

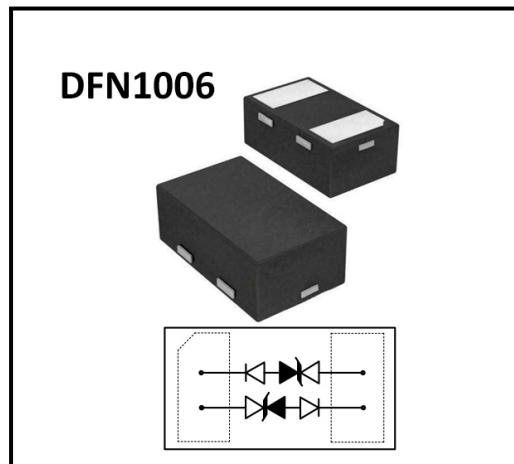
PESD5V0X1BL-N

ESD Protection Diode

Features

- 120Watts peak pulse power ($t_p = 8/20\mu s$)
- Bidirectional configurations
- Solid-state silicon-avalanche technology
- Low clamping Voltage
- Low leakage current
- Low capacitance ($C_j = 0.7pF$ typ.)
- Protection one data/power line
- IEC 61000-4-2 $\pm 30kV$ contact ; $\pm 30kV$ air
- 1.2/50 μs 12ohm 2kV (GbE PHY side)
- 10/700 μs 40ohm 4kV (GbE PHY side)

Package



Applications

- 10/100/1000Ethernet
- Integrated Magnetics/RJ45Connectors
- LAN/WAN Equipment
- Notebooks, Desktops, and Servers
- Portable Instrumentation

Mechanical Characteristics

- DFN1006 package
- Molding compound flammability rating: UL 94V-0
- Packaging: Tape and Reel
- RoHS/WEEE Compliant

Marking



Ordering information

Order code	Package	Base qty	Delivery mode
PESD5V0X1BL-N	DFN1006	10k	Tape and reel

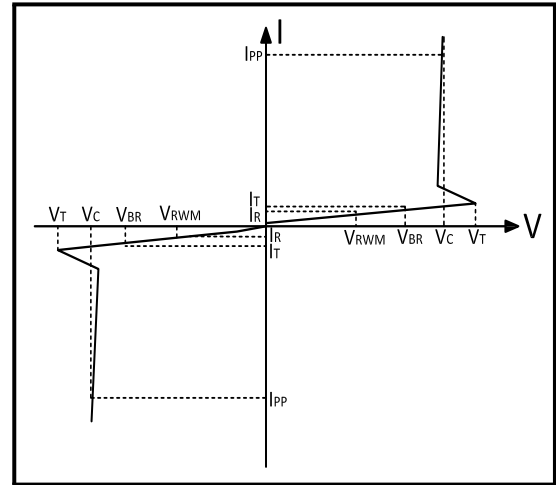


PESD5V0X1BL-N

ESD Protection Diode

Electrical Parameters ($T_A = 25^\circ\text{C}$ unless otherwise noted)

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



Note: 8/20us pulse Waveform.

Absolute Maximum Rating

Rating	Symler	Value	Units
Peak Pulse Power ($t_p = 8/20\mu\text{s}$)	P_{PP}	120	Watts
Peak Pulse Current ($t_p = 8/20\mu\text{s}$)	I_{PP}	7	A
ESD per IEC 61000-4-2 (Air)	V_{ESD}	30	KV
ESD per IEC 61000-4-2 (Contact)		30	
Lead Soldering Temperature	T_L	260(10seconds)	$^\circ\text{C}$
Junction Temperature	T_J	-55 to + 150	$^\circ\text{C}$
Storage Temperature	T_{stg}	-55 to + 150	$^\circ\text{C}$

Electrical Characteristics

Parameter	Symler	Conditions	Min	Typical	Max	Units
Reverse Stand-Off Voltage	V_{RWM}	—	—	—	5.0	V
Reverse Breakdown Voltage	V_{BR}	$I_T = 1\text{mA}$	6.5	7.5	9.5	V
Reverse Leakage Current	I_R	$V_{RWM} = 5\text{V}, T = 25^\circ\text{C}$	—	0.1	0.5	μA
Clamping Voltage	V_C	$I_{PP} = 7\text{A}, t_p = 8/20\mu\text{s}$	—	16	—	V
Junction Capacitance	C_j	$V_R = 0\text{V}, f = 1\text{MHz}$	—	0.7	0.8	pF



Typical Characteristics

Figure 1: Peak Pulse Power vs. Pulse Time

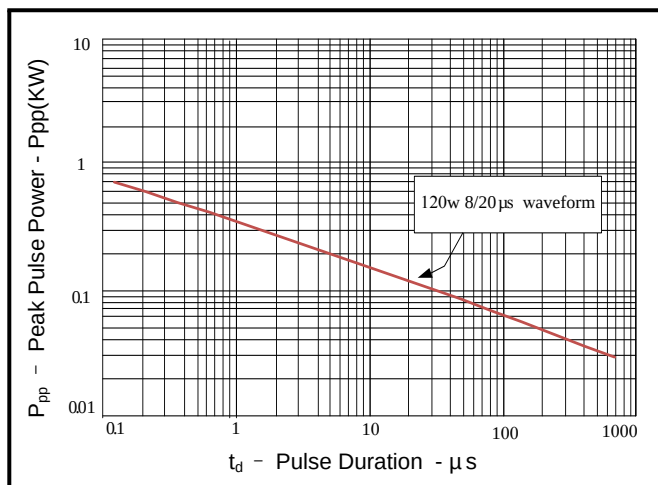


Figure 2: Power Derating Curve

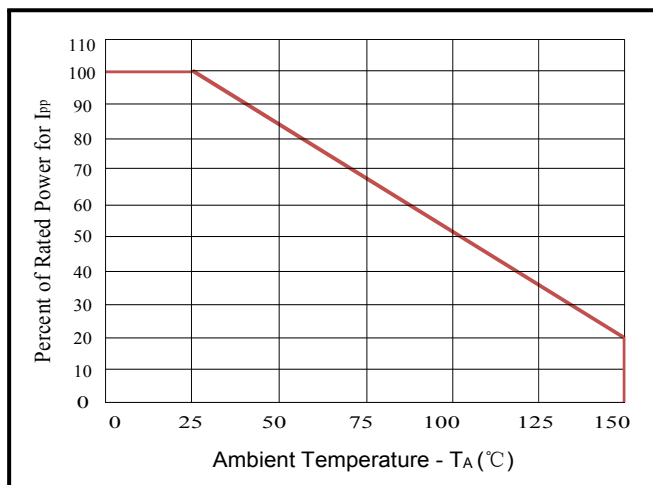


Figure 3: Pulse Waveform

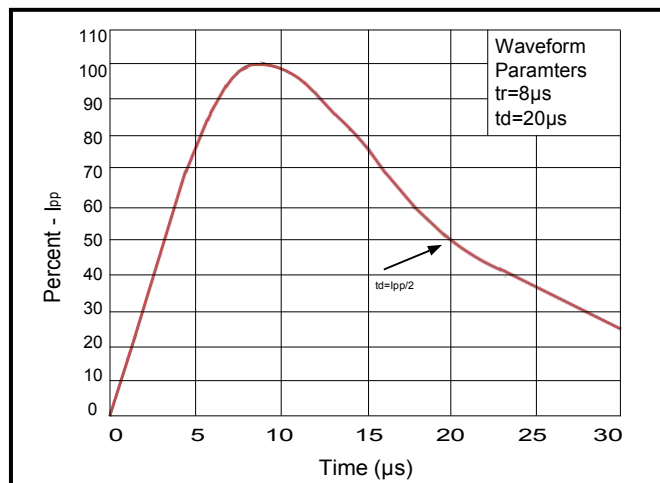
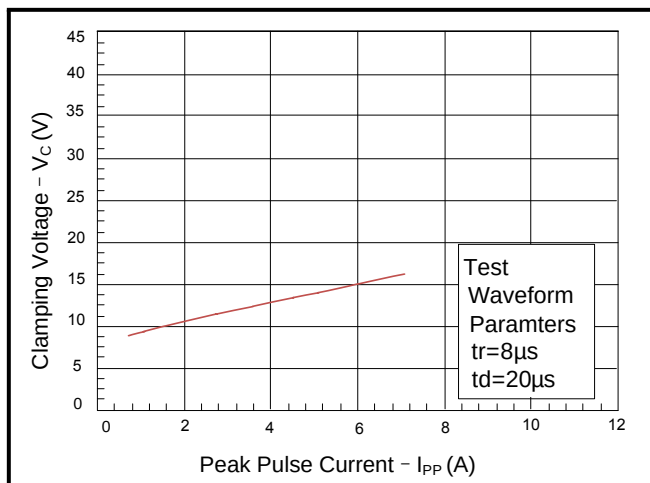


Figure 4: Clamping Voltage vs. I_PP



Lightning Surge Test Results for Gigabit Ethernet

During the metallic (line-to-line) surge test, the line being stressed is tied to the surge generator with the remaining lines tied together and connected to the generator ground. Current will flow through the line transformer transferring energy to the PHY side of the transformer. Figure 5 shows the test set-up for measuring the clamping voltage of the device. This set up is designed to test the surge in an actual gigabit Ethernet (GbE) circuit. Two 4.7 Ohm resistors are used for decoupling. The clamping voltage of the PESD5V0X1BL-N for a metallic mode 4000V (10/ 700 μ s) surge. The clamping voltage, measured at less than 13 volts, provides sufficient clamping margin to minimize electrical stress and is well below the failure voltage range of typical GbE PHY chips.

Figure 5: Clamping Voltage Test Set-Up

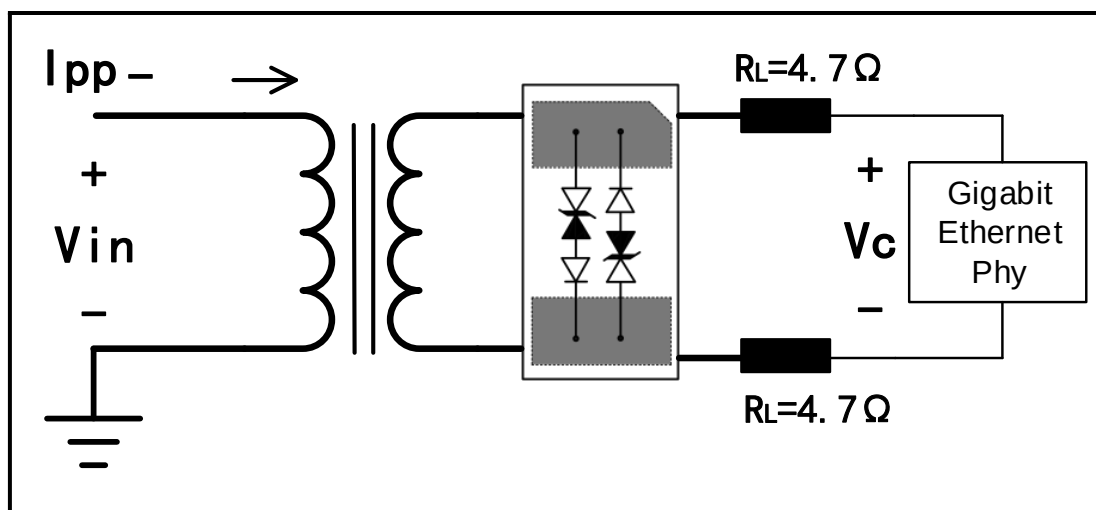
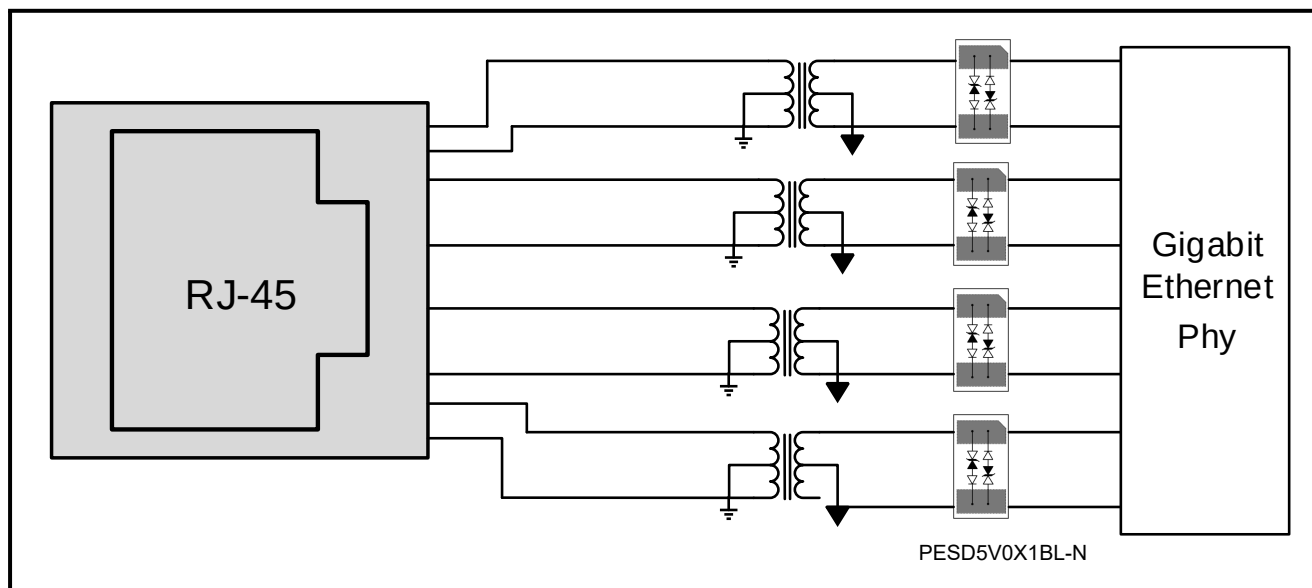


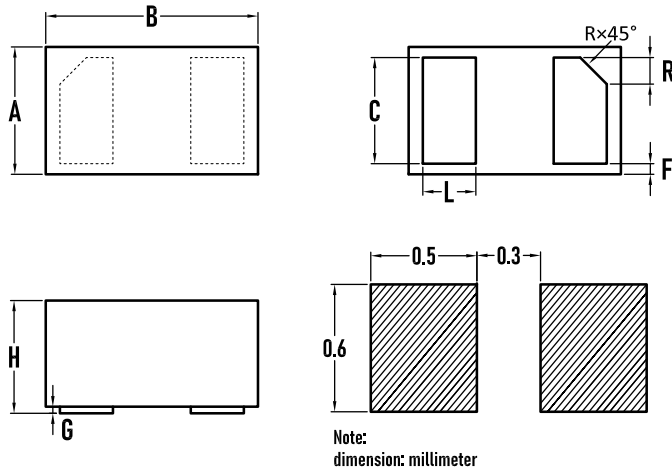
Figure 6: GbE Protection to Lightning, ESD, and CDE



PESD5V0X1BL-N

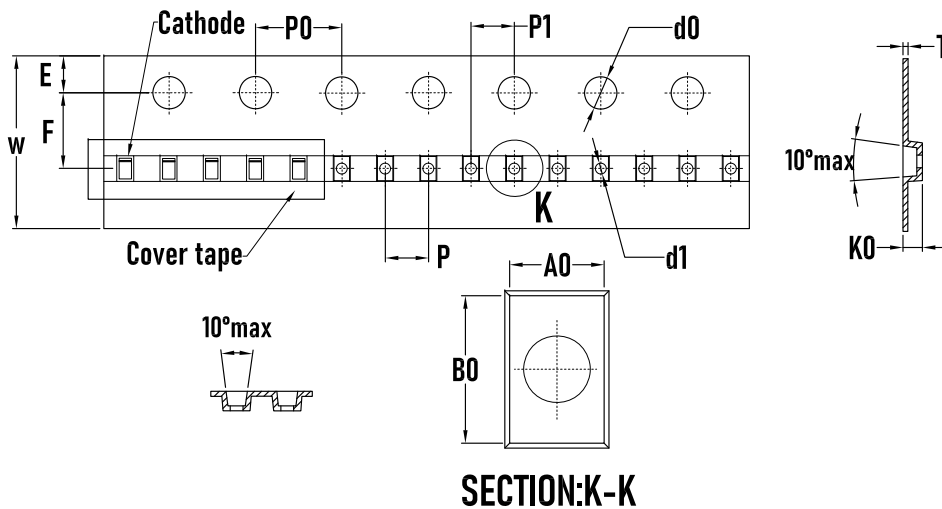
ESD Protection Diode

Outline Drawing – DFN1006



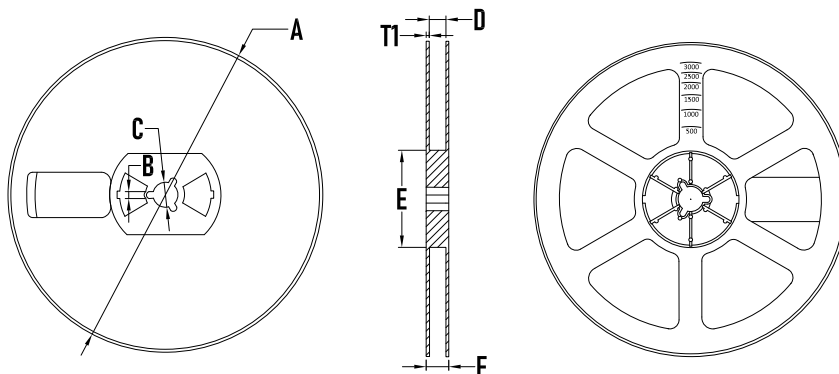
SYMBOL	MILLIMETER		
	MIN.	Typ.	MAX.
A	0.55	0.60	0.65
B	0.95	1.00	1.05
C	0.45	0.50	0.55
L	0.20	0.25	0.30
F	0.05REF		
G	0.00	0.02	0.05
H	0.45	0.50	0.55
R	0.07	0.12	0.17

Packaging Tape - DFN1006



SYMBOL	MILLIMETER
A0	0.71±0.05
B0	1.11±0.05
d0	1.5 ^{+0.1} ₋₀
d1	0.50±0.05
E	1.75±0.10
F	3.50±0.05
K0	0.56±0.05
P	2.00±0.05
P0	4.00±0.10
P1	2.00±0.05
W	8.00 ^{+0.03} _{-0.01}
T	0.2±0.015

Packaging Reel



SYMBOL	MILLIMETER
A	178±1
B	3.5±0.2
C	14.3±0.2
D	9.8 ⁺² ₋₁
E	54.5±0.5
F	12.4±0.2
T1	1.0±0.2
Quantity	10000PCS

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Specifications are subject to change without notice.

Please refer to <http://www.born-tw.com> for current information.

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