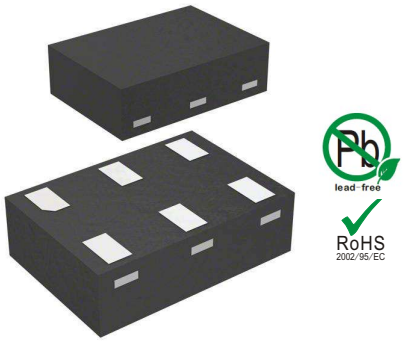
Ultra-Low Capacitance Series
ESD Protection

PTN166U04M5CA6

Features

- 60Watts peak pulse power (tp = 8/20μs)
- Unidirectional configurations
- Solid-state silicon-avalanche technology
- Low clamping voltage
- Low leakage current



DFN1610-6L

IEC COMPATIBILITY (EN61000-4)

- **IEC 61000-4-2 ±20kV contact ±20kV air**
- **IEC 61000-4-4 (EFT) 40A (5/50ns)**
- **IEC 61000-4-5 (Lightning) 3.5A (8/20μs)**

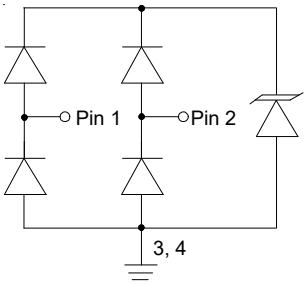
Applications

- Digital Visual Interface (DVI)
- MDDI Ports
- PCI Express
- eSATA Interface

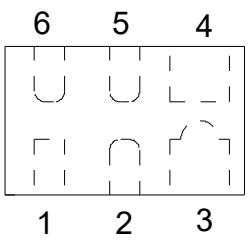
Mechanical Characteristics

- DFN1610 package
- Molding compound flammability rating: UL 94V-0
- Packaging: Tape and Reel
- RoHS/WEEE Compliant

Schematic & PIN Configuration



Schematic



DFN1610-6L

Absolute Maximum Rating

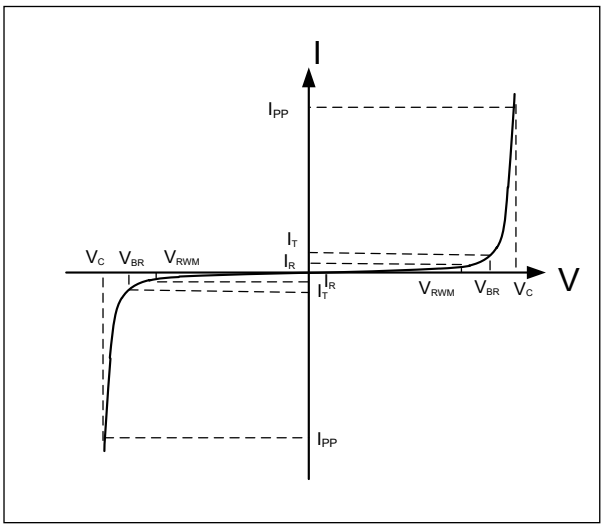
Rating	Symbol	Value	Units
Peak Pulse Power (t_p =8/20μs)	P_{PP}	60	Watts
Peak Pulse Current (t_p =8/20μs) (note1)	I_{pp}	3.5	A
ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	V_{ESD}	20 20	kV
Lead Soldering Temperature	T_L	260(10seconds)	℃
Junction Temperature	T_J	-55 to + 125	℃
Storage Temperature	T_{stg}	-55 to + 125	℃

Electrical Characteristics

Parameter	Symbol	Conditions	Min	Typical	Max	Units
Reverse Stand-Off Voltage	V_{RWM}				5.0	V
Reverse Breakdown Voltage	V_{BR}	I_T=1mA	6.0	8.0		V
Reverse Leakage Current	I_R	V_{RWM}=5V,T=25℃		0.1	0.5	μA
Peak Pulse Current	I_{PP}	tp =8/20μs			3.5	A
Clamping Voltage	V_C	I_{PP}=3.5A,t_p=8/20μs			15	V
Junction Capacitance	C_j	IO to IO V_R = 0V, f = 1MHz		0.4	0.5	pF

Electrical Parameters (TA = 25°C unless otherwise noted)

Symbol	Parameter
I_{PP}	Maximum Reverse Peak Pulse Current
V_C	Clamping Voltage @ I_{PP}
V_{RWM}	Working Peak Reverse Voltage
I_R	Maximum Reverse Leakage Current @ V_{RWM}
V_{BR}	Breakdown Voltage @ I_T
I_T	Test Current



Note:. 8/20μs pulse waveform.

Typical Characteristics

Figure 1: Peak Pulse Power vs. Pulse Time

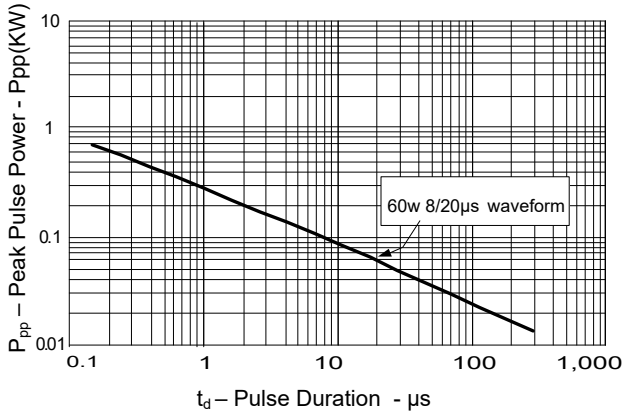


Figure 2: Power Derating Curve

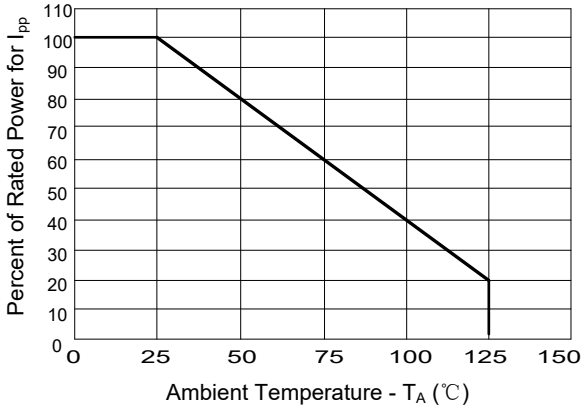


Figure3: Pulse Waveform

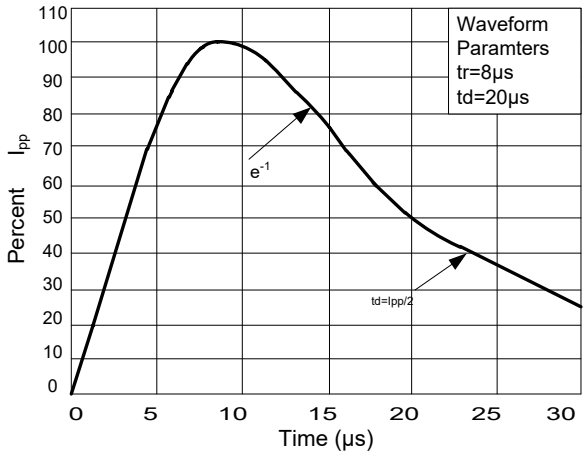


Figure 4: Clamping Voltage vs.Ipp

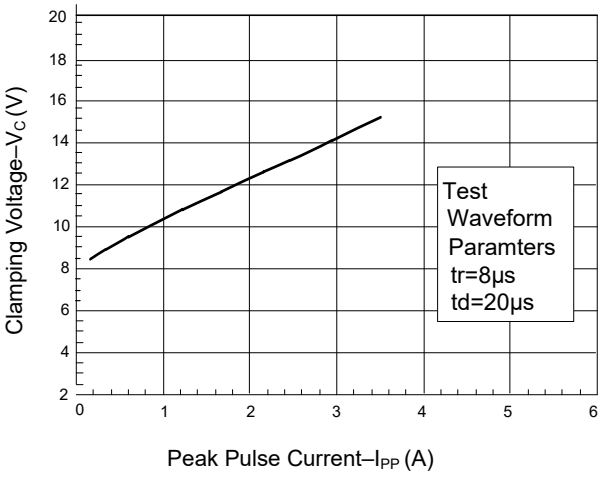


Figure5: Positive Clamping voltage (TLP)

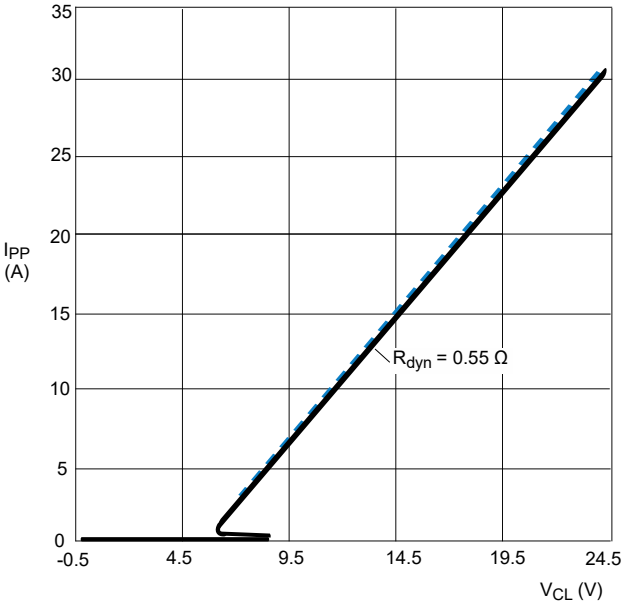
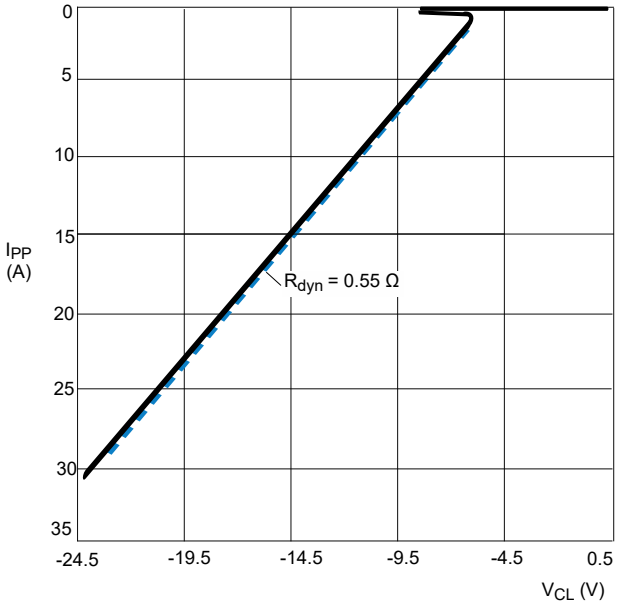
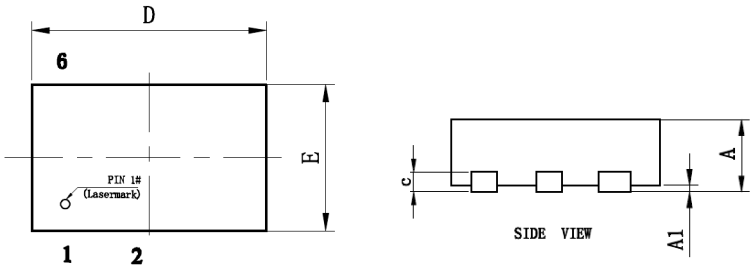
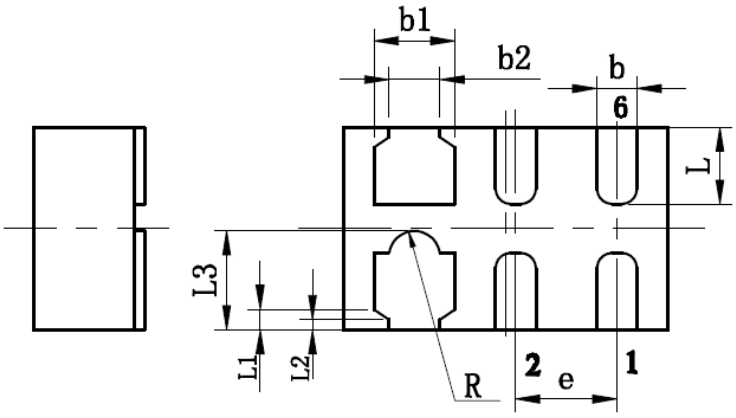


Figure5: Negative Clamping voltage (TLP)



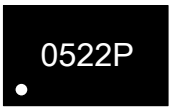
Outline Drawing





SYMBOL	MILLIMETER		
	MIN	NOM	MAX
A	0.50	0.55	0.60
A1	-	0.02	0.05
b	0.15	0.20	0.25
b1	0.35	0.40	0.45
b2	0.20	0.25	0.30
c	0.10	0.15	0.20
D	1.55	1.60	1.65
e	0.50BSC		
E	0.95	1.00	1.05
L	0.33	0.38	0.43
L1	0.100REF		
L2	0.05REF		
L3	0.49REF		
R	0.08	0.13	0.18

Marking



Ordering information

Order code	Package	Base qty	Delivery mode
PTN166U04M5CA6	DFN1610	3K	Tape and reel