BORN SEMICONDUCTOR

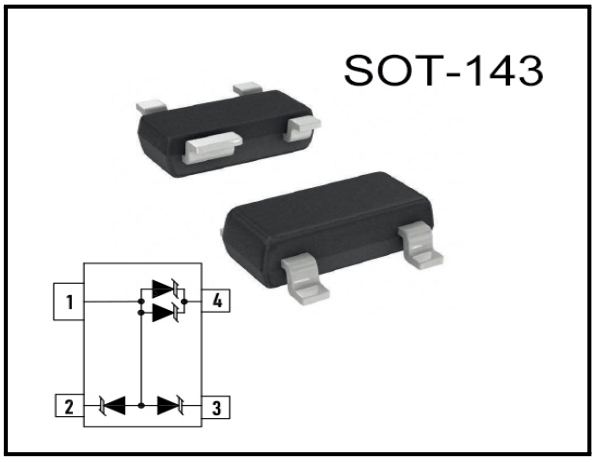
TPD2E001DZDR-N

ESD Protection Diode

Features

- 70Watts peak pulse power (tp = 8/20μs)
- Unidirectional configurations
- Solid-state silicon-avalanche technology
- Low clamping Voltage
- Low leakage current
- Low capacitance (Cj=0.35pF typ I/O to I/O.)
- IEC 61000-4-2 ±15kV contact ; ±20kV air
- IEC 61000-4-4 (EFT) 40A (5/50ns)
- IEC 61000-4-5 (Lightning) 4.0A (8/20μs)

Package



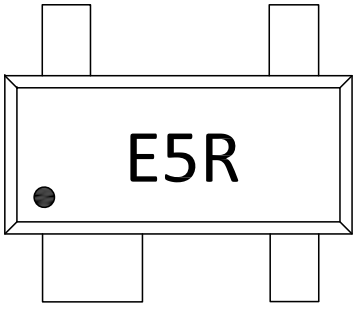
Applications

- USB2.0
- Ethernet
- Notebooks, Desktops, and Servers
- Video Line Protection

Mechanical Characteristics

- SOT-143 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
TPD2E001DZDR-N	SOT-143	3k	Tape and reel

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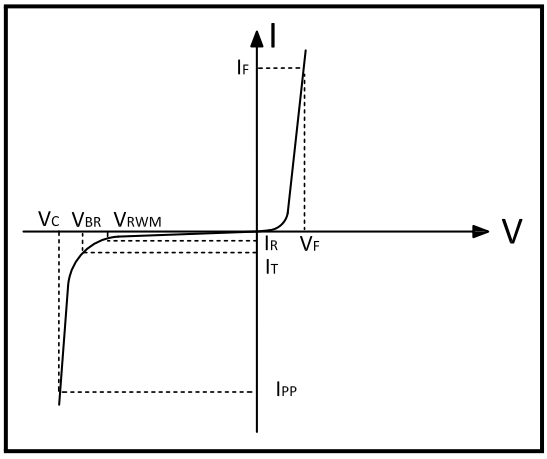
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ESD Protection Diode

Electrical Parameters (T_A = 25°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	Symber	Value	Units
Peak Pulse Power (tp =8/20μs)	P_{PP}	70	Watts
Peak Pulse Current (tp =8/20μs)	I_{PP}	4.0	A
ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	V_{ESD}	20 15	KV
Lead Soldering Temperature	T_L	260(10seconds)	°C
Junction Temperature	T_J	-55 to + 150	°C
Storage Temperature	T_{stg}	-55 to + 150	°C

Electrical Characteristics

Parameter	Symber	Conditions	Min.	Typical	Max.	Units
Reverse Stand-Off Voltage	V_{RWM}	–	–	–	5.0	V
Reverse Breakdown Voltage	V_{BR}	I_T=1mA	6.0	7.4	9.5	V
Reverse Leakage Current	I_R	V_{RWM}=5V,T=25°C	–	–	0.2	uA
Peak Pulse Current	I_{PP}	tp =8/20us	–	–	4.0	A
Clamping Voltage	V_C	I_{PP}=4.0A, tp =8/20us	–	14	17	V
Junction Capacitance	C_j	V_R=0V,f=1MHZ(IO-IO)	–	0.35	0.45	pF
		V_R=0V,f=1MHZ(IO-GND)	–	0.65	0.75	

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ESD Protection Diode

Typical Characteristics

Figure 1: Peak Pulse Power vs. Pulse Time

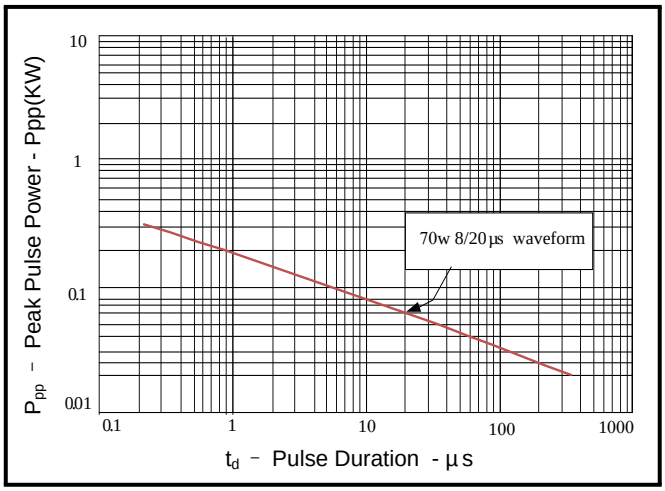


Figure 2: Power Derating Curve

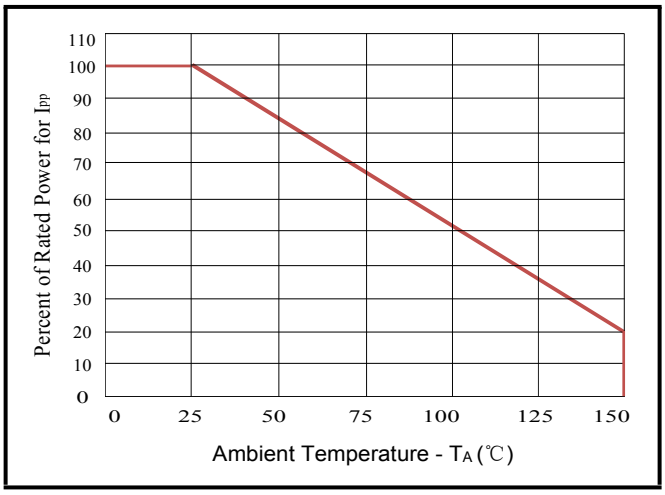


Figure 3: Pulse Waveform

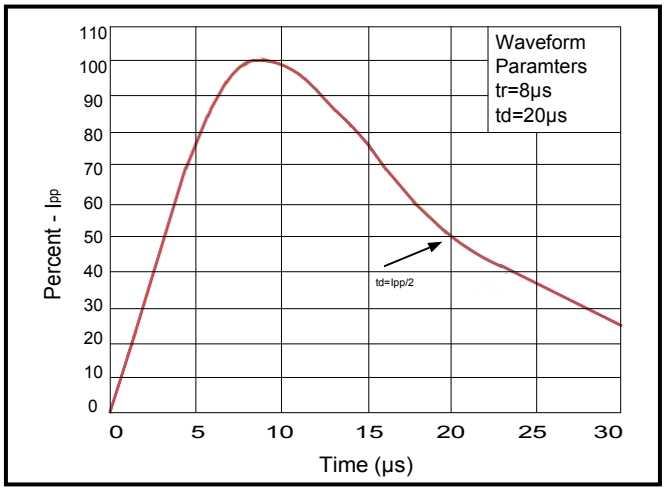
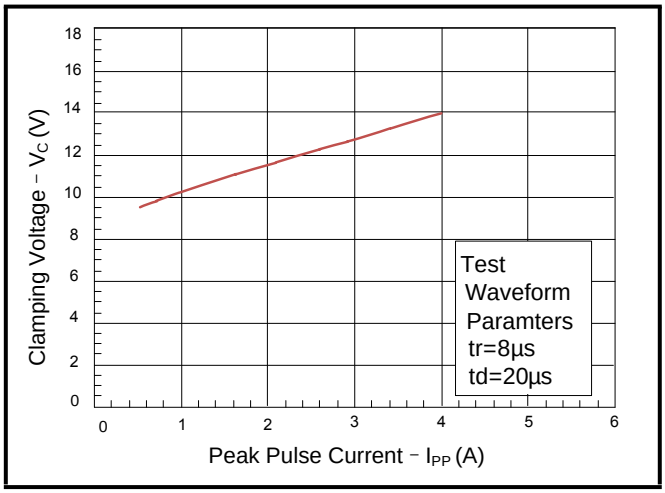


Figure 4: Clamping Voltage vs. I_{PP}



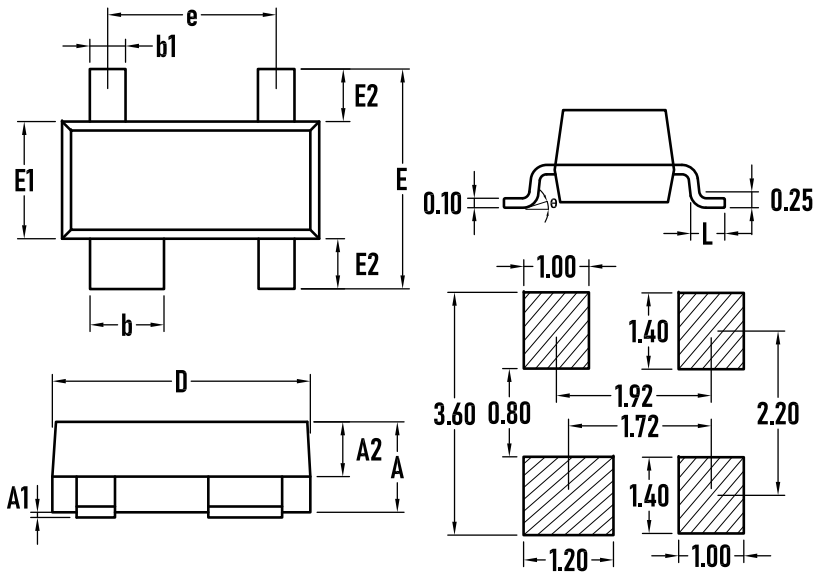
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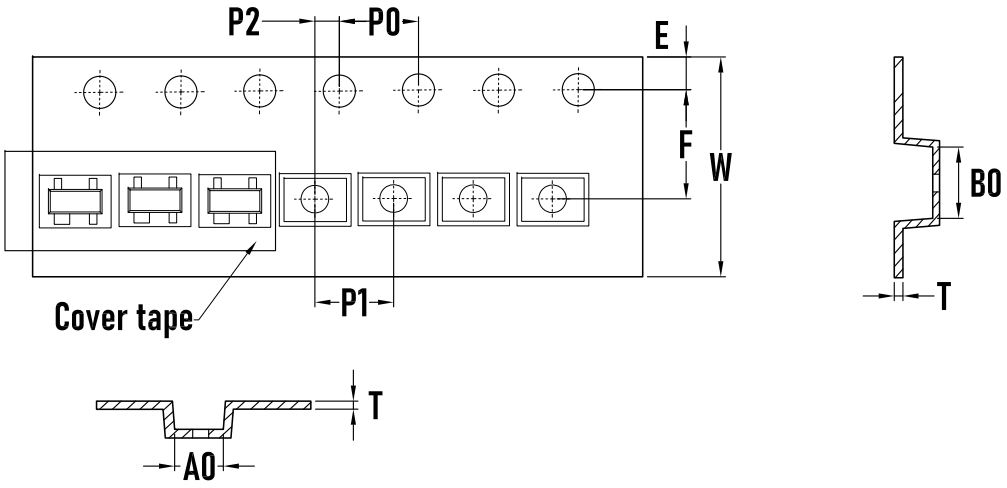
ESD Protection Diode

Outline Drawing – SOT-143



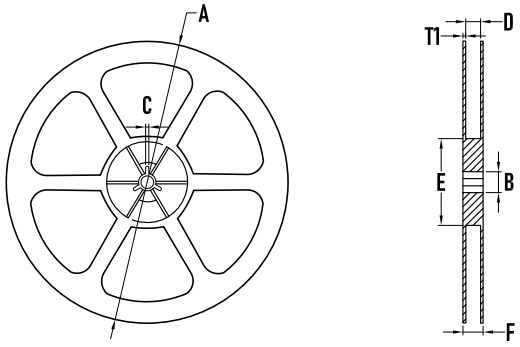
SYMBOL	MILLIMETER		
	MIN.	Typ.	MAX.
A	0.90	1.00	1.10
A1	0.02	0.06	0.10
A2	0.50	0.60	0.70
D	2.80	2.90	3.00
b	0.73	0.83	0.93
b1	0.30	0.40	0.50
E	2.20	2.40	2.60
E1	1.20	1.30	1.40
E2	0.45	0.55	0.65
e	1.80	1.90	2.00
L	0.30	0.40	0.50
θ	0	–	8°

Packaging Tape – SOT-143



SYMBOL	MILLIMETER
A0	3.15±0.10
B0	2.75±0.10
d0	1.55±0.10
d1	1.10±0.05
E	1.75±0.10
F	3.50±0.10
K0	1.20±0.10
P2	2.00±0.10
P0	4.00±0.10
P1	4.00±0.10
W	8.00±0.10
T	0.20 ±0.02

Packaging Reel



SYMBOL	MILLIMETER
A	177.8±0.2
B	3.1
C	13.50
D	9.6±0.3
E	75±0.2
F	12.3±0.3
T1	1.0±0.2
Quantity	3000PCS

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