

## 2-Line Ultra Low Capacitance TVS Diode Array

**Features**

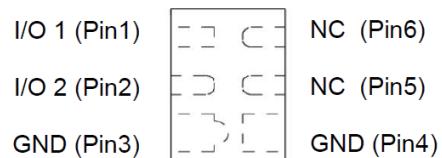
- IEC 61000-4-2 (ESD)  $\pm 25\text{kV}$  (air),  $\pm 20\text{kV}$  (contact)
- IEC 61000-4-5 (Lightning) 4A (8/20 $\mu\text{s}$ )
- Ultra low capacitance
- Ultra low leakage: nA level
- Operating voltage: 5V
- Low clamping voltage
- Protects two lines

**Applications**

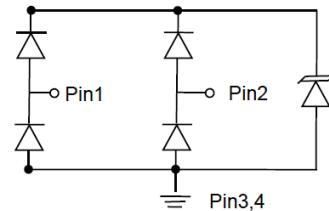
- MDDI Ports
- Video Interface
- USB Ports
- Cellular Handsets and Accessories

**Mechanical Characteristics**

- Package: DFN1610-6L
- Lead Finish: Matte Tin
- Case Material: "Green" Molding Compound.
- Moisture Sensitivity: Level 3 per J-STD-020
- RoHS Compliant

**Schematic & PIN Configuration**

DFN1610-6L

**Circuit Diagram**

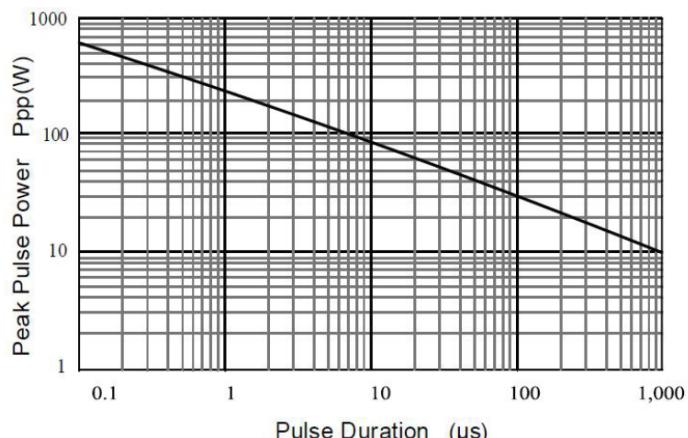
### Electrical Parameters ( $T_A = 25^\circ\text{C}$ Unless otherwise noted)

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 @ $I_F$	

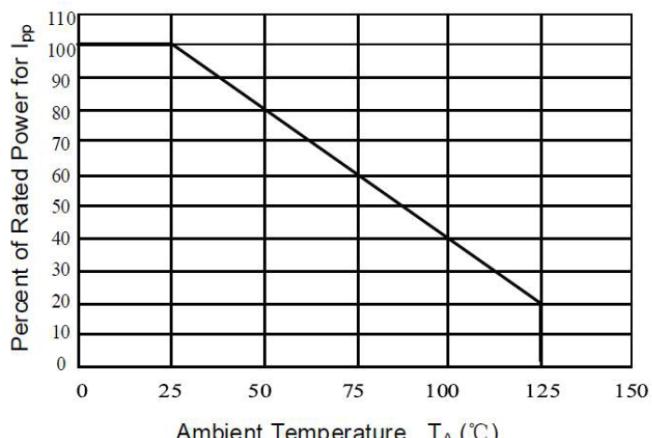
### Electrical Characteristics ( $T_A = 25^\circ\text{C}$ Unless otherwise noted)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Reverse Working Voltage	$V_{RWM}$				5.0	V
Reverse breakdown Voltage	$V_{BR}$	$I_T = 1\text{mA}$	6.0			V
Reverse leakage current	$I_R$	$V_{RWM} = 5\text{V}$			0.1	$\mu\text{A}$
Diode Forward Voltage	$V_F$	$I_F = 10\text{mA}$	0.6		1.2	V
Clamping Voltage	$V_C$	$I_{PP} = 1\text{A}, t_P = 8/20\mu\text{s}$ , any I/O pin to ground			10	V
Clamping Voltage	$V_C$	$I_{PP} = 4\text{A}, t_P = 8/20\mu\text{s}$ , any I/O pin to ground			15	V
ESD Clamping Voltage	$V_C$	$I_{PP} = 4\text{A}, t_P = 0.2/100\text{ns}$ (TLP)		9.13		V
ESD Clamping Voltage	$V_C$	$I_{PP} = 16\text{A}, t_P = 0.2/100\text{ns}$ (TLP)		13.2		V
Dynamic Resistance	$R_{DYN}$	TLP=0.2/100ns		0.34		$\Omega$
Junction capacitance	$C_J$	$V_R = 0\text{V}, f = 1\text{MHz}$ , between I/O pins		0.2	0.3	pF
Junction capacitance	$C_J$	$V_R = 0\text{V}, f = 1\text{MHz}$ , any I/O pin to ground		0.4	0.6	pF

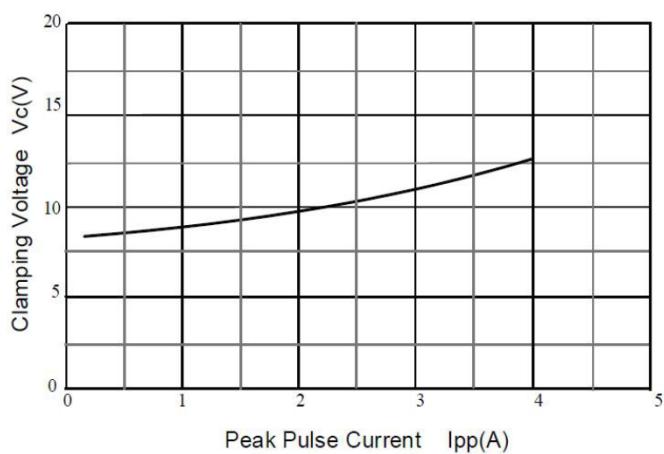
### Typical Performance Characteristics ( $T_A = 25^\circ\text{C}$ Unless otherwise noted)



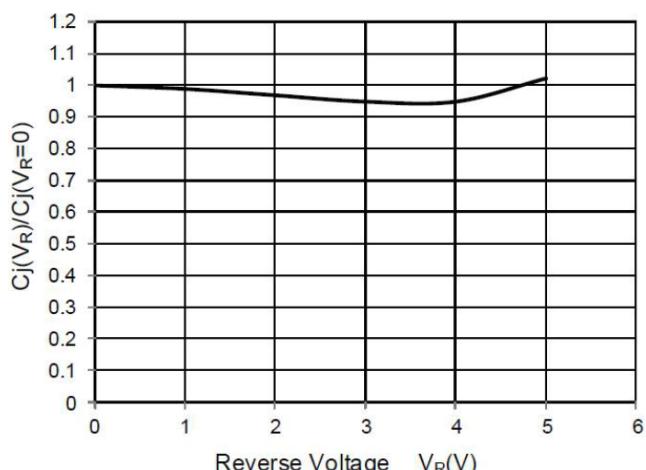
**Fig 1. Peak Pulse Power vs. Pulse Time**



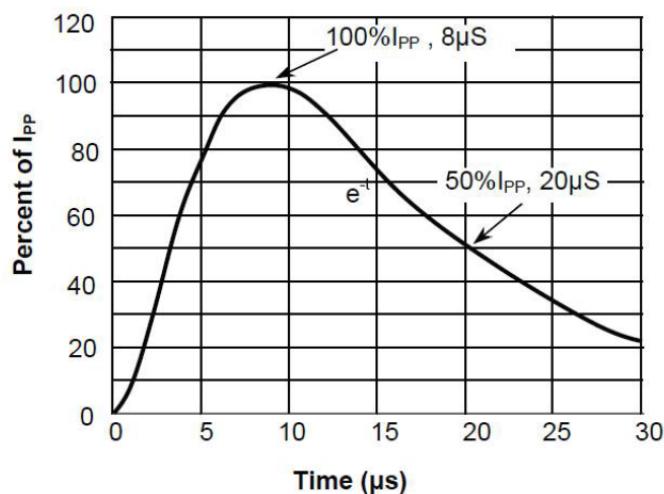
**Fig 2. Power Derating Curve**



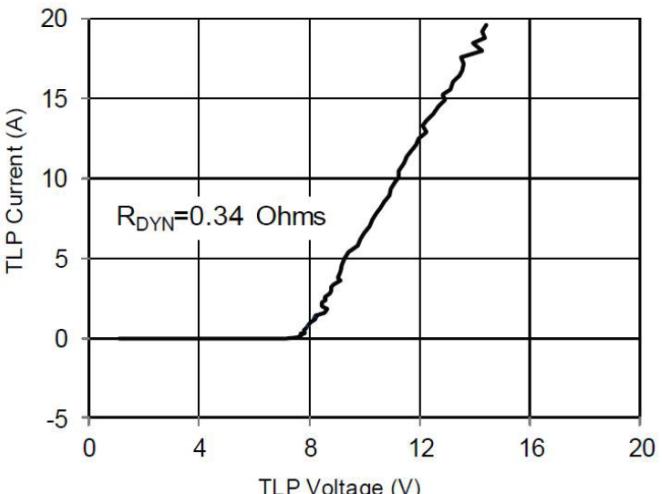
**Fig 3. Clamping Voltage vs. Peak Pulse Current**



**Fig 4. Junction Capacitance vs. Reverse Voltage**



**Fig 5. 8 X 20 $\mu\text{s}$  Pulse Waveform**



**Fig 6. TLP I-V Curve**

### DFN1610-6L Package Outline Drawing

Symbol	MILLIMETERS		
	Min.	Nom.	Max.
D	1.55	1.60	1.65
E	0.95	1.00	1.05
L	0.33	0.38	0.43
b	0.15	0.20	0.25
b1	0.35	0.40	0.45
b2	0.20	0.30	0.35
e	0.50 BSC		
e1	1.00 BSC		
A	0.45	0.50	0.55
A1	0.15 REF		
A2	0.00	0.02	0.05

The diagram illustrates the physical dimensions of the DFN1610-6L package. The top view shows a rectangle with width D and height E, featuring a circular 'PIN 1 INDICATOR (LASER MARK)' at the bottom-left corner. Below this is a cross-sectional view of the chip carrier, showing the thickness A, lead spacing b, and lead height e. The bottom part shows a detailed cross-section of the internal chip structure with bond wires and pads, labeled with dimensions b1, b2, p, e1, and Y1.

### Suggested PAD Layout

Symbol	DFN1610-6L	
	(inch)	(mm)
C	0.034	0.87
G	0.007	0.19
P	0.020	0.50
P1	0.039	1.00
X	0.008	0.20
X1	0.016	0.40
Y	0.027	0.68
Y1	0.061	1.55
Z	0.061	1.55

The diagram shows a suggested pad layout for the DFN1610-6L package. It features a central array of pads with a pitch P and a perimeter array with a pitch P1. The distance from the center to the perimeter is G. The total width of the package is indicated by X, and the total height by Y. The distance from the bottom edge to the bottom-most pad is X1, and the distance from the left edge to the left-most pad is Y1. The height of the central pad block is Z, and the distance from the center to the innermost pad block is C.

**Marking Code**

Part Number	Marking Code	
STCDY05-6PG	0522P	
0522P = Device Marking Code		

**Ordering information**

Part Number	Package	Base qty	Reel Size	Delivery mode
		(pcs)	(inch)	
STCDY05-6PG	DFN1610-6L	3,000	7	Tape and reel