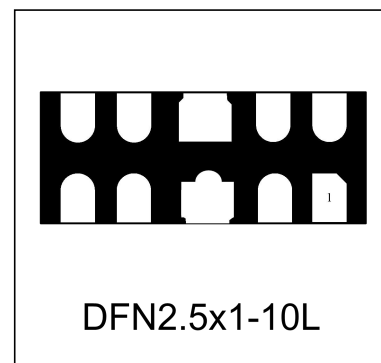


Transient Voltage Suppressor**Features**

- Solid-state silicon-avalanche technology
- Low operating and clamping voltage
- Up to four I/O Lines of Protection
- Ultra low capacitance: 0.3pF typical(I/O to I/O)
- Low Leakage
- Low operating voltage:5V
- Flow-Through design

**IEC COMPATIBILITY (EN61000-4)**

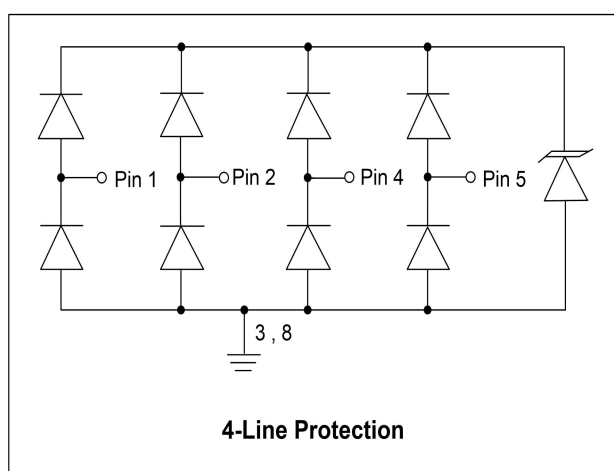
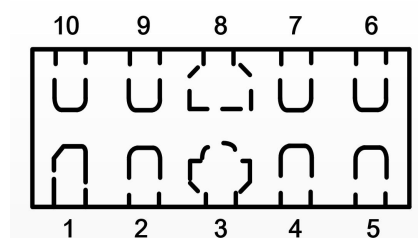
- IEC 61000-4-2 (ESD) $\pm 25\text{kV}$ (air), $\pm 22\text{kV}$ (contact)
- IEC 61000-4-4 (EFT) 40A (5/50ns)
- IEC 61000-4-5 (Lightning) 4.5A (8/20 μs)

Mechanical Characteristics

- DFN-10L package (2.5 $\times$ 1.0 $\times$ 0.50mm)
- Marking: Marking Code
- Packaging: Tape and Reel
- RoHS Compliant
- MSL1

Applications

- Digital Visual Interface(DVI)
- MDDI Ports
- DisplayPort TM Interface
- PCI Express
- High Definition Multi-Media Interface(HDMI)

Circuit Diagram**Schematic & PIN Configuration**

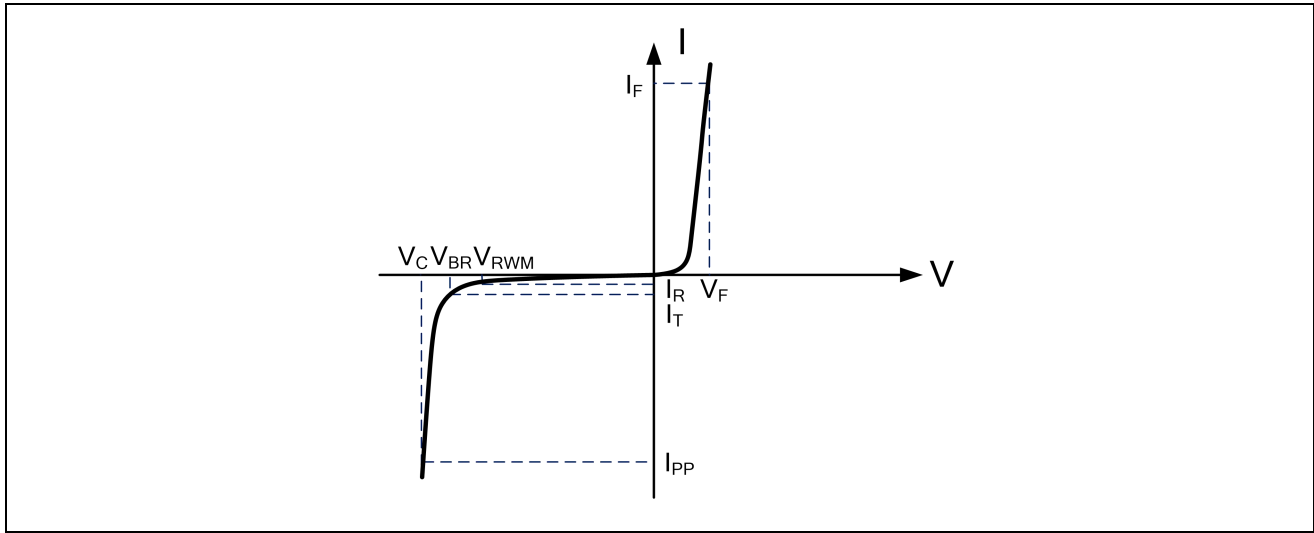
Pin	Identificaion
1,2,4,5	Input Lines
6,7,9,10	Output Lines (No Internal Connection)
3,8	Ground

Absolute Maximum Rating

Rating	Symbol	Value	Units
Peak Pulse Power ($t_p=8/20\mu s$)	P_{PP}	68	Watts
Peak Pulse Current ($t_p=8/20\mu s$)	I_{PP}	4.5	A
Operating Temperature	T_J	-55 to + 125	°C
Storage Temperature	T_{STG}	-55 to +150	°C

Electrical Parameters (T=25°C)

Symbol	Parameter
I_{PP}	Reverse Peak Pulse Current
V_C	Clamping Voltage @ IPP
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

Parameter	Symbol	Conditions	Minimum	Typical	Maximum	Units
Reverse Stand-Off Voltage	V_{RWM}	Any I/O pin to ground			5	V
Reverse Breakdown Voltage	V_{BR}	$I_T = 1\text{mA}$ Any I/O pin to ground	6			V
Reverse Leakage Current	I_R	$V_{RWM} = 5\text{V}$, $T = 25^\circ\text{C}$ Any I/O pin to ground			500	nA
Clamping Voltage	V_C	$I_{pp} = 1\text{A}$, $t_p = 8/20\mu\text{s}$ Any I/O pin to ground			9	V
Clamping Voltage	V_C	$I_{pp} = 4.5\text{A}$, $t_p = 8/20\mu\text{s}$ Any I/O pin to ground			15	V
Dynamic Resistance ^{1,2}	R_{DYN}	TLP=0.2/100ns		0.5		Ω
ESD Clamping Voltage ¹	V_C	$I_{PP} = 4\text{A}$, $t_p = 0.2/100\text{ns}$ (TLP)		10		V
ESD Clamping Voltage ¹	V_C	$I_{PP} = 16\text{A}$, $t_p = 0.2/100\text{ns}$ (TLP)		16		V
Junction Capacitance	C_j	$V_R = 0\text{V}$, $f = 1\text{MHz}$ I/O pin to GND			0.8	pF
		$V_{Pin3,8} = 0\text{V}$, $V_R = 0\text{V}$, $f = 1\text{MHz}$ Between I/O pins		0.3	0.4	pF

Notes : 1、TLP Setting : $t_p = 100\text{ns}$, $t_r = 0.2\text{ns}$, I_{TLP} and V_{TLP} sample window: $t_1 = 70\text{ns}$ to $t_2 = 90\text{ns}$.

2、Dynamic resistance calculated from $I_{PP} = 4\text{A}$ to $I_{PP} = 16\text{A}$ using “Best Fit”.

Typical Characteristics

Figure 1: Peak Pulse Power vs. Pulse Time

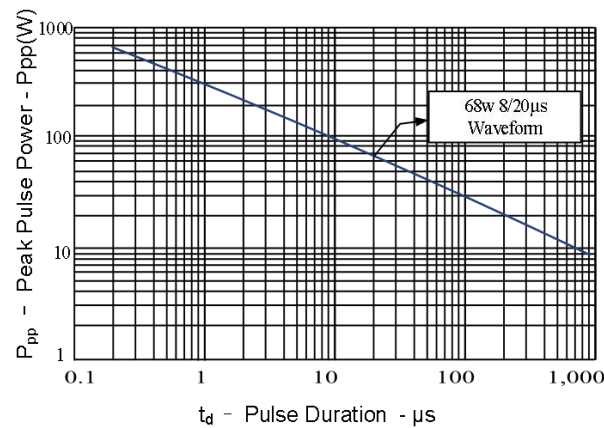


Figure 2: Power Derating Curve

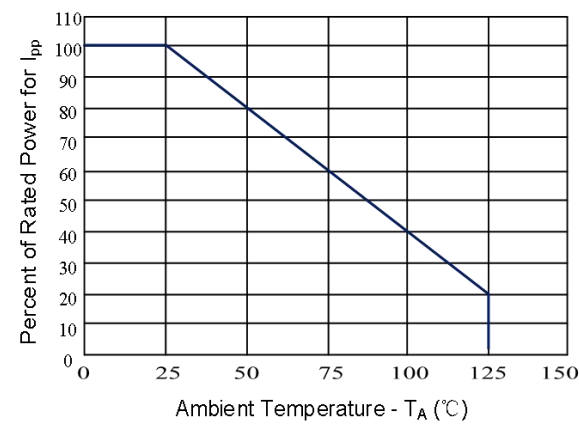


Figure 3: Clamping Voltage vs. Peak Pulse Current

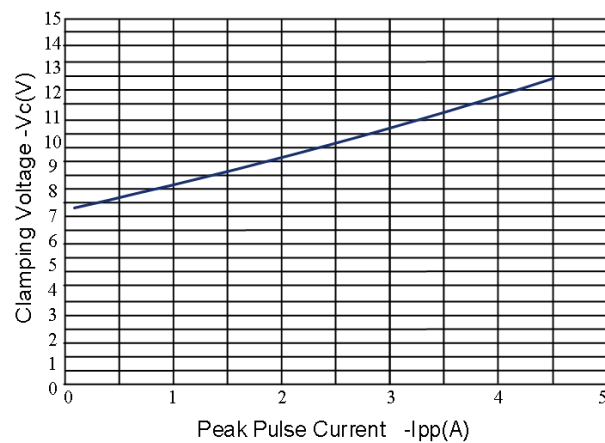


Figure 4: Normalized Junction Capacitance vs. Reverse Voltage

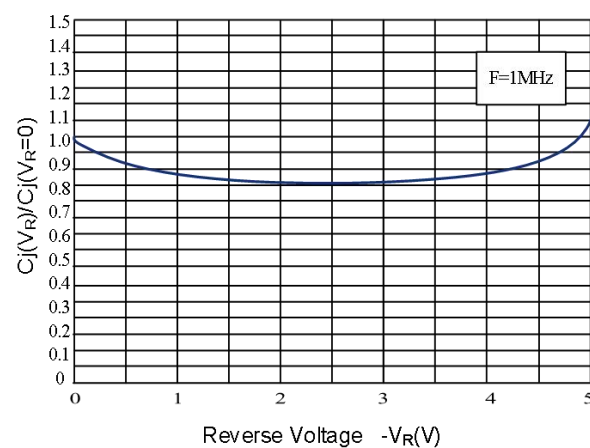


Figure 5: 8/20μs Pulse Waveform

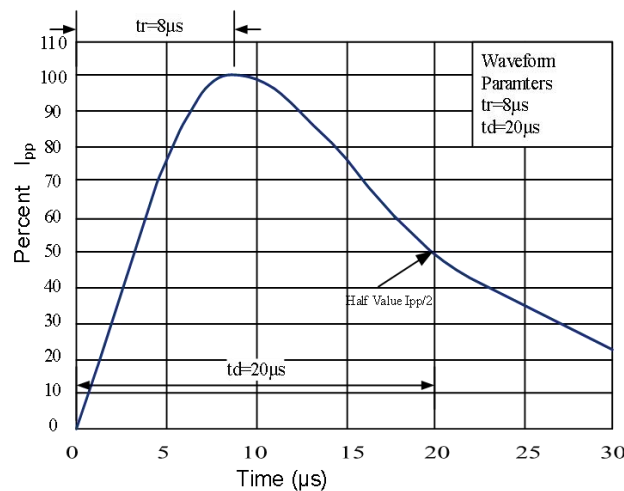
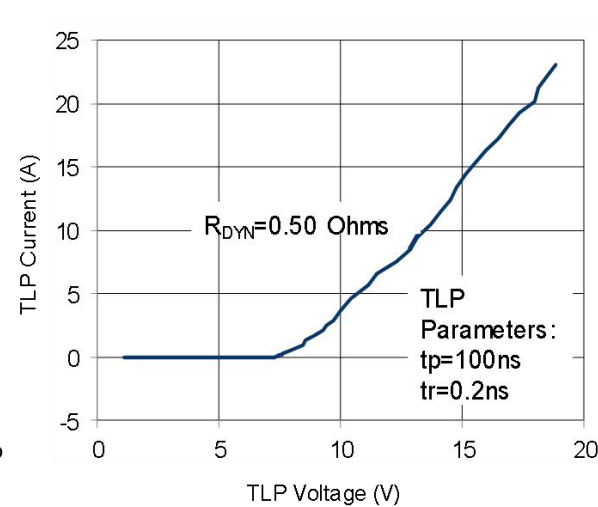
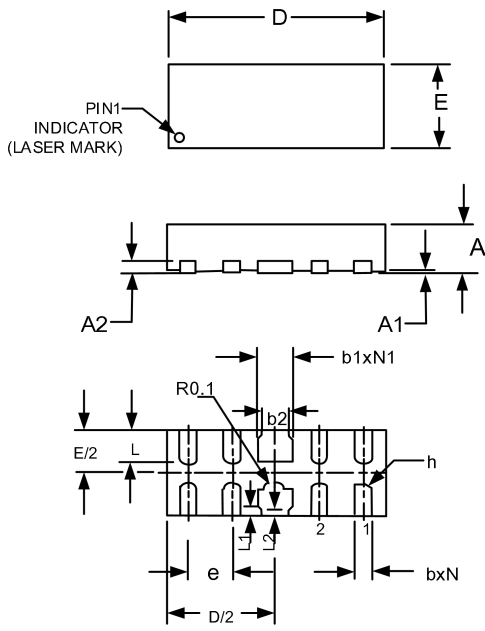
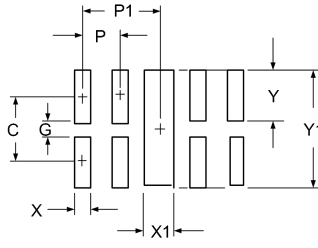


Figure 6: TLP I-V Curve



Outline Drawing –DFN2510-10L

		DIMENSIONS						
		DIM	INCHES			MILLIMETERS		
			MIN	NOM	MAX	MIN	NOM	MAX
		A	0.018	0.020	0.022	0.45	0.50	0.55
		A1	0.000	0.001	0.002	0.00	0.02	0.05
		A2	0.006			0.15		
		b	0.006	0.008	0.010	0.15	0.20	0.25
		b1	0.014	0.016	0.018	0.35	0.40	0.45
		b2	0.008	0.010	0.018	0.20	0.25	0.45
		D	0.096	0.098	0.100	2.45	2.50	2.55
		E	0.037	0.039	0.041	0.95	1.00	1.05
		e	0.020 BSC			0.50 BSC		
		L	0.014	0.016	0.018	0.35	0.40	0.45
		L1	0.000	0.003	0.004	0.00	0.075	0.10
		L2	0.000	0.002	0.003	0.00	0.05	0.08
		h	0.000	0.005	0.006	0.00	0.12	0.15
		N	8			8		
		N1	2			2		

		DIMENSIONS		
		DIM	INCHES	MILLIMETERS
		C	0.034	0.875
		G	0.008	0.20
		P	0.020	0.50
		P1	0.039	1.00
		X	0.010	0.25
		X1	0.018	0.45
		Y	0.027	0.675
		Y1	0.061	1.55

 Notes: Controlling Dimension: Millimeter. | | | | | | |

Marking Codes

Part Number	ES054R2P
Marking Code	5R2P

Package Information

Qty: 3k/Reel

Revision History

No.	Version	Date	Revision Item	Request	Function and characteristic checking	Package dimension checking	Typos checking
1	1.0	2015-11-30	Released Version	Qi Shu Kun	Qi Shu Kun	Liu Jia Ying	Liu Jia Ying