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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: $\pm 30\text{kV}$
Contact discharge: $\pm 30\text{kV}$
 - IEC61000-4-5 (Lightning) 10A (8/20 μs)
- RoHS compliant

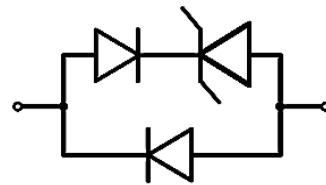
Pin Description



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



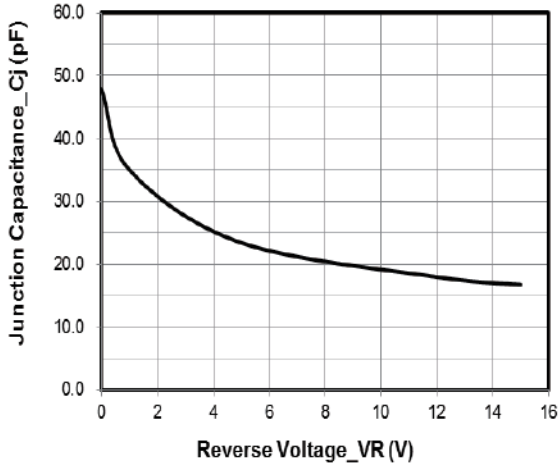
Limiting Values($T_A = 25\text{ }^\circ\text{C}$, unless otherwise specified)

| 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_{Pk} | Peak Pulse Power | $t_P=8/20\mu\text{s}$ | 320 | W |
| I_{PP} | Peak Pulse Current | $t_P=8/20\mu\text{s}$ | 10 | A |
| T_J | Operating Temperature Range | - | -55 to +125 | $^\circ\text{C}$ |
| T_{stg} | Storage Temperature Range | - | -55 to +150 | $^\circ\text{C}$ |

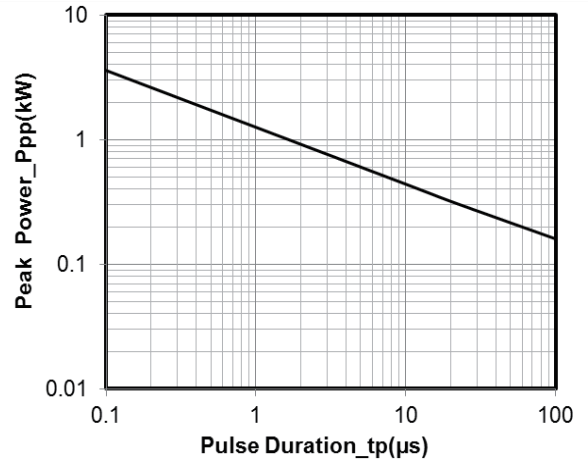
Electrical Characteristics($T_A = 25\text{ }^\circ\text{C}$, unless otherwise specified)

| Symbol | Parameter | Conditions | Min | Typ. | Max | Unit |
|-----------|-------------------------|--|------|------|-----|---------------|
| V_{RWM} | Reverse Working Voltage | $T_A=25\text{ }^\circ\text{C}$; Pin 1 to Pin 2 | - | - | 15 | V |
| V_{BR} | Breakdown Voltage | $I_T=1\text{mA}$; Pin 1 to Pin 2 | 16.5 | - | - | V |
| I_R | Reverse Leakage Current | $V_{RWM}=15\text{V}$; Pin 1 to Pin 2 | - | - | 0.2 | μA |
| V_F | Forward Voltage | $I_F=10\text{mA}$; Pin 2 to Pin 1 | - | - | 1.2 | V |
| V_C | Clamping Voltage | $I_{PP}=1\text{A}$ (8x20 μs pulse); Pin 1 to Pin 2 | - | - | 21 | V |
| V_C | Clamping Voltage | $I_{PP}=10\text{A}$ (8x20 μs pulse); Pin 1 to Pin 2 | - | - | 32 | V |
| C_J | Junction Capacitance | $V_R=0\text{V}$, $f=1\text{MHz}$ | - | 50 | - | pF |

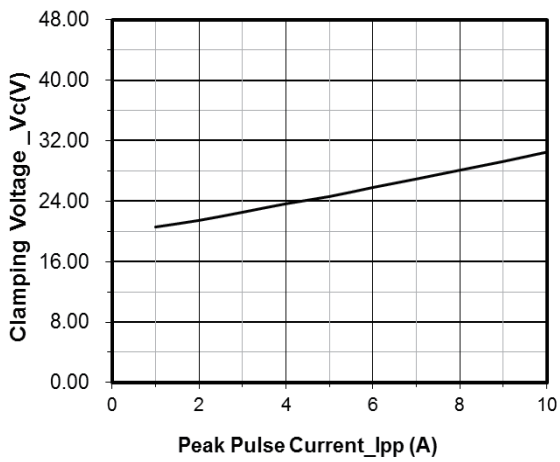
Typical Characteristics



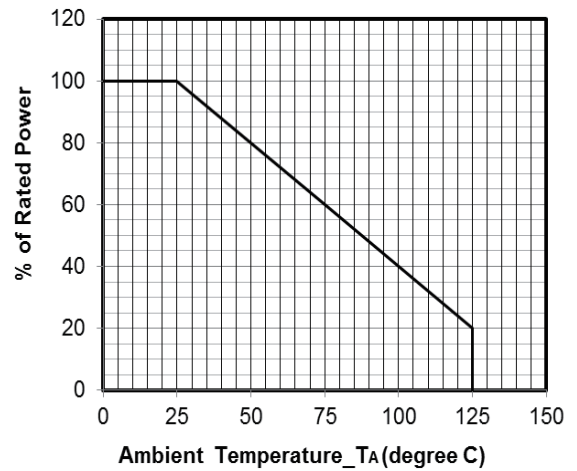
Junction Capacitance vs. Reverse Voltage



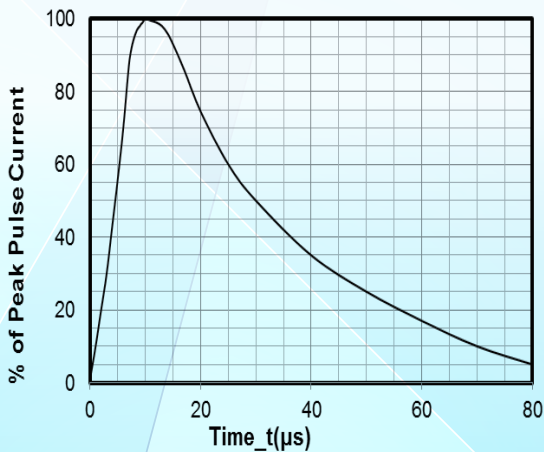
Peak Pulse Power vs. Pulse Time



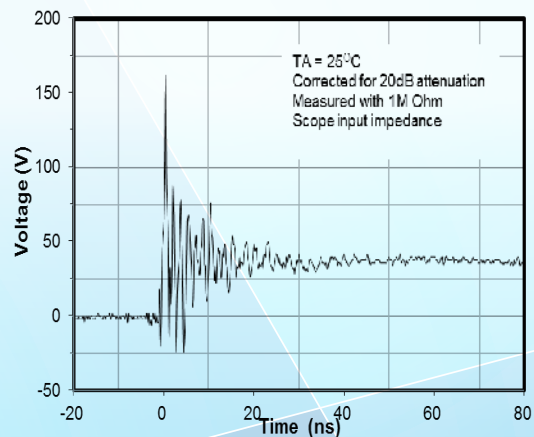
Clamping Voltage vs. Peak Pulse Current ($t_p = 8/20 \mu s$)



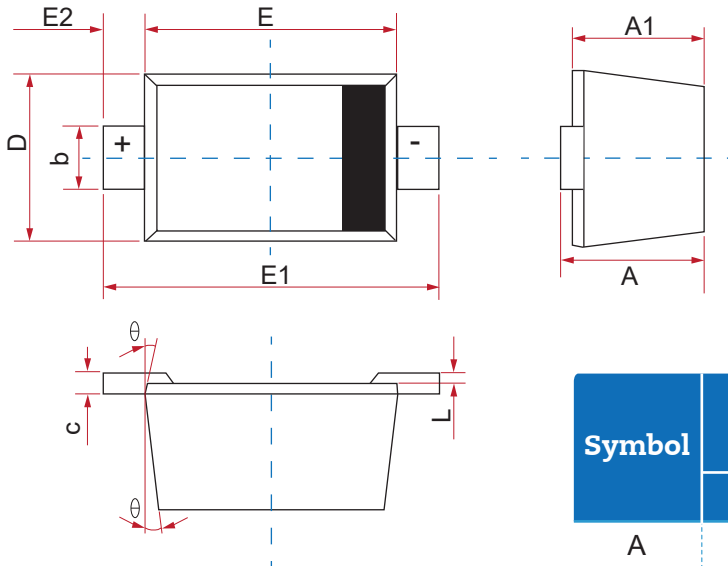
Power Derating Curve



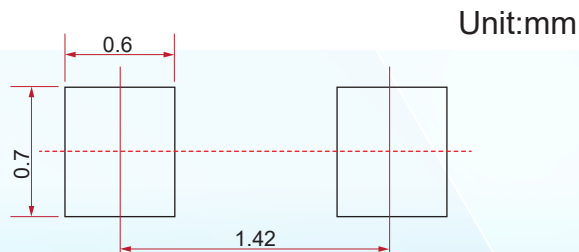
8 X 20 μs Pulse Waveform



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

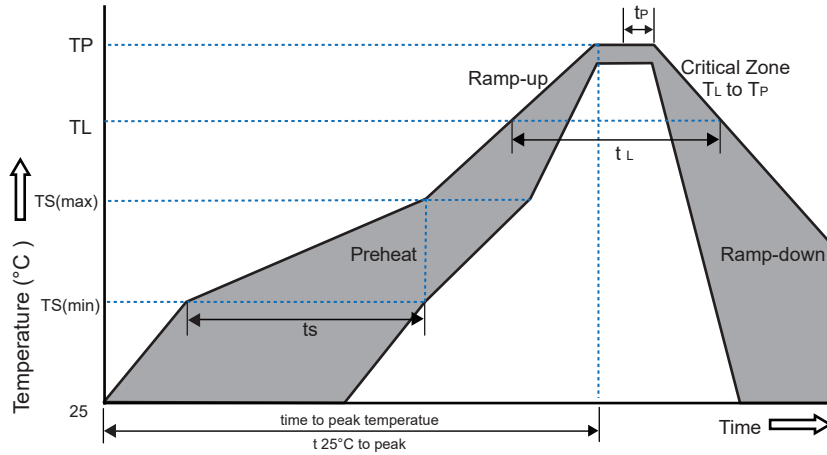
Physical Dimensions(mm.)


| 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 | | 0.037 BSC | |

Suggested Land Pattern

Packaging Quantity

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

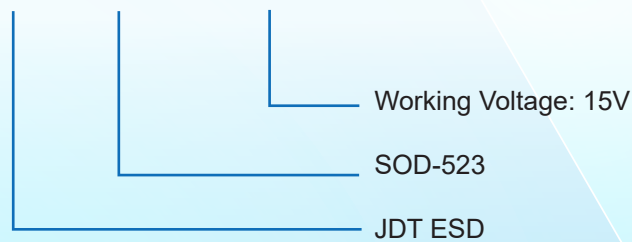
Soldering Parameters



| 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)(t_s) | 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



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