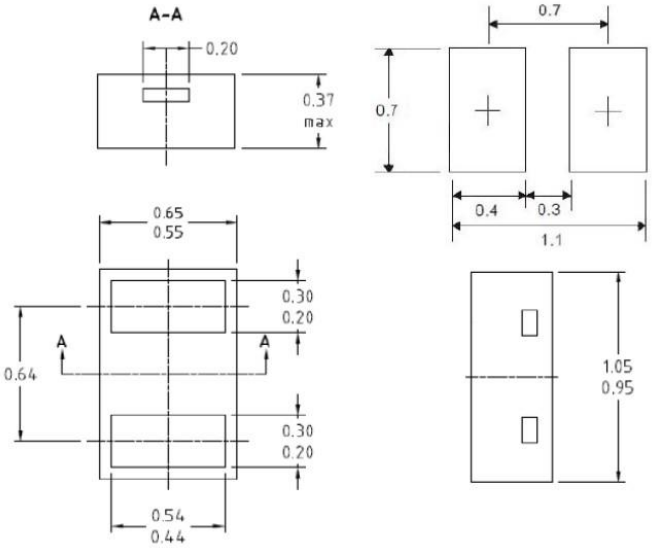
# ESDFN05CU

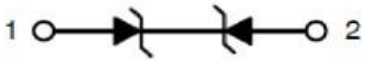
## Single Line ESD Protection Diode

**Description**

The ESDFN05CU 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.




**Graphic symbol**




**Features**

- Equivalent to 0402 package
- 75W peak pulse power
- Small package for use in portable electionics
- Stand-off Voltage: 5 V
- Low Leakage current
- These are Pb−Free Devices
- RoHS Compliant Package

**Complies with the following standards**

- IEC61000-4-2
- Level 4 15 kV (air discharge)
  8 kV(contact discharge)
- MIL STD 883E - Method 3015-7 Class 3
- 25 kV HBM (Human Body Model)

**Packing &Order Information**

3,000/Reel

RoHS
COMPLIANT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### MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

**Absolute Ratings (Tamb=25°C )**

| Symbol | Parameter | Value | Unit |
|---|---|---|---|
| | IEC 61000-4-2 (ESD) Contact | 8 | kV |
| $P_{PP}$ | Peak Pulse Power (tp= 8/20μs) | 75 | W |
| $I_{PP}$ | Peak Pulse Power (tp= 8/20μs) | 5 | A |
| TJ | Maximum junction temperature | -55 to +155 | °C |
| TSTG | Storage Temperature Range | -55 to +155 | °C |
| TL | Maximum lead temperature for soldering during 10s | 260 | °C |

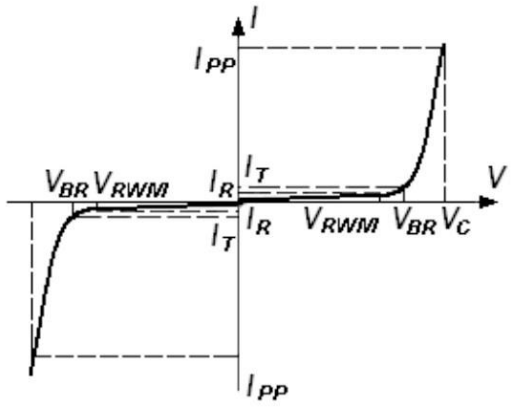
**Electrical Characteristics Ratings at 25°C ambient temperature unless otherwise specified.VF = 0.9V at IF = 10mA**

| Part Numbers | $V_{BR}$ | | | $I_T$ | $V_{RWM}$ | IR | VF | IF | Cj |
|---|---|---|---|---|---|---|---|---|---|
| | Min. | Typ. | Max. | | | | Max. | Typ. | Typ. 0v bias |
| | V | | | mA | V | V | V | mA | PF |
| ESDFN05CU | 5.4 | 6.6 | 7.8 | 1 | 5.0 | 1 | - | - | 0.5 |

*Surge current waveform per Figure 1.

1. VBR is measured with a pulse test current IT at an ambient temperature of 25°C.

| Symbol | Parameter |
|---|---|
| $I_{PP}$ | Maximum Reverse Peak Pulse Current |
| $V_C$ | Clamping Voltage @ $I_{PP}$ |
| $V_{RWM}$ | Working Peak Reverse Voltage |
| $I_R$ | Maximum Reverse Leakage Current @ $V_{RWM}$ |
| $I_T$ | Test Current |
| $V_{BR}$ | Breakdown Voltage @ $I_T$ |





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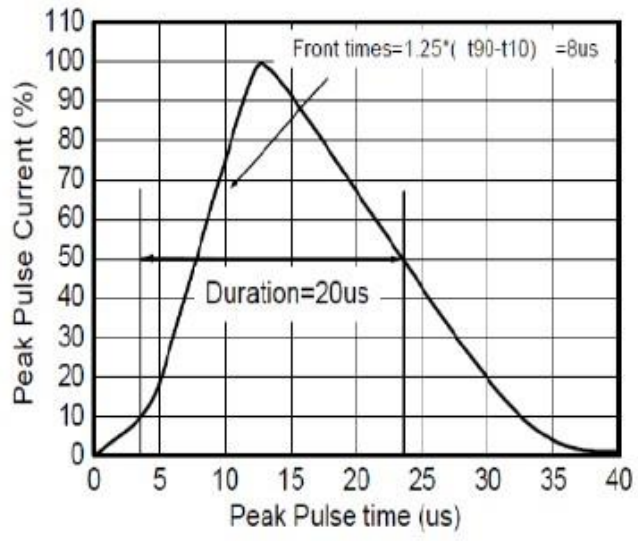
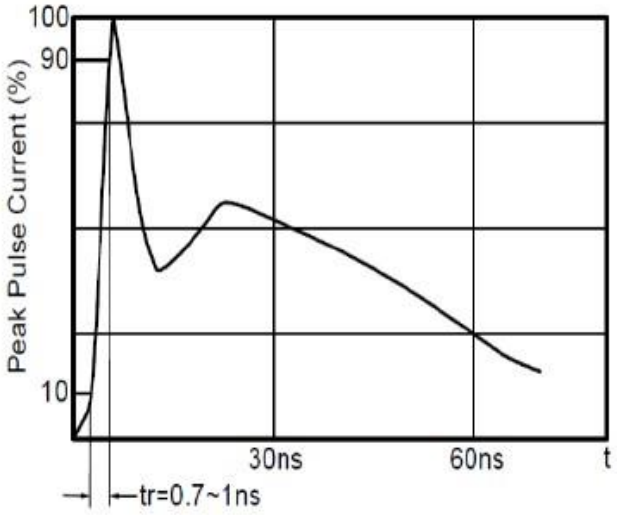
## Single Line ESD Protection Diode

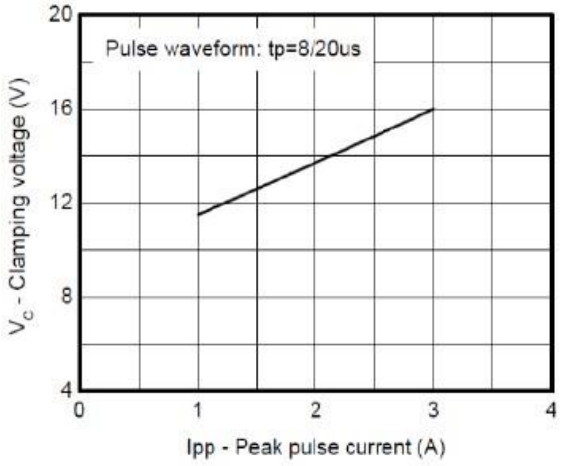
■Typical Device Characteristics



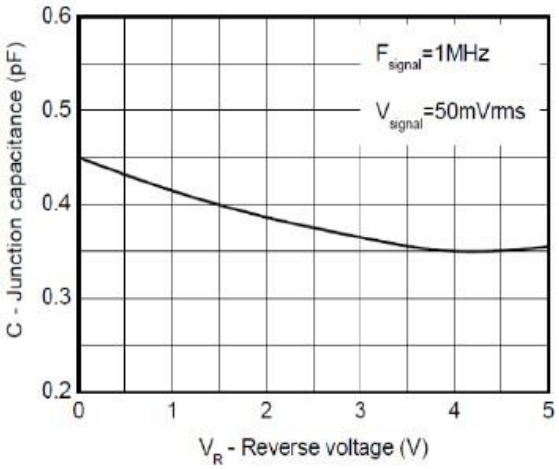

**8/20us waveform**



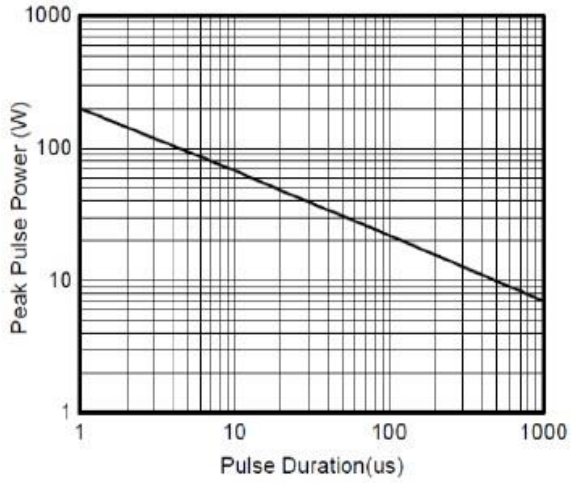

**IEC61000-4-2 waveform**



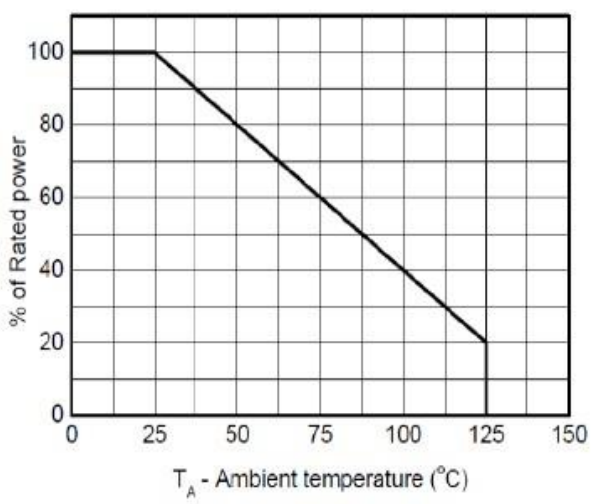

**Clamping voltage vs. Peak pulse current**




**Capacitance vs. Reveres voltage**




**Non-Repetitive Peak Pulse Power vs. Pulse time**




**Power derating vs. Temperature**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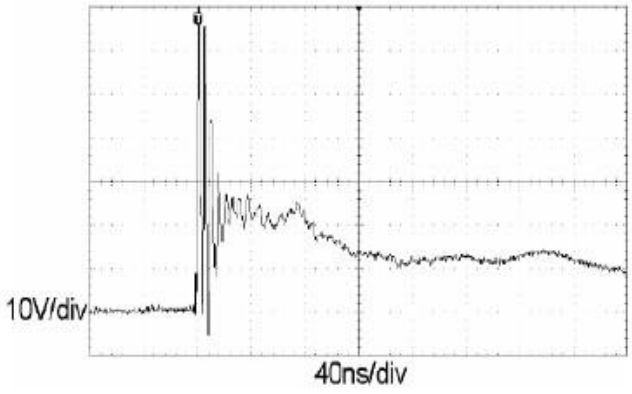
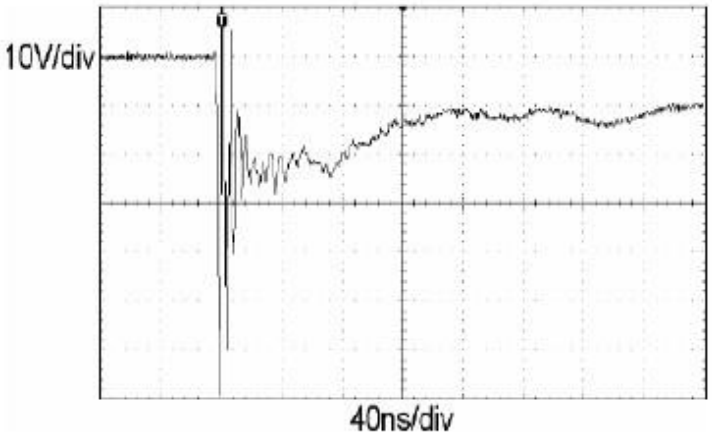



ESD clamping voltage
(IEC61000-4-2 +8KV contact)




ESD clamping voltage
(IEC61000-4-2 -8KV contact)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