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PRODUCT DATASHEET

Electro-Static Discharge

JED523-15V ESD

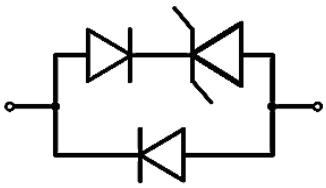
Features

- Ultra small package: SOD523
- Protects one data or power line
- Ultra low leakage: nA level
- Operating voltage: 15V
- Low clamping voltage
- 2-pin leadless package
- Complies with following standards:
  - – IEC 61000-4-2 (ESD) immunity test
    - Air discharge: ±30kV
    - Contact discharge: ±30kV
  - – IEC61000-4-5 (Lightning) 10A (8/20μs)
- RoHS compliant

Applications

- Cellular Handsets and Accessories
- Personal Digital Assistants
- Notebooks and Handhelds
- Portable Instrumentation
- Power Supply
- Keypads, Side Keys, USB 2.0, LCD Displays

Schematic Diagram



Pin Description

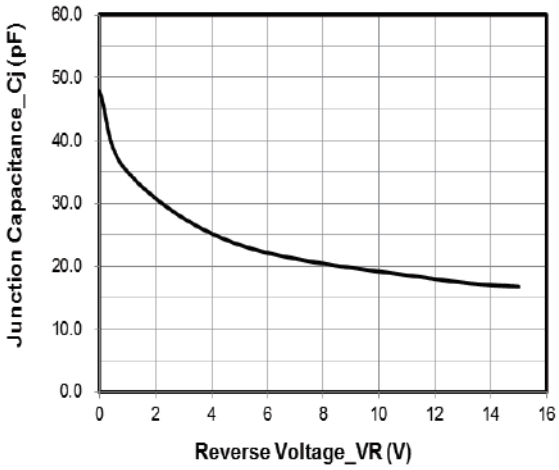
Limiting Values(T_A = 25 °C, unless otherwise specified)

Symbol	Parameter	Conditions	Value	Unit
V_{ESD}	Electrostatic Discharge Voltage	IEC 61000-4-2;Contact Discharge	±30	kV
		IEC 61000-4-2;Air Discharge	±30	kV
P_{PP}	Peak Pulse Power	t_P=8/20μs	320	W
I_{PP}	Peak Pulse Current	t_P=8/20μs	10	A
T_J	Operating Temperature Range	-	-55 to +125	°C
T_{stg}	Storage Temperature Range	-	-55 to +150	°C

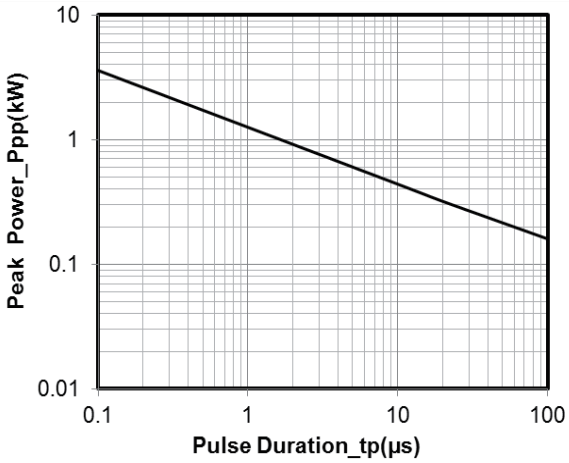
Electrical Characteristics(T_A = 25 °C, unless otherwise specified)

Symbol	Parameter	Conditions	Min	Typ.	Max	Unit
V_{RWM}	Reverse Working Voltage	T_A=25°C;Pin 1 to Pin 2	-	-	15	V
V_{BR}	Breakdown Voltage	I_T=1mA;Pin 1 to Pin 2	16.5	-	-	V
I_R	Reverse Leakage Current	V_{RWM}=15V;Pin 1 to Pin 2	-	-	0.2	μA
V_F	Forward Voltage	I_F=10mA;Pin 2 to Pin 1	-	-	1.2	V
V_C	Clamping Voltage	I_{PP}=1A(8x20μs pulse);Pin 1 to Pin 2	-	-	21	V
V_C	Clamping Voltage	I_{PP}=10A(8x20μs pulse);Pin 1 to Pin 2	-	-	32	V
C_J	Junction Capacitance	V_R=0V,f=1 MHZ	-	50	-	pF

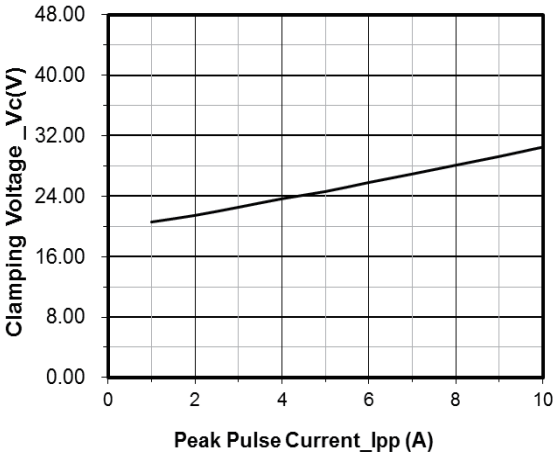
Typical Characteristics



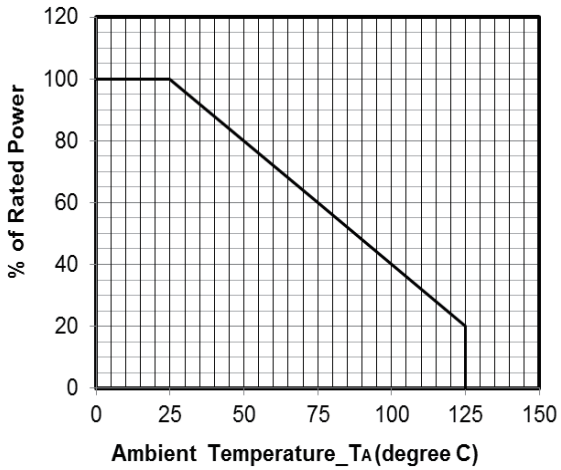
Junction Capacitance vs. Reverse Voltage



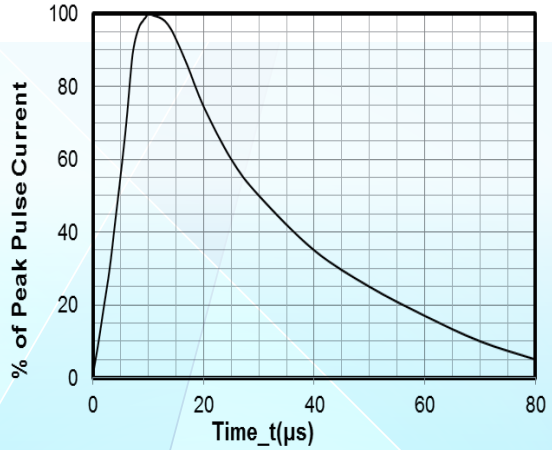
Peak Pulse Power vs. Pulse Time



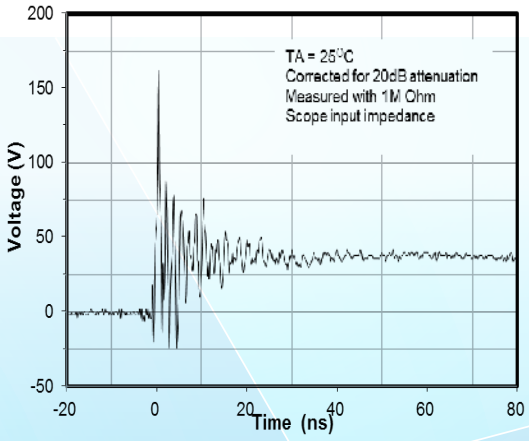
Clamping Voltage vs. Peak Pulse Current (tp = 8/20 μs)



Power Derating Curve

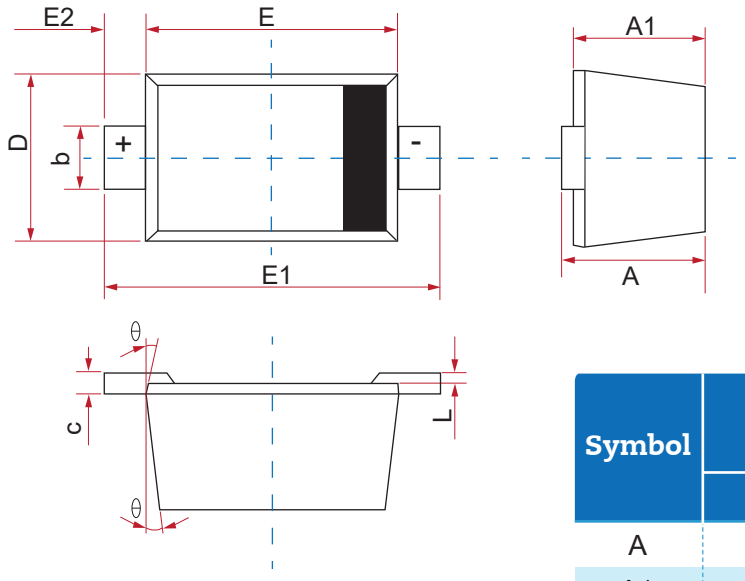


8 X 20 μs Pulse Waveform



ESD Clamping Voltage
8 kV Contact per IEC61000-4-2

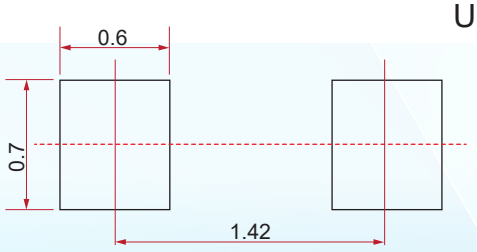
Physical Dimensions(mm.)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.51	0.77	0.020	0.031
A1	0.50	0.70	0.020	0.028
b	0.25	0.35	0.010	0.014
c	0.08	0.15	0.003	0.006
D	0.75	0.85	0.030	0.033
E	1.10	1.30	0.043	0.051
E1	1.50	1.70	0.059	0.067
E2	0.20 REF		0.008 REF	
L	0.01	0.07	0.001	0.003
θ	7° REF		7° REF	

Suggested Land Pattern

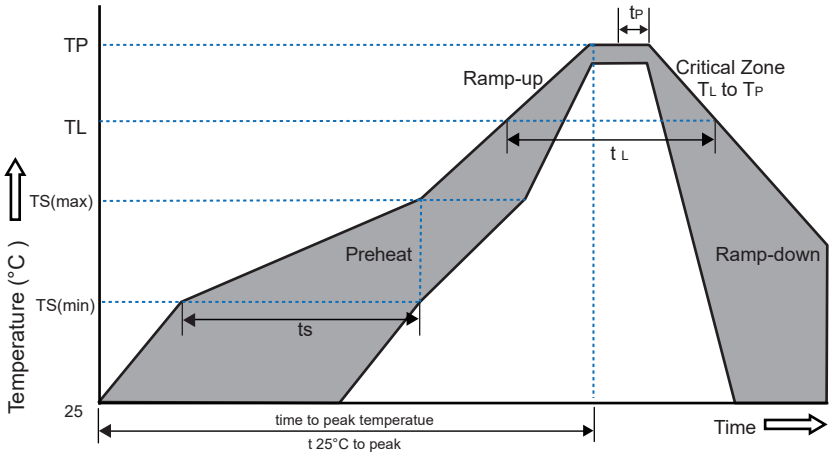
Unit:mm



Packaging Quantity

Part Number	Delivery Form	Delivery Quantity
JED523-15V	7"T&R	10,000

Soldering Parameters



Reflow Condition		Pb-Free Assembly
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
Ts(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
xTime 25°C to Peak Temp (TP)		8 min. Max
Do not exceed		+260°C

Part Number System

JE D523 - 15V

- 15V — Working Voltage: 15V
- D523 — SOD-523
- JE — JDT ESD