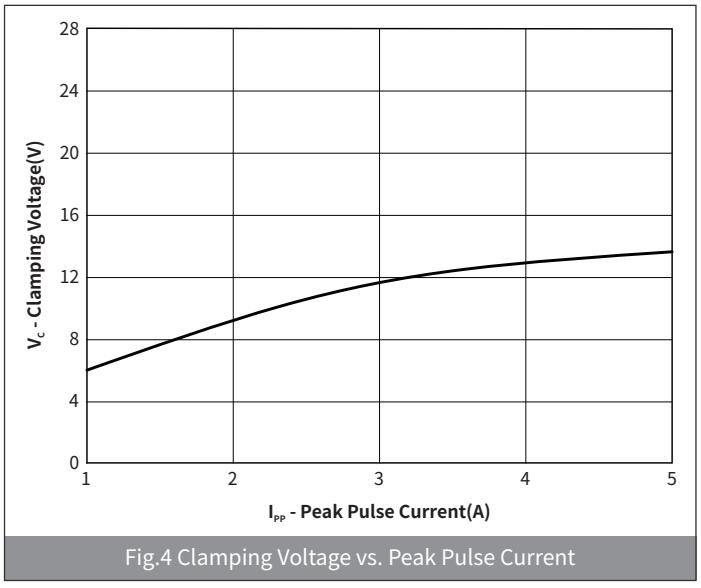
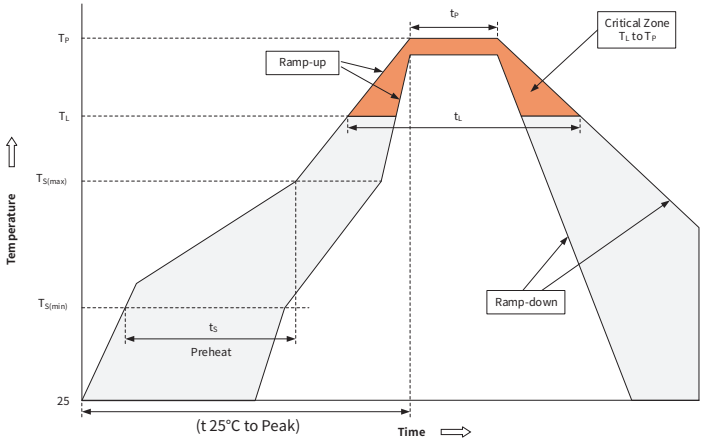


Fig.4 Clamping Voltage vs. Peak Pulse Current

Ordering Information

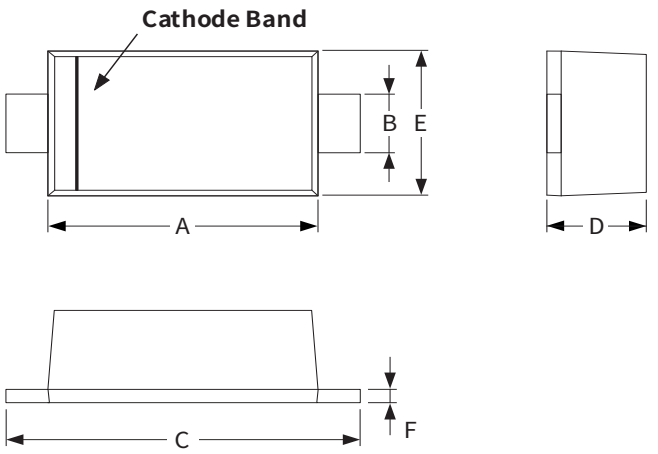
PREFERED P/N	PACKAGE CODE	PACKAGE	SIZE(mm)	DELIVERY MODE	MPQ(PCS)
H5VLD5BA	R1	SOD-523	0.30×0.80×0.115	7"REEL	3000
	R1H	SOD-523	0.30×0.80×0.115	7"REEL	8000

Recommended Soldering Conditions



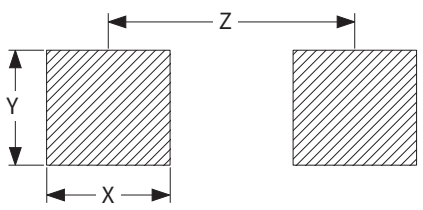
Profile Feature		Pb-Free Assembly
Pre-heat	Temperature Min ($T_{S(min)}$)	+150°C
	Temperature Max($T_{S(max)}$)	+200°C
	Time (Min to Max) (t_S)	60-180 secs.
Average ramp up rate (Liquid us Temp (T_L) to peak)		3°C /sec. Max
$T_{S(max)}$ to T_L - Ramp-up Rate		3°C /sec. Max
Reflow	Temperature(T_L)(Liquid us)	+217°C
	Temperature(t_L)	60-150 secs.
Peak Temp (T_P)		+260(+0/-5)°C
Time within 5°C of actual Peak Temp (t_P)		20-40secs
Ramp-down Rate		6°C /sec. Max
Time 25°C to Peak Temp (T_P)		8 min. Max
Do not exceed		+260°C

Package Outline Dimensions (SOD-523)



Symbol	Dimensions			
	Millimeters		Inches	
	Min	Max	Min	Max
A	1.10	1.30	0.043	0.051
B	0.25	0.35	0.010	0.014
C	1.50	1.70	0.059	0.067
D	0.50	0.70	0.020	0.027
E	0.70	0.90	0.027	0.035
F	0.05	0.20	0.002	0.008

Suggested Pad Layout



Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
X	0.55	0.65	0.022	0.026
Y	0.65	0.75	0.026	0.029
Z	1.37	1.47	0.054	0.058