

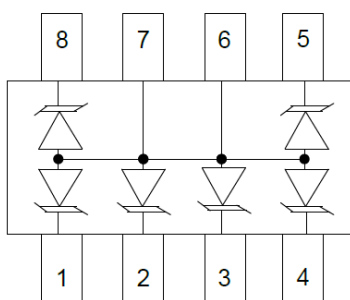
Description

The DL0506S8 is a low capacitance TVS array, utilizing leading monolithic silicon technology to provide fast response time and low ESD clamping voltage, making this device an ideal solution for protecting voltage sensitive high-speed data lines. The DL0554S8 complies with the IEC 61000-4-2 (ESD) with $\pm 20\text{kV}$ air and $\pm 15\text{kV}$ contact discharge. The leads are finished with lead-free matte tin. Each device will protect up to four high-speed lines. The combination of small size, low capacitance, and high surge capability makes them ideal for use in applications such as 10/100 Ethernet, USB 2.0, and visual interfaces.

Mechanical Characteristics

- ◆ Package: SO-8
- ◆ Lead Finish: Matte Tin
- ◆ Case Material: "Green" Molding Compound.
- ◆ Moisture Sensitivity: Level 3 per J-STD-020
- ◆ Terminal Connections: See Diagram Below
- ◆ Marking Information: See Below

Dimensions and Pin Configuration



Circuit and Pin Schematic

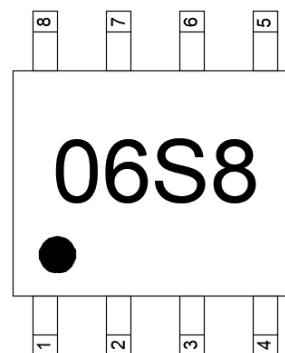
Features

- ◆ Low capacitance: 0.8pF typical
- ◆ Ultra low leakage: nA level
- ◆ Low operating voltage: 5V
- ◆ Complies with following standards:
 - IEC 61000-4-2 (ESD) immunity test
 - Air discharge: $\pm 20\text{kV}$
 - Contact discharge: $\pm 15\text{kV}$
 - IEC61000-4-5 (Lightning) 5A (8/20 μs)
- ◆ RoHS Compliant

Applications

- ◆ USB 2.0 power and data line
- ◆ Monitors and flat panel displays
- ◆ Set-top box and digital TV
- ◆ Video graphics cards
- ◆ Digital visual interface (DVI)
- ◆ Notebook Computers
- ◆ SIM Ports
- ◆ 10/100 Ethernet
- ◆ IEEE 1394 firewire ports

Marking Information



06S8=Device Marking
Code Dot denotes Pin1

Ordering Information

Part Number	Marking	Packaging	Reel Size
DL0506S8	06S8	2500/Tape & Reel	13 inch

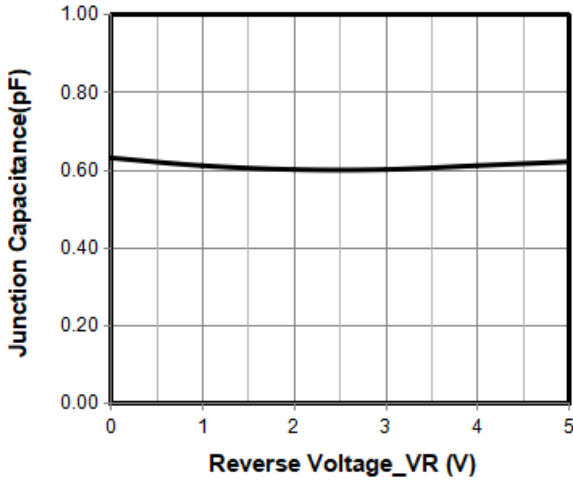
Absolute Maximum Ratings ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power(8/20 μs)	Ppk	75	W
Peak Pulse Current(8/20 μs)	Ipp	5	A
ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	VESD	± 25 ± 20	kV
Operating Temperature Range	TJ	-55 to +125	$^{\circ}\text{C}$
Storage Temperature Range	Tstg	-55 to +150	$^{\circ}\text{C}$

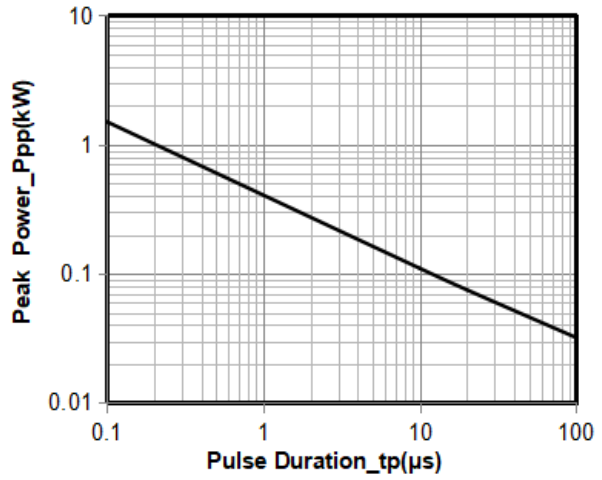
Electrical Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	VRWM			5	V	
Breakdown Voltage	VBR	6			V	$I_T = 1\text{mA}$
Reverse Leakage Current	I _R			0.5	μA	VRWM = 5V
Clamping Voltage	Vc			10	V	I _{PP} = 1A (8 x 20 μs pulse), any I/O pin to ground
Clamping Voltage	Vc			15	V	I _{PP} = 5A (8 x 20 μs pulse), any I/O pin to ground
Junction Capacitance	CJ		0.3	0.4	pF	VR = 0V, f = 1MHz, between I/O pins
Junction Capacitance	CJ			0.8	pF	VR = 0V, f = 1MHz, any I/O pin to ground

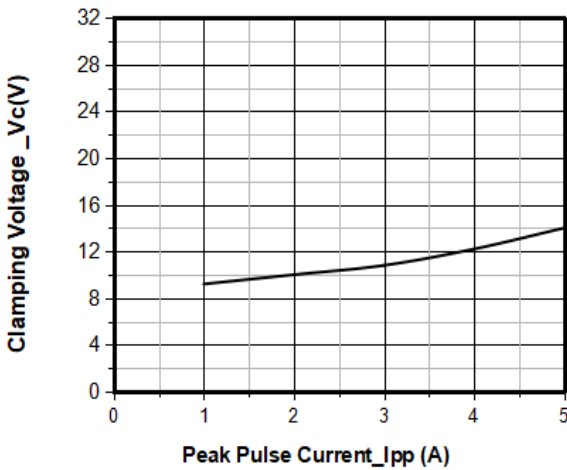
Typical Performance Characteristics (TA=25°C unless otherwise Specified)



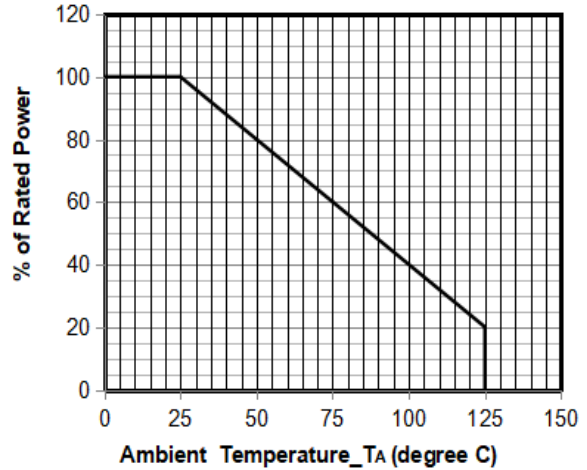
Junction Capacitance vs. Reverse Voltage



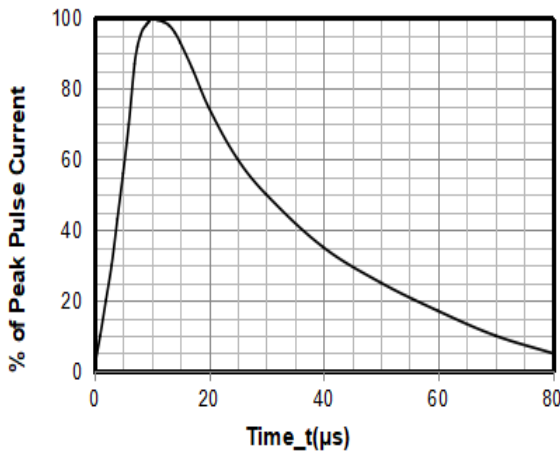
Peak Pulse Power vs. Pulse Time



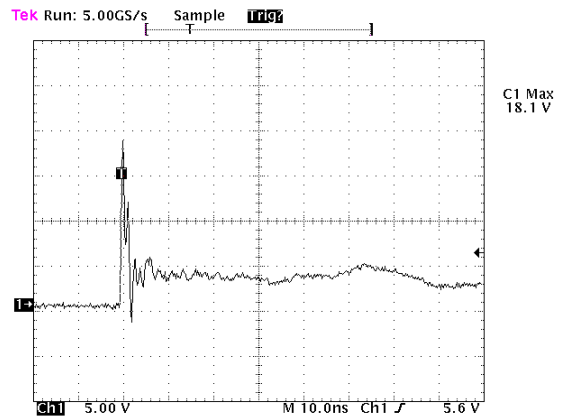
Clamping Voltage vs. Peak Pulse Current



Power Derating Curve



8 X 20 s Pulse Waveform

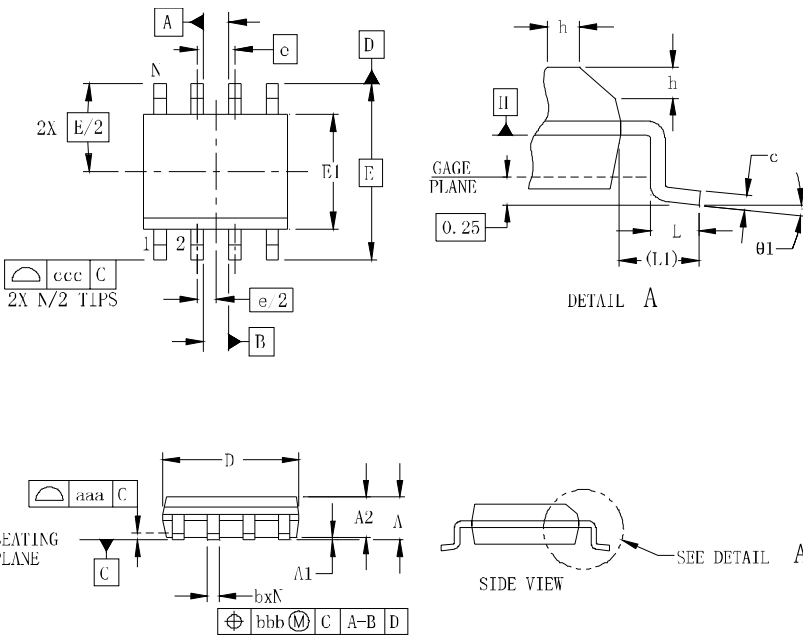


Note: Data is taken with a 10x attenuator

ESD Clamping Voltage

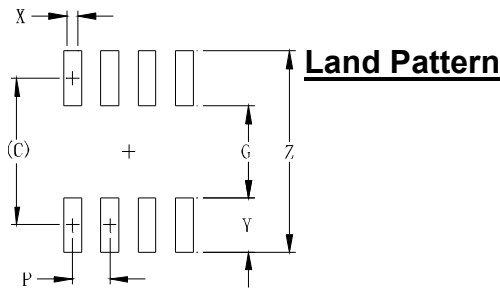
8 kV Contact per IEC61000-4-2

SO-8 Package Outline Drawing



SYM	DIMENSIONS					
	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	1.35		1.75	0.053		0.069
A1	0.10		0.25	0.004		0.010
A2	1.25		1.65	0.049		0.065
b	0.31		0.51	0.012		0.020
c	0.17		0.25	0.007		0.010
D	4.80	4.90	5.00	0.189	0.193	0.197
E	3.80	3.90	4.00	0.150	0.154	0.157
E1	6.00 BSC			0.236 BSC		
e	1.27 BSC			0.050 BSC		
h	0.25		0.50	0.010		0.020
L	0.40	0.72	1.04	0.016	0.028	0.041
L1	(1.04)			(0.041)		
N	8			8		
theta1	0°		8°	0°		8°
aaa	0.10			0.004		
bbb	0.25			0.010		
ccc	0.20			0.008		

Suggested



SYM	DIMENSIONS	
	MILLIMETERS	INCHES
C	(5.20)	0.205
G	3.00	0.118
P	1.27	0.050
X	0.60	0.024
Y	2.20	0.087
Z	7.40	0.291

Contact Information

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