

Transient Voltage Suppressors for ESD Protection

ULC0506P6

Description

The ULC0506P6 is ultra low capacitance TVS arrays designed to protect high speed data interfaces. This series has been specifically designed to protect sensitive components which are connected to high-speed data and transmission lines from over-voltage caused by ESD (electrostatic discharge), CDE (Cable Discharge Events), and EFT (electrical fast transients).

Feature

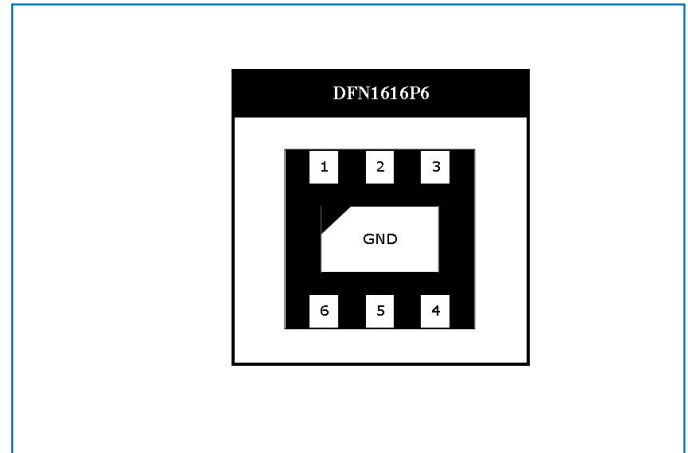
- ◆ 100 Watts Peak Pulse Power per Line ($t_p=8/20\mu s$)
- ◆ Protects Six High Speed Lines
- ◆ Low Clamping Voltage
- ◆ Working Voltages : 5V
- ◆ Low Leakage Current
- ◆ IEC61000-4-2(ESD): $\pm 15kV$ (air), $\pm 8kV$ (contact);
- ◆ IEC61000-4-4 (EFT) 40A (5/50 μs)
- ◆ IEC61000-4-5 (LIGHTING) 4A (8/20 μs)

Applications

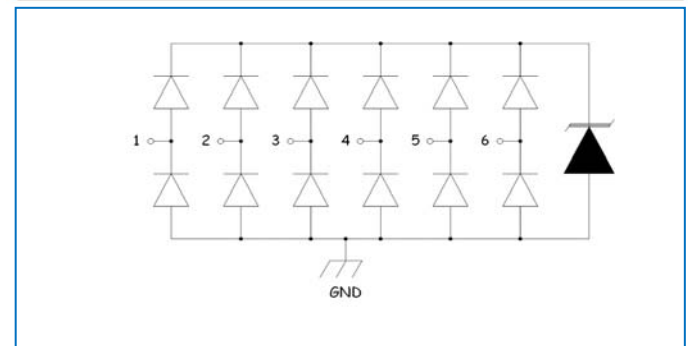
- ◆ USB 3.0 / USB 3.1 Interfaces
- ◆ HDMI 1.4 / HDMI 2.0 Interfaces
- ◆ High Speed I/O Lines
- ◆ Video Graphics Cards
- ◆ Notebooks, Desktops, and Servers
- ◆ Portable Instrumentation
- ◆ Industrial Controls
- ◆ Peripherals

Mechanical Characteristics

Symbol	Parameter	Value	Units
Ppp	Peak Pulse Power ($t_p=8/20\mu s$ waveform)	100	Watts
T _J	Operating Junction Temperature Range	-40to +125	°C
T _{STG}	Storage Temperature Range	-55 to +150	°C
T _L	Soldering Temperature, T max = 10s	260	°C



Functional Diagram



Mechanical Data

- ◆ DFN1616P6 Package (1.6x1.6x0.5mm)
- ◆ Molding Compound Flammability Rating : UL 94V-O
- ◆ Weight 4.2 Milligrams (Approximate)
- ◆ Quantity Per Reel : 3,000pcs
- ◆ Reel Size : 7 inch
- ◆ Lead Finish : Lead Free
- ◆ Device Marking: UC56

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Electrical Characteristics (@ 25°C Unless Otherwise Specified)

Characteristics	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Reverse Working Voltage	V_{RWM}	--	--	--	5	V
Reverse Breakdown Voltage	V_{BR}	$I_T=1mA$	6	--	--	V
Reverse Leakage Current	I_R	$V_{RWM}=5V ; T=25^{\circ}C$	--	--	1	μA
Junction capacitance	C_J	$V_R=0V , f=1MHz ;$	--	0.4	--	pF
Positive Clamping Voltage	V_C	$I_{PP}=1A , T_P=8/20\mu S ;$	--	--	12	V
		$I_{PP}=4A , T_P=8/20\mu S ;$	--	--	25	

Characteristic Curves

Fig1. Inseccion Loss (S21)

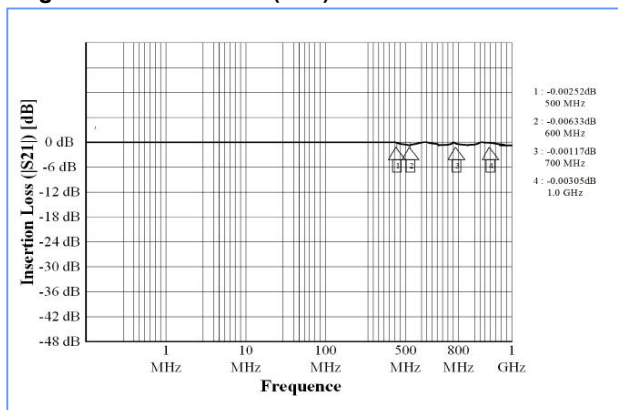


Fig2. Power Derating Curve

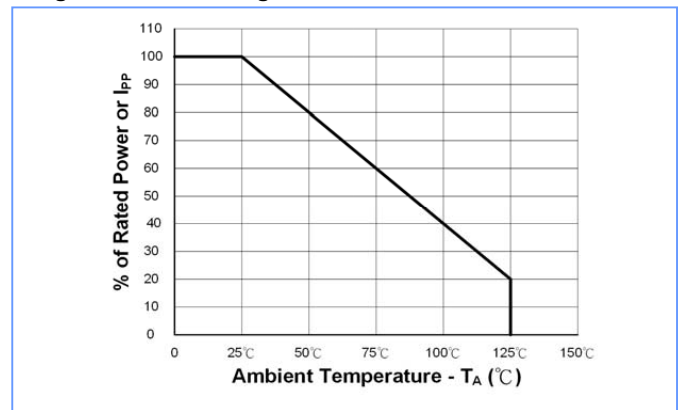


Fig3. Clamping Voltage vs. Peak Pulse Current (tp=8/20us)

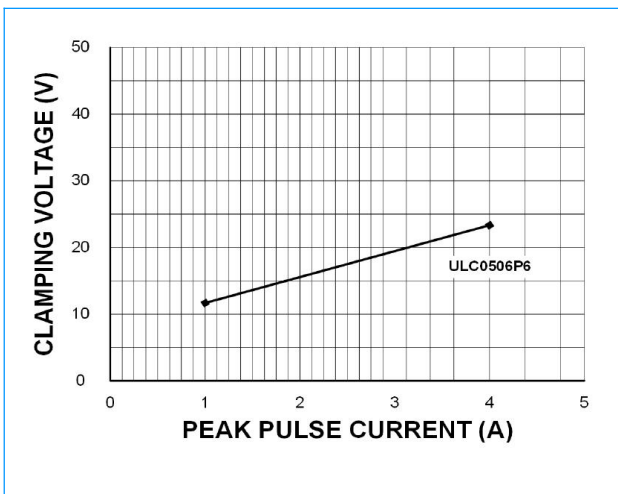
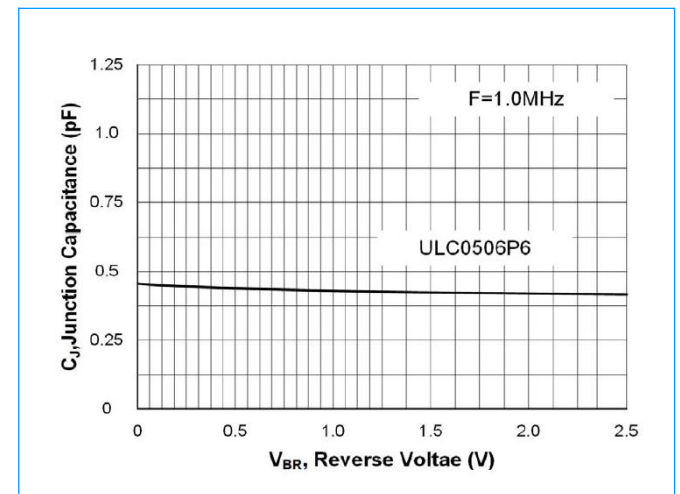


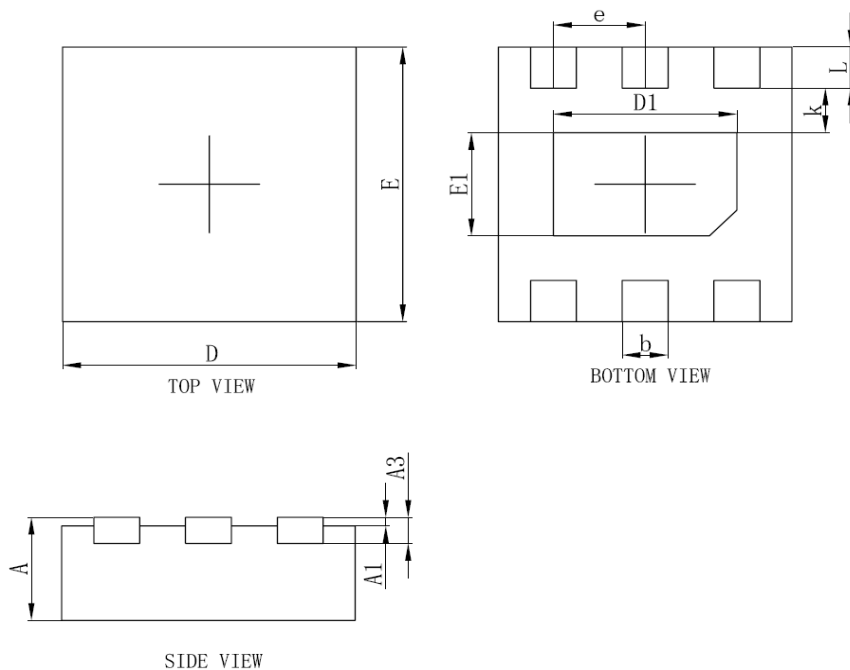
Fig4. Typical Capacitance vs. Reverse Voltage



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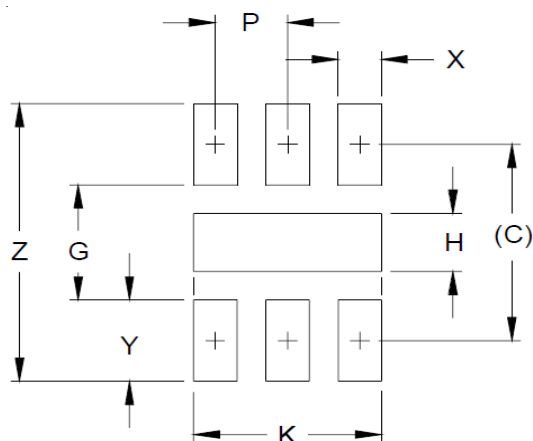
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DFN1616P6 Package Outline & Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.450/0.550	0.550/0.650	0.018/0.022	0.022/0.026
A1	0.000	0.050	0.000	0.002
A3	0.152REF.		0.006REF.	
D	1.550	1.650	0.061	0.065
E	1.550	1.650	0.061	0.065
E1	0.500	0.700	0.020	0.028
D1	0.900	1.100	0.035	0.043
k	0.200MIN.		0.008REF.	
b	0.200	0.300	0.008	0.012
e	0.500BSC.		0.020BSC.	
L	0.164	0.316	0.006	0.012

* SOLDERING FOOTPRINT



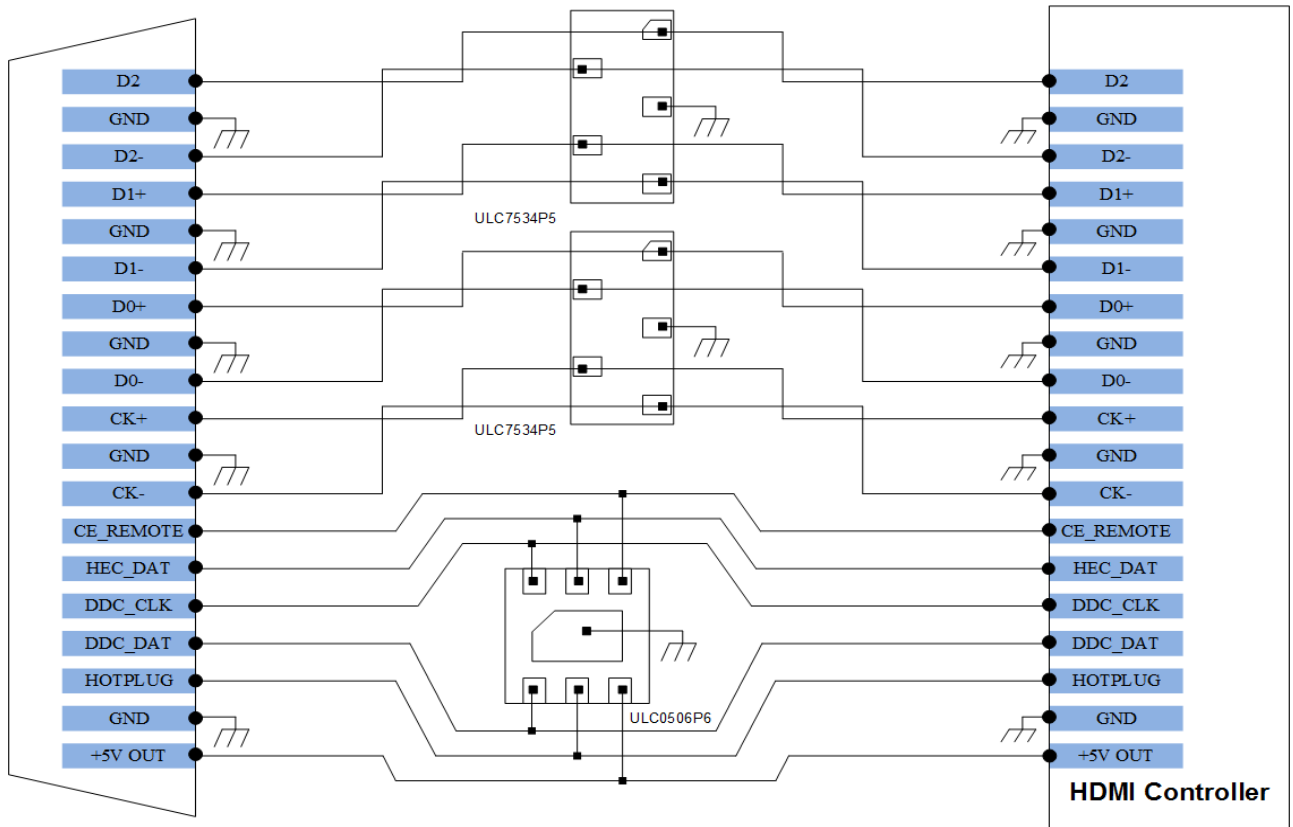
DIMENSIONS		
DIM	INCHES	MILLIMETERS
C	.060	1.52
G	.035	0.89
H	.018	0.45
K	.051	1.30
P	.020	0.50
X	.012	0.30
Y	.025	0.63
Z	.085	2.15

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Layout Diagrams

HDMI Layout Diagram



USB 3.0 Layout Diagram

