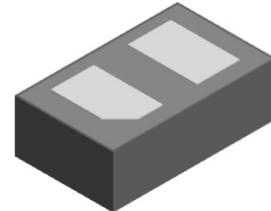


## Bi-directional 30V Ultra Low Capacitance ESD Protector

### Description

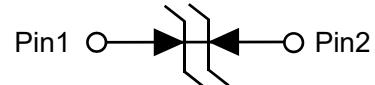
The PESDREC2XD30VBX is an ultra low capacitance ESD protection device specifically designed to protect high-speed lines. It protects sensitive semiconductor components from damage or upset due to electrostatic discharge (ESD) and other voltage induced transient events. They feature large cross-sectional 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 unidirectional line in applications where arrays are not practical.



**DFN0603-2L(Bottom View)**

### Feature

- Ultra-Low capacitance: 0.15pF
- 45W peak pulse power per line ( $t_p = 8/20\mu s$ )
- DFN0603-2L package
- Response time is typically < 1 ns
- Bidirectional configurations
- Low clamping voltage
- RoHS compliant
- Transient protection for data lines to  
IEC 61000-4-2(ESD)  $\pm 15kV$ (air),  $\pm 15kV$ (contact);  
IEC 61000-4-5 (Lightning) 6A (8/20us)



**Circuit Diagram**



**Marking (Top View)**

### Applications

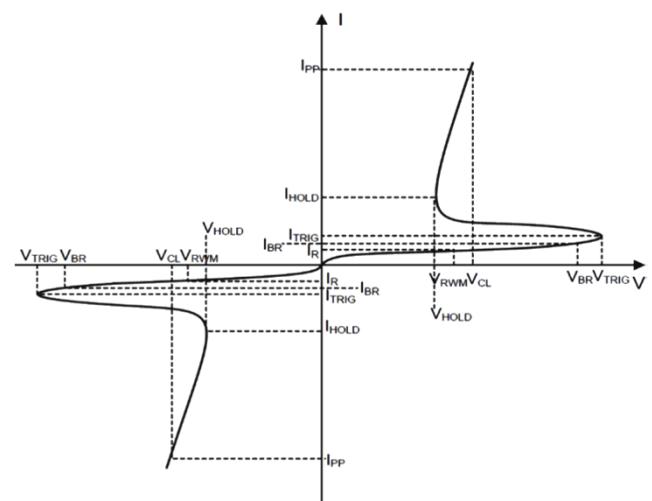
- Cell phone handsets and accessories
- Personal digital assistants (PDA's)
- Notebooks, desktops, and servers
- Portable instrumentation
- Cordless phones
- Digital cameras
- Peripherals

### Mechanical Characteristics

- Mounting position: Any
- Qualified max reflow temperature: 260°C
- Device meets MSL 1 requirements

## Electronics Parameter

Symbol	Parameter
$V_{RWM}$	Reverse stand-off voltage
$I_R$	Reverse leakage current
$V_{BR}$	Reverse breakdown voltage
$I_{BR}$	Reverse breakdown current
$V_{CL}$	Clamping voltage
$V_{TRIG}$	Reverse trigger voltage
$I_{TRIG}$	Reverse trigger current
$V_{HOLD}$	Reverse holding voltage
$I_{HOLD}$	Reverse holding current
$I_{PP}$	Peak pulse current



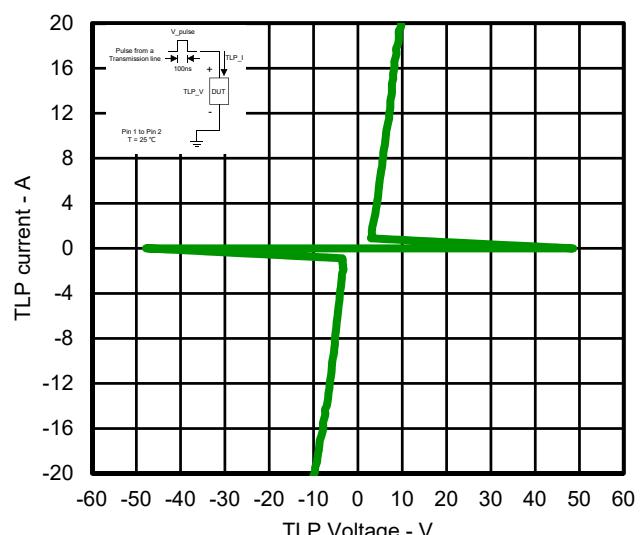
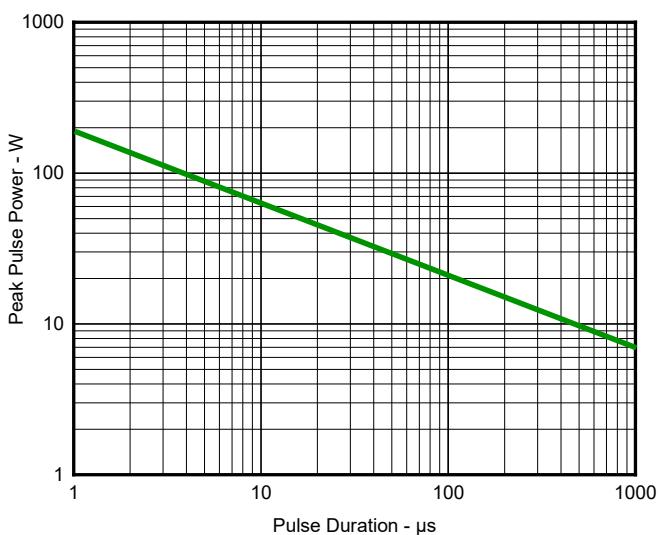
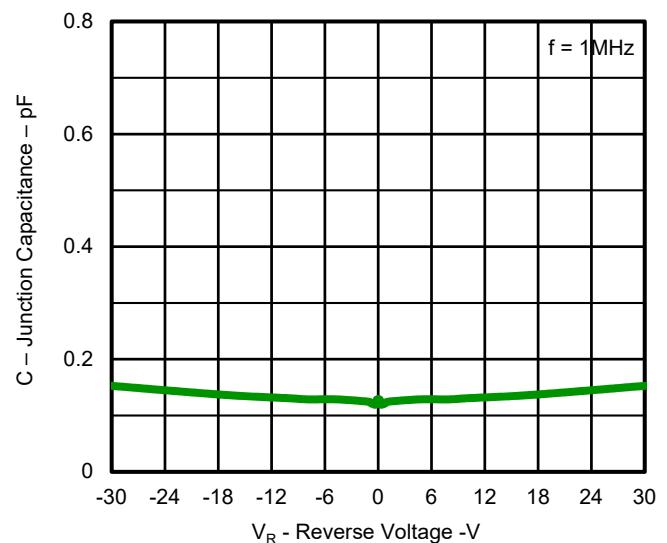
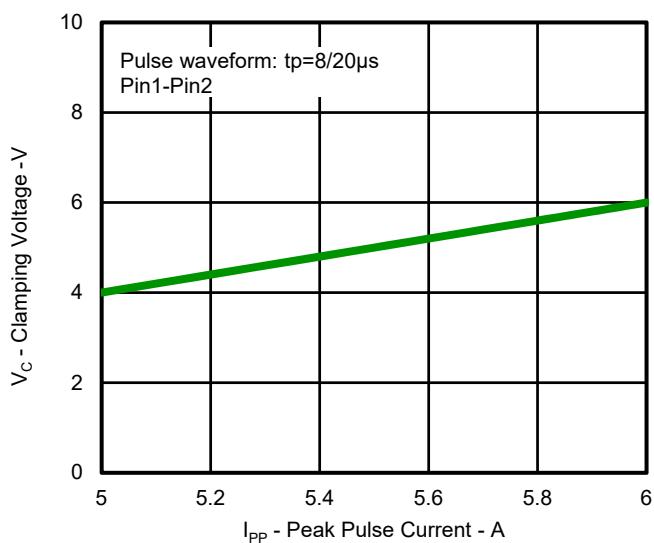
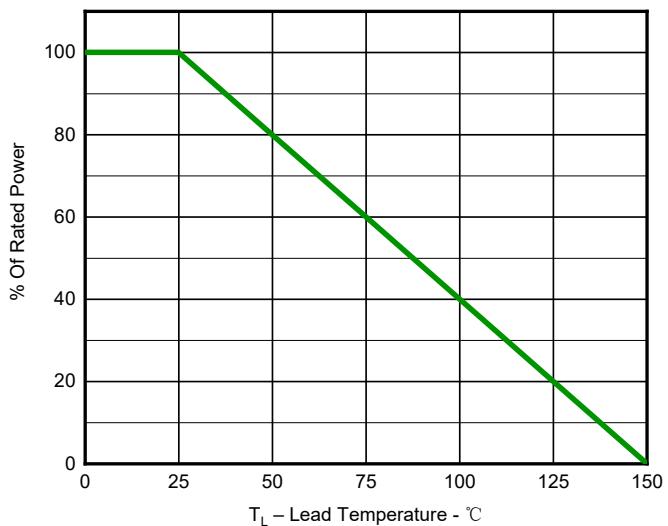
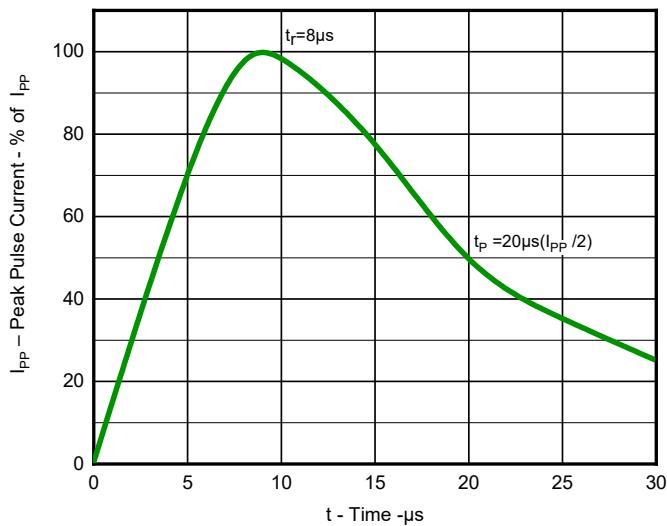
## Electrical characteristics per line@25°C (unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Peak Reverse Working Voltage	$V_{RWM}$	-	-	-	30	V
Breakdown Voltage	$V_{BR}$	$I_t = 1\text{mA}$	35	-	49	V
Reverse Leakage Current	$I_R$	$V_{RWM} = 30\text{V}$	-	-	1.0	$\mu\text{A}$
Clamping Voltage	$V_{CL}$	$I_{PP} = 6\text{A}, t_p = 8/20\mu\text{s}$	-	6.0	9.0	V
Junction Capacitance	$C_J$	$V_R = 0\text{V}, f = 1\text{MHz}$	-	0.15	0.2	pF

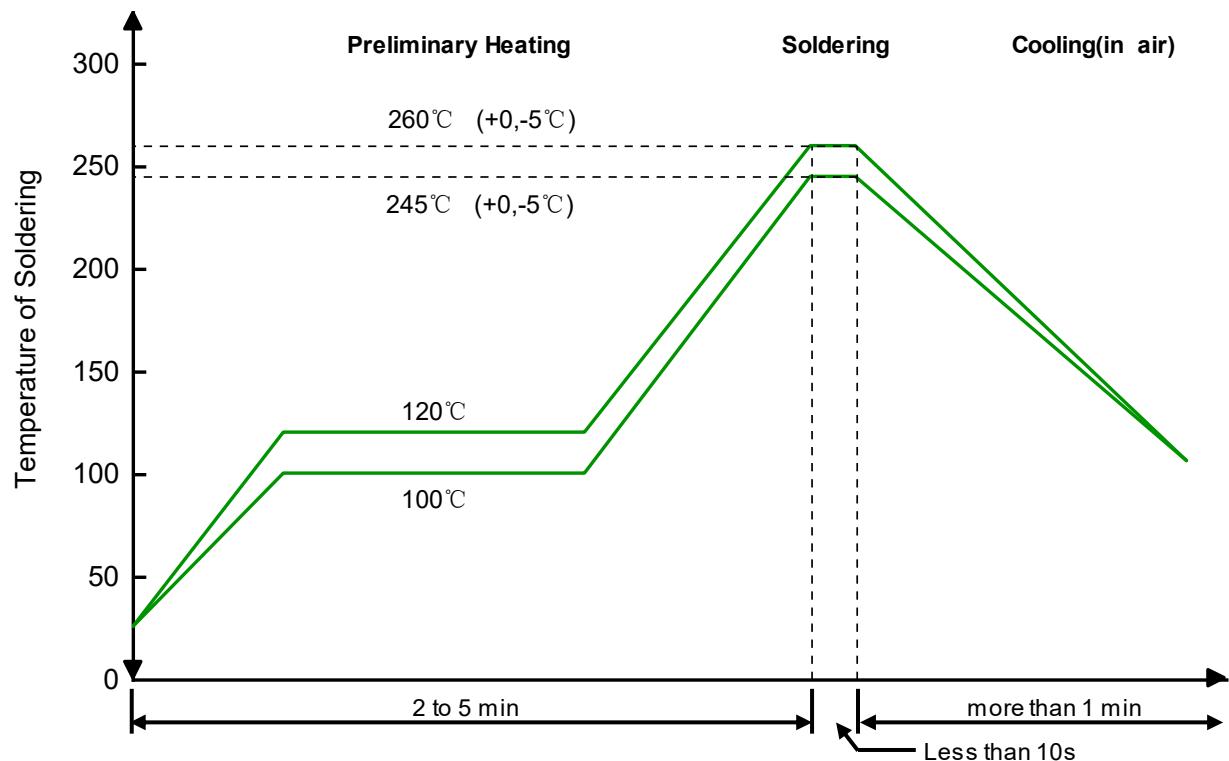
## Absolute maximum rating@25°C

Rating	Symbol	Value	Units
Peak Pulse Power ( $t_p = 8/20\mu\text{s}$ )	$P_{PP}$	45	W
Peak Pulse Current ( $t_p = 8/20\mu\text{s}$ )	$I_{PP}$	6.0	A
Lead Soldering Temperature	$T_L$	260 (10 sec)	°C
Junction and Storage Temperature Range	$T_J, T_{STG}$	-55~+150	°C
ESD Protection-Contact Discharge	$V_{ESD}$	$\pm 15$	kV
ESD Protection-Air Discharge	$V_{ESD}$	$\pm 15$	kV

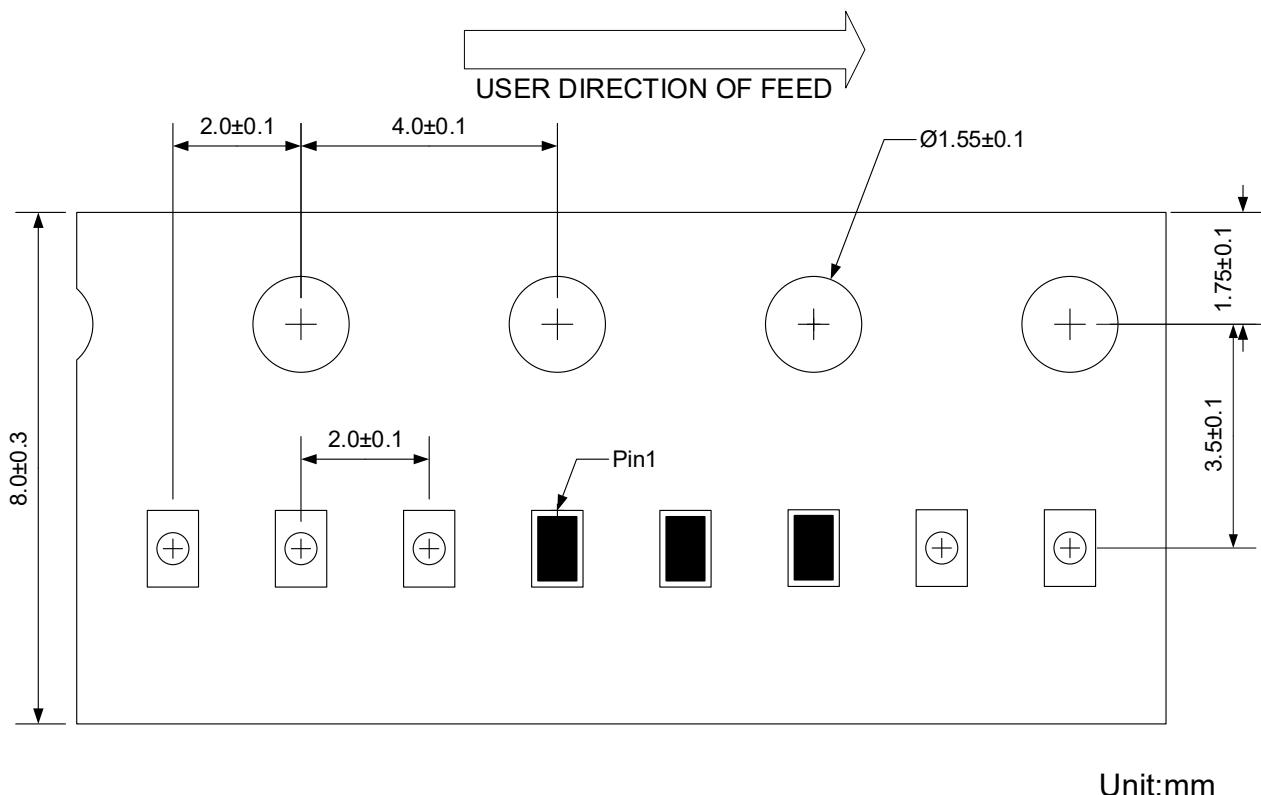
## Typical Characteristics



## Solder Reflow Recommendation



## Load with information



Unit:mm

## Ordering information

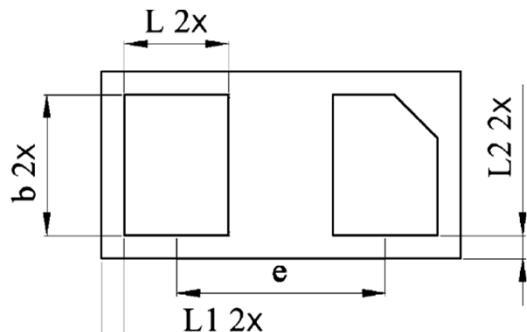
Package	Reel	Shipping
DFN0603-2L	7"	10000 / Tape & Reel

## PCB Design

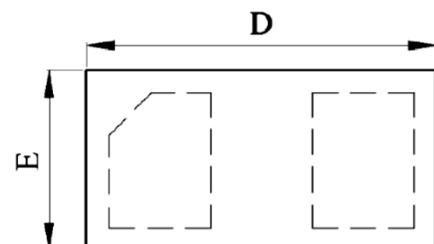
For TVS diodes a low-ohmic and low-inductive path to chassis earth is absolutely mandatory in order to achieve good ESD protection. Novices in the area of ESD protection should take following suggestions to heart:

- 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.

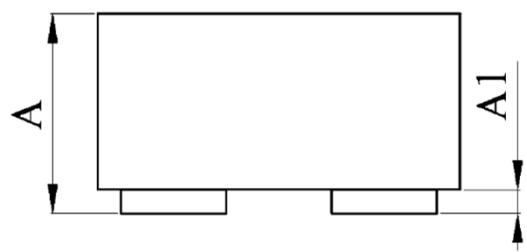
## Product dimension (DFN0603-2L)



Bottom View

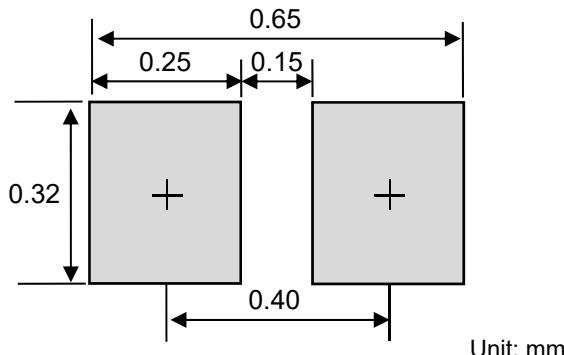


Top View



Side View

Dim	Millimeters		Inches	
	Min	Max	Min	Max
A	0.28	0.34	0.011	0.013
A <sub>1</sub>	0.00	0.05	0.000	0.002
b	0.215	0.265	0.008	0.010
D	0.59	0.64	0.023	0.025
E	0.29	0.34	0.011	0.013
e	0.36 BSC		0.014 BSC	
L	0.155	0.205	0.006	0.008
L <sub>1</sub>	0.040 BSC		0.002 BSC	
L <sub>2</sub>	0.040 BSC		0.002 BSC	



Suggested PCB Layout

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