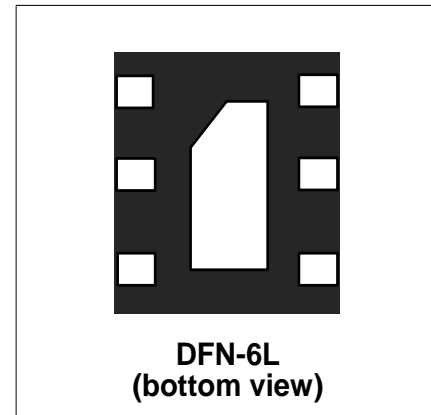


## Transient Voltage Suppressor

### Features

- Array of surge rated diodes with internal TVS Diode
- Small package saves board space
- Protects up to four I/O lines
- Low capacitance(<math><0.8\text{pF}</math>) for high speed interfaces
- Low operating voltage: 2.5V
- Low leakage current and clamping voltage
- Solid-state silicon-avalanche technology



### IEC COMPATIBILITY (EN61000-4)

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

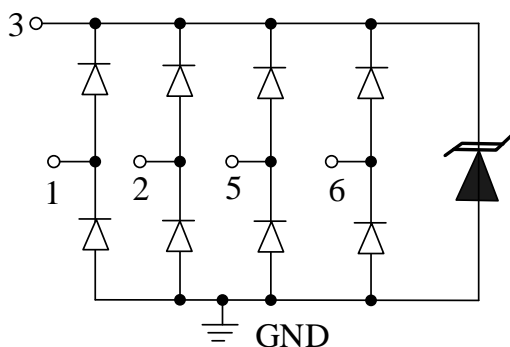
### Mechanical Characteristics

- DFN1616-6L package
- Nominal Dimensions: 1.6x1.6 x 0.58mm
- Packaging : Tape and Reel per EIA 481
- RoHS Compliant & HF

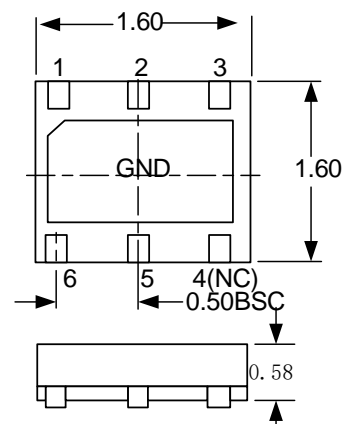
### Applications

- Multi Media Card(MMC) Interfaces
- SATA Interfaces
- SD Card Interfaces
- SIM Ports
- MDDI Ports
- MPPI Ports

### Circuit Diagram



### Schematic & PIN Configuration

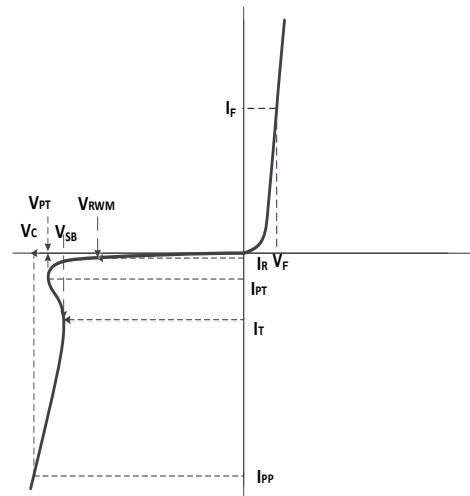


**Absolute Maximum Rating**

Rating	Symbol	Value	Units
Peak Pulse Power ( $t_p=8/20\mu s$ )	$P_{PP}$	55	Watts
Peak Pulse Current ( $t_p=8/20\mu s$ )	$I_{PP}$	5	A
Operating Temperature	$T_J$	-55 to +125	°C
Storage Temperature	$T_{STG}$	-55 to +150	°C

**Electrical Parameters**

Symbol	Parameter
$I_{PP}$	Reverse Peak Pulse Current
$V_C$	Clamping Voltage @ $I_{PP}$
$V_{RWM}$	Working Peak Reverse Voltage
$I_R$	Reverse Leakage Current @ $V_{RWM}$
$V_{SB}$	Snapback Voltage @ $I_T$
$I_T$	Test Current
$V_{PT}$	Punch-through Breakdown Voltage @ $I_{PT}$
$I_{PT}$	Punch-through Current



**Electrical Characteristics(T=25°C unless otherwise noted)**

WE2.5-4RP						
Parameter	Symbol	Conditions	Minimum	Typical	Maximum	Units
Reverse Stand-Off Voltage	$V_{RWM}$	Pin 3 to GND			2.5	V
Reverse Breakdown Voltage	$V_{BR}$	$I_T=1mA$	3.5			V
Reverse Leakage Current	$I_R$	$V_{RWM}=2.5V$			500	nA
Clamping Voltage	$V_C$	$I_{PP}=1A, t_p=8/20\mu s$ Between I/O To GND			7.5	V
Clamping Voltage	$V_C$	$I_{PP}=5A, t_p=8/20\mu s$ Between I/O To GND		11	13	V
Dynamic Resistance <sup>1,2</sup>	$R_{DYN}$	TLP=0.2/100ns		0.31		$\Omega$
ESD Clamping Voltage <sup>1</sup>	$V_C$	$I_{PP} = 4A,$ $t_p = 0.2/100ns$ (TLP)		9.7		V
ESD Clamping Voltage <sup>1</sup>	$V_C$	$I_{PP} = 16A,$ $t_p = 0.2/100ns$ (TLP)		13.4		V
Junction Capacitance	$C_j$	Between I/O pins and Ground $V_R=0V, f=1MHz$			0.8	pF
		Between I/O pins $V_R=0V, f=1MHz$		0.4		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

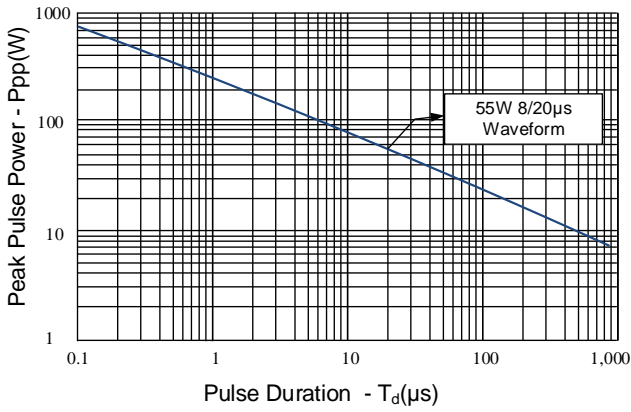


Figure 2: Power Derating Curve

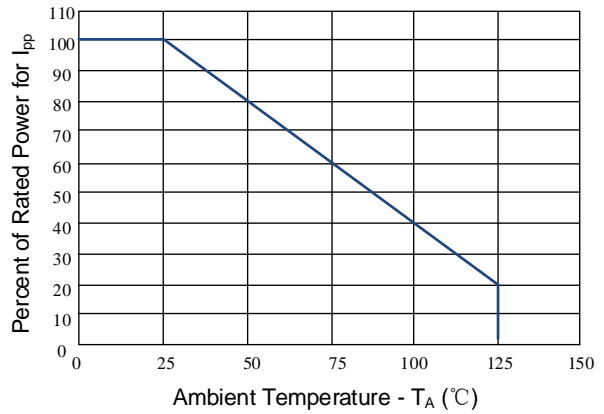


Figure 3: Clamping Voltage vs. Peak Pulse Current

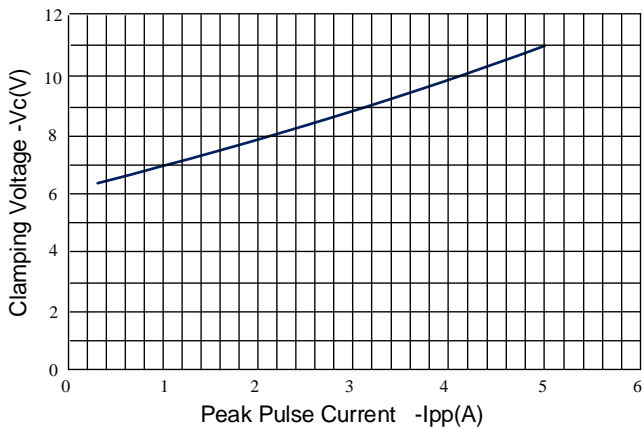


Figure 4: Normalized Junction Capacitance vs. Reverse Voltage

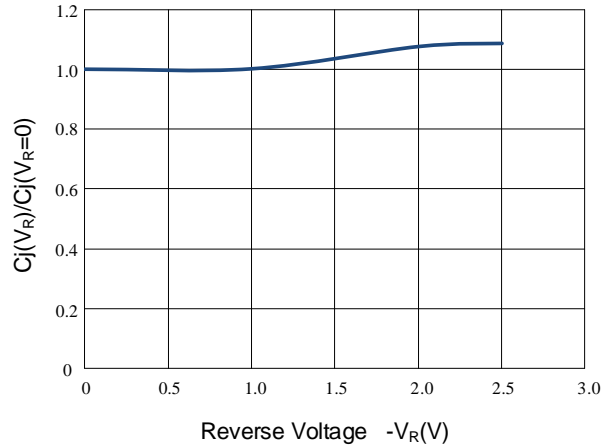


Figure 5: 8/20μs Pulse Waveform

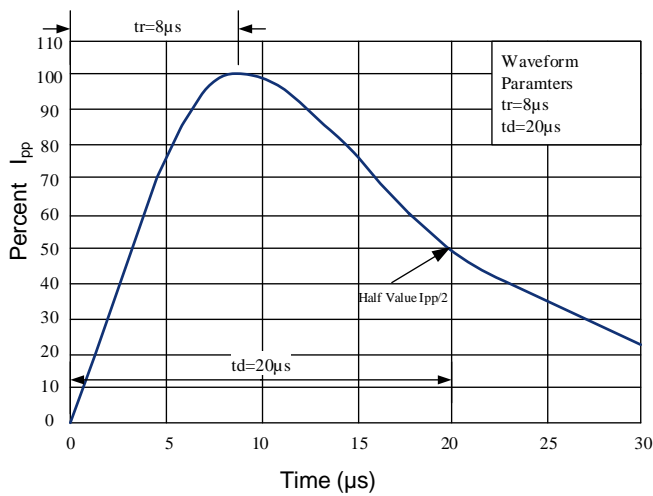
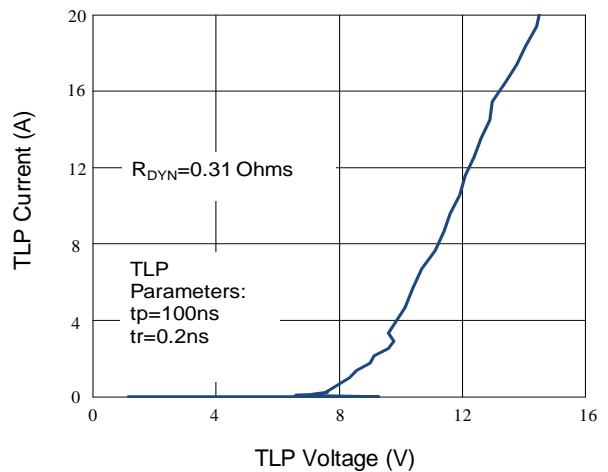
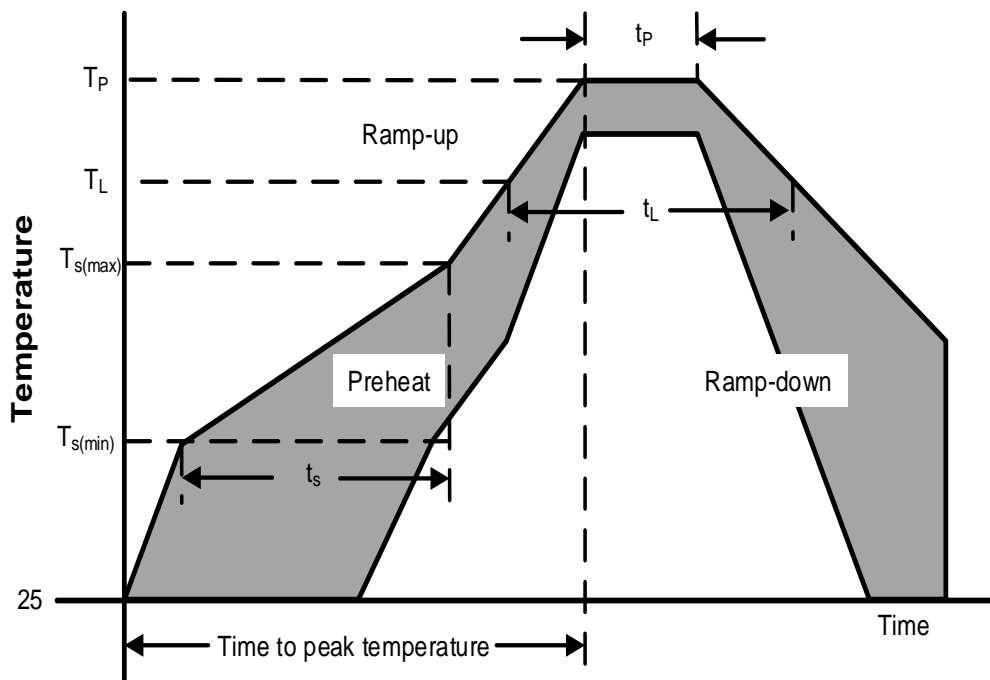


Figure 6: TLP Curve

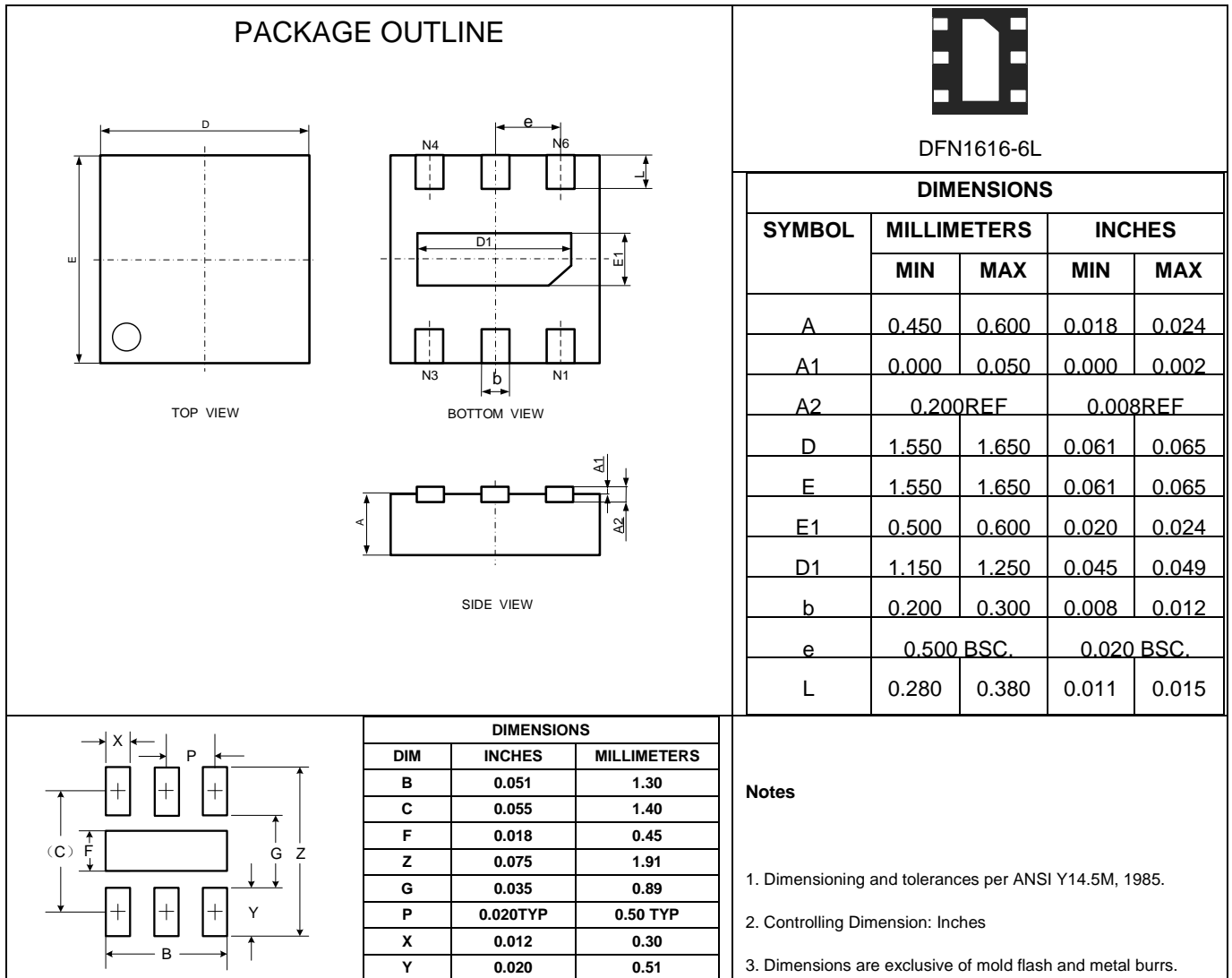


Soldering Parameters

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 – DFN1616-6L



**Marking Codes**

Part Number	WE2.5-4RP
Marking Code	4RP

**Package Information**

Qty: 3k/Reel

**CONTACT INFORMATION**

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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.