

15V 2Line Bi-directional TVS Diode Array

Description

The SLPESD15VL2BT is a bi-directional TVS diode array, utilizing leading monolithic silicon technology to provide fast response time and low ESD clamping voltage, making this device an ideal solution for protecting sensitive semiconductor components from damage .

The SLPESD15VL2BT complies with the IEC 61000-4-2 (ESD) with $\pm 30\text{kV}$ air and $\pm 30\text{kV}$ contact discharge. It is assembled into a lead - free SOT-23 package . It is designed to protect components which are connected to data and transmission lines from voltage surges.

- 300W peak pulse power (8/20us)
- Protects one bi-directional or two uni-directional line(s)
- Ultra low leakage: nA level
- Stand-off Voltage: 15V
- Ultra low clamping voltage
- Complies with following standards:
 - IEC 61000-4-2 (ESD) immunity test
 - Air discharge: $\pm 30\text{kV}$
 - Contact discharge: $\pm 30\text{kV}$
 - IEC61000-4-4 (EFT) 40A (5/50ns)
- RoHS Compliant

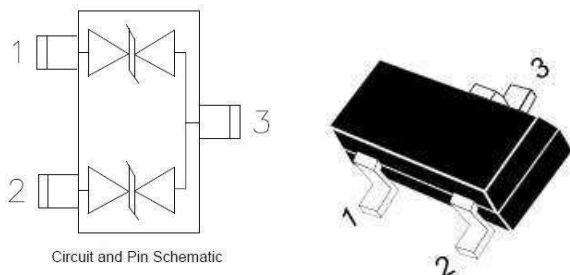
Mechanical Characteristics

- Package: SOT-23
- Lead Finish: Matte Tin
- Case Material: “Green” Molding Compound.
- UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 3 per J-STD-020
- Terminal Connections: See Diagram Below
- Marking Information: See Below

Applications

- Cellular Handsets and Accessories
- Personal Digital Assistants
- Notebooks and Handhelds
- Portable Instrumentation
- Set Top Box
- Industrial Controls
- Server and Desktop PC

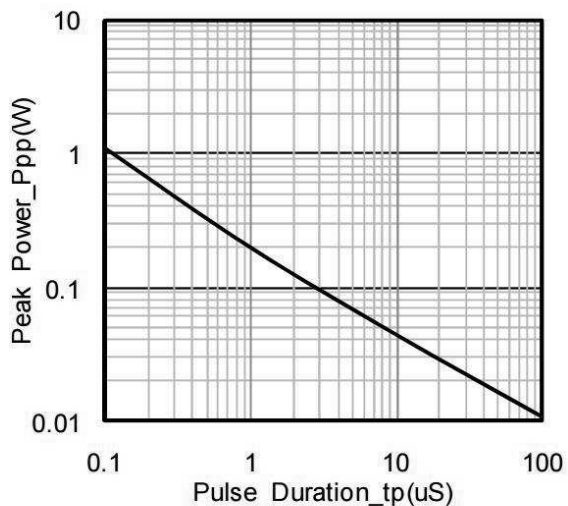
Dimensions & Symbol (Unit: mm Max)



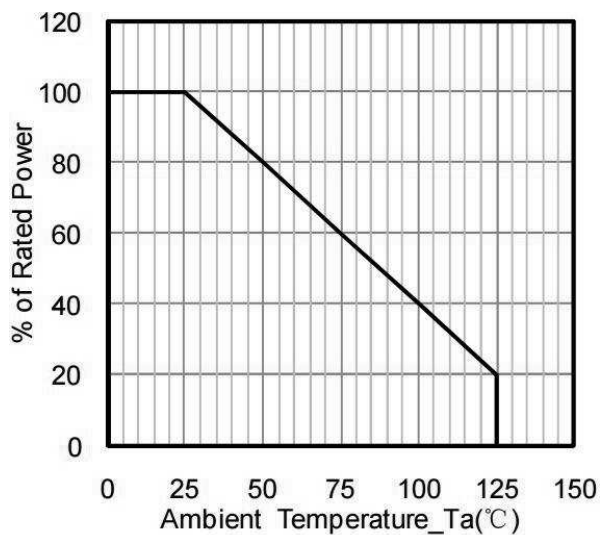
SLPESD15VL2BT			
Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20 μ s)	Ppp	300	W
Peak Pulse Current (8/20 μ s)	Ipp	8	A
ESD per IEC 61000-4-2 (Air)	VESD	\pm 30	kV
ESD per IEC 61000-4-2 (Contact)		\pm 30	
Operating Temperature Range	TJ	-55 to +125	$^{\circ}$ C
Storage Temperature Range	Tstg	-55 to +150	$^{\circ}$ C

SLPESD15VL2BT						
Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	VRWM			15	V	
Breakdown Voltage	VBR	16.7			V	IT = 1mA
Reverse Leakage Current	IR			1	uA	VRWM = 15V
Clamping Voltage	VC		24		V	IPP = 1A (8 x 20uS pulse)
Clamping Voltage	VC			38.5	V	IPP = 8A (8 x 20uS pulse)
Junction Capacitance	CJ		55		pF	VR = 0V, f = 1MHz

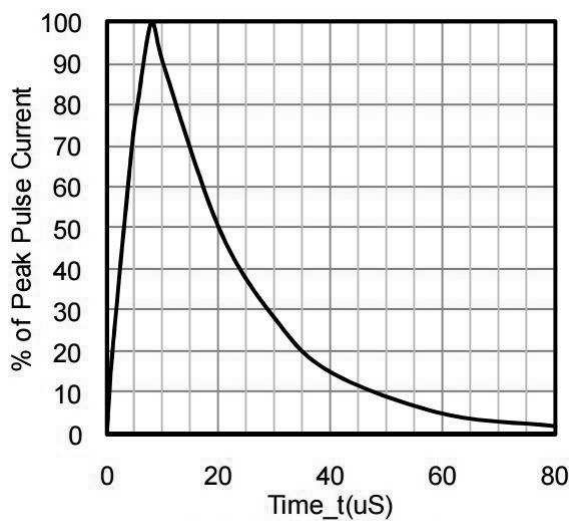
Typical Performance Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise Specified)



Peak Pulse Power vs. Pulse Time



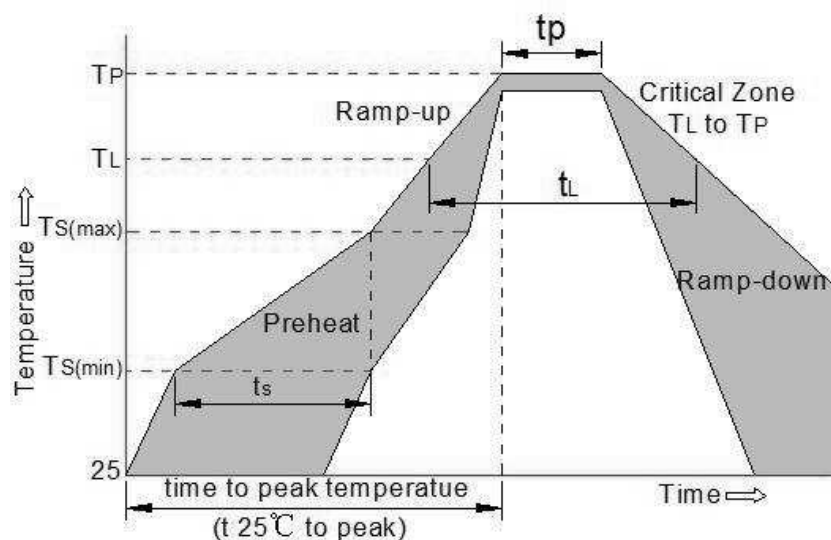
Power Derating Curve



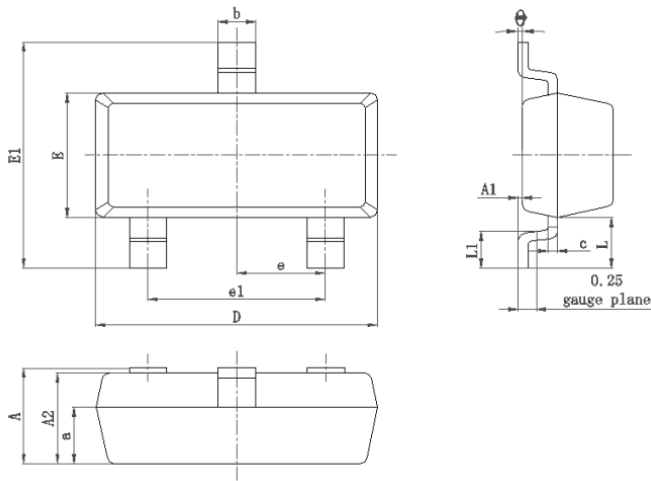
8 X 20uS Pulse Waveform

Soldering Parameters

Reflow Condition		Pb-Free assembly (see as bellow)
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)		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

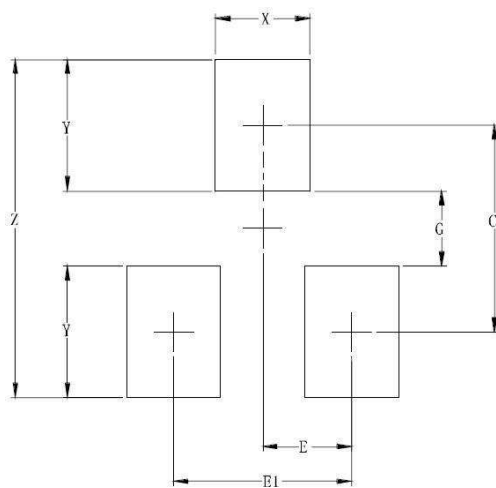


Package Mechanical Data



SYM	DIMENSIONS					
	INCHES			MILLIMETERS		
	MIN	NOM	MAX	MIN	NOM	MAX
A	.035	-	.044	0.90	-	1.12
A1	.000	-	.004	0.01	-	0.10
A2	.035	.037	.040	0.90	0.95	1.05
b	0.012	-	.020	0.30	-	0.51
c	0.03	-	.007	0.08	-	0.18
D	.110	.114	.120	2.80	2.90	3.04
E1	.082	.093	.104	2.25	2.37	2.55
E	.047	.051	.055	1.20	1.30	1.40
e	.075			1.90		
e1	.037			0.95		
L1	.015	.020	.024	0.40	0.50	0.60
L	.022			0.55		
N	3			3		
θ	0°	-	8°	0°	-	8°

Suggested Land Pattern



SYM	DIMENSIONS	
	MILLIMETERS	INCHES
C	.087	2.20
E	.037	0.95
E1	.075	1.90
G	.031	0.80
X1	.039	1.00
Y	.055	1.40
Z	.141	3.60

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