

DWS48NPAH ESD Protection Diode

Feature

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

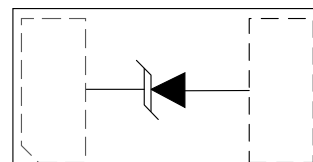
Application

- 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	DFN1610-2L		10000 Tape & Reel	7 inches

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

Parameter	Symbol	Value	Units
Peak Pulse Power ($t_p=8/20\mu\text{s}$)	P_{PP}	1800	W
Peak Pulse Current ($t_p=8/20\mu\text{s}$)	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)	$^{\circ}\text{C}$
Operating Temperature	T_J	-55 to + 125	$^{\circ}\text{C}$
Storage Temperature	T_{STG}	-55 to + 150	$^{\circ}\text{C}$

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

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

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

V_{RWM} Reverse Working Voltage Max.

I_R Maximum Reverse Leakage Current @ V_{RWM}

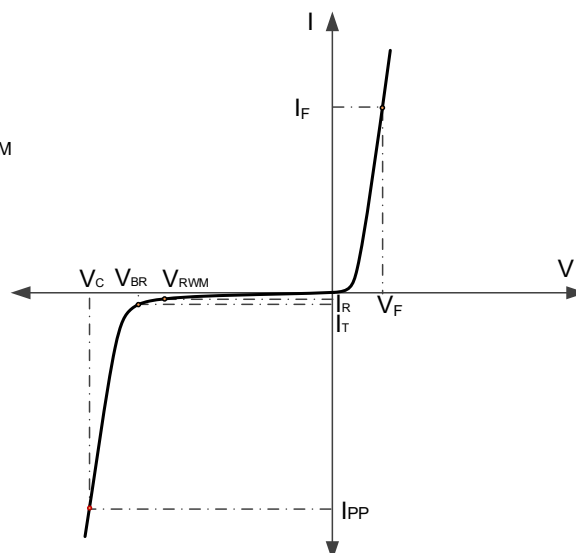
I_T Test Current

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: $t_1=70\text{ns}$ to $t_2=90\text{ns}$.



Typical Characteristics

Figure 1: Peak Pulse Power vs. Pulse Time

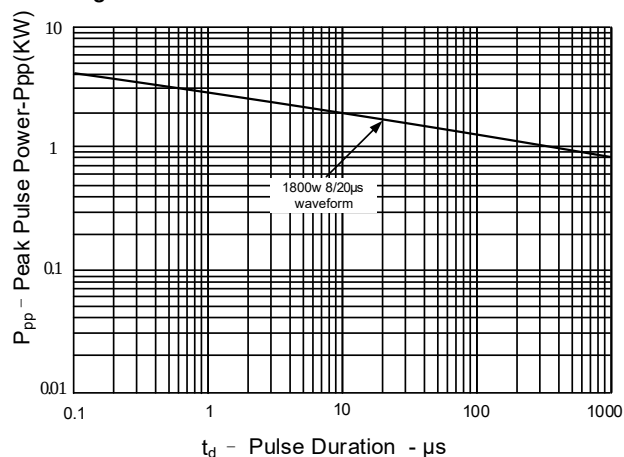


Figure 2: Power Derating Curve

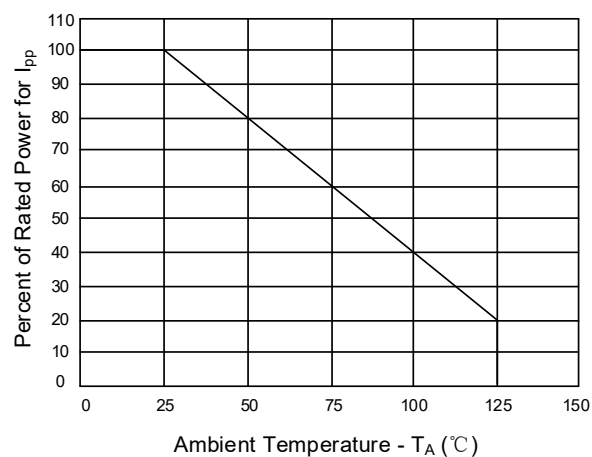


Figure3: Pulse Waveform

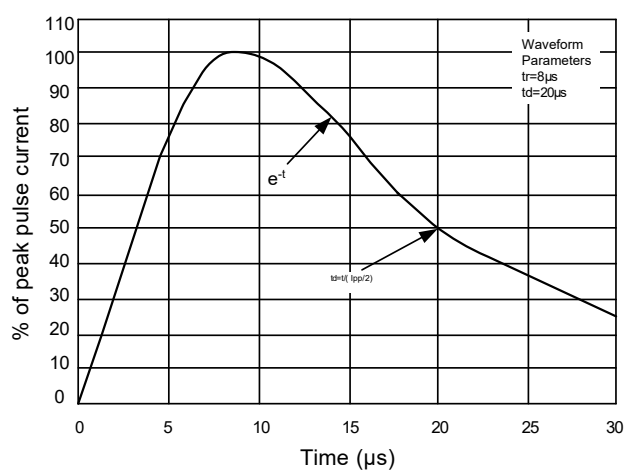


Figure 4: Clamping Voltage vs. I_{pp}

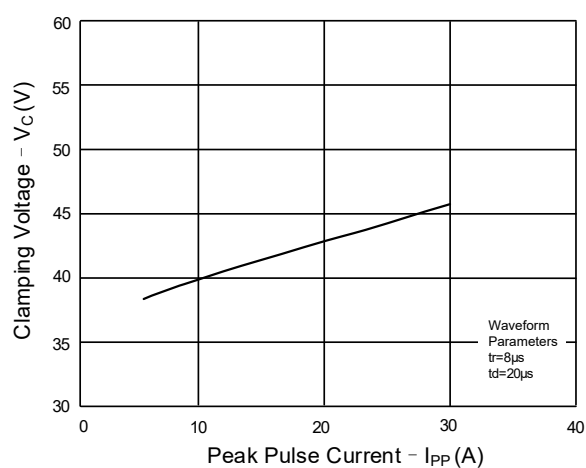


Figure5: TLP Positive I-V Curve

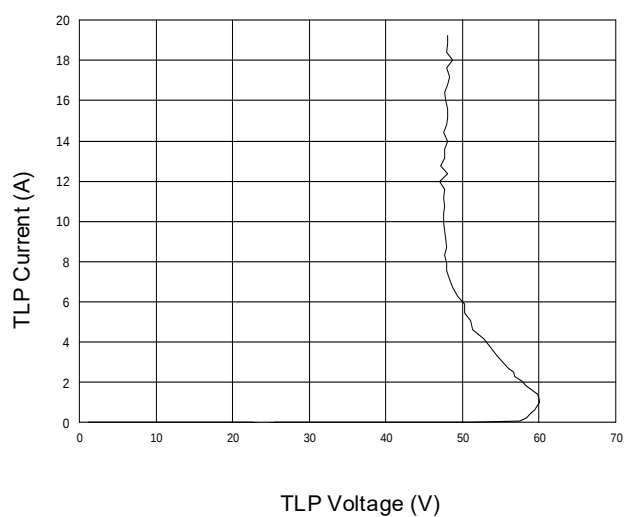
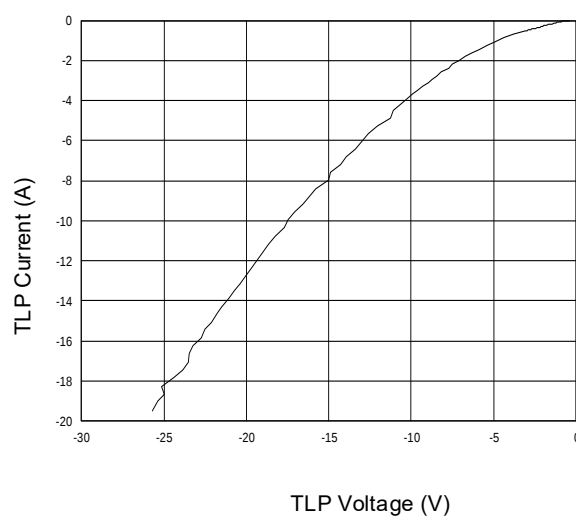
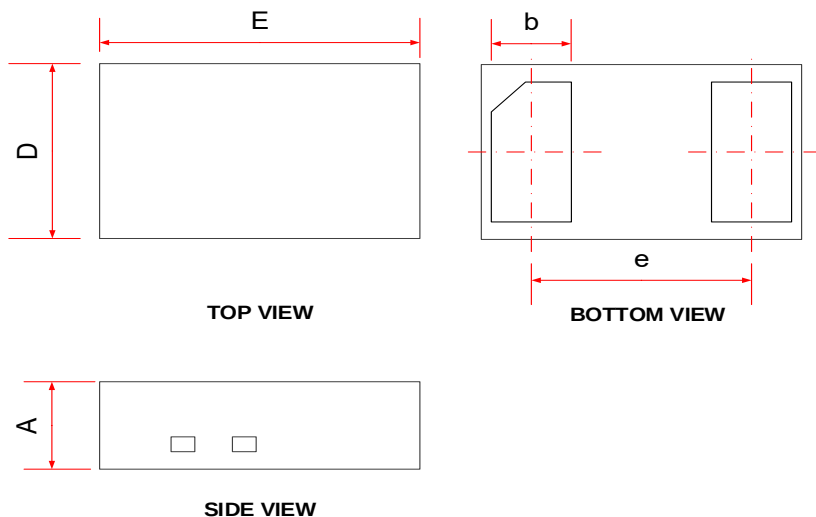


Figure6: TLP Negative I-V Curve



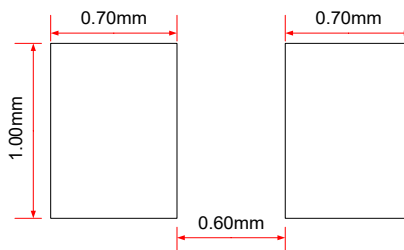


Outline Drawing-DFN1610-2L



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