

**ESD Protector**

**Features**

- 100W peak pulse power per line ( $t_P = 8/20\mu s$ )
- DFN1006 package
- Replacement for MLV(0402)
- Bidirectional configurations
- Response time is typically < 1ns
- Low clamping voltage
- RoHS compliant
- Transient protection for data lines to  
IEC61000-4-2(ESD)  $\pm 15KV$ (air),  $\pm 8KV$ (contact);  
IEC61000-4-4 (EFT) 40A (5/50ns)

**Mechanical characteristics**

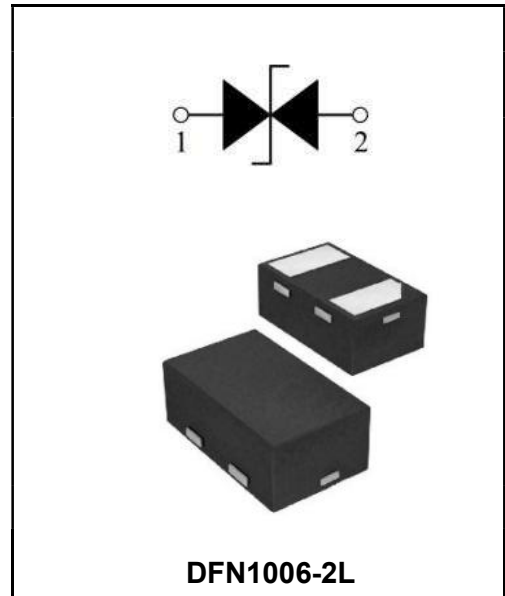
- Lead finish:100% matte Sn(Tin)
- Mounting position: Any
- Qualified max reflow temperature:260°C
- Device meets MSL 1 requirements
- Pure tin plating: 7 ~ 17 um
- Pin flatness: $\leq 3mil$

**Description**

The ESDUC2FD5VB protects sensitive semiconductor components from damage or upset due to electrostatic discharge (ESD) and other voltage induced transient events. 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, low operating voltage. It gives designer the flexibility to protect one bi-directional line in applications where arrays are not practical.

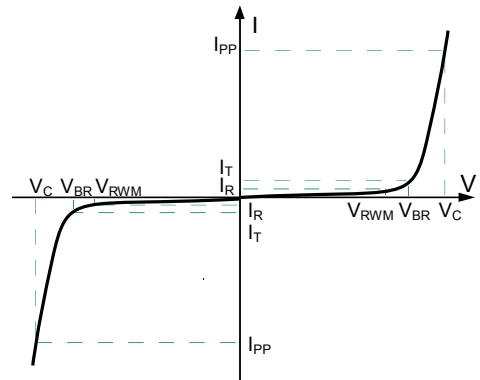
**Application**

- Cellular phones
- Portable devices
- Digital cameras
- Power supplies



**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(TA = 25 °C unless otherwise specified )**

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Peak Reverse Working Voltage	$V_{RWM}$				5	V
Breakdown Voltage	$V_{BR}$	$I_t = 1mA$	5.6		8.5	V
Reverse Leakage Current	$I_R$	$V_{RWM} = 5V T=25^{\circ}C$			1.0	$\mu A$
Maximum Reverse Peak Pulse Current	$I_{PP}$			5.5		A
Clamping Voltage	$V_C$	$I_{PP}=1A$			10	V
Clamping Voltage	$V_C$	$I_{PP}=3A$			15	V
Clamping Voltage	$V_C$	$I_{PP}=5A$			21	V
Junction Capacitance	$C_j$	$V_R=0V f = 1MHz$		0.3		pF

**Absolute maximum ratings (Ta=25°C unless otherwise noted)**

Rating	Symbol	Value	Units
Peak Pulse Power ( $t_p=8/20\mu s$ )	$P_{pp}$	100	W
Operating Temperature	$T_J$	-55 to +150	$^{\circ}C$
Storage Temperature	$T_{STG}$	-55 to +150	$^{\circ}C$

**Typical Characteristics**

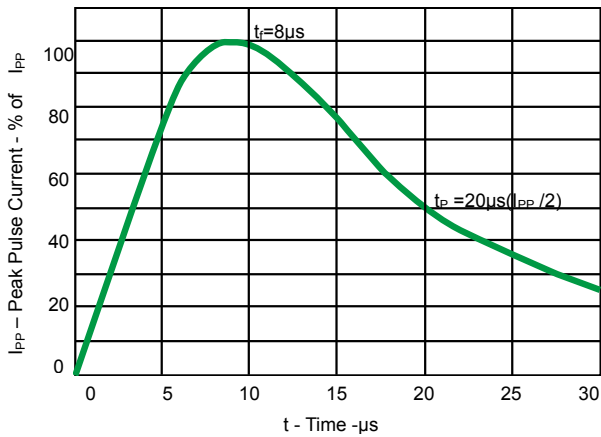


Fig 1. Pulse Waveform

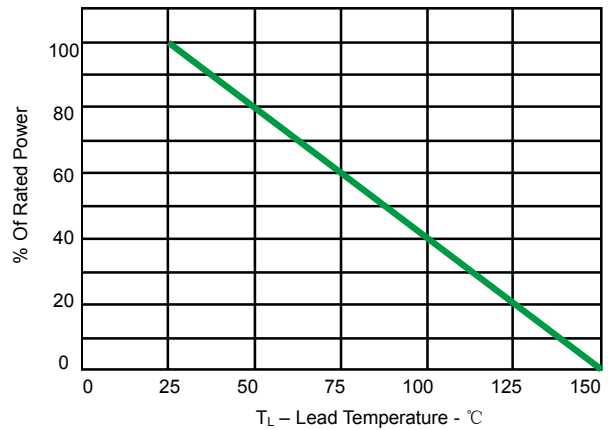


Fig 2. Power Derating Curve

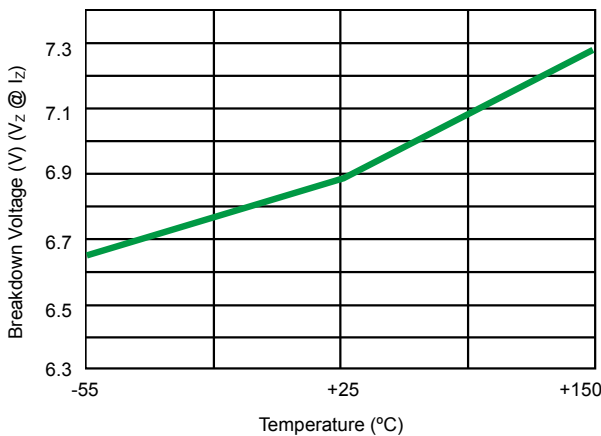


Fig 3. Typical Breakdown Voltage vs. Temperature

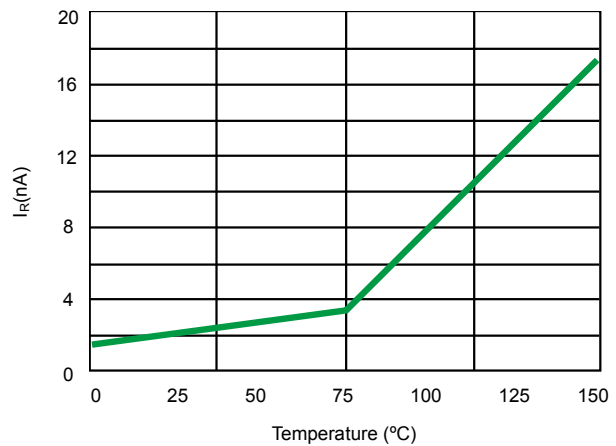


Fig 4. Typical Leakage Current vs. Temperature

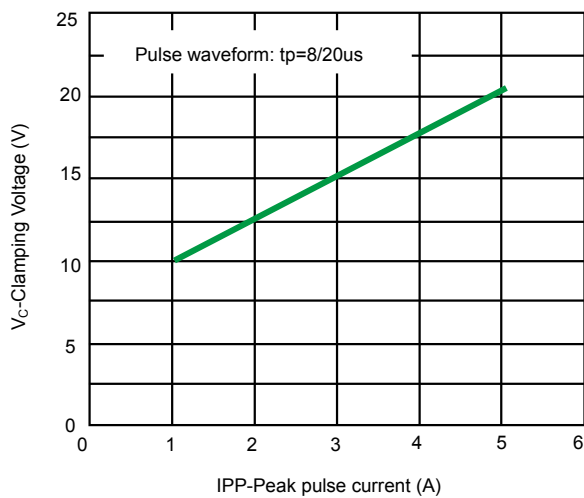


Fig 5. Clamping voltage vs. Peak pulse current

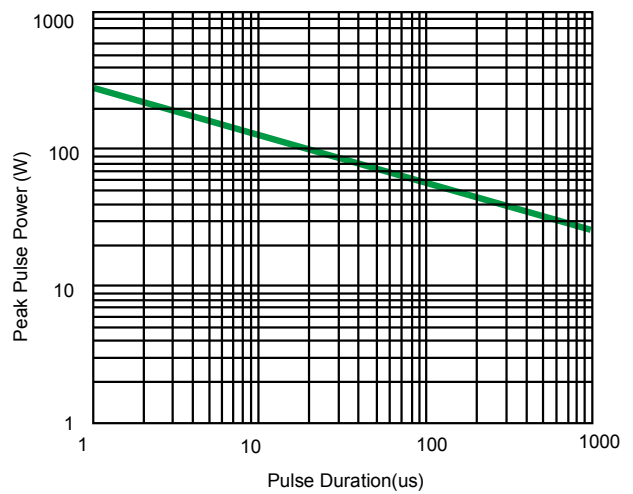
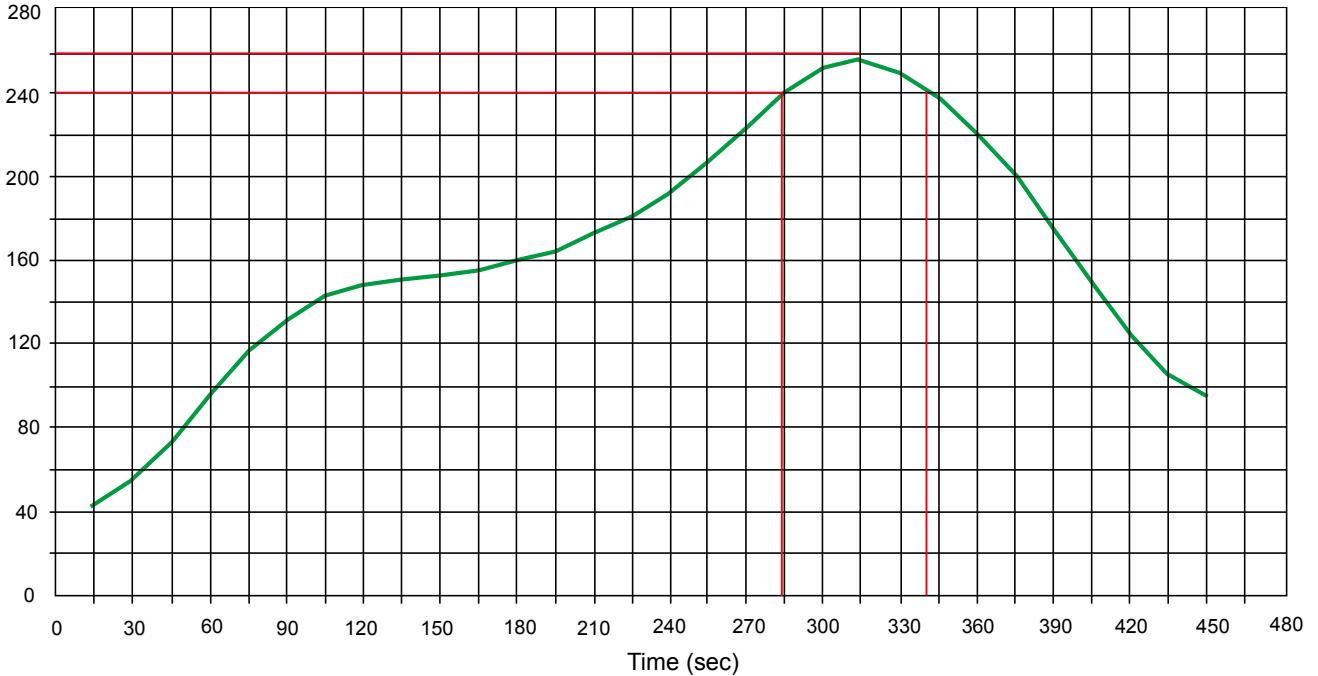


Fig 6. Non-Repetitive Peak Pulse Power vs. Pulse time

**Solder Reflow Recommendation**

Peak Temp=257°C, Ramp Rate=0.802deg. °C/sec



**Solder Reflow Recommendation**

For TVS diodes a low-ohmic and low-inductive path to chassis earth is absolutely mandatory in order to achieve good ESD protection. Novices in the area of ESD protection should take following suggestions to heart:

- Do not use stubs, but place the cathode of the TVS diode directly on the signal trace.
- Do not make false economies and save copper for the ground connection.
- Place via holes to ground as close as possible to the anode of the TVS diode.
- Use as many via holes as possible for the ground connection.
- Keep the length of via holes in mind! The longer the more inductance they will have.

**Ordering information**

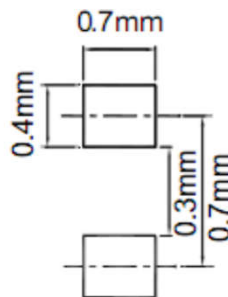
Package	Packing Description	Packing Quantity
DFN1006-2L	Tape/Reel,7"reel	10000PCS/Reel 400000PCS/Carton

**Package Dimensions**

**DFN1006-2L**

Dim.	Millimeter(mm)		Inches	
	Min.	Max.	Min.	Max.
A	0.350	0.450	0.014	0.018
D	0.550	0.650	0.022	0.026
E	0.950	1.050	0.037	0.041
D1	0.420	0.520	0.017	0.020
E1	0.550	0.650	0.022	0.026
L	0.270	0.370	0.011	0.015
L1	-	0.100	-	0.004

**The recommended mounting pad size**



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