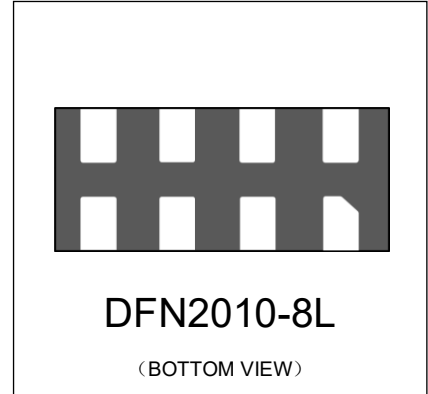




## Features

- 126 Watts peak pulse power ( $t_p=8/20\mu s$ )
- Protects Two Line Pairs (Four lines)
- Low capacitance
- Low leakage current
- Low operating and clamping voltage
- Package optimized for high-speed lines



## 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) 9A (8/20 $\mu s$ )

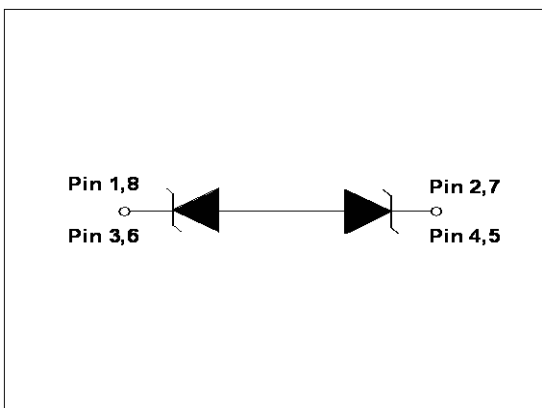
## Mechanical Characteristics

- DFN2010-8L package
- Marking: Marking Code
- Packaging: Tape and Reel
- RoHS Compliant

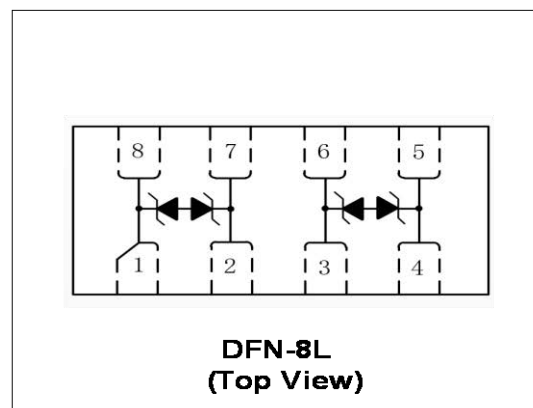
## Applications

- Switching Systems
- WAN/LAN Equipment
- Desktops, Servers, Notebooks & Handhelds
- 10/100/1000 Ethernet
- Cellular Phones
- Audio/Video Inputs

## Circuit Diagram (Each Line Pair)



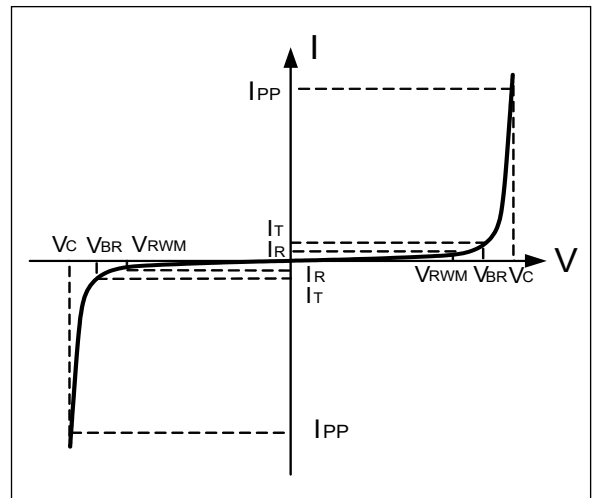
## Schematic & PIN Configuration



<b>Absolute Maximum Rating</b>			
Rating	Symbol	Value	Units
Peak Pulse Power ( $t_p=8/20\mu s$ ) see Figure1& Figure2	$P_{PP}$	126	Watts
Peak Pulse Current ( $t_p=8/20\mu s$ )	$I_{PP}$	9	A
Operating Temperature	$T_J$	-55 to +125	$^{\circ}C$
Storage Temperature	$T_{STG}$	-55 to +150	$^{\circ}C$

### Electrical Parameters (T=25 $^{\circ}C$ )

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



### Electrical Characteristics(T=25 $^{\circ}C$ )

<b>DW2.5-4R1PA-S</b>						
Parameter	Symbol	Conditions	Minimum	Typical	Maximum	Units
Reverse Stand-Off Voltage	$V_{RWM}$				2.5	V
Reverse Breakdown Voltage	$V_{BR}$	$I_T=1mA$	3		7	V
Reverse Leakage Current	$I_R$	$V_{RWM}=2.5V, T=25^{\circ}C$			200	nA
Clamping Voltage	$V_C$	$I_{PP}=1A, t_p=8/20\mu s$ (Each Line)			7.5	V
Clamping Voltage	$V_C$	$I_{PP}=9A, t_p=8/20\mu s$ (Each Line)		11	14	V
Dynamic Resistance <sup>1,2</sup>	$R_{DYN}$	TLP=0.2/100ns		0.5		$\Omega$
ESD Clamping Voltage <sup>1</sup>	$V_C$	$I_{PP} = 4A$ $t_p = 0.2/100ns$		8		V
ESD Clamping Voltage <sup>1</sup>	$V_C$	$I_{PP} = 16A$ $t_p = 0.2/100ns$		14		V
Parasitic Capacitance	$C_{ESD}$	$V_R = 2.5V, f = 1MHz$ (Each Line)		1	1.2	pF
Variation in C ESD with Reverse Bias	$C_{\Delta}$	Pin1, 8 to 2, 7 & Pin3, 6 to Pin4, 5 $V_R = 0V \sim 2.5V, f = 1MHz$		0.1		pF

**Note:** 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".

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## Typical Characteristics

Figure 1: Peak Pulse Power vs. Pulse Time

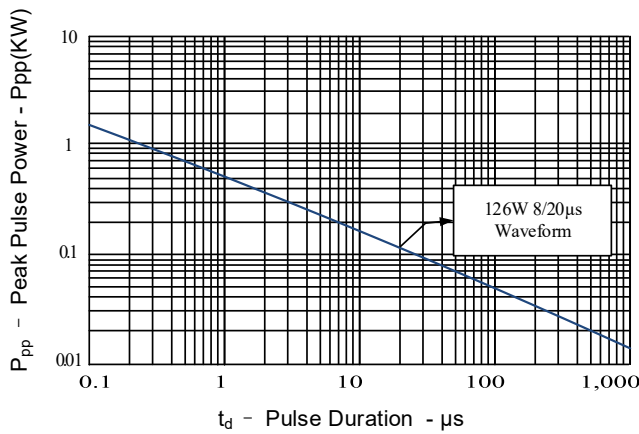


Figure 2: Power Derating Curve

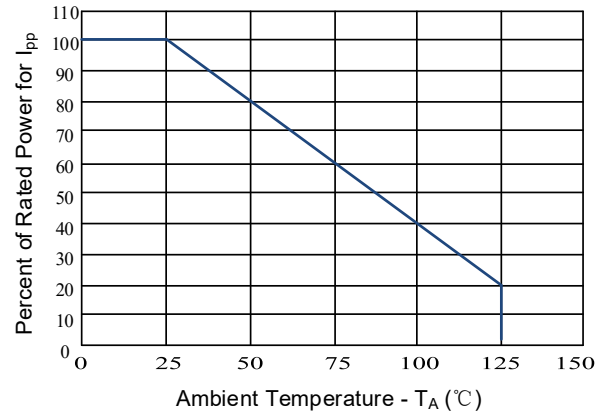


Figure 3: Clamping Voltage vs. Peak Pulse Current

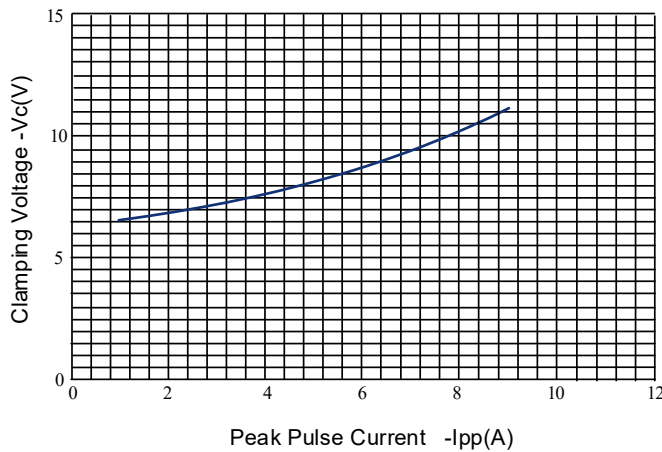


Figure 4: Normalized Junction Capacitance vs. Reverse Voltage

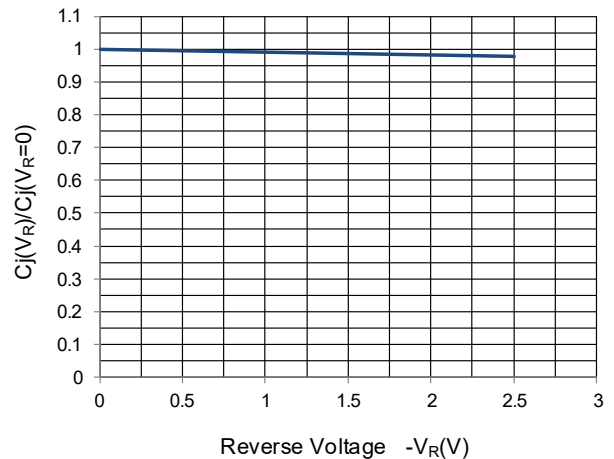


Figure 5: 8/20μs Pulse Waveform

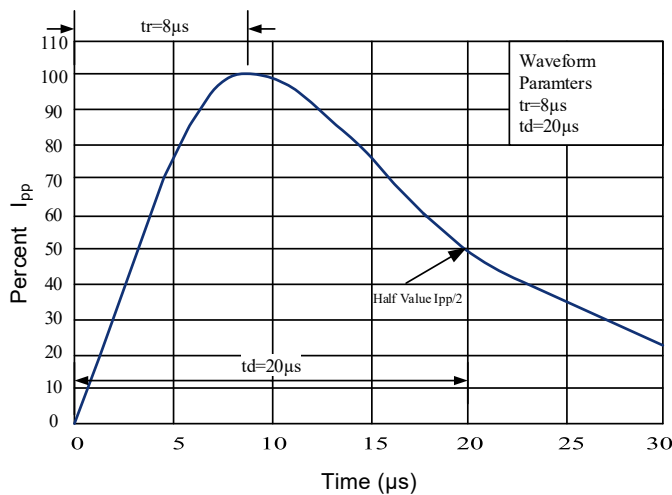
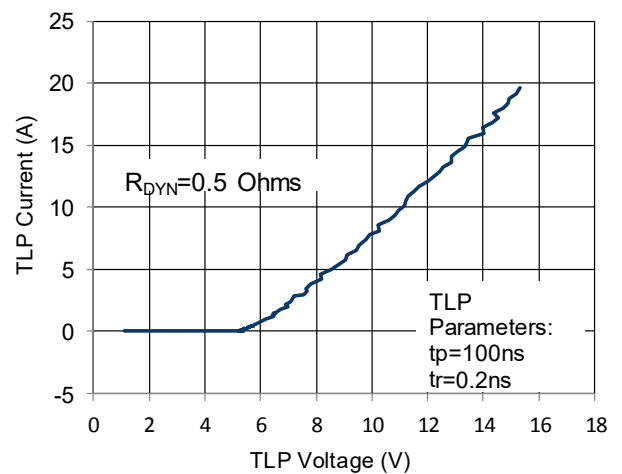
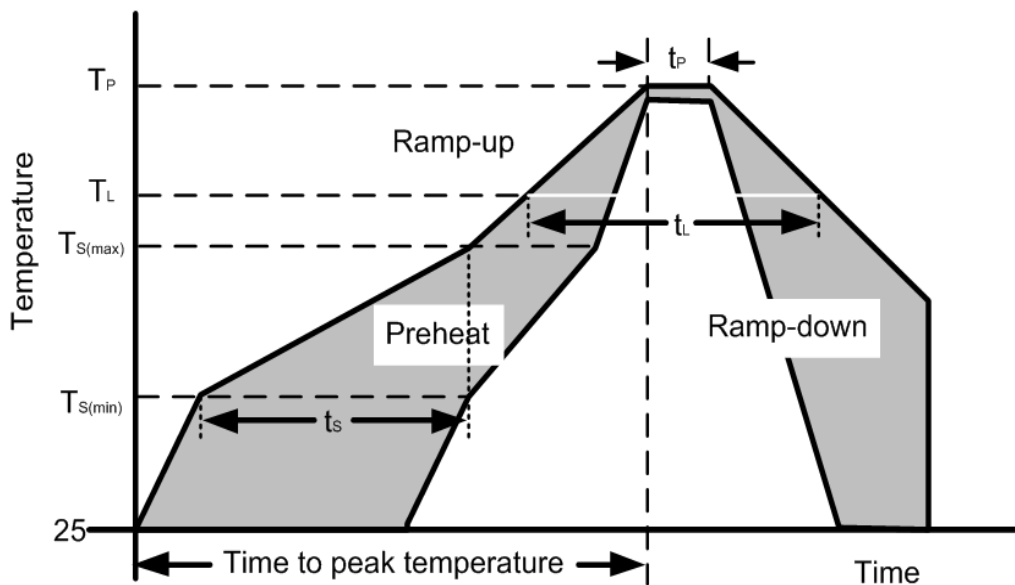


Figure 6: TLP I-V Curve

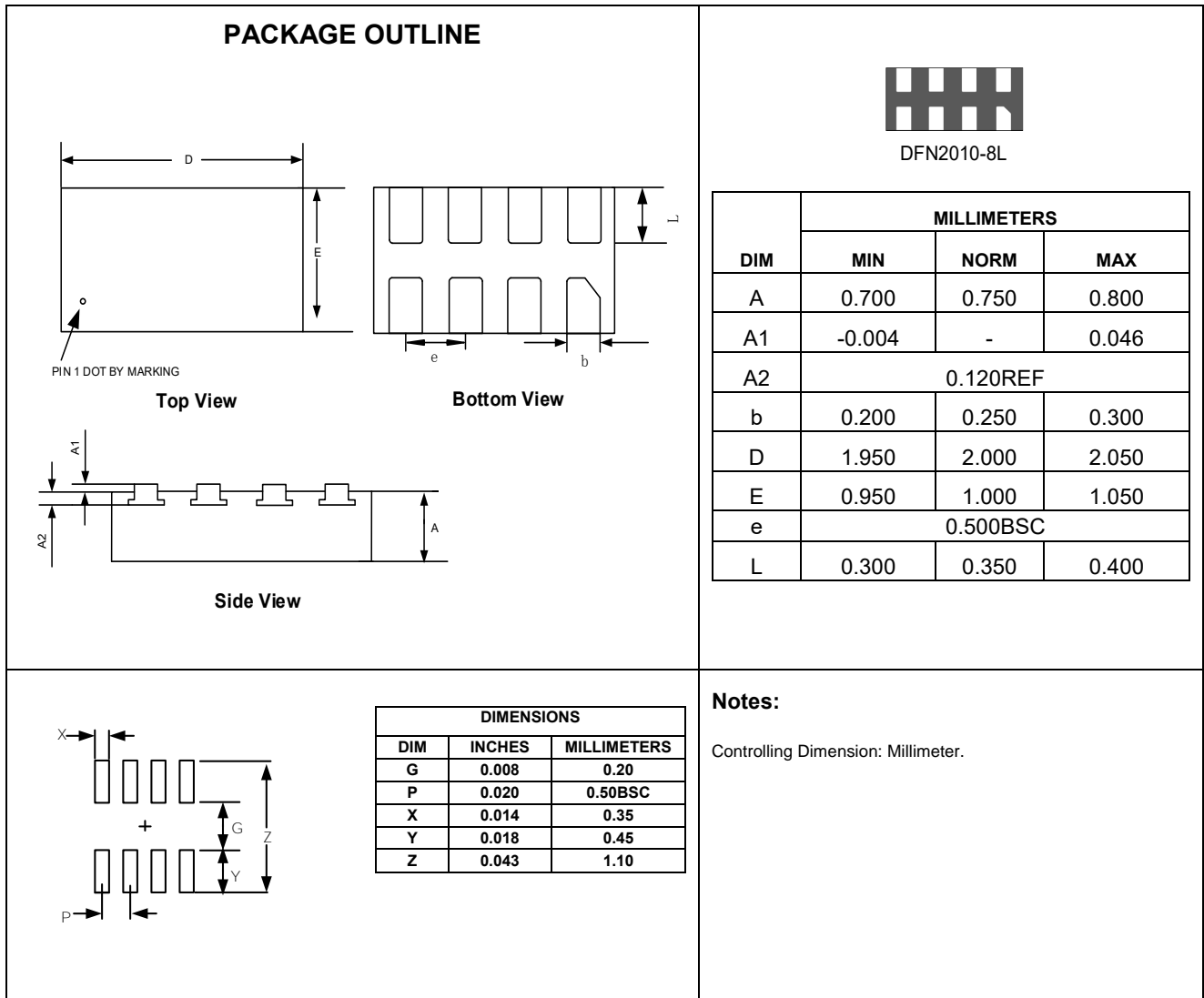


## Soldering Parameters

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 – DFN2010-8L



## Marking Codes

Part Number	DW2.5-4R1PA-S
Marking Code	4R1P

## Package Information

Qty: 3k/Reel