

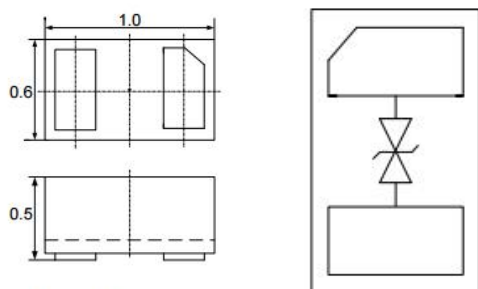
Description

The WPE0521PZ is designed to protect voltage sensitive components from ESD. Excellent clamping capability, low leakage, and fast response time provide best in class protection on designs that are exposed to ESD. Because of its small size, it is suited for use in cellular phones, MP3 players, digital cameras and many other portable applications where board space comes at a premium. It has been specifically designed to protect sensitive components which are connected to data and transmission lines from overvoltage caused by ESD(electrostatic discharge), and EFT (electrical fast transients).

Features

- Ultra small package: 1.0x0.6x0.5mm
- Protects one data or power line
- Ultra low leakage: nA level
- Working voltage: 5V
- 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(Surge) 8A (8/20us)
- RoHS Compliant

Dimensions & Symbol (Unit: mm Max)



Mechanical Characteristics

- Package: DFN1006-2 (1.0×0.6×0.5mm)
- Lead Finish: NiPdAu
- Case Material: “Green” Molding Compound.
- Moisture Sensitivity: Level 3 per J-STD-020
- Terminal Connections: See Diagram Below
- Marking Information: See Below

Applications

- Data Line: USB1.0 &VGA
- Serial and Parallel Ports
- Notebooks and Handhelds
- Cellular handsets and accessories
- Portable instrumentation
- Peripherals

Marking information



Details marking code reference specification of approval list

Ordering Information

| Part Number | Packaging | Reel Size |
|-------------|-------------------|-----------|
| WPE0521PZ | 10000/Tape & Reel | 7 inch |

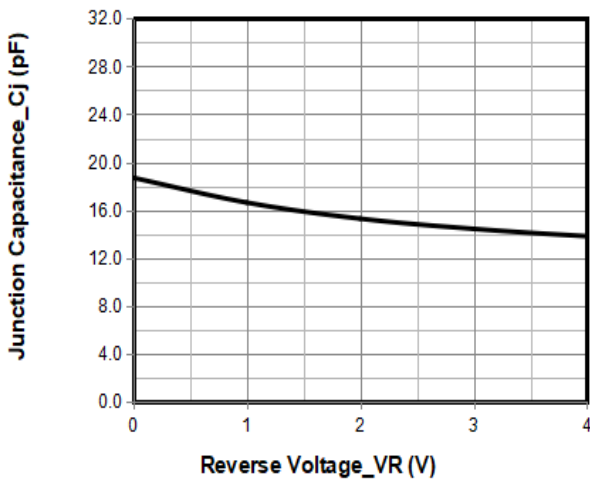
Absolute maximum ratings ($T_A=25^{\circ}\text{C}$, RH=45%-75%, unless otherwise noted)

| Parameter | Symbol | Value | Unit |
|--|-----------|-------------|--------------------|
| Peak Pulse Power(tp=8/20uS waveform) | P_{PP} | 100 | W |
| Peak Pulse Current(tp=8/20uS waveform) | I_{PP} | 8 | A |
| ESD per IEC 61000-4-2 (Air) | VESD | ± 30 | kV |
| ESD per IEC 61000-4-2 (Contact) | | ± 30 | |
| Operating Temperature Range | T_J | -55 to +125 | $^{\circ}\text{C}$ |
| Storage Temperature Range | T_{stg} | -55 to +150 | $^{\circ}\text{C}$ |

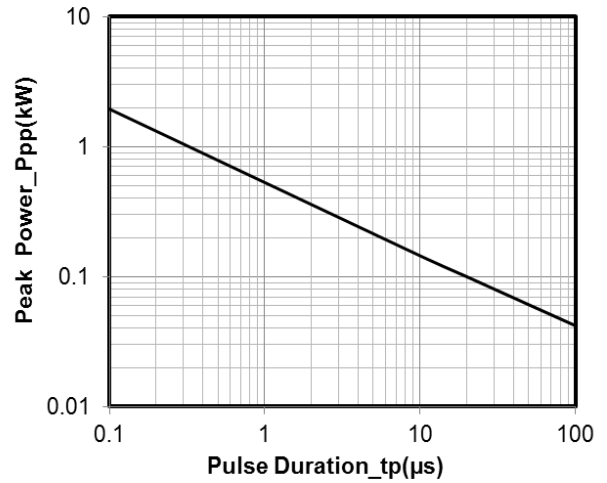
Electrical characteristics ($T_A=25^{\circ}\text{C}$)

| Parameter | Symbol | Min | Typ | Max | Unit | Test Condition |
|-------------------------|-----------|-----|-----|-----|---------------|---|
| Reverse Working Voltage | V_{RWM} | | | 5.0 | V | |
| Breakdown Voltage | V_{BR} | 6 | | | V | $I_T = 1\text{mA}$ |
| Reverse Leakage Current | I_R | | | 0.2 | μA | $V_{RWM} = 5.0\text{V}$ |
| Clamping Voltage | V_C | | 7 | 8 | V | $I_{PP} = 1\text{A}$ (8 x 20 μs pulse) |
| Clamping Voltage | V_C | | 10 | 12 | V | $I_{PP} = 8\text{A}$ (8 x 20 μs pulse) |
| Junction Capacitance | C_J | | 15 | 18 | pF | $V_R = 0\text{V}$, $f = 1\text{MHz}$ |

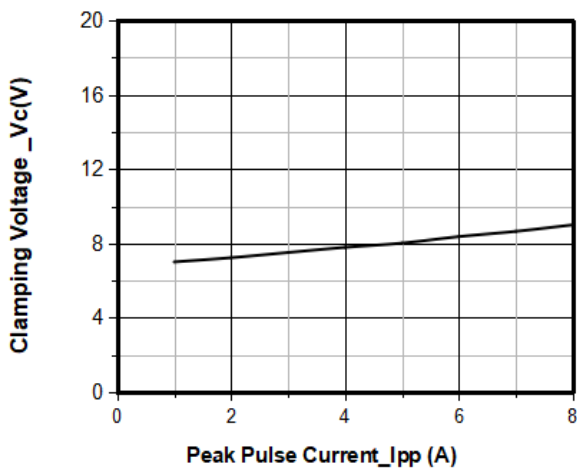
Typical Performance Characteristics ($T_A=25^\circ\text{C}$ unless otherwise Specified)



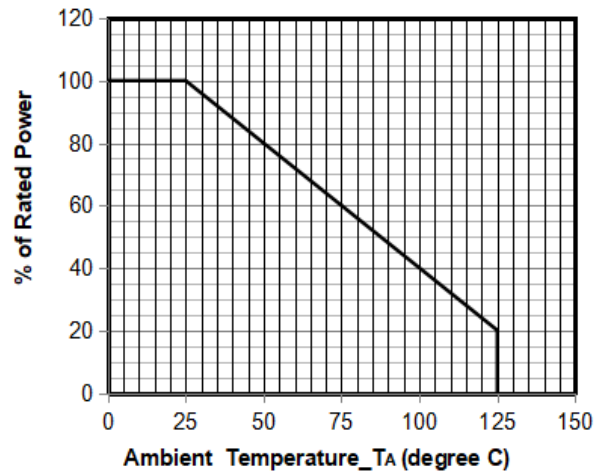
Junction Capacitance vs. Reverse Voltage



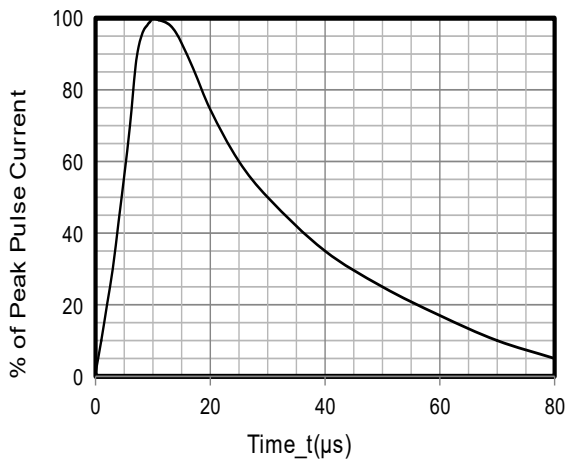
Peak Pulse Power vs. Pulse Time



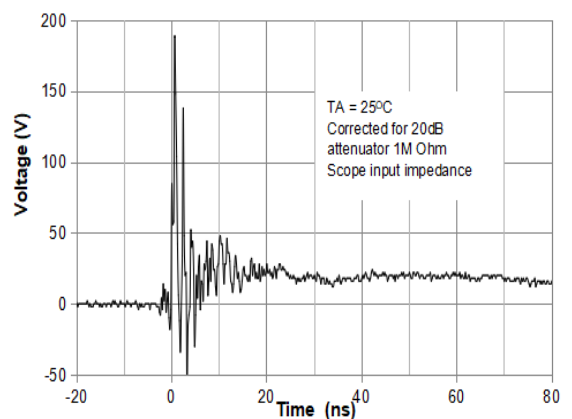
Clamping Voltage vs. Peak Pulse Current (tp = 8/20μs)



Power Derating Curve



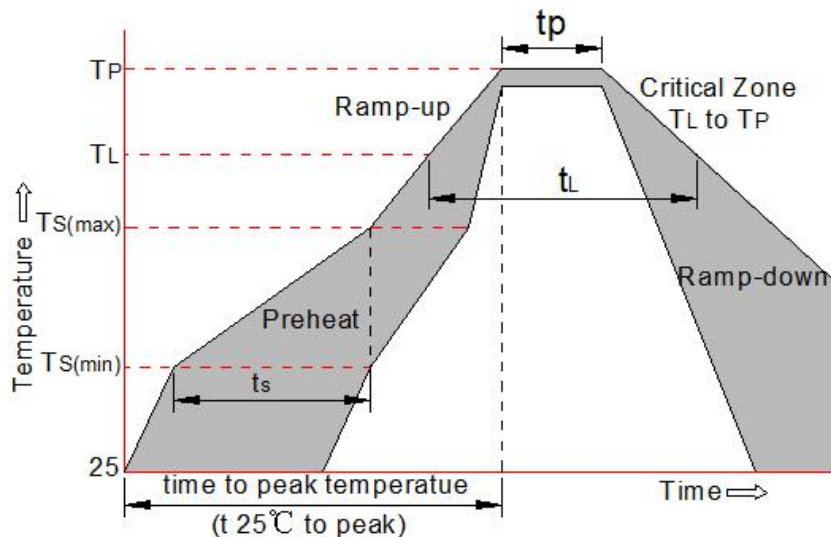
8 X 20μs Pulse Waveform



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

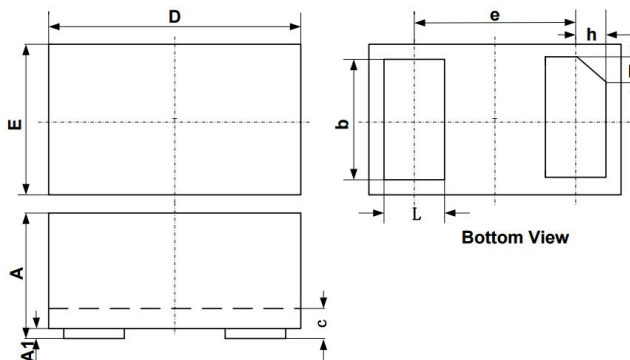
Soldering parameters

| | | |
|---|-----------------------------------|---------------------------------|
| Reflow Condition | | Pb-Free assembly (see FIG.2) |
| 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 |



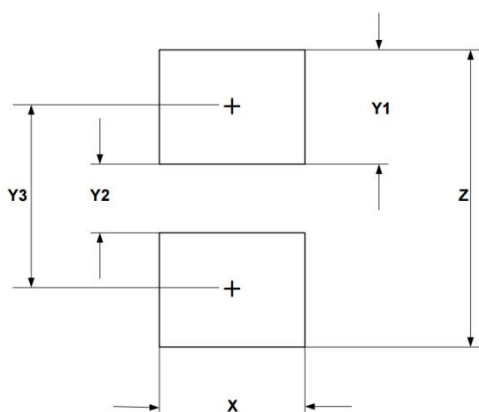
Package mechanical data

| SYM | DIMENSIONS | |
|-----|-------------|--------|
| | MILLIMETERS | INCHES |



| | MIN | NOM | MAX | MIN | NOM | MAX |
|----|----------|------|------|-----------|-------|-------|
| A | 0.45 | 0.50 | 0.55 | 0.018 | 0.020 | 0.022 |
| A1 | 0.00 | 0.02 | 0.05 | 0.000 | 0.001 | 0.002 |
| b | 0.45 | 0.50 | 0.55 | 0.018 | 0.020 | 0.022 |
| c | 0.12 | 0.15 | 0.18 | 0.005 | 0.006 | 0.007 |
| D | 0.95 | 1.00 | 1.05 | 0.037 | 0.039 | 0.041 |
| e | 0.65 BSC | | | 0.026 BSC | | |
| E | 0.55 | 0.60 | 0.65 | 0.022 | 0.024 | 0.026 |
| L | 0.20 | 0.25 | 0.30 | 0.008 | 0.010 | 0.012 |
| h | 0.07 | 0.12 | 0.17 | 0.003 | 0.005 | 0.007 |

Suggested Land Pattern



| SYM | DIMENSIONS | |
|-----|-------------|--------|
| | MILLIMETERS | INCHES |
| X | 0.60 | 0.024 |
| Y1 | 0.50 | 0.020 |
| Y2 | 0.30 | 0.012 |
| Y3 | 0.80 | 0.032 |
| Z | 1.30 | 0.052 |

Contact information

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