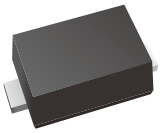
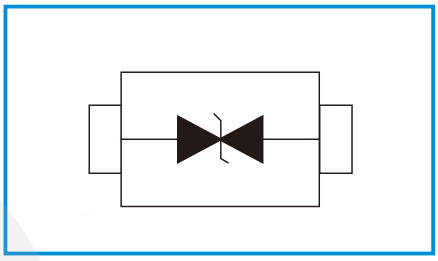
Low Capacitance Bidirectional TVS/ESD Protection Diode

Features



- IEC61000-4-2 (ESD) ±15kV (air), ±8kV (contact)
  IEC61000-4-4 (EFT) 40A (5/50us)
- Peak power dissipation: 35W (8/20μs)
- Protects one directional I/O line
- Low clamping voltage
- Working voltages : 5V
- Low leakage current
- Low capacitance
- Marking: LB

Functional Diagram



Machanical Data

- SOD-523 package
- Terminals: Gold plated, solderable per
  MIL-STD-750, method 2026
- Packaging: Tape and Reel
- Reel size: 7 inch
- Weight: 0.001 gram (approx.)

Applications

- High Speed Line :USB1.0/2.0, VGA, DVI, SDI,
- Serial and Parallel Ports
- Notebooks, Desktops, Servers
- Projection TV
- Cellular handsets and accessories
- Portable instrumentation
- Peripherals

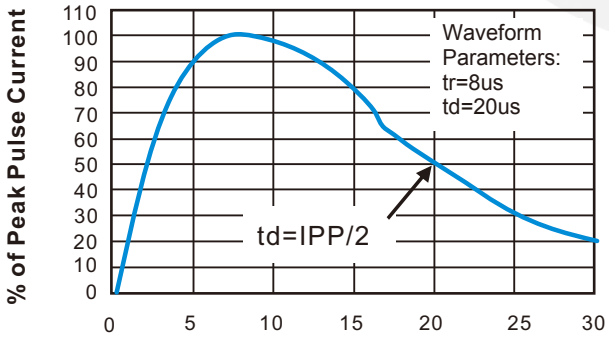
Absolute Maximum Ratings(Tamb=25°C unless otherwise specified)

Symbol	Parameter	Value	Units
V_{ESD}	ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	±15 ±8	kV
P_{PP}	Peak Pulse Power (8/20μs)	35	W
T_{OPT}	Operating Temperature	-55~150	°C
T_{STG}	Storage Temperature	-55~150	°C

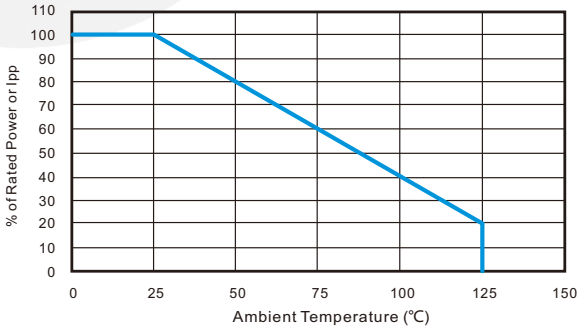
Electrical Characteristics(TA=25°C unless otherwise specified)

Symbol	Parameter	Test Condition	Min	Typ	Max	Units
V_{RWM}	Reverse Working Voltage				5.0	V
V_{BR}	Reverse Breakdown Voltage	I_T = 1mA	5.6		9.4	V
I_R	Reverse Leakage Current	V_{RWM} = 5V			2.0	μA
V_C	Clamping Voltage	I_{PP} = 1A, t_p = 8/20μs			10.5	V
		I_{PP} = 2A, t_p = 8/20μs			14.0	V
C_J	Junction Capacitance	V_R = 0V, f = 1MHz		3.0	3.5	pF

Characteristic Curves

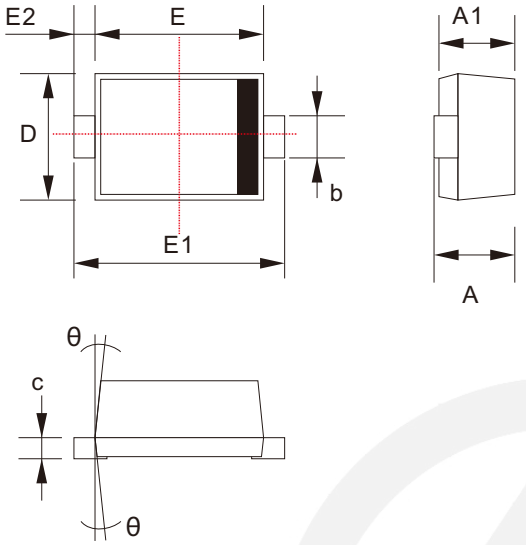


8x20μs Pulse Waveform



Power Derating Curve

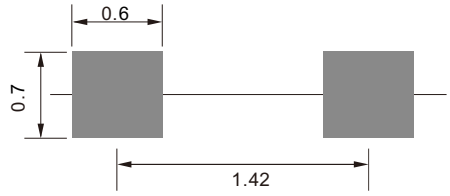
SOD-523 PACKAGE OUTLINE



Unit : mm

SYMBOL	DIMENSIONS	
	MIN.	MAX.
A	0.500	0.770
A1	0.500	0.700
b	0.250	0.380
c	0.070	0.200
D	0.700	0.900
E	1.100	1.300
E1	1.500	1.700
E2	0.200 REF	
θ	7° REF	

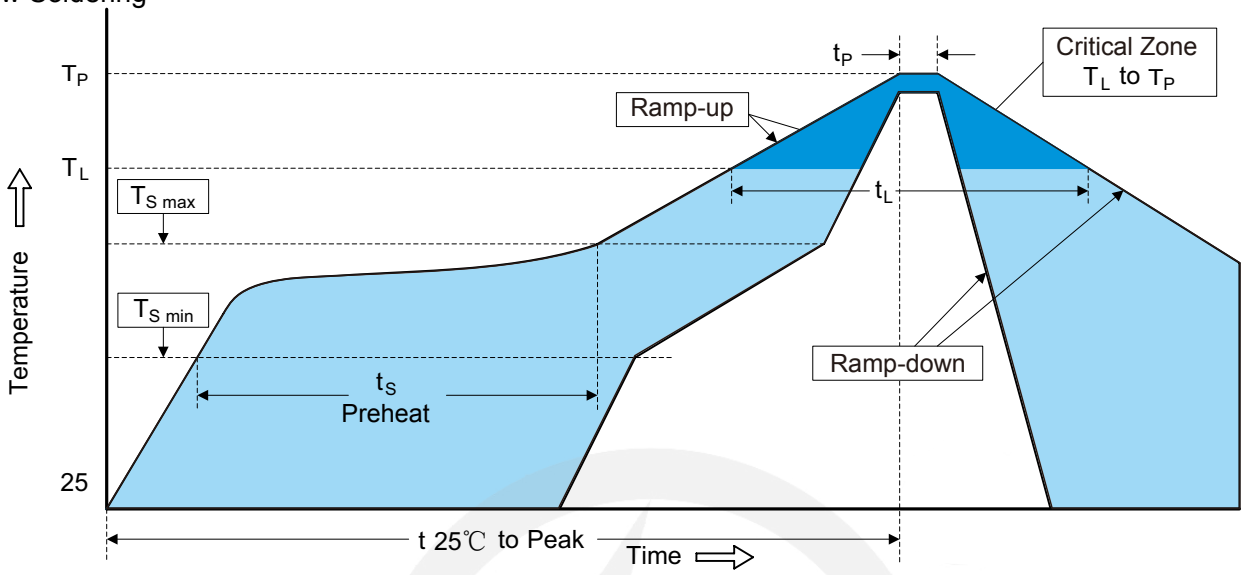
Recommended Solder Pad Footprint



Note:
1.Controlling dimension:in millimeters.
2.General tolerance:±0.05mm.
3.The pad layout is for reference purposes only.

Recommended Soldering Conditions

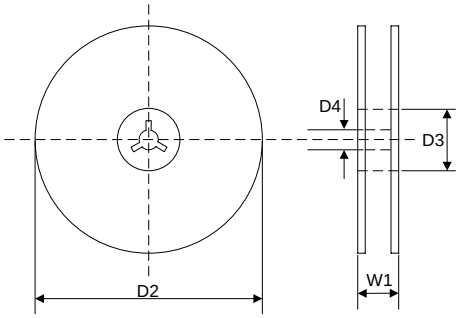
Reflow Soldering



Recommended Conditions

Profile Feature	Pb-Free Assembly
Average ramp-up rate (T_L to T_P)	3℃/second max.
Preheat -Temperature Min ($T_{S\ min}$) -Temperature Max ($T_{S\ max}$) -Time (min to max) (t_S)	 150℃ 200℃ 60-180 seconds
$T_{S\ max}$ to T_L -Ramp-up Rate	 3℃/second max.
Time maintained above: -Temperature (T_L) -Time (t_L)	 217℃ 60-150 seconds
Peak Temperature (T_P)	260℃
Time within 5℃ of actual Peak Temperature (t_P)	20-40 seconds
Ramp-down Rate	6℃/second max.
Time 25℃ to Peak Temperature	8 minutes max.

7” Reel



D2	Φ178.0±2.0
D3	Φ50.0Min.
D4	Φ13.0±0.5
W1	16.0±2.0
Quantity: 3000PCS	