



DWS20NP-Q ESD Protection Diode

Feature

- Uni-directional ESD protection of one line
- 1000Watts peak pulse power ($t_p=8/20\mu s$)
- Working voltage: 20V
- Junction Capacitance: 65pF(Typ)
- Solid-state silicon-avalanche technology
- Low clamping voltage
- Low leakage current
- AEC-Q101 qualified
- IEC 61000-4-2 $\pm 30kV$ contact $\pm 30kV$ air
- IEC 61000-4-4 (EFT) 40A (5/50ns)
- IEC 61000-4-5 (Lightning) 30A (8/20 μs)

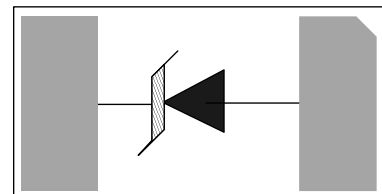
Application

- Power supply protection
- Power management servers

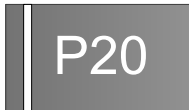
Mechanical Data

- Package: DFN1006-2L
- Molding compound flammability rating: UL 94V-0
- RoHS/WEEE Compliant

Schematic & PIN Configuration



Ordering Information

Part Number	Package	Marking	Packing	Reel Size
DWS20NP-Q	DFN1006-2L	 P20	10000 Tape & Reel	7 inches



Absolute Maximum Rating ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Units
Peak Pulse Power ($t_p = 8/20\mu\text{s}$)	P_{PP}	1000	Watts
Peak Pulse Current ($t_p = 8/20\mu\text{s}$) (note1)	I_{pp}	30	A
ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	V_{ESD}	± 30 ± 30	kV
Lead Soldering Temperature	T_L	260 (10seconds)	$^\circ\text{C}$
Junction Temperature	T_J	-55 to + 125	$^\circ\text{C}$
Storage Temperature	T_{stg}	-55 to + 125	$^\circ\text{C}$

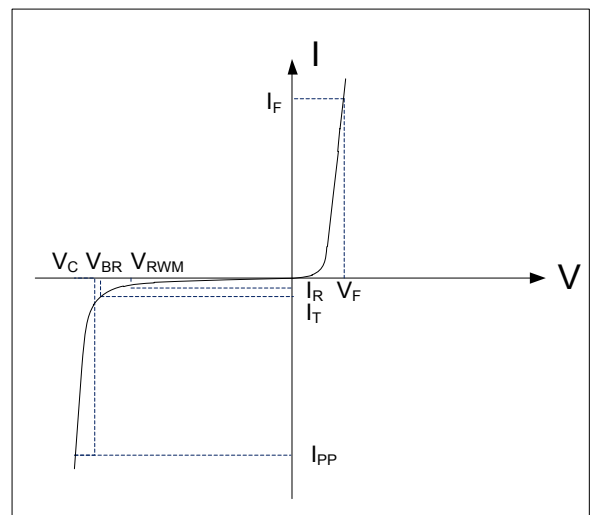
Electrical Characteristics ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typical	Max	Units
Reverse Stand-Off Voltage	V_{RWM}				20	V
Reverse Breakdown Voltage	V_{BR}	$I_T = 1\text{mA}$	22			V
Reverse Leakage Current	I_R	$V_{RWM} = 20\text{V}, T = 25^\circ\text{C}$			1	μA
Clamping Voltage	V_C	$I_{PP} = 30\text{A}, t_p = 8/20\mu\text{s}$		36		V
Junction Capacitance	C_j	$V_R = 0\text{V}, f = 1\text{MHz}$		65		pF

Electrical Parameters

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

Note: 8/20 μs pulse waveform.





Typical Characteristics

Fig.1 Peak Pulse Power Rating Curve

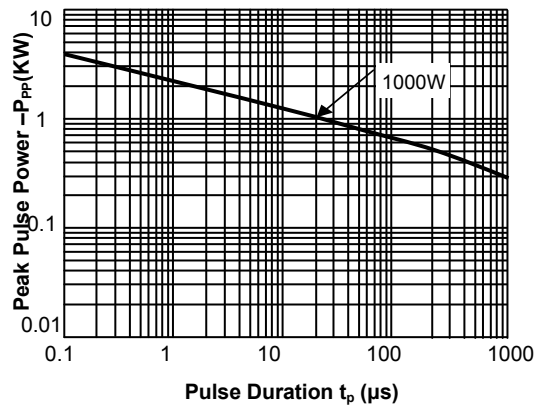


Fig.2 Pulse Derating Curve

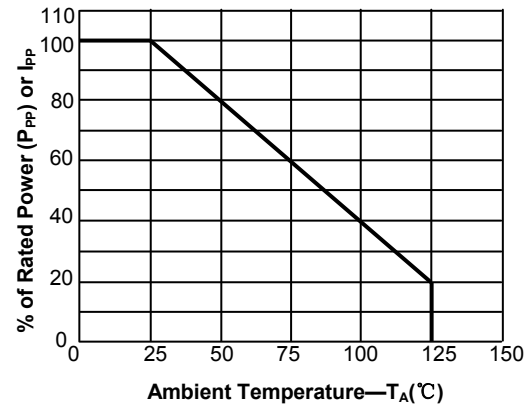


Fig.3 Pulse Waveform-8/20 μ s

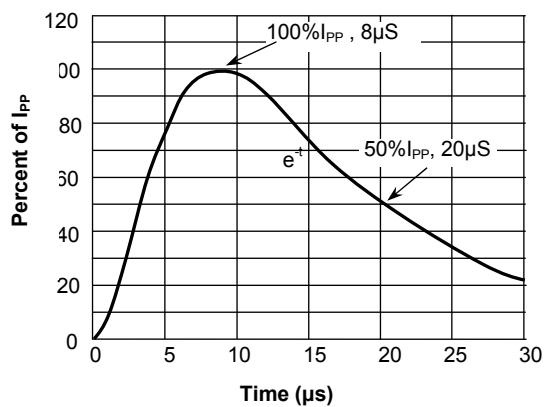


Fig.4 Pulse Waveform-ESD(IEC61000-4-2)

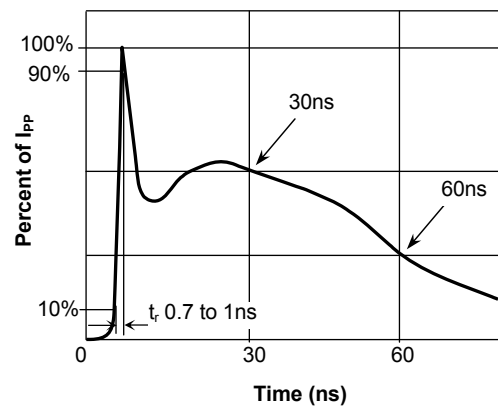


Fig.5 IEC61000-4-2 +8kV Contact Discharge

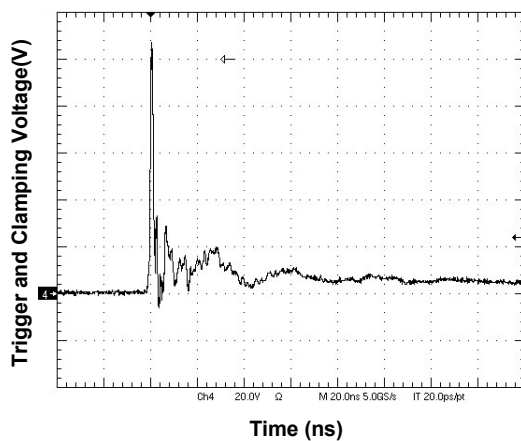
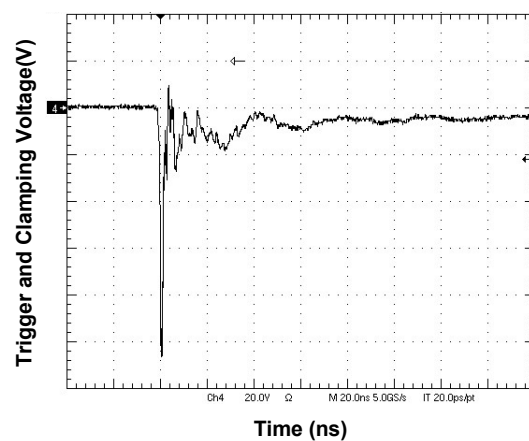
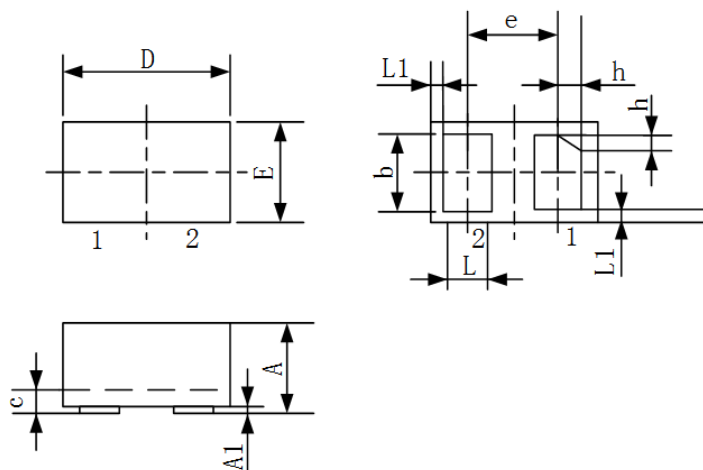


Fig.6 IEC61000-4-2 -8kV Contact Discharge





DFN1006-2L Outline Drawing



SYMBOL	MILLIMETER		
	MIN	NOM	MAX
A	0.40	0.50	0.55
A1	0	0.02	0.05
b	0.45	0.50	0.55
c	0.12	0.15	0.18
D	0.95	1.00	1.05
e	0.65BSC		
E	0.55	0.60	0.65
L	0.20	0.25	0.30
L1	0.05REF		
h	0.07	0.12	0.17
载体尺寸 (MIL)	20*20		