P Substrate High Power TVS Diode

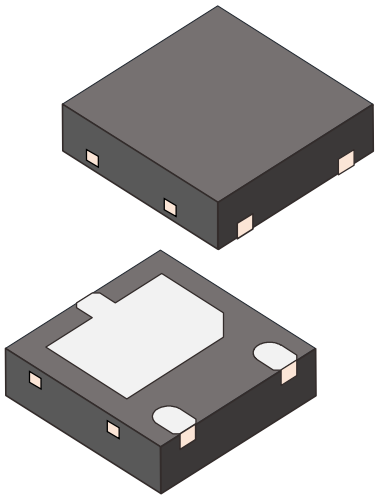
Features

- 7000Watts peak pulse power (tp = 8/20μs)
- Uni-directional configurations
- Solid-state silicon-avalanche technology
- Capacitance: 660pF typical
- Low clamping voltage
- Low leakage current
- AEC-Q101 qualified (Automotive grade with suffix "Q".)
- Expsemi electronics
- Complies with following standards:
  - IEC 61000-4-2 (ESD) immunity test
    - Air discharge: ±30KV
    - Contact discharge: ±30KV
  - IEC61000-4-4 (EFT) 40A (5/50ns)
  - IEC61000-4-5 (Lightning) 200A (8/20us)

DFN2020P3

DFN2×2-3L

2mm×2mm×0.5mm



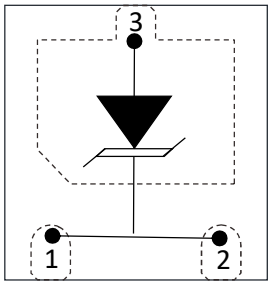
Applications

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

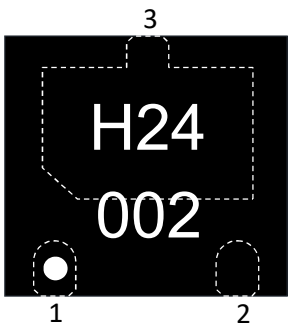
Mechanical Data

- Package: DFN2020P3
- UL Flammability Classification Rating 94V-0
- Packaging: Tape and Reel
- RoHS/WEEE Compliant

Schematic & PIN Configuration



Marking



Absolute Maximum Ratings

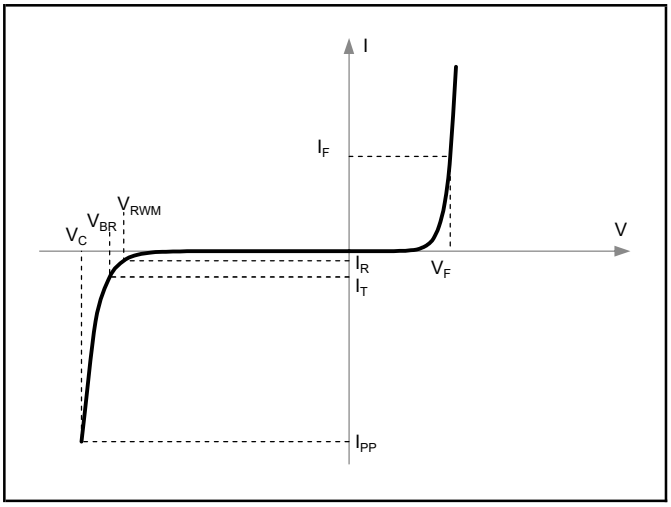
Parameter	Symbol	Value	Units
Reverse Working Voltage	V_{RWM}	24	V
Peak Pulse Power (tp=8/20μs)	P_{PP}	7000	W
Peak Pulse Current (tp=8/20μs)	I_{PP}	200	A
ESD per IEC 61000−4−2 (Air)	$V_{ESD-Air}$	30	KV
ESD per IEC 61000−4−2 (Contact)	$V_{ESD-Contact}$	30	KV
Lead Soldering Temperature (10s)	T_L	260	℃
Operating Junction Temperature Range	T_J	-55 to 125	℃
Storage Temperature Range	T_{STG}	-55 to 150	℃

Electrical Characteristics

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Breakdown Voltage	V_{BR}	I_T = 1mA	26			V
Reverse Leakage Current	I_R	V_{RWM} = 24V			1	uA
Clamping Voltage	V_C	I_{PP} = 100A, tp=8/20μs			30	V
		I_{PP} = 200A, tp=8/20μs			35	V
Junction Capacitance	C_J	V_{DC} = 0V, f=1MHz		660		pF

Electrical Parameters

Symbol	Definition
I_{PP}	Peak Pulse Current
V_C	Clamping Voltage
V_{RWM}	Reverse Working Voltage
I_R	Reverse Leakage Current
V_{BR}	Breakdown Voltage
I_T	Test Current
V_F	Forward Voltage
I_F	Forward Current



Typical Characteristics

Fig.1 - Peak Pulse Power Rating

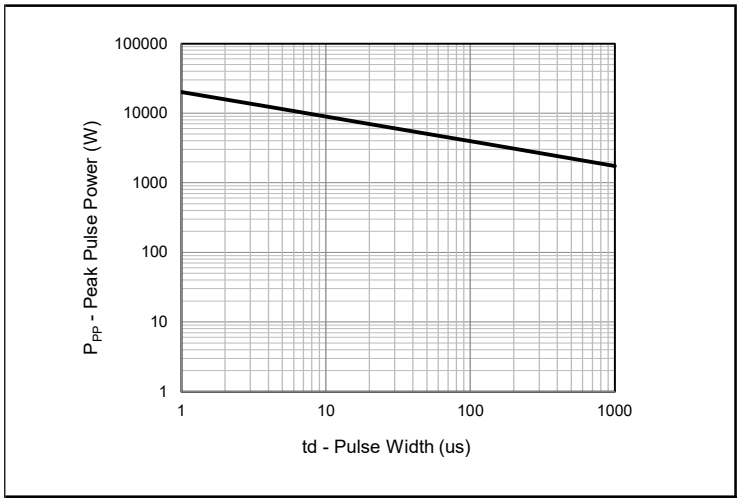


Fig.2 - Pulse Derating Curve

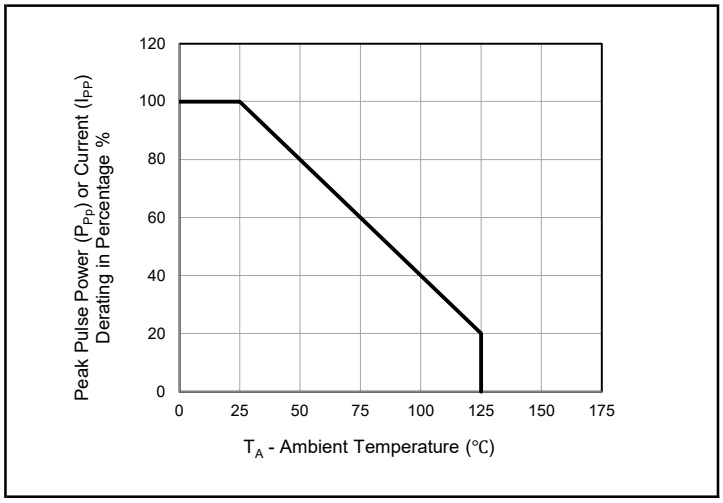


Fig.3 - 8/20us Pulse Waveform

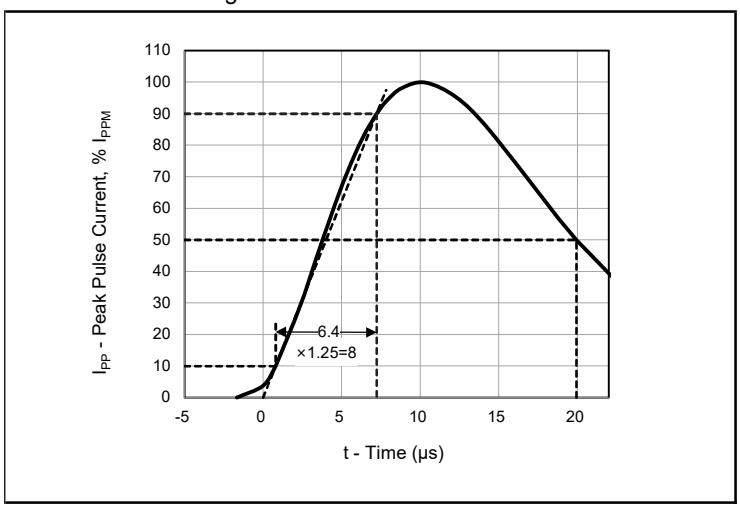


Fig.4 - Typical Clamping Voltage

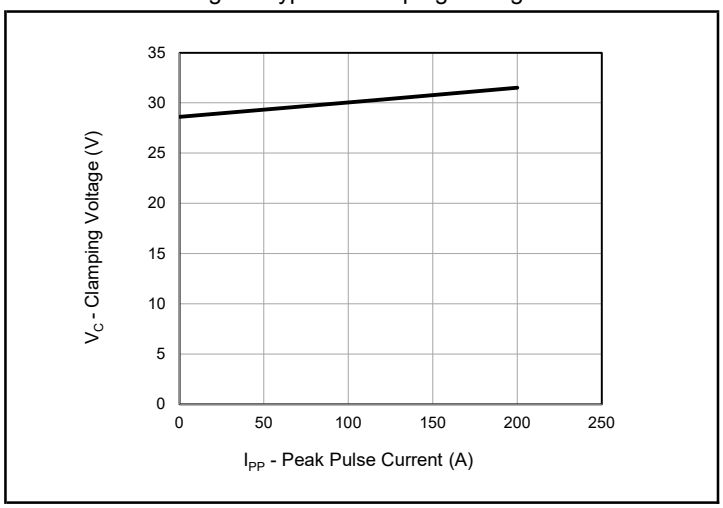


Fig.5 - ESD Pulse Waveform (IEC61000-4-2)

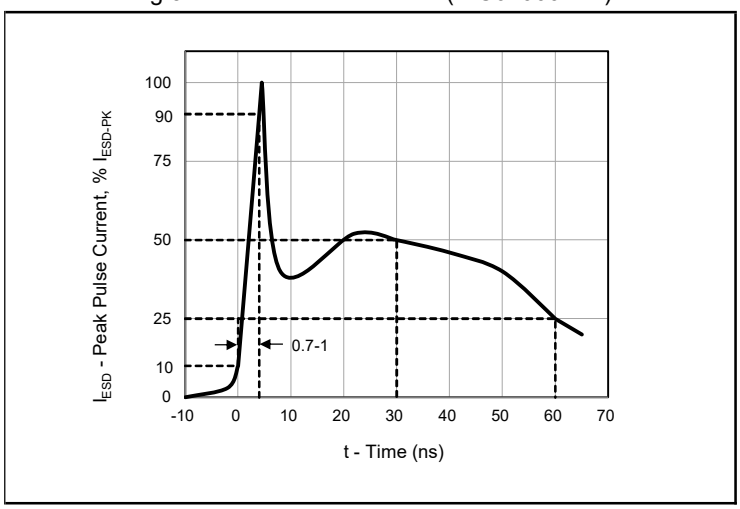
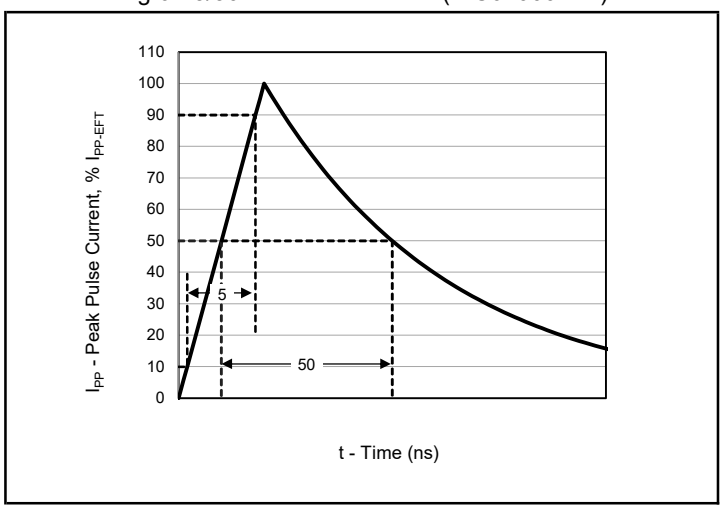
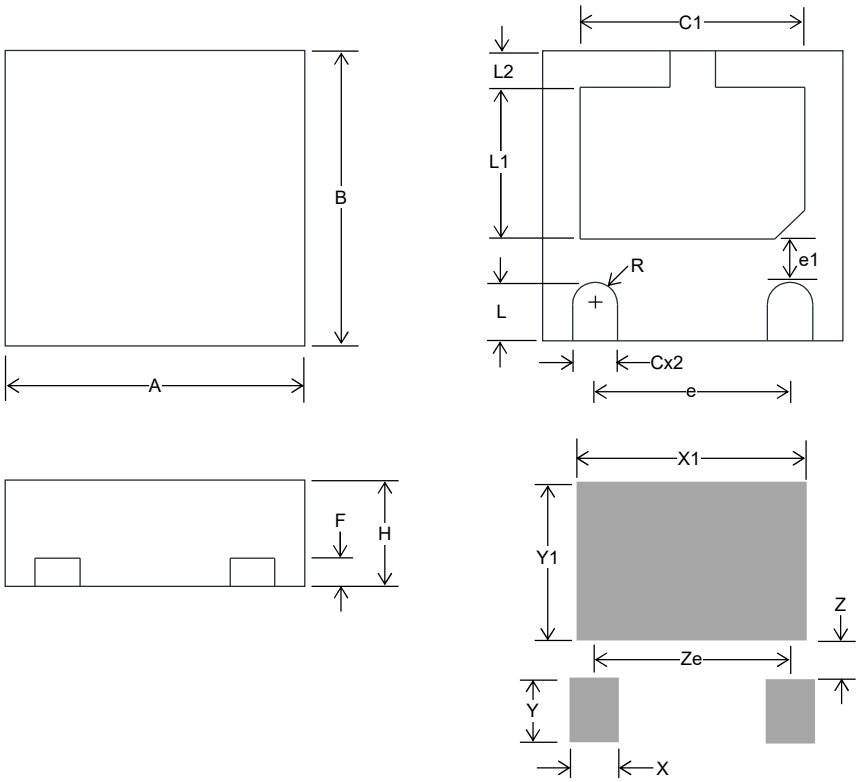


Fig.6 - 5/50ns EFT Waveform (IEC61000-4-4)



Outline Drawing



DFN2020P3			
SYMBOL	Millimeters		
	MIN	NOM	MAX
A	1.95	2	2.05
B	1.95	2	2.05
C	0.25	0.3	0.35
F	0.17	0.2	0.23
G		0.02	0.05
H	0.48	0.53	0.58
L	0.35	0.4	0.45
e		1.3	
C1	1.4	1.5	1.6
L1	1	1.05	1.1
L2	0.2	0.25	0.3
e1		0.25	
R	0.13		
X		0.4	
Y		0.5	
Z		0.25	
Ze		1.3	

Ordering Information

Order Code	Package	Base Quantity	Delivery Mode
EP2401HSP	DFN2020P3	3000 PCS/Reel	Tape and Reel