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PRODUCT DATASHEET

Electro-Static Discharge

JEN1006-9V-C ESD

Features

- Ultra small package: 1.0x0.6x0.50mm(DFN1006)
- Protects one data or power line
- Ultra low leakage: nA level
- Operating voltage: 9V
- 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: $\pm 25\text{kV}$
 - IEC61000-4-5 (Lightning) 5A (8/20 μs)
- RoHS Compliant

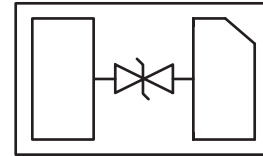
Pin Description



Applications

- Cellular Handsets and Accessories
- Personal Digital Assistants
- Notebooks and Handhelds
- Portable Instrumentation
- Digital Cameras
- Peripherals
- Audio Players
- Keypads, Side Keys, LCD Displays

Schematic Diagram



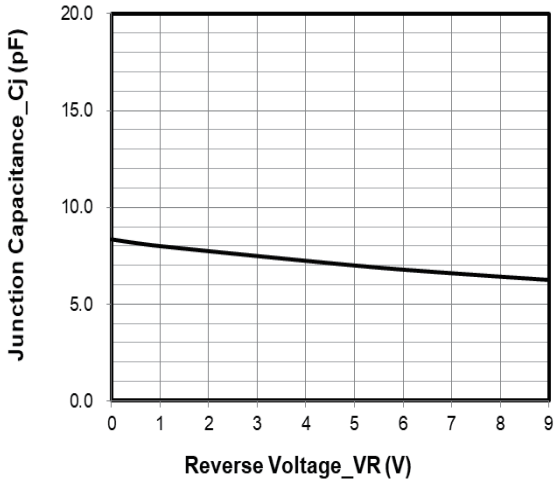
Limiting Values($T_A = 25^\circ\text{C}$, unless otherwise specified)

| Symbol | Parameter | Conditions | Min | Max | Unit |
|------------------|---------------------------------|---------------------------------|-----|----------|------------------|
| V _{ESD} | Electrostatic Discharge Voltage | IEC 61000-4-2;Contact Discharge | - | ± 25 | kV |
| | | IEC 61000-4-2;Air Discharge | - | ± 30 | kV |
| P _{Pk} | Peak Pulse Power | $t_p=8/20\mu\text{s}$ | - | 100 | W |
| I _{PP} | Peak Pulse Current | $t_p=8/20\mu\text{s}$ | - | 5 | A |
| T _A | Ambient Temperature Range | - | -55 | 125 | $^\circ\text{C}$ |
| T _{stg} | Storage Temperature Range | - | -55 | 150 | $^\circ\text{C}$ |

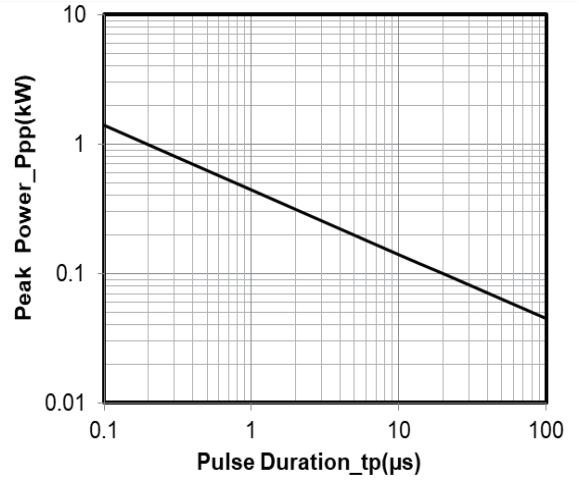
Electrical Characteristics($T_A = 25^\circ\text{C}$, unless otherwise specified)

| Symbol | Parameter | Conditions | Min | Typ. | Max | Unit |
|------------------|-------------------------|---|-----|------|-----|---------------|
| V _{RWM} | Reverse Working Voltage | $T_A=25^\circ\text{C}$ | - | - | 9.0 | V |
| V _{BR} | Breakdown Voltage | $I_R=1\text{mA}; T_A=25^\circ\text{C}$ | 10 | - | - | V |
| I _R | Reverse Leakage Current | $V_{RWM}=9\text{V}; T_A=25^\circ\text{C}$ | - | - | 0.2 | μA |
| V _C | Clamping Voltage | $I_{PP}=1\text{A}$ | - | - | 14 | V |
| | | $I_{PP}=5\text{A}$ | - | - | 20 | V |
| C _J | Junction Capacitance | $V_R=0\text{V}, f=1\text{MHZ}$ | - | - | 15 | pF |

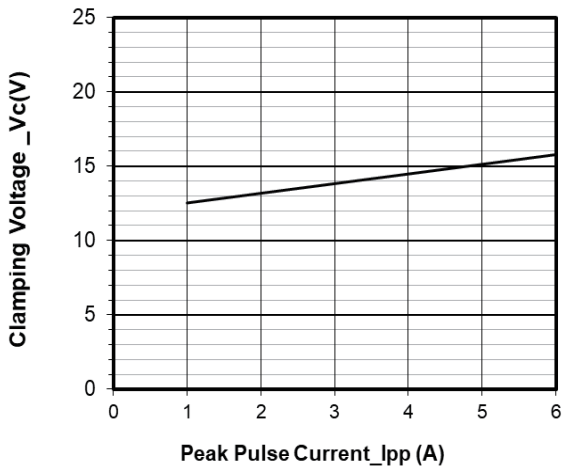
Typical Characteristics



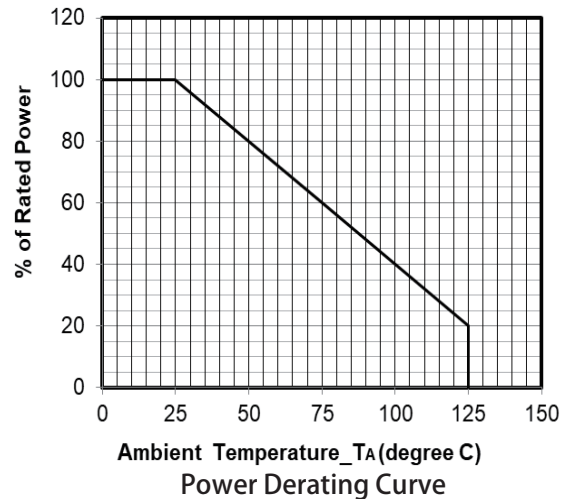
Junction Capacitance vs. Reverse Voltage



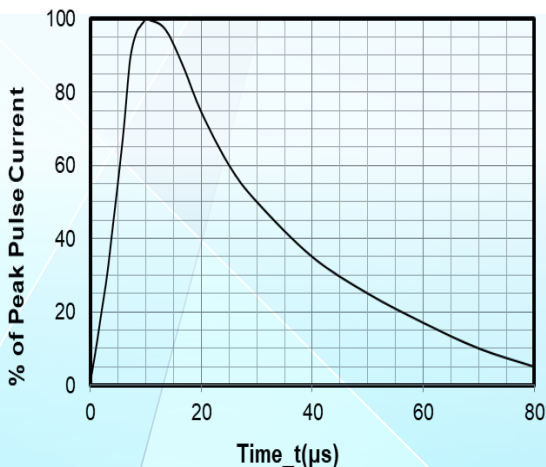
Peak Pulse Power vs. Pulse Time



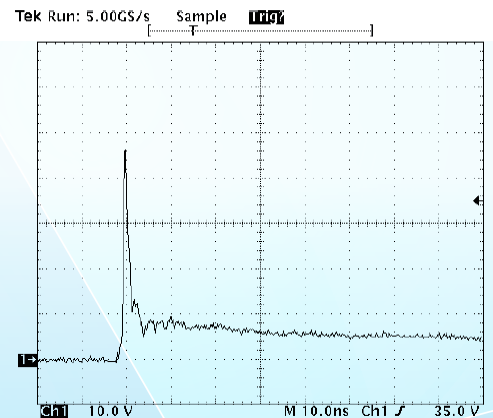
Clamping Voltage vs. Peak Pulse Current ($t_p = 8/20 \mu s$)



Power Derating Curve

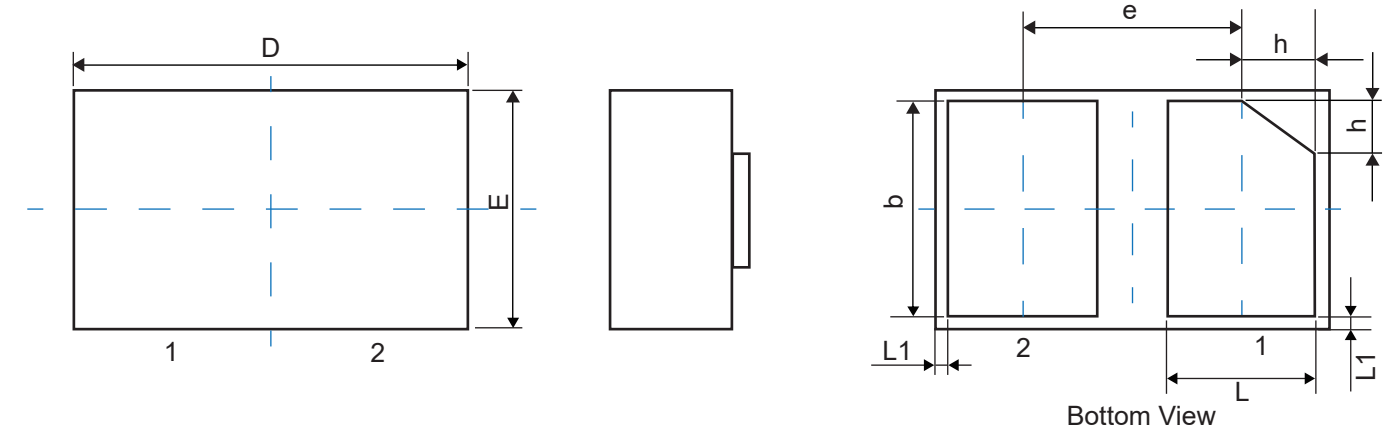


8x20 μs Pulse Waveform



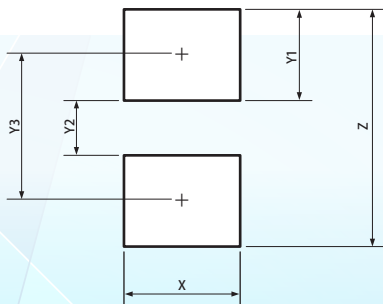
Note: Data is taken with a 10x attenuator
ESD Clamping Voltage
8 kV Contact per IEC61000-4-2

Physical Dimensions(mm.)



| Symbol | Dimensions In Millimeters | | | Dimensions In 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 |
| L1 | 0.05 REF | | | 0.002 REF | | |
| h | 0.07 | 0.12 | 0.17 | 0.003 | 0.005 | 0.007 |

Suggested Land Pattern

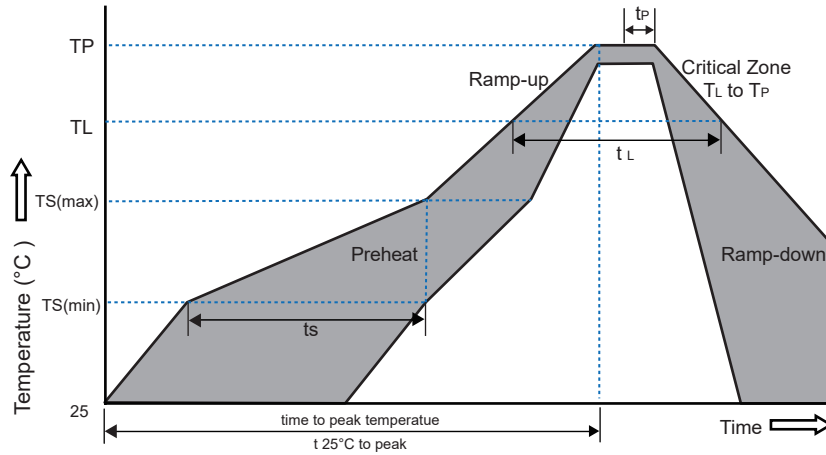


| Symbol | Dimensions | |
|--------|-------------|--------|
| | Millimeters | Inches |
| X | 0.60 | 0.024 |
| Y1 | 0.50 | 0.020 |
| Y2 | 0.30 | 0.012 |
| Y3 | 0.80 | 0.032 |
| Z | 1.30 | 0.052 |

Packaging Quantity

| Part Number | Size(mm) | Delivery Form | Delivery Quantity |
|--------------|----------------|---------------|-------------------|
| JEN1006-9V-C | 1.00x0.60x0.37 | 7" T&R | 10,000 |

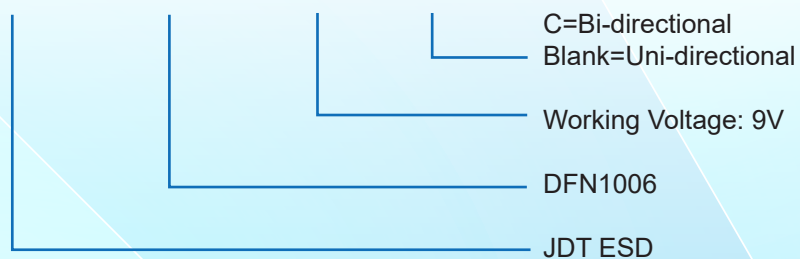
Soldering Parameters



| 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 N1006 - 9V - C



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