

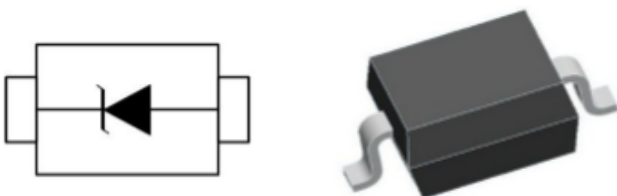
Description

The WPE0731D3 is an Uni-directional high power TVS diode, utilizing leading monolithic silicon technology to provide fast response time and low ESD clamping voltage, making this device an ideal solution for protecting voltage sensitive data and power line. The SEN0711D3 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 an ultra-small lead-free SOD-323 package. The small size and high ESD surge protection make WPE0731D3 an ideal choice to protect cell phone, digital cameras, audio players and many other portable applications.

Features

- 600W peak pulse power (8/20us)
- Protects one data or power line
- Ultra low leakage: nA level
- Stand-off Voltage: 7 V
- 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

Dimensions & Symbol (Unit: mm Max)



Mechanical Characteristics

- Package: SOD-323
- Lead Finish: Matte Tin
- Case Material: “Green” Molding Compound.
- Moisture Sensitivity: Level 3 per J-STD-020
- Terminal Connections: See Diagram Below
- Marking Information: See Below

Applications

- Battery Protection
- Power Supply Protection
- Wireless Systems
- Peripherals

Marking information



Bar denotes cathode

Details marking code reference customer approval list

Ordering Information

| Part Number | Packaging | Reel Size |
|-------------|------------------|-----------|
| WPE0731D3 | 3000/Tape & Reel | 7 inch |

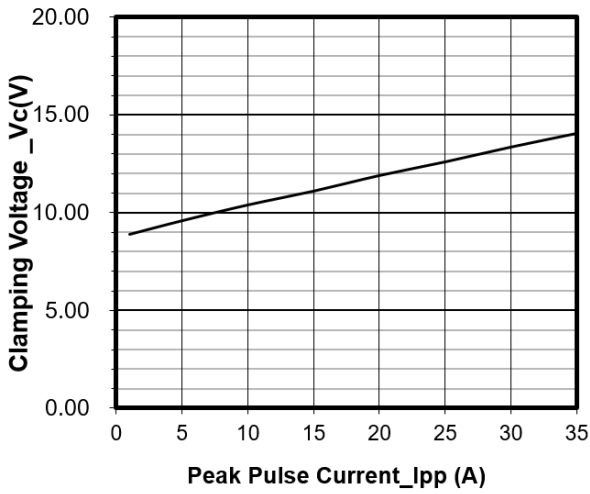
Absolute Maximum Ratings (T_A=25°C unless otherwise specified)

| WPE0731D3 | | | |
|---------------------------------|--------|-------------|------|
| Parameter | Symbol | Value | Unit |
| Peak Pulse Power (8/20µs) | Ppk | 500 | W |
| Peak Pulse Current (8/20µs) | Ipp | 35 | A |
| ESD per IEC 61000-4-2 (Air) | VESD | ±30 | kV |
| ESD per IEC 61000-4-2 (Contact) | | ±30 | |
| Operating Temperature Range | TJ | -55 to +150 | °C |
| Storage Temperature Range | Tstg | -55 to +150 | °C |

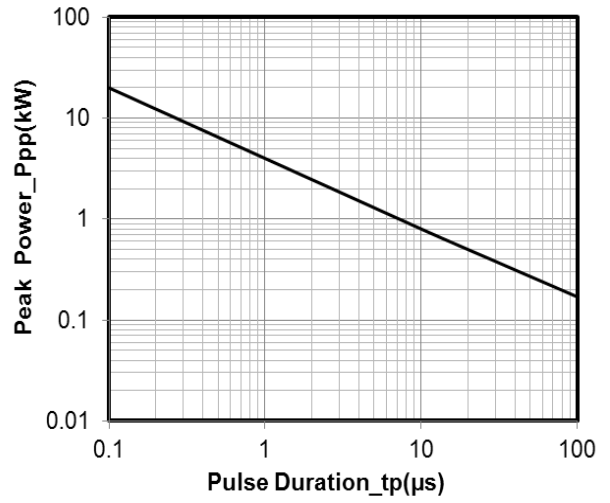
Electrical Characteristics (T_A=25°C unless otherwise specified)

| WPE0731D3 | | | | | | |
|-------------------------|----------------|-----|-----|------|------|--|
| Parameter | Symbol | Min | Typ | Max | Unit | Test Condition |
| Reverse Working Voltage | VRWM | | | 7 | V | |
| Breakdown Voltage | VBR | 8.2 | | | V | I _T = 1mA |
| Reverse Leakage Current | I _R | | | 0.5 | uA | V _{RWM} = 3.3V |
| Clamping Voltage | V _C | | | 10 | V | I _{PP} = 1A (8 x 20uS pulse) |
| Clamping Voltage | V _C | | | 14.5 | V | I _{PP} = 35A (8 x 20uS pulse) |
| Junction Capacitance | C _J | | 160 | | pF | V _R = 0V, f = 1MHz |

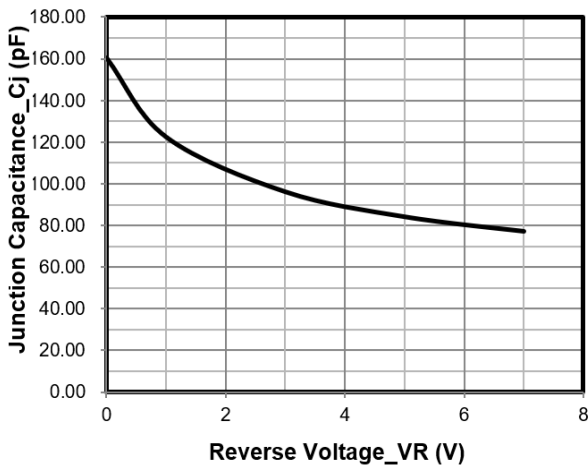
Typical Performance Characteristics (T_A=25°C unless otherwise Specified)



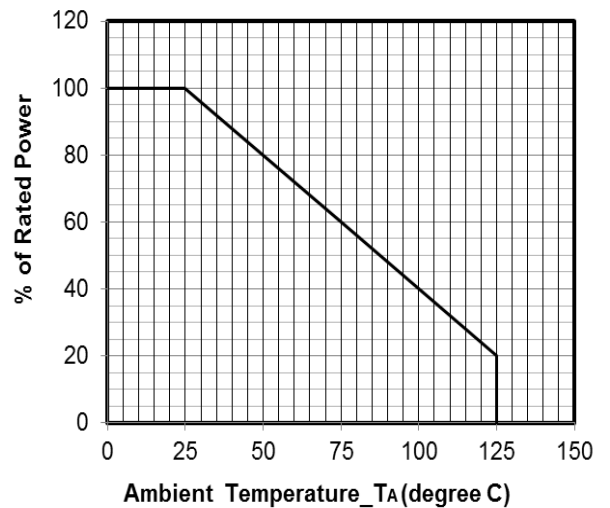
Junction Capacitance vs. Reverse Voltage



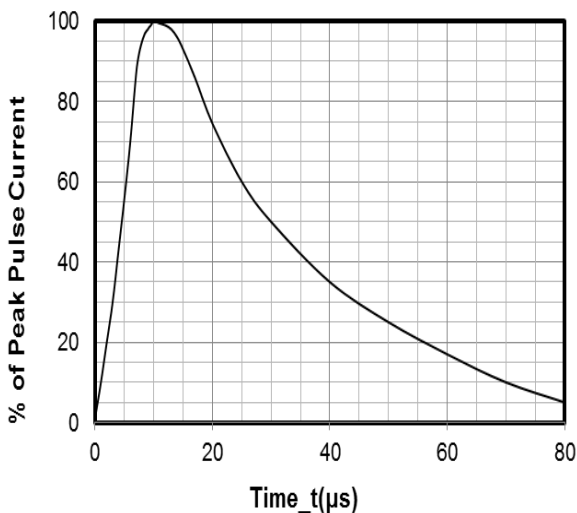
Peak Pulse Power vs. Pulse Time



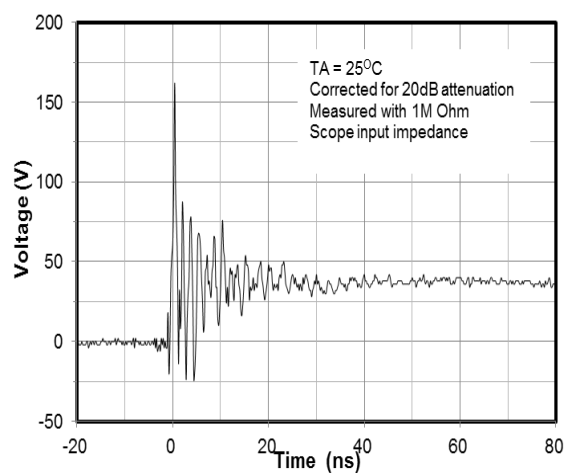
Clamping Voltage vs. Peak Pulse Current



Power Derating Curve



8 X 20μs Pulse Waveform

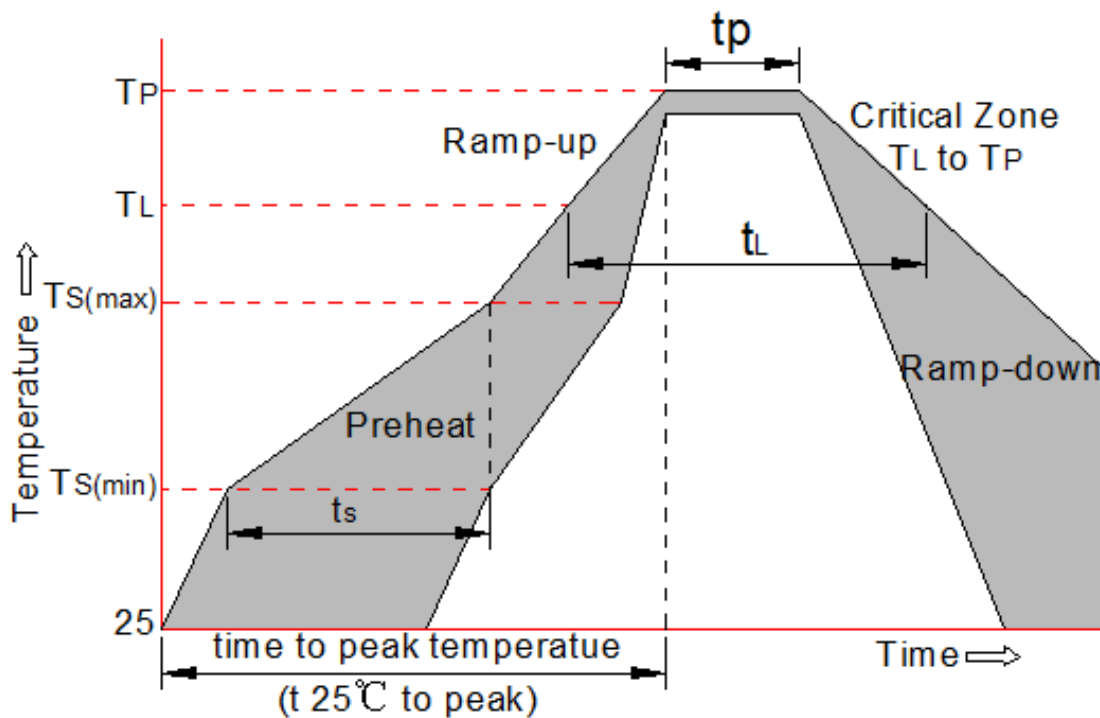


ESD Clamping Voltage

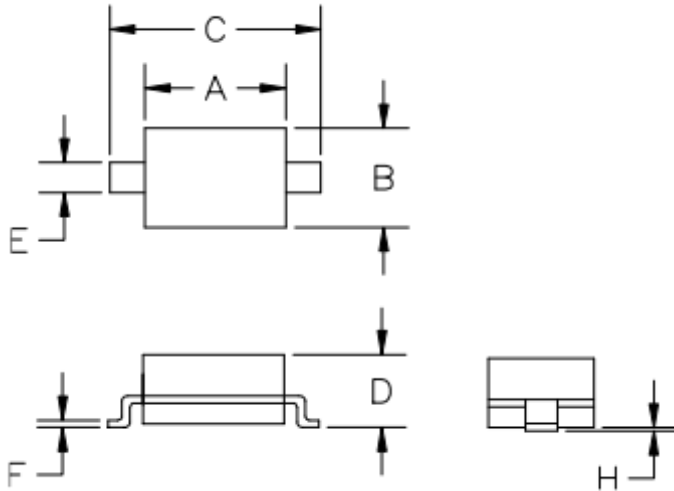
8 kV Contact per IEC61000-4-2

Soldering parameters

| Reflow Condition | | Pb-Free assembly (see 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 |

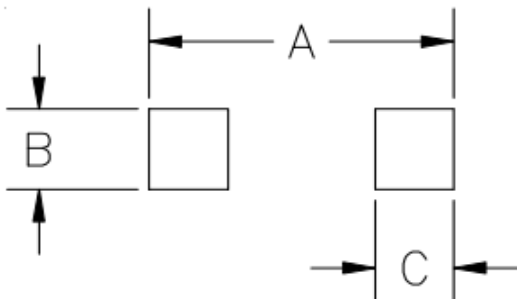


Package Mechanical Data (SOD-323)



| SYM | DIMENSIONS | | | |
|-----|-------------|------|--------|-------|
| | MILLIMETERS | | INCHES | |
| | MIN | MAX | MIN | MAX |
| A | 1.50 | 1.80 | 0.060 | 0.071 |
| B | 1.20 | 1.40 | 0.045 | 0.054 |
| C | 2.30 | 2.70 | 0.090 | 0.107 |
| D | - | 1.10 | - | 0.043 |
| E | 0.30 | 0.40 | 0.012 | 0.016 |
| F | 0.10 | 0.25 | 0.004 | 0.010 |
| H | - | 0.10 | - | 0.004 |

Suggested Land Pattern



| SYM | DIMENSIONS | |
|-----|-------------|--------|
| | MILLIMETERS | INCHES |
| A | 3.15 | 0.120 |
| B | 0.80 | 0.031 |
| C | 0.80 | 0.031 |

Contact Information

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