DWS48NPAH-Q ESD Protection Diode

Feature

- Uni-directional ESD protection of one line
- 1800Watts peak pulse power (tp = 8/20μs)
- Working voltage: 48V
- Junction Capacitance: 108pF(Typ)
- Low clamping voltage
- Low leakage current
- AEC-Q101 qualified
- IEC61000-4-2 ±30kV (contact) ±30kV (air)
- IEC61000-4-4(EFT) 40A (5/50ns)
- IEC 61000-4-5 (Lightning) 30A (8/20μs)

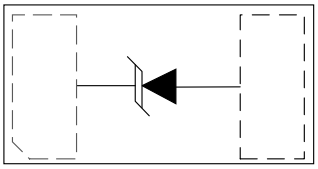
Application

- Power supply protection
- Power management
- Cellular Handsets & Accessories
- Notebooks, Desktops, and Servers
- Industrial equipment
- Portable instrumentation

Mechanical Data

- Package: DFN1610-2L
- Molding compound flammability rating: UL 94V-0
- RoHS/WEEE Compliant

Schematic & PIN Configuration



Ordering Information

Part Number	Package	Marking	Packing	Reel Size
DWS48NPAH-Q	DFN1610-2L	EHW	10000 Tape & Reel	7 inches

Absolute Maximum Rating (T_A=25°C unless otherwise Specified)

Parameter	Symbol	Value	Units
Peak Pulse Power (tp=8/20μs)	P_{PP}	1800	W
Peak Pulse Current (tp=8/20μs)	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)	℃
Operating Temperature	T_J	-55 to + 125	℃
Storage Temperature	T_{STG}	-55 to + 150	℃

Electrical Characteristics (T_A=25°C unless otherwise Specified)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Reverse Voltage	V_{RWM}				48	V
Reverse Breakdown Voltage	V_{BR}	I_T=1mA	53			V
Reverse Leakage Current	I_R	V_{RWM}=48V, T=25℃			1	μA
Forward Voltage	V_F	I_F=10mA	0.6	0.74	1.2	V
Clamping Voltage	V_C	I_{PP}=30A,tp=8/20μs			60	V
ESD Clamping Voltage(1)	V_C	I_{TLP}=16A,tp=0.2/100ns		48		V
Junction Capacitance	C_j	V_R=0V, f=1MHz		108	150	pF

Electrical Parameters (T_A = 25°C unless otherwise noted)

V_{RWM} ……Reverse Working Voltage Max.

I_R …… Maximum Reverse Leakage Current @ V_{RWM}

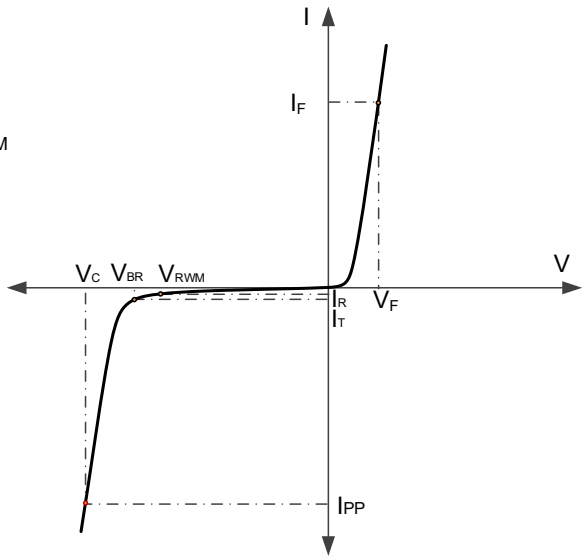
I_T …… Test Current

V_F …… Forward Voltage

V_{BR} …… Reverse Breakdown Voltage

I_{PP} …… Maximum Reverse Peak Pulse Current

V_C …… Clamping Voltage @ I_{PP}



Note(1)：TLP Setting：I_{TLP} and V_{TLP} sample window:t1=70ns to t2=90ns.

Typical Characteristics

Figure 1: Peak Pulse Power vs. Pulse Time

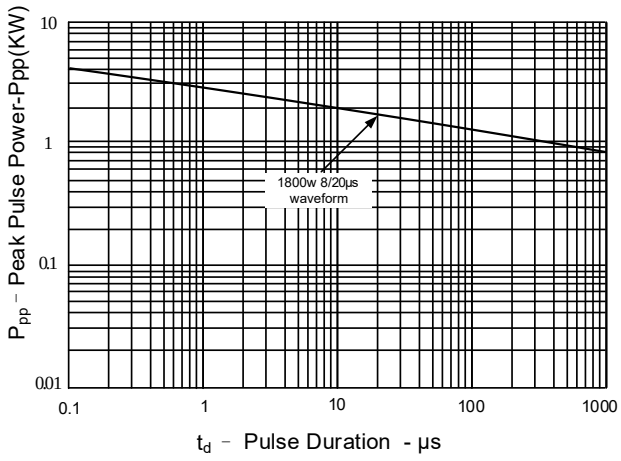


Figure 2: Power Derating Curve

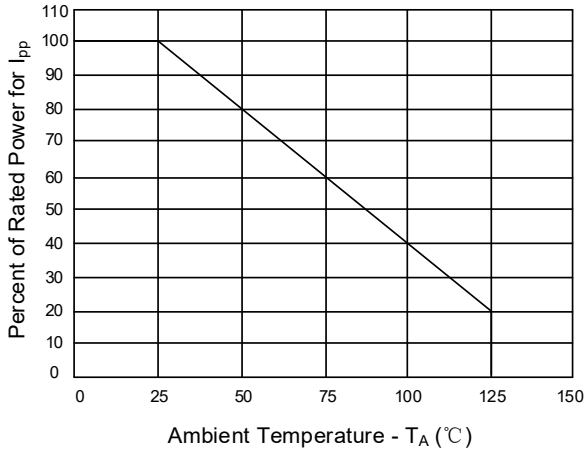


Figure3: Pulse Waveform

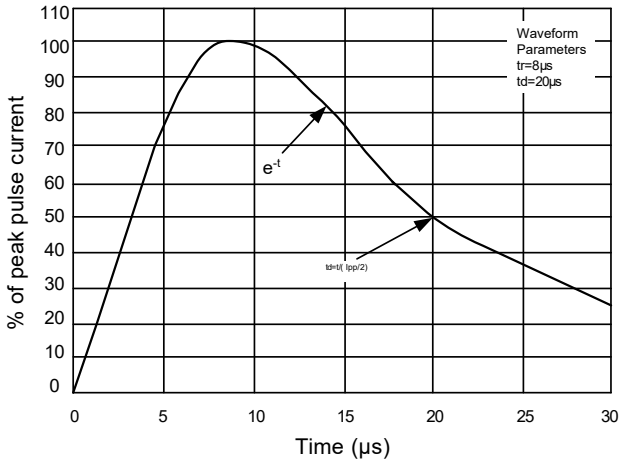


Figure 4: Clamping Voltage vs.Ipp

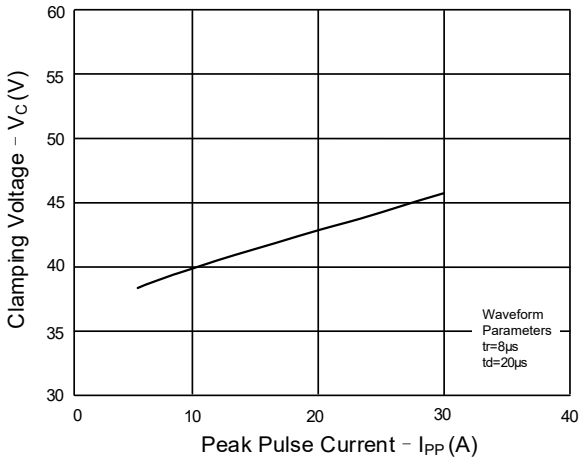


Figure5: TLP Positive I-V Curve

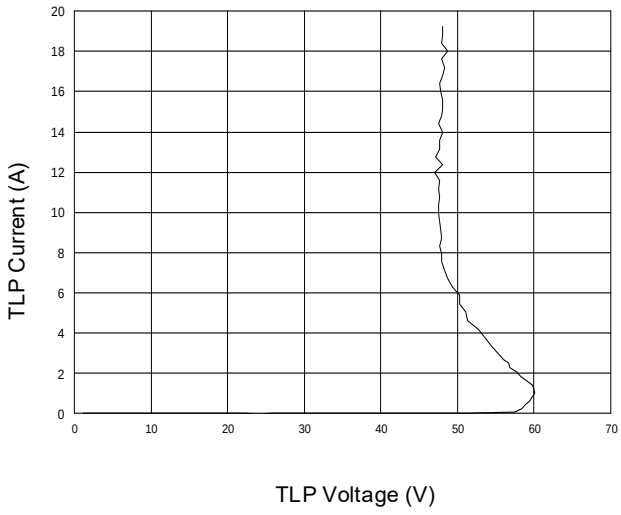
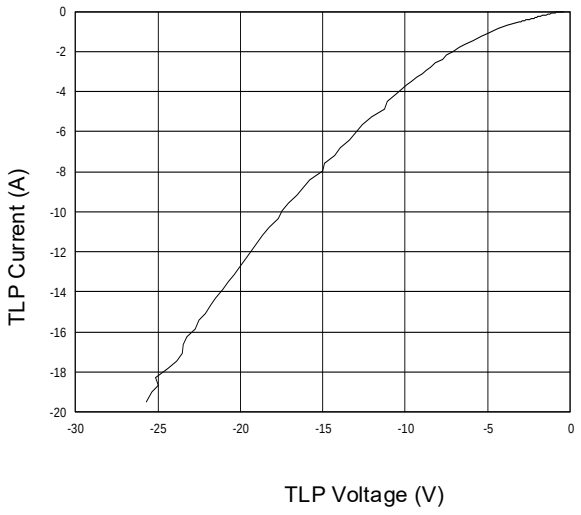
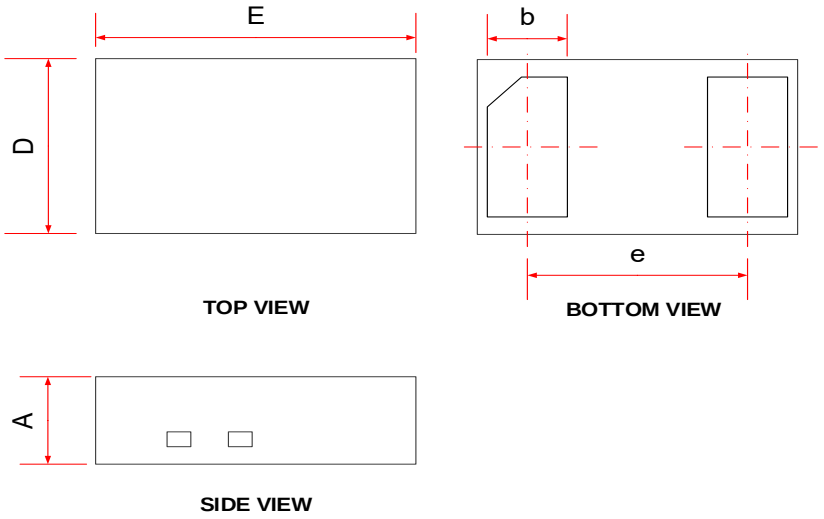


Figure6: TLP Negative I-V Curve

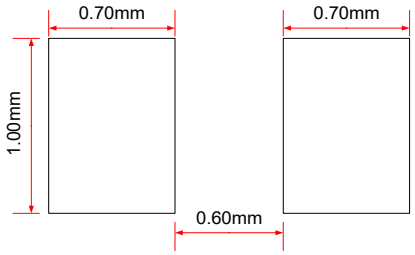


Outline Drawing-DFN1610-2L



COMMON DIMENSION (mm)			
PKG	DFN1610		
REF.	MIN.	NOM.	MAX.
A	0.450	0.500	0.55
D	0.95	1.00	1.05
E	1.55	1.60	1.65
b	0.35	0.4	0.45
e	1.10BSC		
L	0.75	0.80	0.85

Land Pattern *



* This land pattern is for reference purposes only