Description

The DL0504PC is an ultra 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 DL0504PC has very low capacitance with a typical value at 0.3pF, and complies with the IEC 61000-4-2 (ESD) with ±25kV air and ±20kV contact discharge. It is assembled into a SGP2010N5 package. The combination of small size, low capacitance and high level of ESD protection makes it ideal for HDMI, MDDI, antenna circuits, USB 2.0, and Infiniband circuits.

Features

- Ultra low capacitance: 0.3pF typical
- Ultra low leakage: nA level
- Operating voltage: 5V
- Low clamping voltage
- Up to 4 data lines protects
- Complies with following standards:
  - IEC 61000-4-2 (ESD) immunity test
    Air discharge: ±25kV
    Contact discharge: ±20kV
  - IEC61000-4-5 (Lightning) : 5A(8/20μs)
- ROHS Compliant

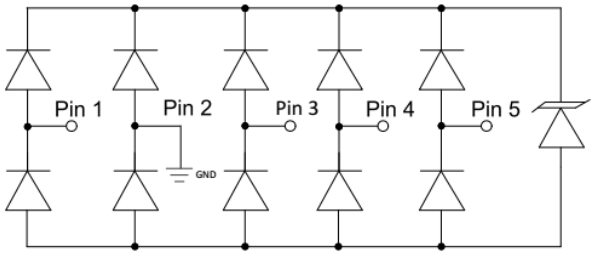
Mechanical Characteristics

- Package: SGP2010N5（2.0 x1.0 x0.5mm）
- 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

Applications

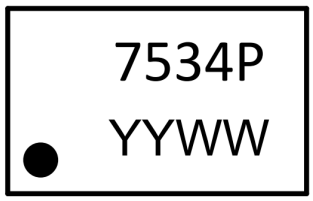
- Mobile Display Digital Interface (MDDI)
- USB 2.0
- Photodetector Protection
- HBT Power Amplifier Protection
- Infiniband Transceiver Protection
- Firewire Ports

Dimensions and Pin Configuration



Circuit and Pin Schematic

Marking Information



7534P = Device Marking Code
YYWW= Date Code
Dot denotes Pin1

Ordering Information

Part Number	Marking	Packaging	Reel Size
DL0504PC	7534P	3000/Tape & Reel	7 inch

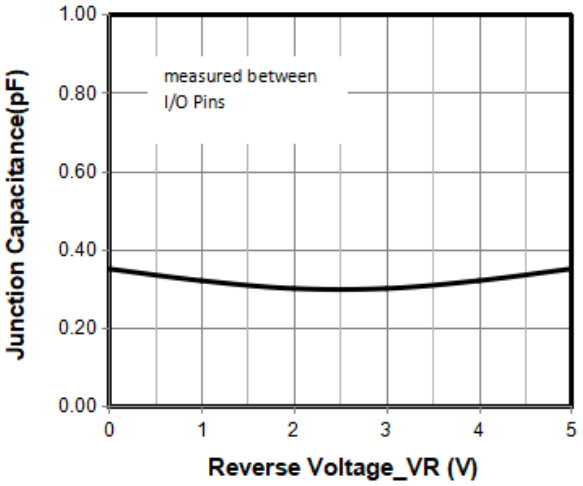
Absolute Maximum Ratings (T_A=25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20μs)	Ppk	100	W
Peak Pulse Current (8/20μs)	Ipp	5	A
ESD per IEC 61000−4−2 (Air) ESD per IEC 61000−4−2 (Contact)	V_{ESD}	±25 ±20	kV
Operating Temperature Range	T_J	−55 to +125	°C
Storage Temperature Range	Tstg	−55 to +150	°C

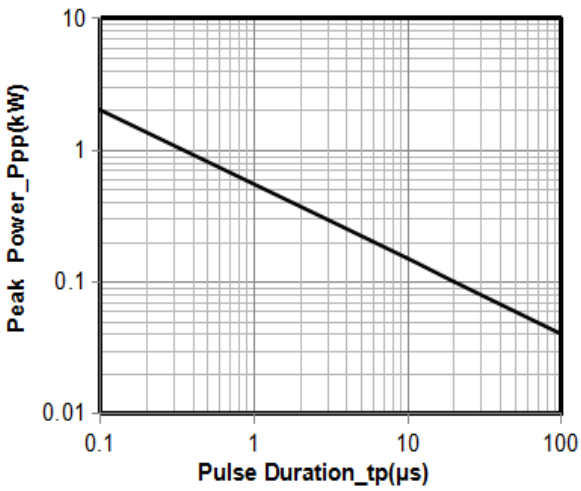
Electrical Characteristics (T_A=25°C unless otherwise specified)

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	V_{RWM}			5	V	Pin 1 or pin 2 to pin 3 and between pin 1 and pin 2
Breakdown Voltage	V_{BR}	6			V	I_T = 1mA, pin 1 or pin 2 to pin 3
Reverse Leakage Current	I_R			0.5	μA	V_{RWM} = 5V, pin 1 or pin 2 to pin 3 and between pin 1 and pin 2
Clamping Voltage	V_C			9	V	I_{PP} = 1A (8 x 20μs pulse), pin 1 or pin 2 to pin3
Clamping Voltage	V_C			20	V	I_{PP} = 5A (8 x 20μs pulse), pin 1 or pin 2 to pin 3
Junction Capacitance	C_J		0.3		pF	VR = 0V, f = 1MHz, I/O to pin 2

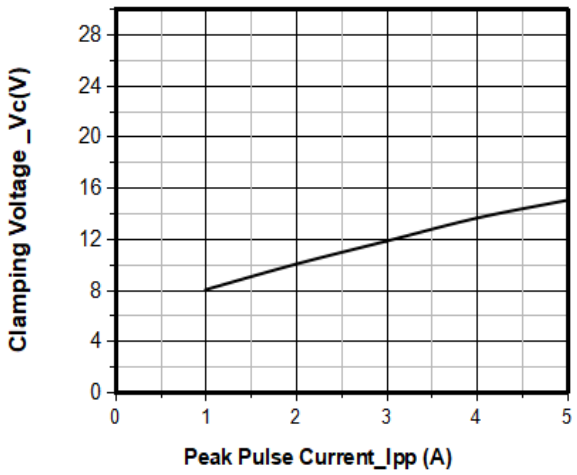
Typical Performance Characteristics (T_A=25℃ unless otherwise Specified)



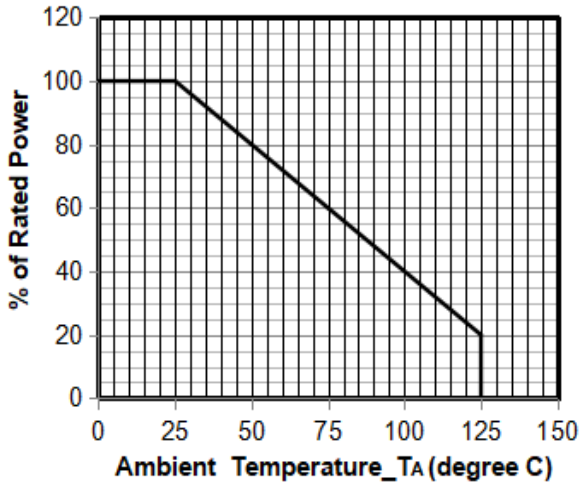
Junction Capacitance vs. Reverse Voltage



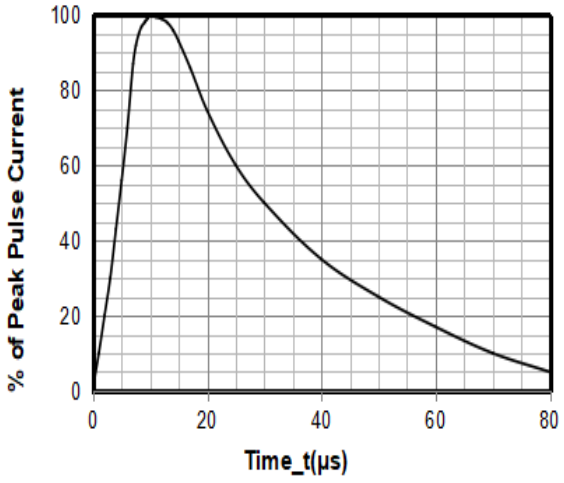
Peak Pulse Power vs. Pulse Time



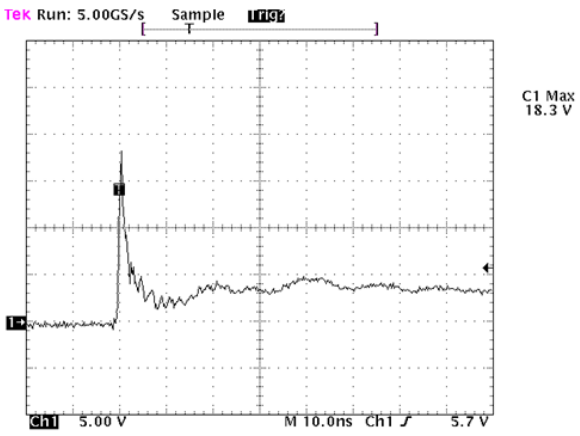
Clamping Voltage vs. Peak Pulse Current



Power Derating Curve



8 X 20uS Pulse Waveform

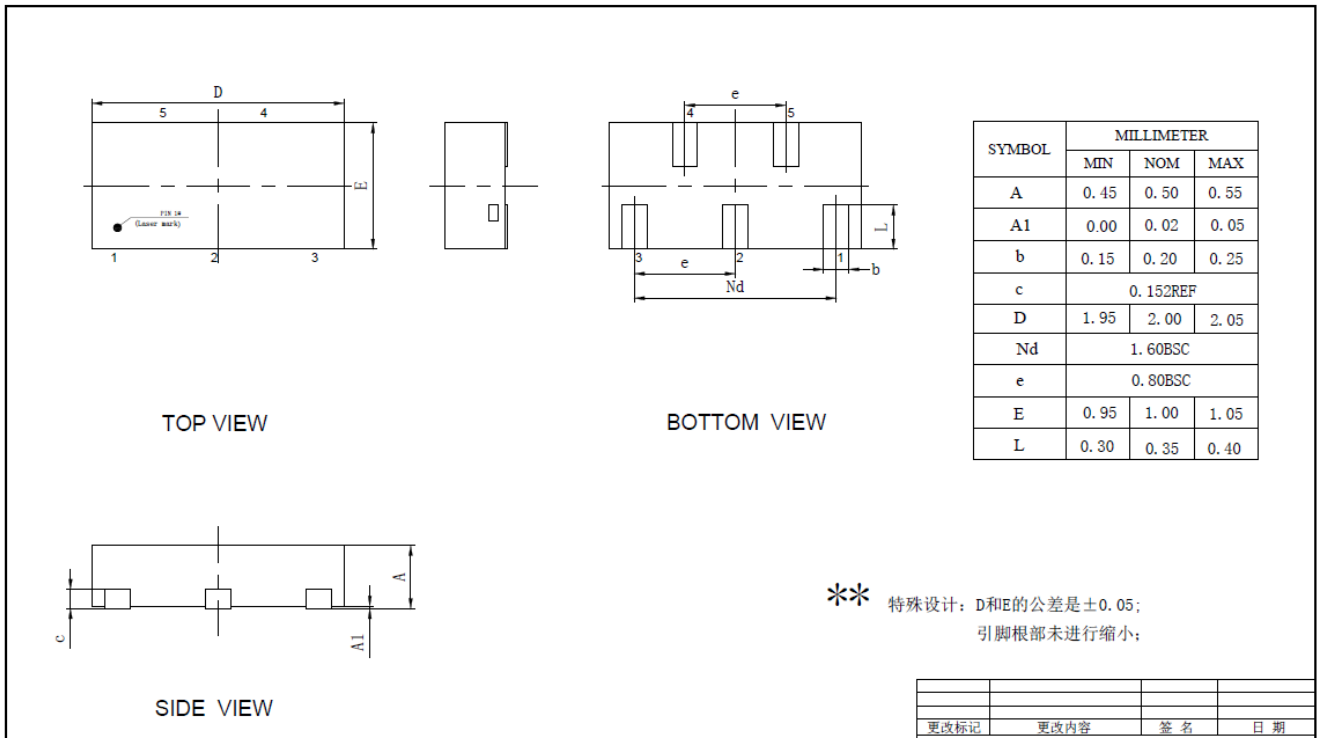


Note：Data is taken with a 10x attenuator

ESD Clamping Voltage

8 kV Contact per IEC61000−4−2

SGP2010N5 Package Outline Drawing

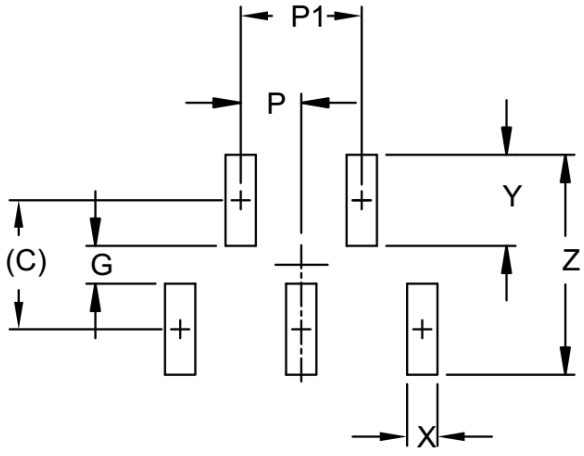


SYMBOL	MILLIMETER		
	MIN	NOM	MAX
A	0.45	0.50	0.55
A1	0.00	0.02	0.05
b	0.15	0.20	0.25
c		0.152REF	
D	1.95	2.00	2.05
Nd		1.60BSC	
e		0.80BSC	
E	0.95	1.00	1.05
L	0.30	0.35	0.40

** 特殊设计：D和E的公差是±0.05；
引脚根部未进行缩小；

更改标记	更改内容	签 名	日 期

Suggested Land Pattern



DIMENSIONS	
DIM	MILLIMETERS
C	(0.85)
G	0.25
P	0.40
P1	0.80
X	0.20
Y	0.60
Z	1.45

Contact Information

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