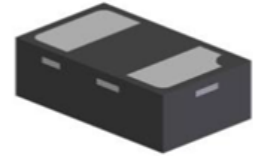


Description

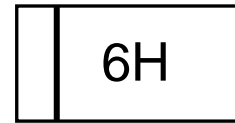
The PESDHC2FD6V3UF ESD protector is designed to replace multilayer varistors (MLVs) in portable applications such as cell phones, notebook computers, and PDA's. They feature large cross-sectional area junctions for conducting high transient currents, offer desirable electrical characteristics for board level protection, such as fast response time, lower operating voltage, lower clamping voltage and no device degradation when compared to MLVs. The PESDHC2FD6V3UF protects sensitive semiconductor components from damage or upset due to electrostatic discharge (ESD) and other voltage induced transient events. The PESDHC2FD6V3UF is available in a DFN1006-2L package with working voltages of 6.3 volt. It gives designer the flexibility to protect one unidirectional line in applications where arrays are not practical. Additionally, it may be "sprinkled" around the board in applications where board space is at a premium.



DFN1006-2L(Bottom View)

Feature

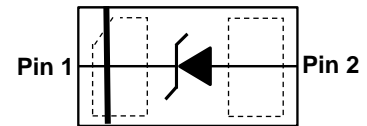
- 500W Peak pulse power per line ($t_P = 8/20\mu s$)
- DFN1006-2L package
- Replacement for MLV(0402)
- Unidirectional configurations
- Response time is typically $< 1\text{ ns}$
- Protect one I/O or power line
- Low clamping Voltage
- RoHS compliant
- Transient protection for data lines to IEC 61000-4-2(ESD) $\pm 30\text{kV}(\text{air}), \pm 30\text{kV}(\text{contact});$ IEC 61000-4-4 (EFT) 40A (5/50ns)



Marking (Top View)

Applications

- Cell phone handsets and accessories
- Personal digital assistants (PDA's)
- Notebooks, desktops, and servers
- Portable instrumentation
- Cordless phones
- Digital cameras
- Peripherals
- MP3 players



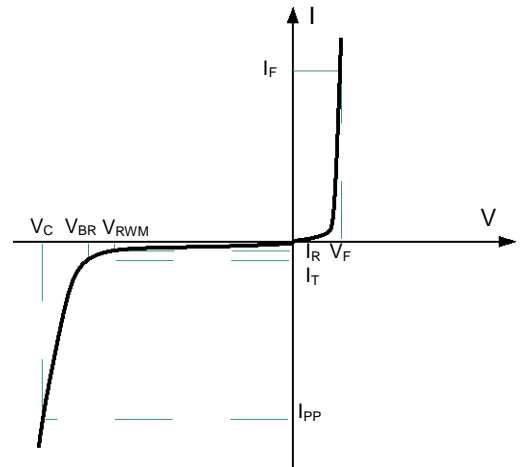
Circuit Diagram

Mechanical Characteristics

- Mounting position: Any
- Qualified max reflow temperature: 260°C
- Device meets MSL 1 requirements
- DFN1006-2L without plating

Electronics Parameter

| Symbol | Parameter |
|-----------|-------------------------------------|
| V_{RWM} | Peak Reverse Working Voltage |
| I_R | Reverse Leakage Current @ V_{RWM} |
| V_{BR} | Breakdown Voltage @ I_T |
| I_T | Test Current |
| I_{PP} | Maximum Reverse Peak Pulse Current |
| V_C | Clamping Voltage @ I_{PP} |
| P_{PP} | Peak Pulse Power |
| C_J | Junction Capacitance |
| I_F | Forward Current |
| V_F | Forward Voltage @ I_F |



Electrical characteristics per line @25°C (unless otherwise specified)

| Parameter | Symbol | Conditions | Min. | Typ. | Max. | Units |
|---------------------------------|-----------|-----------------------------|------|------|------|---------|
| Peak Reverse Working Voltage | V_{RWM} | | | | 6.3 | V |
| Breakdown Voltage | V_{BR} | $I_T=1mA$ | 6.5 | 7.0 | 8.5 | V |
| Reverse Leakage Current | I_R | $V_{RWM}=6.3V$ | | | 1.0 | μA |
| Clamping Voltage ⁽¹⁾ | V_C | TLP=16A, $t_p = 100ns$ | | 7.2 | | V |
| Clamping Voltage ⁽²⁾ | V_C | $I_{PP}=20A, t_p=8/20\mu s$ | | 8.0 | 9.5 | V |
| | | $I_{PP}=50A, t_p=8/20\mu s$ | | 9.5 | 11.5 | V |
| Junction Capacitance | C_J | $V_R=0V, f = 1MHz$ | | 150 | | pF |

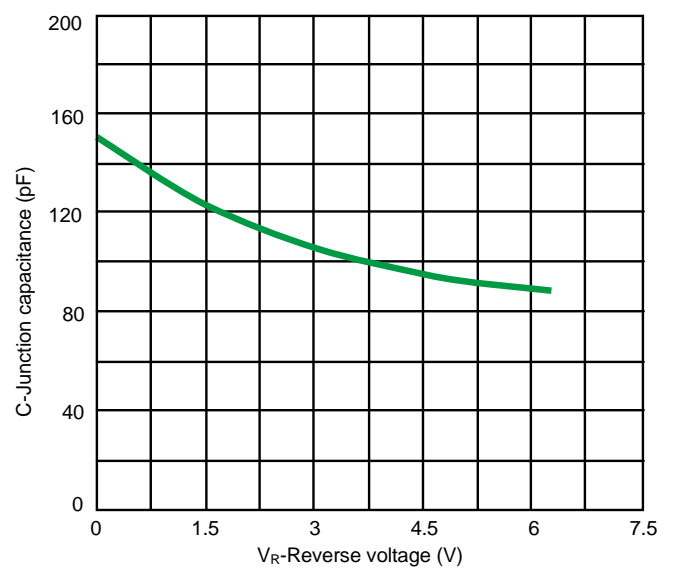
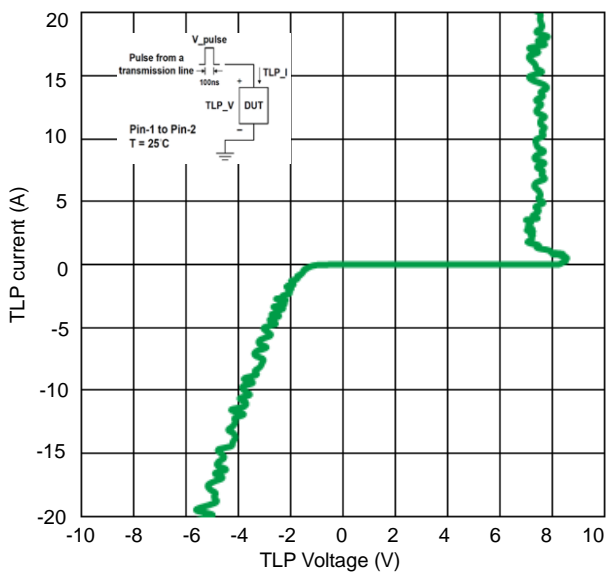
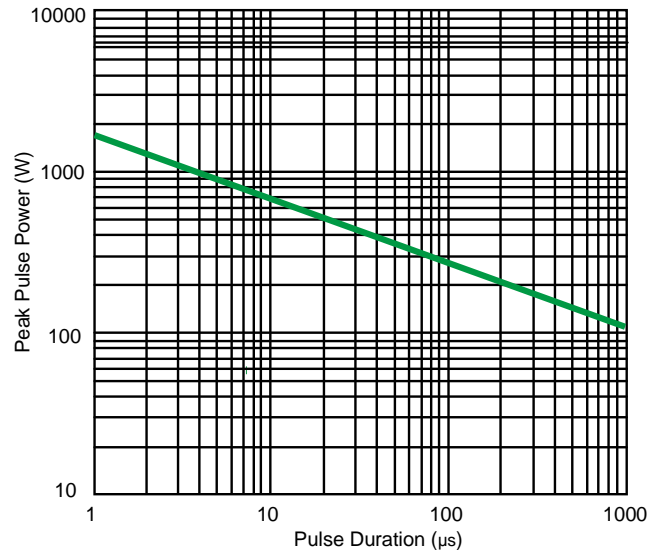
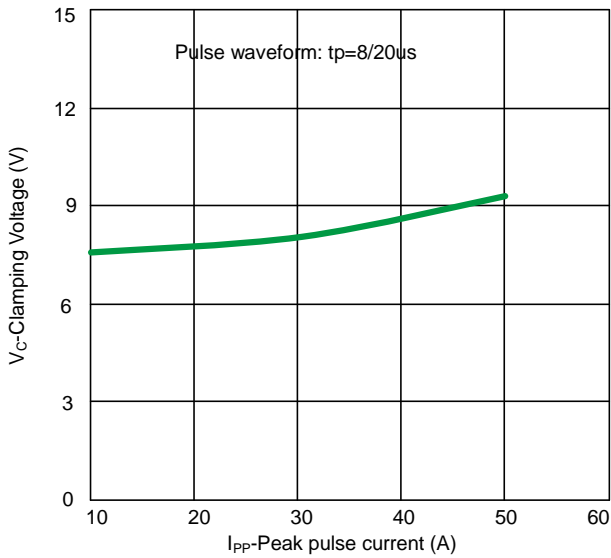
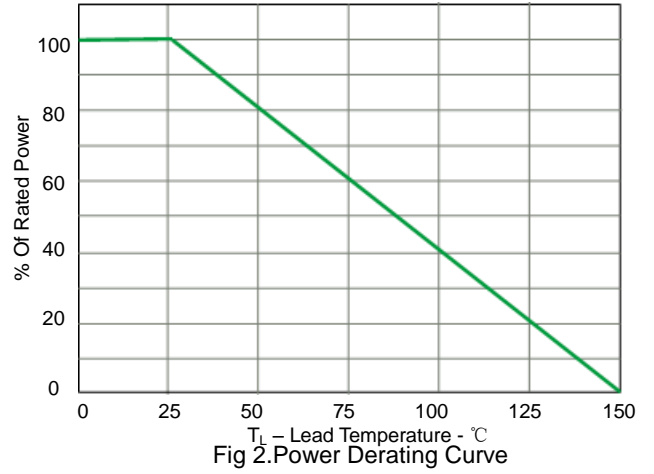
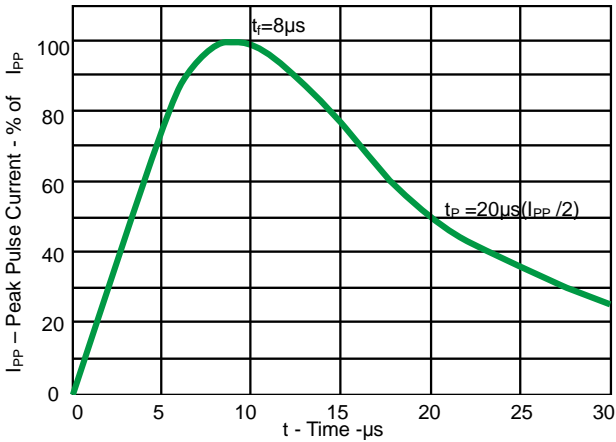
Notes: 1) TLP parameter: $Z_0=50\Omega, t_p=100ns, t_r=2ns$, averaging window from 60ns to 80ns.

2) Non-repetitive current pulse, according to IEC61000-4-5.

Absolute maximum rating @25°C

| Rating | Symbol | Value | Units |
|--|-----------|------------|-------|
| Peak Pulse Power ($t_p = 8/20\mu s$) | P_{PP} | 500 | W |
| Peak Pulse Current ($t_p = 8/20\mu s$) | I_{PP} | 50 | A |
| Operating Temperature | T_J | -55 to 150 | °C |
| Storage Temperature | T_{STG} | -55 to 150 | °C |
| ESD Protection-Contact Discharge | V_{ESD} | ± 30 | kV |
| ESD Protection-Air Discharge | V_{ESD} | ± 30 | kV |

Typical Characteristics



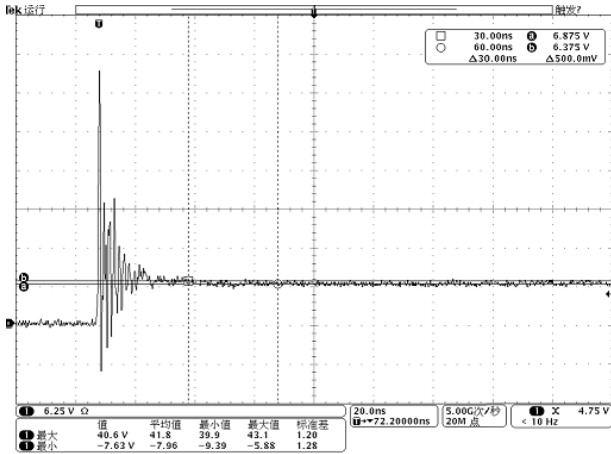


Fig 7. ESD clamping voltage (IEC61000-4-2 +8kV contact)

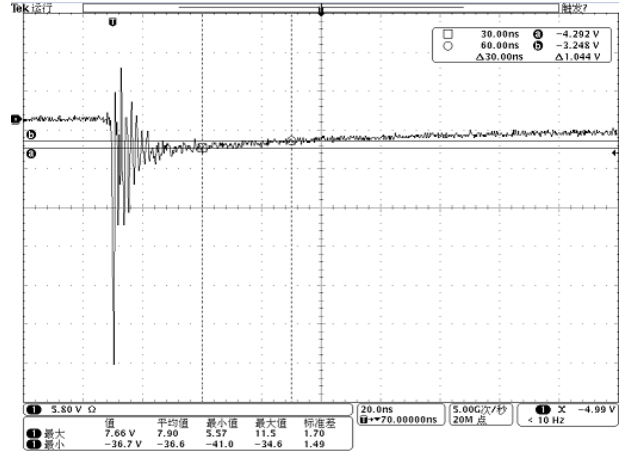
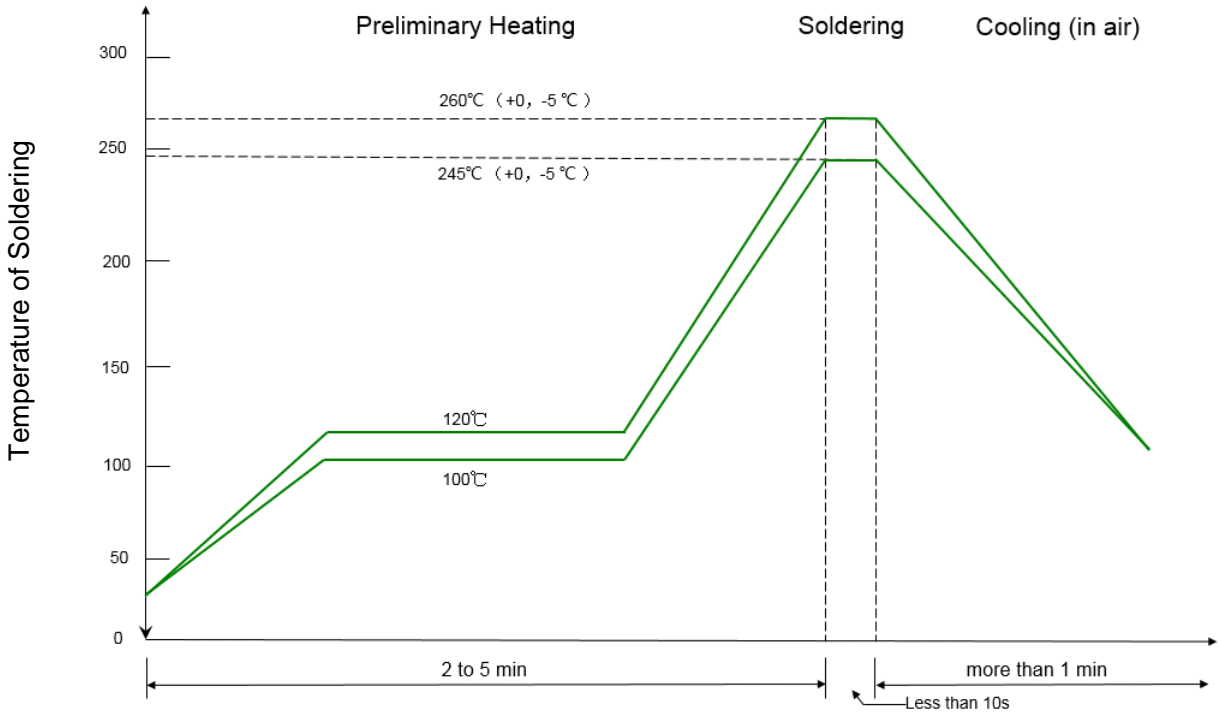


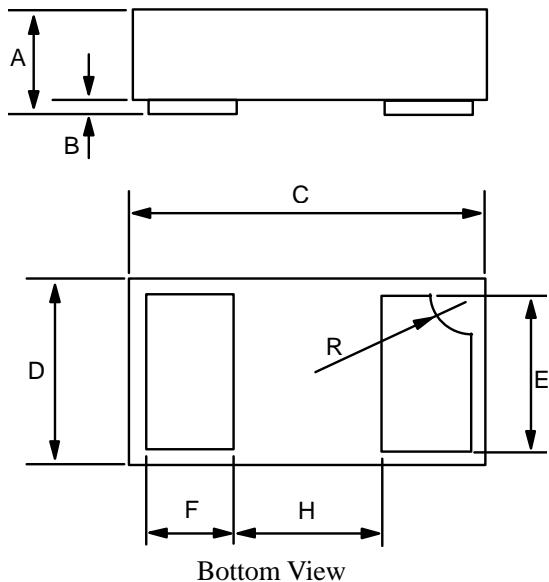
Fig 8. ESD clamping voltage (IEC61000-4-2-8kV contact)

Solder Reflow Recommendation

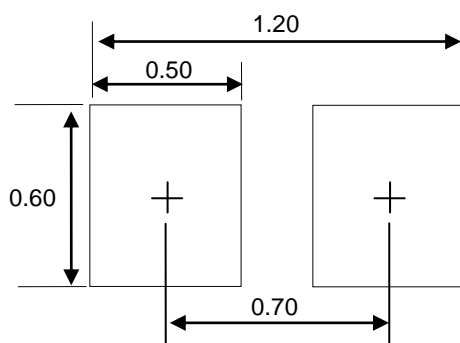


Remark: Pb free for 260°C; Pb for 245°C

Product dimension (DFN1006-2L)



| Dim | Inches | | Millimeters | |
|-----|-----------|-------|-------------|-------|
| | MIN | MAX | MIN | MAX |
| A | 0.013 | 0.020 | 0.34 | 0.50 |
| B | 0.000 | 0.002 | 0.00 | 0.05 |
| C | 0.037 | 0.043 | 0.95 | 1.080 |
| D | 0.022 | 0.027 | 0.55 | 0.68 |
| E | 0.016 | 0.024 | 0.40 | 0.60 |
| F | 0.008 | 0.012 | 0.20 | 0.30 |
| H | 0.015Typ. | | 0.40Typ. | |
| R | 0.001 | 0.005 | 0.05 | 0.15 |



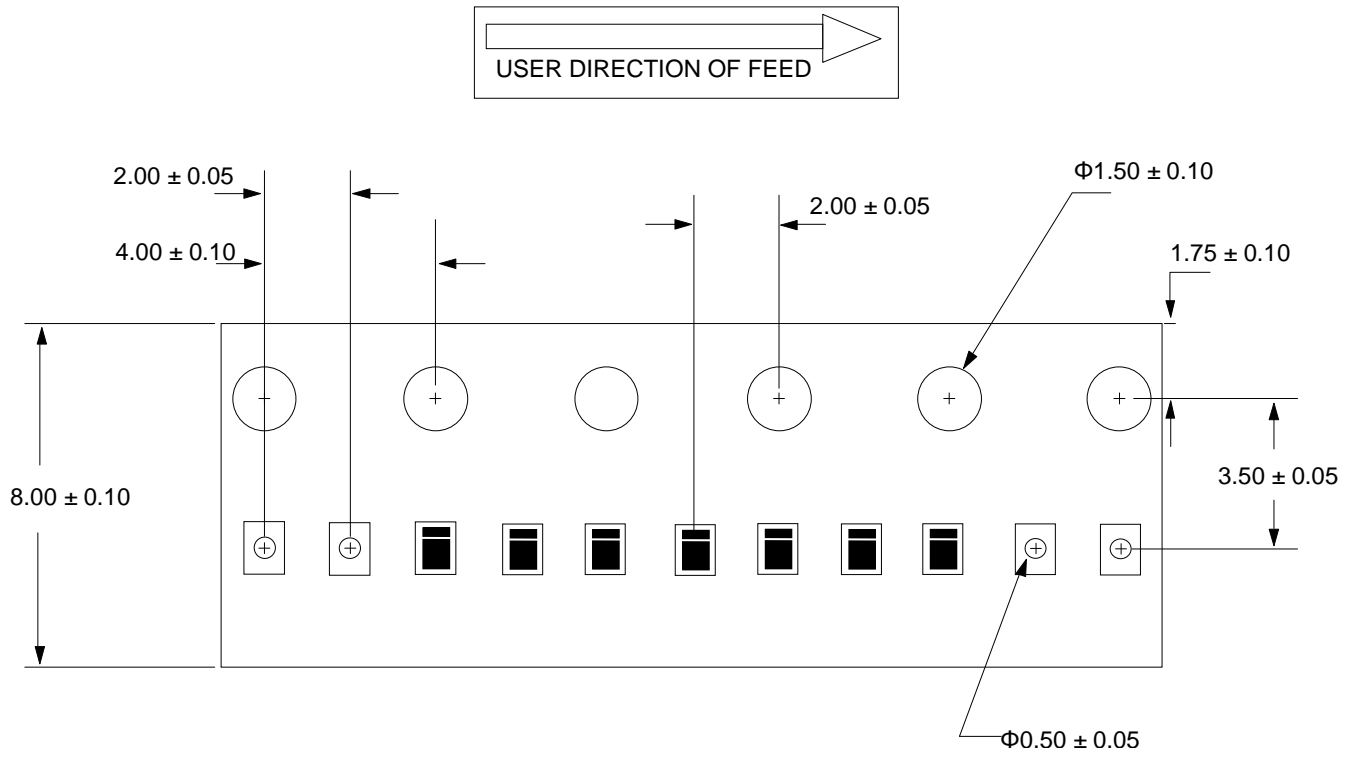
Unit: mm

Suggested PCB Layout

Ordering information


| Device | Package | Reel | MPQ |
|----------------|----------------------|------|---------------------|
| PESDHC2FD6V3UF | DFN1006-2L (Pb-Free) | 7" | 10000 / Tape & Reel |

Load with information



Unit: mm


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