

Features

100W (8x20us) Peak Pulse Power
Low Clamping Voltage
SOD-523 Package
RoHS Compliant
Matte Tin Lead finish (Pb-Free)
Protect One I/O or Power Line
Meet IEC61000-4-2 Level 4:
ContactDischarge>30kV
AirDischarge>30kV

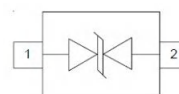


Applications

Smart Phones
Laptop Computers
Portable Electronics



SOD523



SOD-523

Schematic & PIN Configuration

Absolute Maximum Rating

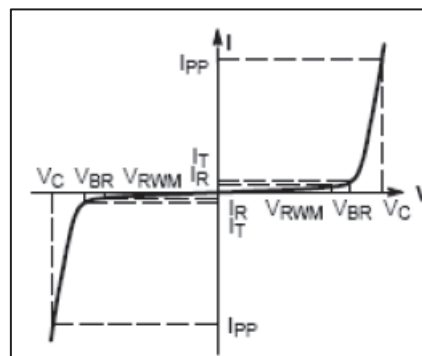
Symbol	Parameter	Value	Unit
TJ	Junction Temperature	-55 to +150	°C
TSTG	Storage Temperature	-55 to +150	°C
Ipp Max	Maximum Peak Pulse Current	7	A
PPK	Peak Pulse Power	100	W

Electrical Characteristics

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
VRWM	Reverse Working Peak Voltage				5.0	V
VBR	Reverse Breakdown Voltage	$I_T = 1\text{mA}$	6.0	7.0	8.5	V
IR	Reverse Leakage Current	$VRWM = 5.0\text{V}$			1	μA
VC1	Clamping Voltage	$I_{PP} = 1\text{A}$ (8/20 μs)			8	V
VC2	Clamping Voltage	$I_{PP} = 7\text{A}$ (8/20 μs)		11	16	V
Ipp	Peak Pulse Current	$t_p = 8/20\mu\text{s}$			7	A
CJ	Capacitance	$VR = 0\text{V}$, $f = 1\text{MHz}$		15	20	pF

Electronics Parameter

Symbol	Parameter
V_C	Clamping Voltage @ I_{PP}
I_{PP}	Peak Pulse Current
V_{BR}	Breakdown Voltage @ I_T
I_T	Test Current
I_R	Reverse Leakage Current @ V_{RWM}
V_{RWM}	Reverse Standoff Voltage



V-I characteristics for a Bi-directional TVS

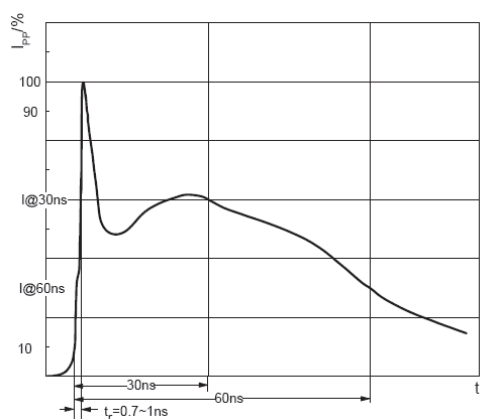
ESD standards compliance

IEC61000-4-2 Standard

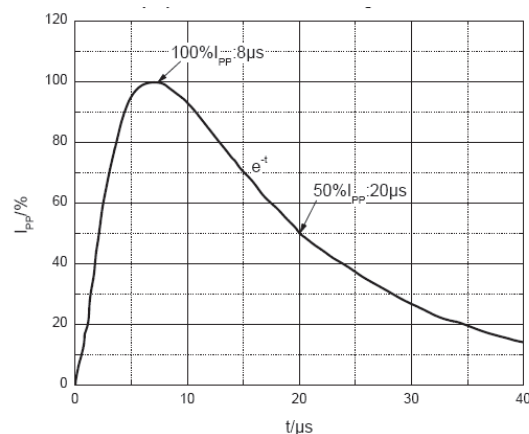
Contact Discharge		Air Discharge	
Level	Test Voltage kV	Level	Test Voltage kV
1	2	1	2
2	4	2	4
3	6	3	8
4	8	4	15

JESD22-A114-B Standard

ESD Class	Human Body Discharge V
0	0~249
1A	250~499
1B	500~999
1C	1000~1999
2	2000~3999
3A	4000~7999
3B	8000~15999

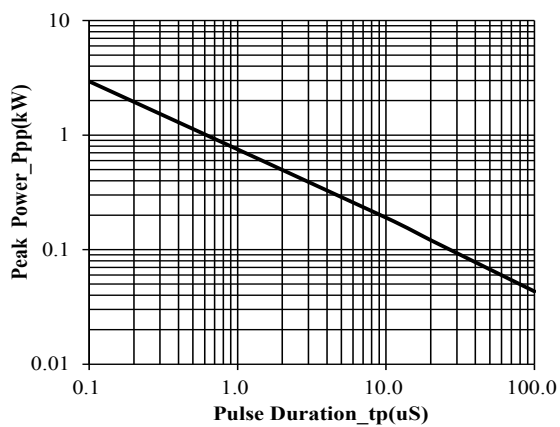


ESD pulse waveform according to IEC61000-4-2

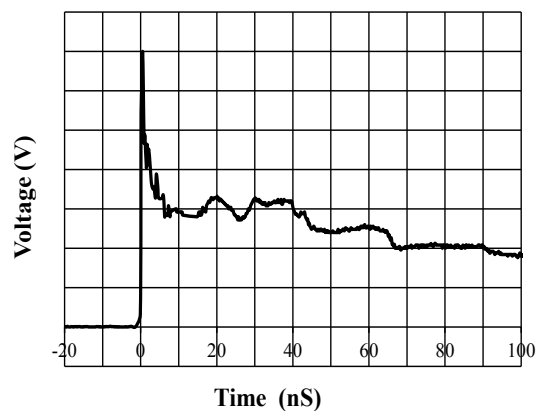


8/20μs pulse waveform according to IEC 61000-4-5

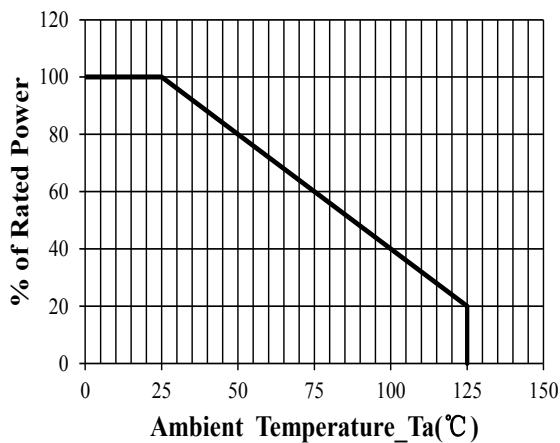
RATING AND CHARACTERISTIC CURVES



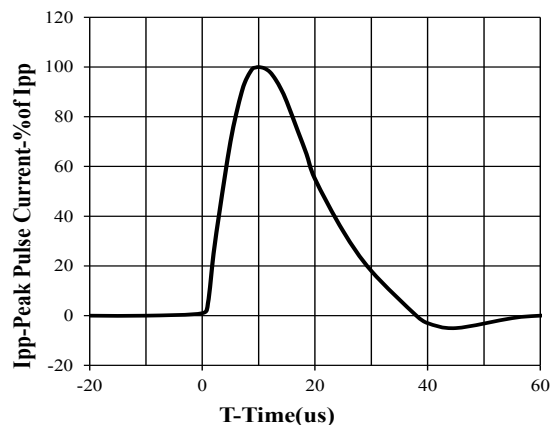
Peak Pulse Power vs. Pulse Time



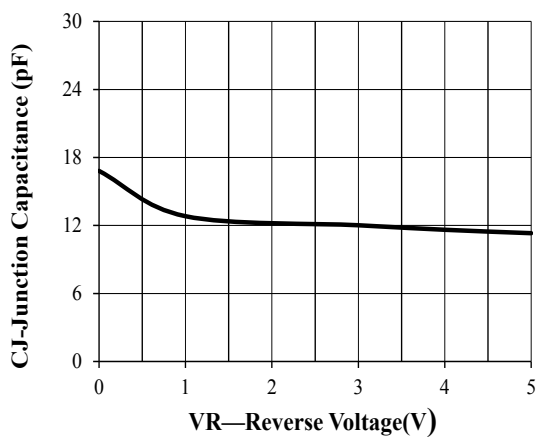
IEC61000-4-2 Pulse Waveform



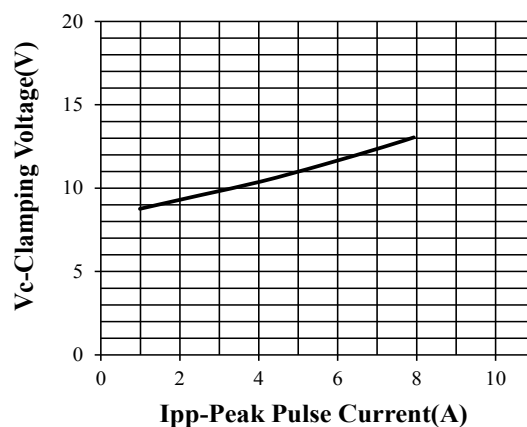
Power Derating Curve



8 X 20us Pulse Waveform



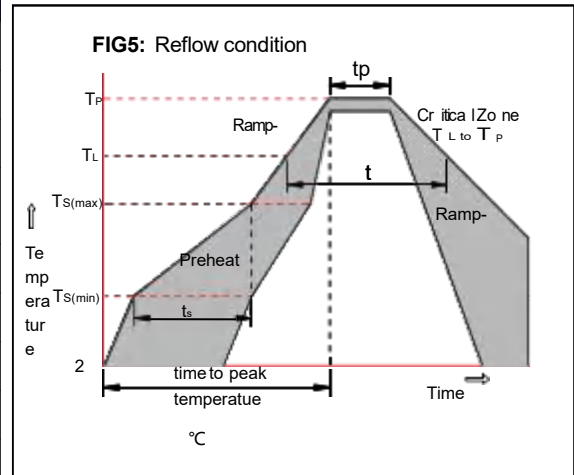
Junction Capacitance vs. Reverse Voltage



Clamping Voltage vs. Peak Pulse Current

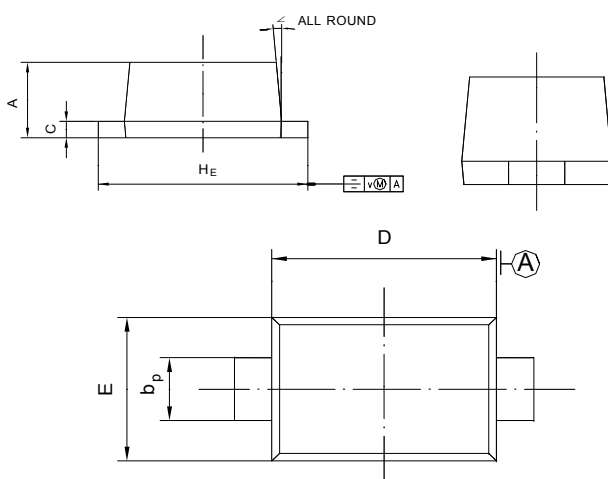
Soldering parameters

Reflow Condition		Pb-Free assembly (see as below)
Pre Heat	-Temperature Min ($T_{s(min)}$)	+150 °C
	-Temperature Max ($T_{s(max)}$)	+200 °C
	-Time (Min to Max) (ts)	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)		30 secs. Max
Ramp-down Rate		6 °C/sec. Max
Time 25 °C to Peak Temp (T_P)		8 min. Max
Do not exceed		+260 °C

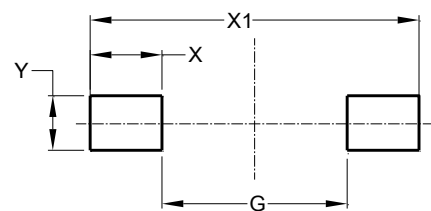


Package Dimensions & Suggested Pad Layout

SOD523

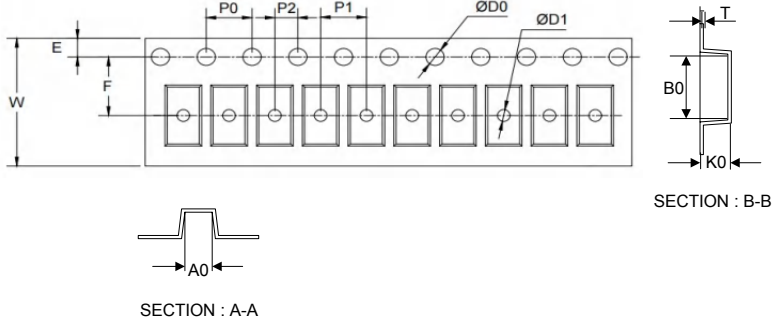
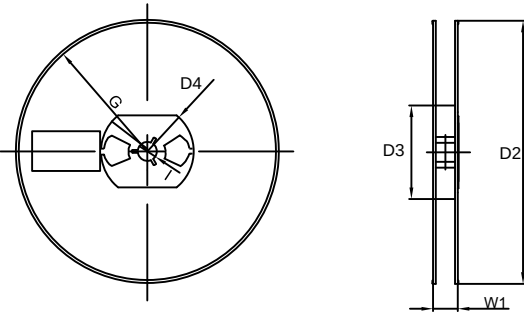


UNIT	A	b _P	C	D	E	H _E	V	∠
mm	0.70 0.50	0.40 0.20	0.14 0.05	1.30 1.10	0.90 0.75	1.70 1.50	0.1	5°



Dimensions	Value (in mm)
G	0.85
X	0.70
X1	2.25
Y	0.80

Tape & reel specification

Tape		Symbol	Dimension (mm)
		P0	4.00±0.20
		P1	2.00±0.20
		P2	2.00±0.20
		D0	1.55±0.20
		D1	0.50±0.20
		E	1.55±0.25
		F	3.60±0.20
		W	8.00±0.20
		A0	1.30±0.20
		B0	2.35±0.20
		K0	0.95±0.20
		T	0.20±0.20
		D2	177.0±5.0
		D3	55Min.
		D4	R24.6±2.0
7" Reel		G	R82.0±2.0
		I	13.0±2.0
		W1	10.20±3.0
		Quantity: 3000PCS	