

2-Line Ultra Low Capacitance TVS Diode Array

Features

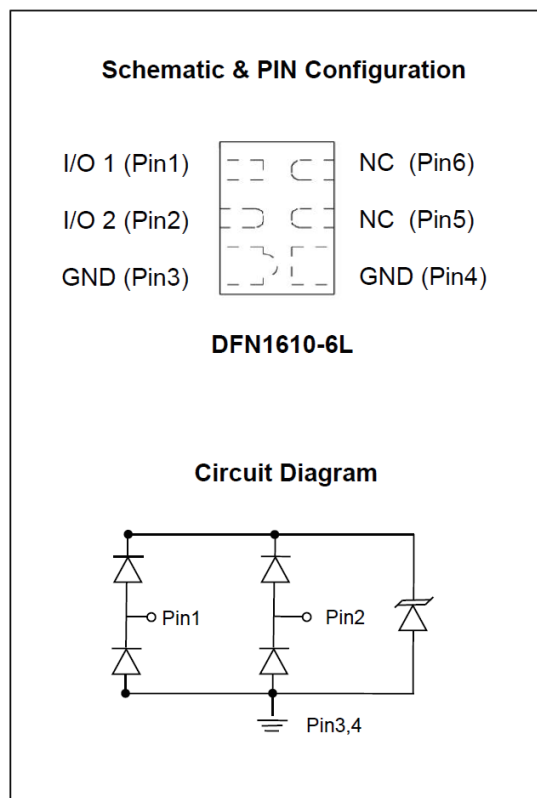
- IEC 61000-4-2 (ESD) $\pm 25\text{kV}$ (air), $\pm 20\text{kV}$ (contact)
- IEC 61000-4-5 (Lightning) 4A (8/20 μs)
- Ultra low capacitance
- Ultra low leakage: nA level
- Operating voltage: 5V
- Low clamping voltage
- Protects two lines

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



Absolute Maximum Ratings ($T_A = 25^\circ\text{C}$ Unless otherwise noted)

Parameter	Symbol	Value	Unit
Peak Pulse Power ($t_p = 8/20\mu\text{s}$)	P_{PP}	60	W
Peak Pulse Current ($t_p = 8/20\mu\text{s}$)	I_{PP}	4	A
ESD per IEC 61000-4-2 (Air)	V_{ESD}	± 25	KV
ESD per IEC 61000-4-2 (Contact)		± 20	KV
Operating Temperature Range	T_J	-55 to + 125	$^\circ\text{C}$
Storage Temperature Range	T_{STG}	-55 to + 150	$^\circ\text{C}$

Electrical Parameters (T _A = 25°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°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 = 1mA	6.0			V
Reverse leakage current	I _R	V _{RWM} = 5V			0.1	μA
Diode Forward Voltage	V _F	I _F = 10mA	0.6		1.2	V
Clamping Voltage	V _C	I _{PP} = 1A, t _p = 8/20μs, any I/O pin to ground			10	V
Clamping Voltage	V _C	I _{PP} = 4A, t _p = 8/20μs, any I/O pin to ground			15	V
ESD Clamping Voltage	V _C	I _{PP} = 4A , t _p = 0.2/100ns (TLP)		9.13		V
ESD Clamping Voltage	V _C	I _{PP} = 16A , t _p = 0.2/100ns (TLP)		13.2		V
Dynamic Resistance	R _{DYN}	TLP=0.2/100ns		0.34		Ω
Junction capacitance	C _J	V _R = 0V, f = 1MHz, between I/O pins		0.2	0.3	pF
Junction capacitance	C _J	V _R = 0V, f = 1MHz, any I/O pin to ground		0.4	0.6	pF

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

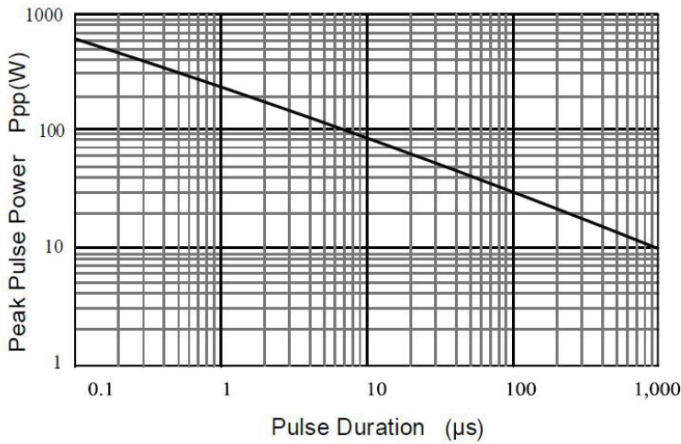


Fig 1. Peak Pulse Power vs. Pulse Time

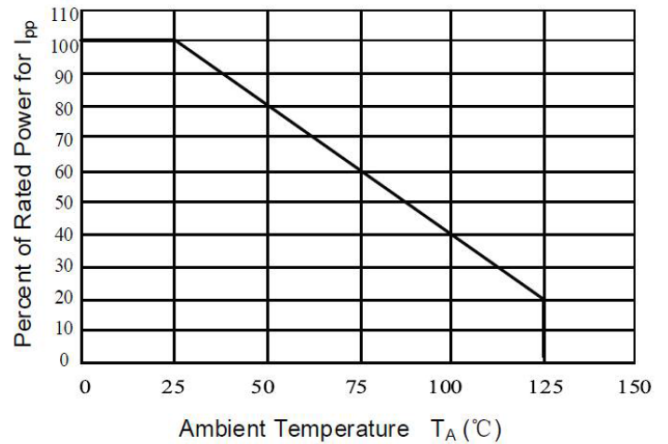


Fig 2. Power Derating Curve

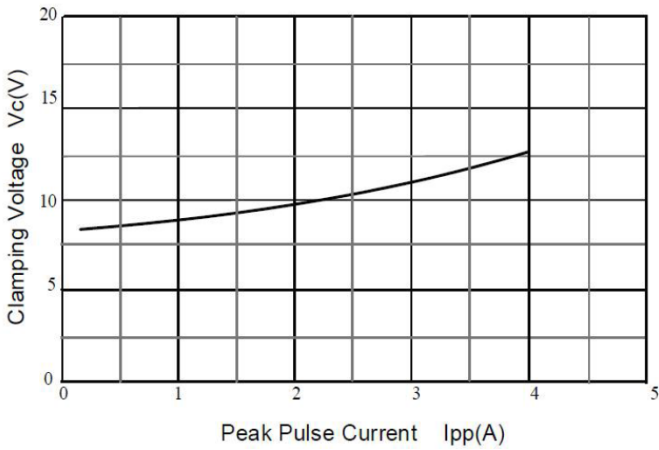


Fig 3. Clamping Voltage vs. Peak Pulse Current

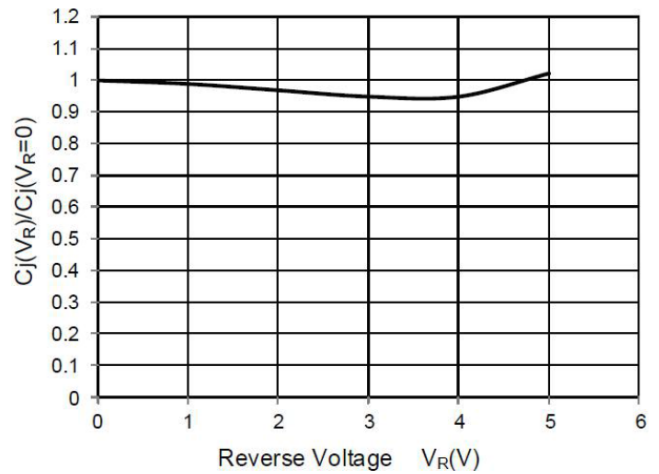


Fig 4. Junction Capacitance vs. Reverse Voltage

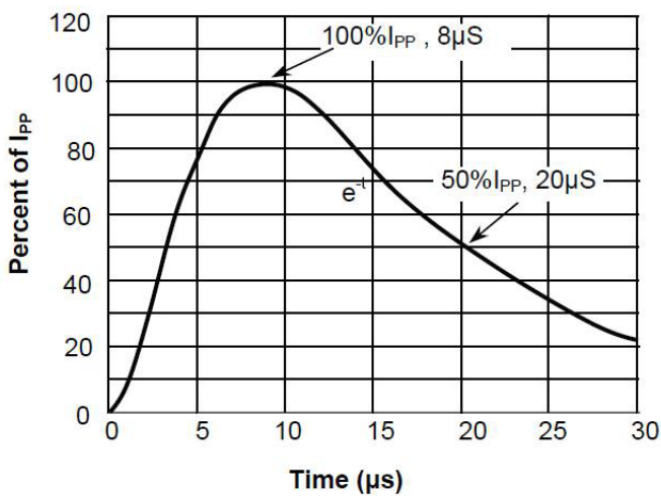


Fig 5. 8 X 20μs Pulse Waveform

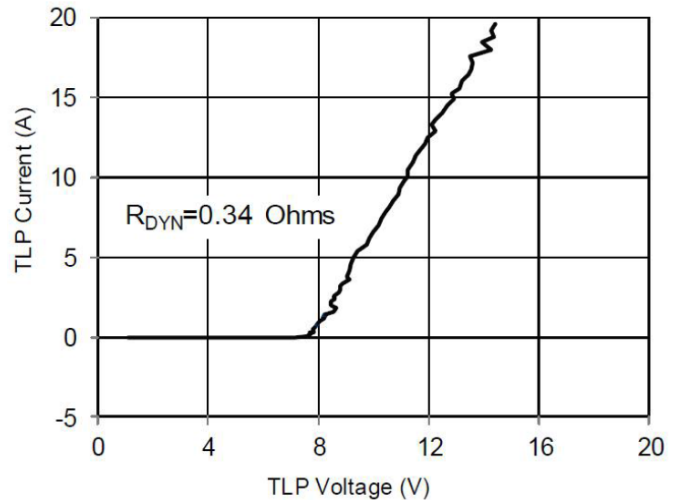
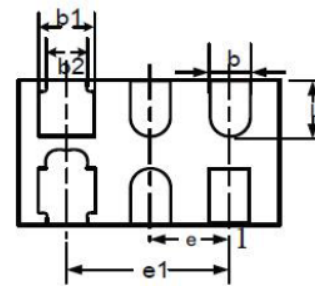
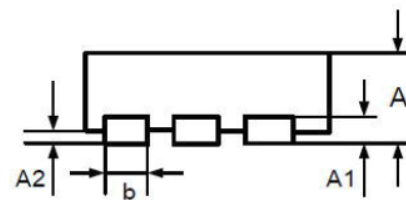
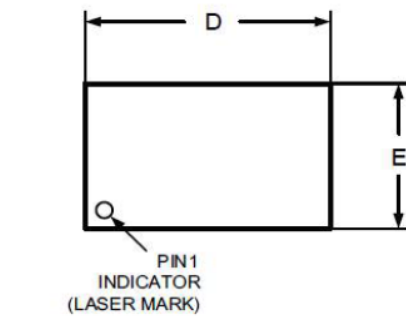


Fig 6. TLP I-V Curve

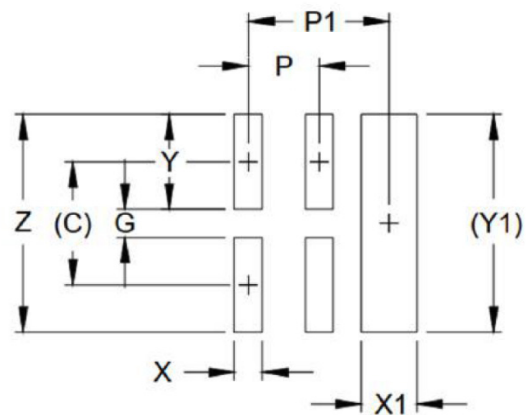
DFN1610-6L Package Outline Drawing

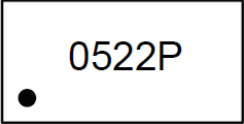
Symbol	MILLIMETERS		
	Min.	Nom.	Max.
D	1.55	1.60	1.65
E	0.95	1.00	1.05
L	0.33	0.38	0.43
b	0.15	0.20	0.25
b1	0.35	0.40	0.45
b2	0.20	0.30	0.35
e	0.50 BSC		
e1	1.00 BSC		
A	0.45	0.50	0.55
A1	0.15 REF		
A2	0.00	0.02	0.05



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



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