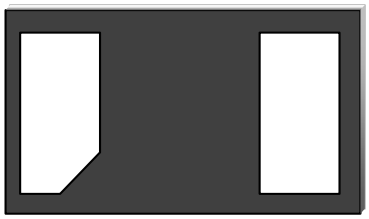
WS4.5DPVL

Transient Voltage Suppressor

Features

- 2160 Watts Peak Pulse Power per Line (t_p = 8/20μs)
- Protects one I/O or power line
- Low Clamping Voltage
- Working Voltage: 4.5V
- Low Leakage Current



DFN1610-2L

IEC COMPATIBILITY (EN61000-4)

- **IEC 61000-4-2 (ESD) ±30kV (air), ±30kV (contact)**
- **IEC 61000-4-4 (EFT) 40A (5/50ns)**
- **IEC 61000-4-5 (Lightning) 180A (8/20μs)**

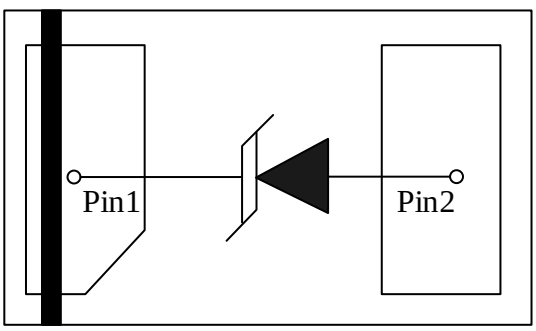
Mechanical Characteristics

- DFN1610-2L package
- Marking : Marking Code
- Packaging : Tape and Reel per EIA 481
- RoHS Compliant

Applications

- Laptop Computers
- Cellular Phones
- Digital Cameras
- Personal Digital Assistants (PDAs)

Schematic & PIN Configuration

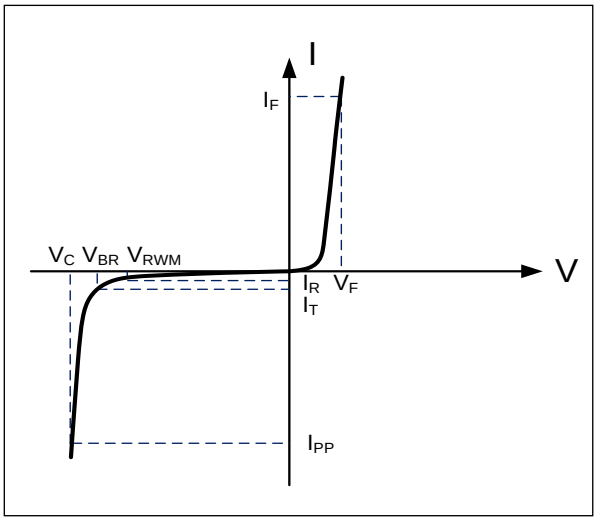


BOTTOM VIEW

Absolute Maximum Rating			
Rating	**Symbol**	**Value**	**Units**
Peak Pulse Power（t_p =8/20μs）	P_{PP}	2160	Watts
Peak Pulse Current（t_p =8/20μs）	I_{PP}	180	A
Operating Temperature	T_J	-55 to + 125	°C
Storage Temperature	T_{STG}	-55 to +150	°C

Electrical Parameters (T=25℃)

Symbol	Parameter
I_{PP}	Reverse Peak Pulse Current
V_C	Clamping Voltage @ I_{PP}
V_{RWM}	Reverse Stand-Off Voltage
I_R	Reverse Leakage Current @ V_{RWM}
V_{BR}	Breakdown Voltage @ I_T
I_T	Test Current
I_F	Forward Current
V_F	Forward Voltage @ I_F



Electrical Characteristics

WS4.5DPVL						
Parameter	**Symbol**	**Conditions**	**Minimum**	**Typical**	**Maximum**	**Units**
Reverse Stand-Off Voltage	V_{RWM}				4.5	V
Reverse Breakdown Voltage	V_{BR}	I_T=1mA	4.6		6.5	V
Forward Voltage	V_F	I_F=10 mA	0.5		1	V
Reverse Leakage Current	I_R	V_{RWM}=4.5V, T=25°C			500	nA
Clamping Voltage	V_C	I_{PP}=180A, t_p=8/20μs		10	12	V
Dynamic Resistance[1,2]	R_{DYN}	TLP=0.2/100ns		0.02		Ω
ESD Clamping Voltage[1]	V_C	I_{PP} = 4A t_p = 0.2/100ns		5.3		V
ESD Clamping Voltage[1]	V_C	I_{PP} = 16A t_p = 0.2/100ns		5.5		V
Junction Capacitance	C_j	V_R = 0V, f= 1MHz		500	600	pF

Notes：1、TLP Setting：t_p=100ns, t_r=0.2ns, I_{TLP} and V_{TLP} sample window:t_1=70ns to t_2=90ns.
2、Dynamic resistance calculated from I_{PP}=4A to I_{PP}=16A using “Best Fit”.

Typical Characteristics

Figure 1: Peak Pulse Power vs. Pulse Time

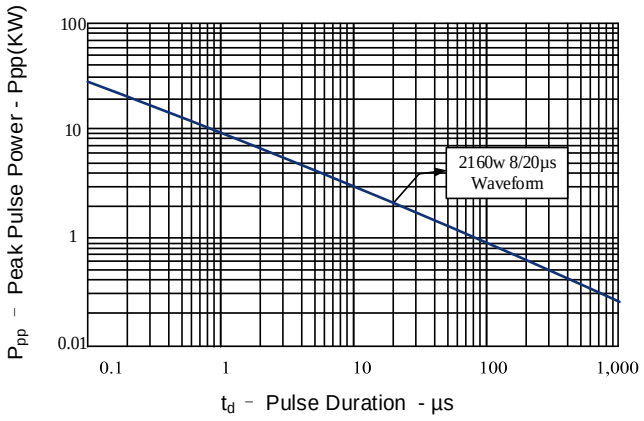


Figure 2: Power Derating Curve

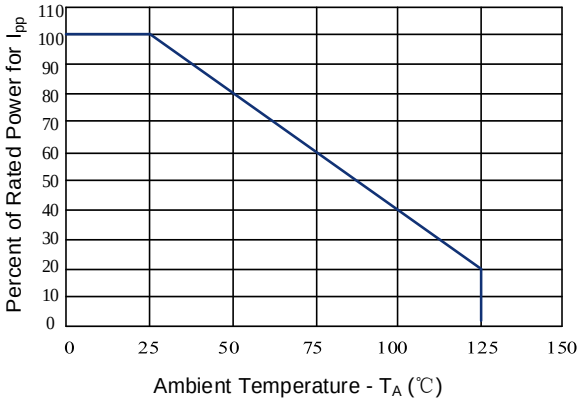


Figure 3: Clamping Voltage vs. Peak Pulse Current

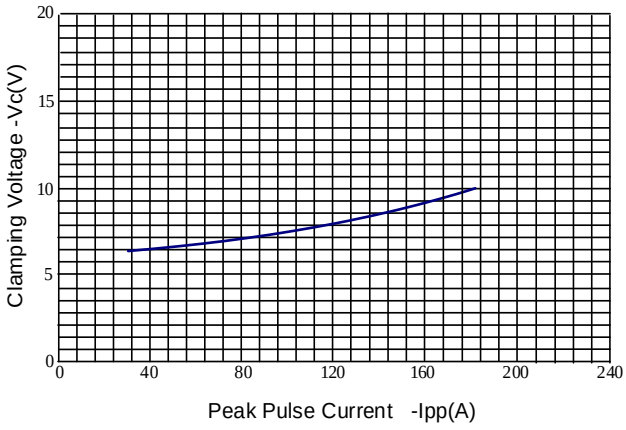


Figure 4: Normalized Junction Capacitance vs. Reverse Voltage

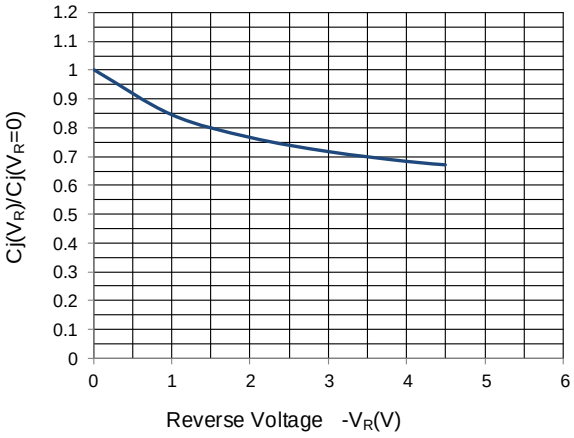


Figure 5: Pulse Waveform

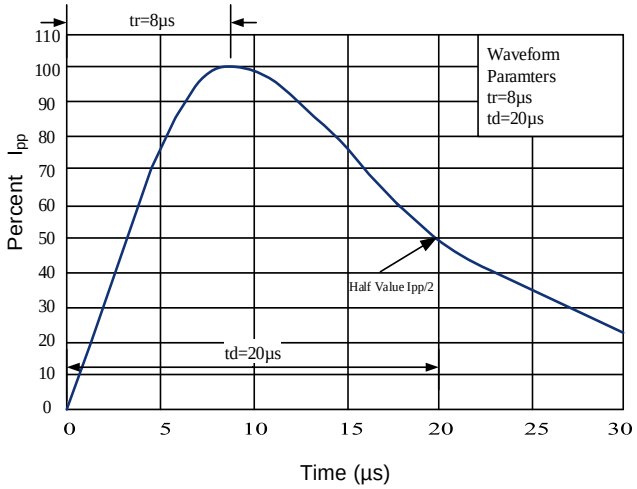
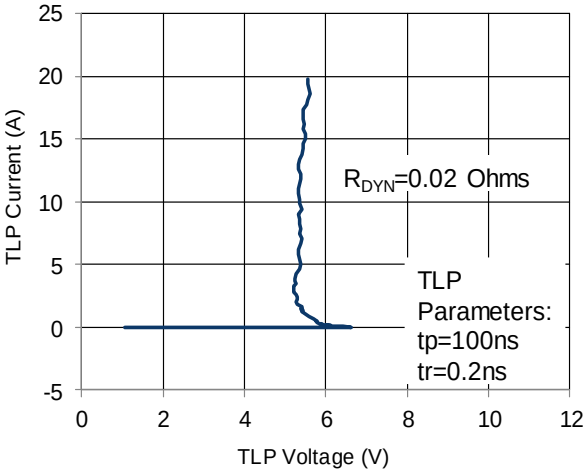
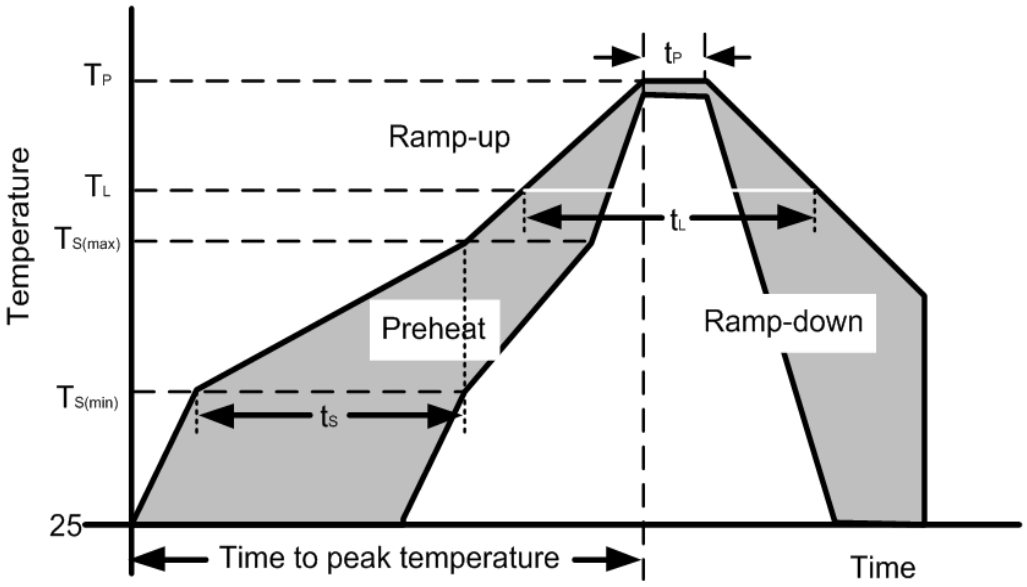


Figure 6: TLP I-V Curve



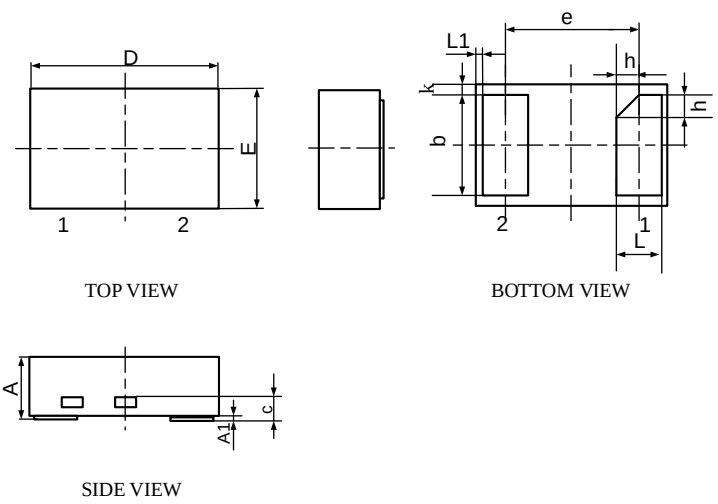
Soldering Parameters

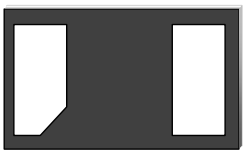
Reflow Condition		Pb – Free assembly
Pre Heat	Temperature Min ($T_{s(min)}$)	150°C
	Temperature Max ($T_{s(max)}$)	200°C
	Time (min to max) (ts)	60 – 190 secs
Average ramp up rate (Liquidus Temp) (T_L) to peak		5°C/second max
$T_{S(max)}$ to T_L——Ramp-up Rate		5°C/second max
Reflow	Temperature (T_L) (Liquidus)	217°C
	Temperature (t_L)	60 – 150 seconds
Peak Temperature (T_P)		260+0/-5 °C
Time within actual peak Temperature (t_p)		20 – 40 seconds
Ramp-down Rate		5°C/second max
Time 25°C to peak Temperature (T_P)		8 minutes Max.
Do not exceed		280°C



Outline Drawing –DFN1610-2L

PACKAGE OUTLINE

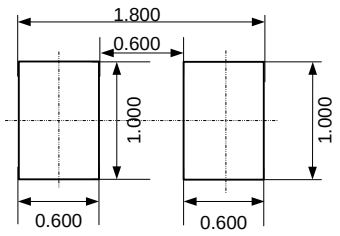




DFN1610-2L

SYMBOL	MILLIMETERS		
	MIN	NOM	MAX
A	0.450	0.500	0.550
A1	0.000	0.020	0.050
b	0.750	0.800	0.850
c		0.152REF	
D	1.550	1.600	1.650
e		1.100BSC	
E	0.950	1.000	1.050
L	0.350	0.400	0.450
L1		0.05REF	
h	0.150	0.200	0.250
k	0.050	0.100	0.150

Land Pattern



Marking Codes

Part Number	Marking Code
WS4.5DPVL	1 MLX 2 ML=Specific Device Code X=Month Code

Package Information

Qty：3k/Reel

CONTACT INFORMATION

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Tel: 86-21-68969993 Fax: 86-21-50757680 Email: market@way-on.com
WAYON website: **http://www.way-on.com**

For additional information, please contact your local Sales Representative.

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Specifications are subject to change without notice.
The device characteristics and parameters in this data sheet can and do vary in different applications and actual device performance may vary over time.
Users should verify actual device performance in their specific applications.