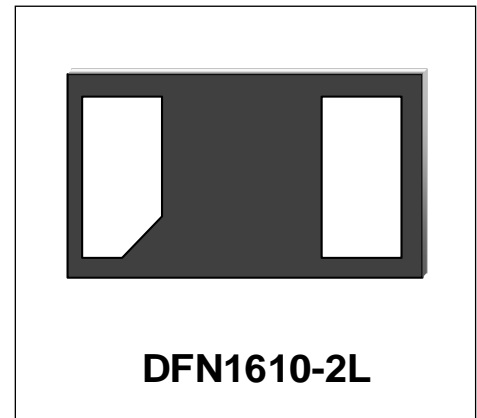


## Transient Voltage Suppressor

### Features

- 2255 Watts Peak Pulse Power per Line ( $t_p = 8/20\mu s$ )
- Protects one I/O or power line
- Low Clamping Voltage
- Working Voltage: 4.85V
- Low Leakage Current



### IEC COMPATIBILITY (EN61000-4)

- IEC 61000-4-2 (ESD)  $\pm 30kV$  (air),  $\pm 30kV$  (contact)
- IEC 61000-4-4 (EFT) 40A (5/50ns)
- IEC 61000-4-5 (Lightning) 205A (8/20 $\mu s$ )

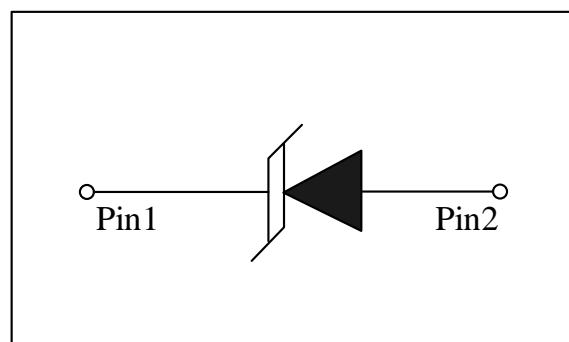
### Mechanical Characteristics

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

### Applications

- Power supply protection
- Power management
- Laptop Computers
- Cellular Phones
- Digital Cameras
- Personal Digital Assistants (PDAs)

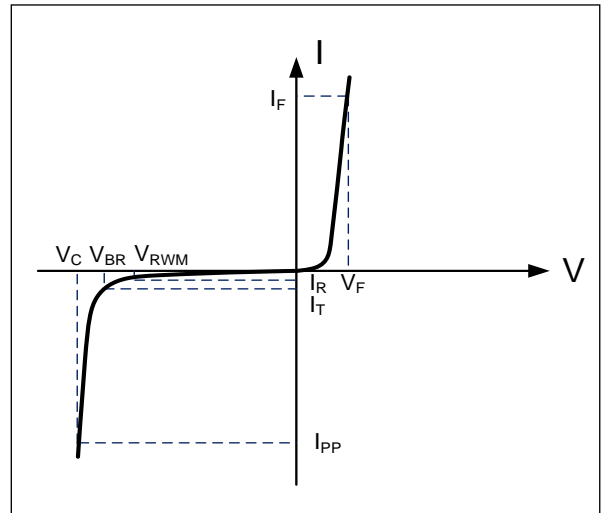
### Schematic & PIN Configuration



Absolute Maximum Rating			
Rating	Symbol	Value	Units
Peak Pulse Power ( $t_p = 8/20\mu s$ )	$P_{PP}$	2255	Watts
Peak Pulse Current ( $t_p = 8/20\mu s$ )	$I_{PP}$	205	A
Operating Temperature	$T_J$	-55 to + 125	$^{\circ}C$
Storage Temperature	$T_{STG}$	-55 to +150	$^{\circ}C$

Electrical Parameters

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(T=25 $^{\circ}C$  unless otherwise noted)

WS4.5DPHXM						
Parameter	Symbol	Conditions	Minimum	Typical	Maximum	Units
Reverse Stand-Off Voltage	$V_{RWM}$				4.85	V
Reverse Breakdown Voltage	$V_{BR}$	$I_T = 1mA$	5		7	V
Forward Voltage	$V_F$	$I_F = 10 mA$	0.5		1.2	V
Reverse Leakage Current	$I_R$	$V_{RWM} = 4.85V, T = 25^{\circ}C$			500	nA
Clamping Voltage	$V_C$	$I_{PP} = 205A, t_p = 8/20\mu s$		9	11	V
Dynamic Resistance <sup>1,2</sup>	$R_{DYN}$	$TLP = 0.2/100ns$		0.02		$\Omega$
ESD Clamping Voltage <sup>1</sup>	$V_C$	$I_{PP} = 4A$ $t_p = 0.2/100ns$		5.7		V
ESD Clamping Voltage <sup>1</sup>	$V_C$	$I_{PP} = 16A$ $t_p = 0.2/100ns$		5.9		V
Junction Capacitance	$C_j$	$V_R = 0V, f = 1MHz$		600	700	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

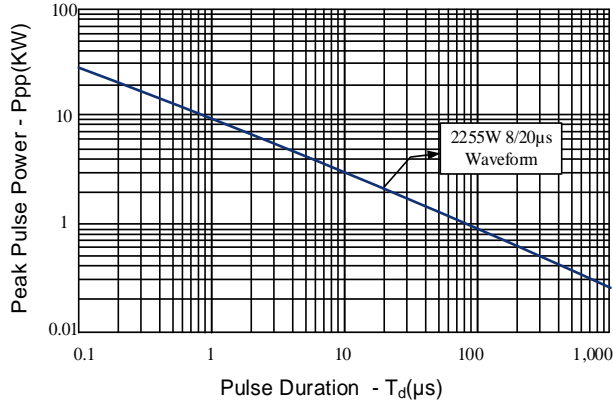


Figure 2: Power Derating Curve

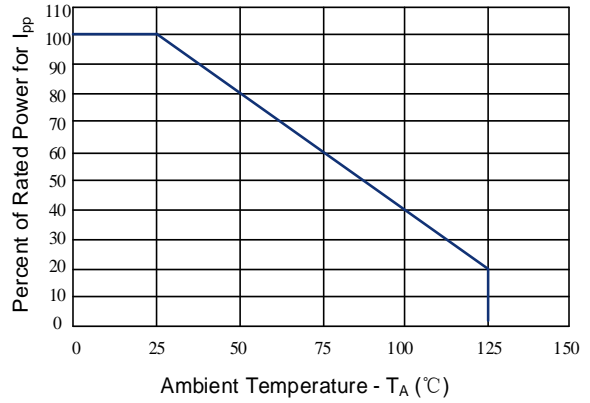


Figure 3: Clamping Voltage vs. Peak Pulse Current

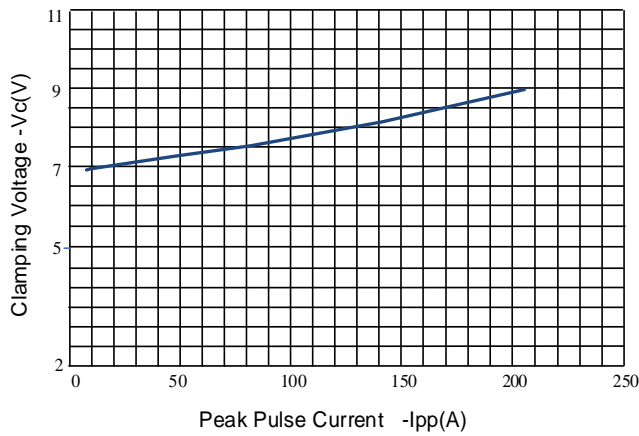


Figure 4: Normalized Junction Capacitance vs. Reverse Voltage

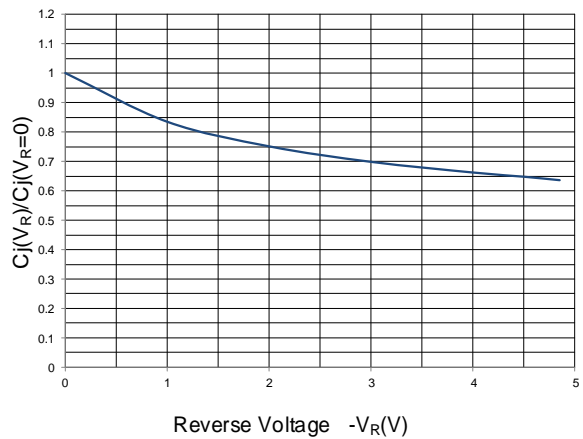


Figure 5: Pulse Waveform

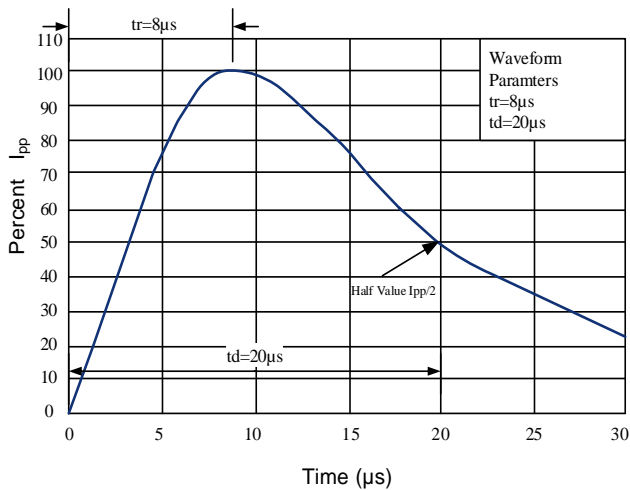
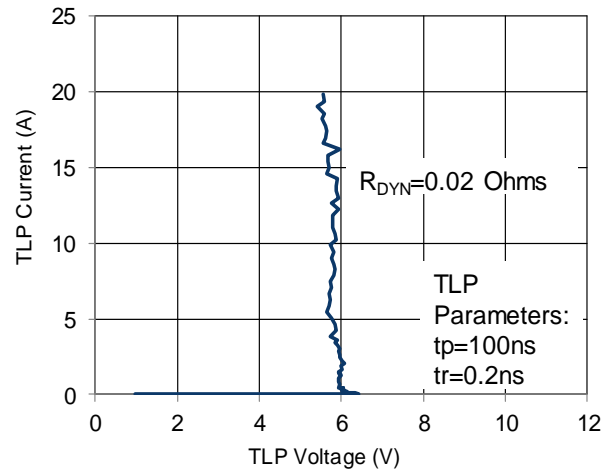
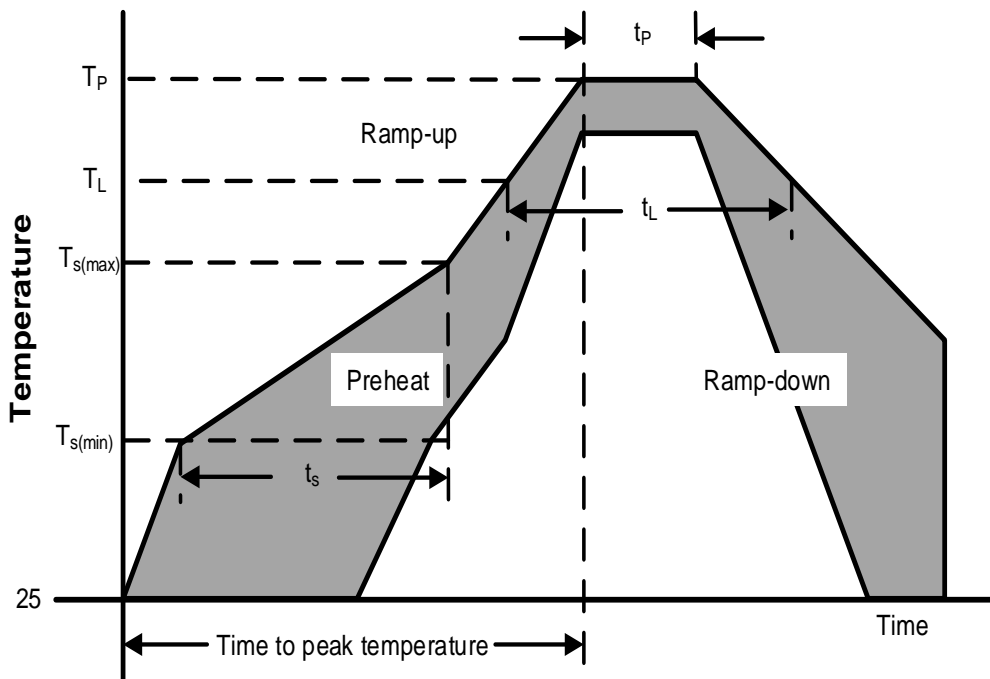


Figure 6: TLP I-V Curve



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) ( $t_s$ )	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**

Bottom View                      Top View

Side View

**DFN1610-2L**

SYMBOL	MILLIMETERS		
	NOM	MIN	MAX
A	--	0.450	0.550
A1	--	--	0.050
D	1.620	1.550	1.650
E	1.020	0.950	1.050
b	0.800	0.750	0.850
L	0.400	0.350	0.450
h	0.200	0.150	0.250
L1	0.060REF		
L2	0.110REF		

5

**Land Pattern**

**Marking Codes**

Part Number	Marking Code
WS4.5DPHXM	<div style="display: flex; align-items: center; justify-content: center;"> <div style="border: 1px solid black; padding: 2px; margin-right: 5px;">1</div> <div style="border: 1px solid black; padding: 2px; text-align: center; margin-right: 5px;"> </div> <div style="border: 1px solid black; padding: 2px; margin-left: 5px;">2</div> </div> <p>PH=Specific Device Code X=Month Code</p>

**Package Information**

Qty: 10k/Reel

**CONTACT INFORMATION**

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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.

单击下面可查看定价，库存，交付和生命周期等信息

[>>WAY-ON\(维安\)](#)