

### Description

DSLCO5CI a 5V bi-directional TVS diode 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 DSLCO5CI has a low capacitance with a typical value at 1pF, and complies with the IEC 61000-4-2(ESD) standard with  $\pm 30\text{kV}$  air and  $\pm 30\text{kV}$  contact discharge. It is assembled into a lead-free SOT-143 package. The small size, low capacitance and high ESD surge protection make DSLCO5CI an ideal choice to protect cell phone, wireless systems, and communication equipment.

### Mechanical Characteristics

- ◆ Package: SOT-143
- ◆ Lead Finish: Matte Tin
- ◆ Case Material: "Green" Molding Compound.
- ◆ UL Flammability Classification Rating 94V-0
- ◆ Moisture Sensitivity: Level 3 per J-STD-020
- ◆ Terminal Connections: See Diagram Below
- ◆ Marking Information: See Below

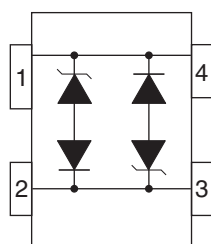
### Features

- ◆ 100W peak pulse power (8/20 $\mu\text{s}$ )
- ◆ Ultra low capacitance : 1.0pF typical
- ◆ Ultra low leakage: nA level
- ◆ Low Operating: 5V
- ◆ Low clamping voltage
- ◆ Protects one power line or data line
- ◆ Complies with following standards:
  - IEC 61000-4-2 (ESD) immunity test
    - Air discharge:  $\pm 30\text{kV}$
    - Contact discharge:  $\pm 30\text{kV}$
  - IEC61000-4-4 (EFT) 40A (5/50ns)
- ◆ RoHS Compliant

### Applications

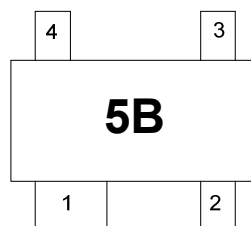
- ◆ USB Ports
- ◆ Smart Phones
- ◆ Wireless Systems
- ◆ Ethernet 10/100/1000 Base T

### Dimensions and Pin Configuration



Circuit and Pin Schematic

### Marking Information



### Ordering Information

Part Number	Marking	Packaging	Reel Size
DSLCO5CI	5B	3000/Tape & Reel	7 inch

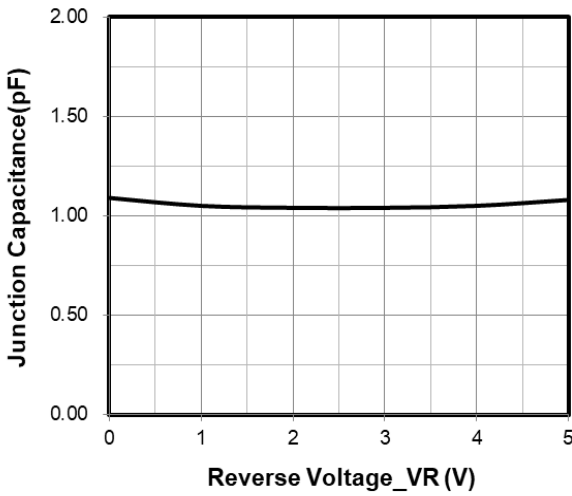
**Absolute Maximum Ratings ( $T_A=25^{\circ}\text{C}$  unless otherwise specified)**

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20 $\mu\text{s}$ )	Ppk	100	W
Peak Pulse Current (8/20 $\mu\text{s}$ )	IPP	8	A
ESD per IEC 61000-4-2 (Air)	VESD	$\pm 30$	kV
ESD per IEC 61000-4-2 (Contact)		$\pm 30$	
Operating Temperature Range	TJ	-55 to +125	$^{\circ}\text{C}$
Storage Temperature Range	Tstg	-55 to +150	$^{\circ}\text{C}$

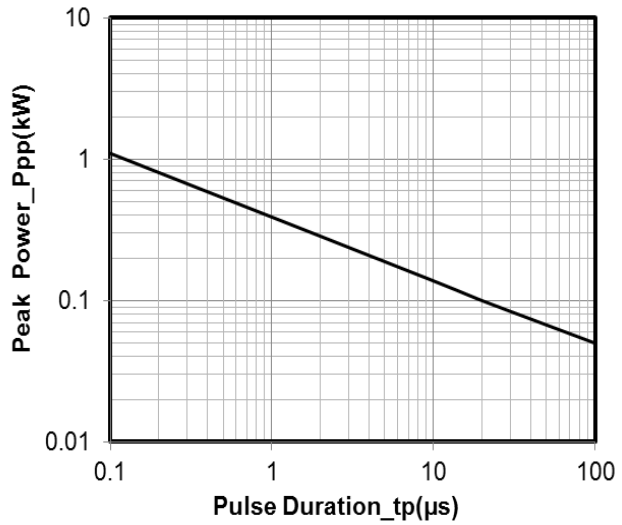
**Electrical Characteristics ( $T_A=25^{\circ}\text{C}$  unless otherwise specified)**

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	VRWM			5.0	V	
Breakdown Voltage	VBR	6.0		8.5	V	IT = 1mA
Snap-Back Voltage	VSB	6.0			V	ISB = 50mA
Reverse Leakage Current	IR			0.2	$\mu\text{A}$	VRWM = 5V
Clamping Voltage	VC			9	V	IPP = 1A (8 x 20 $\mu\text{s}$ pulse)
Clamping Voltage	VC			15	V	IPP = 8A (8 x 20 $\mu\text{s}$ pulse)
Junction Capacitance	CJ		1.0	1.2	pF	VR = 0V, f = 1MHz

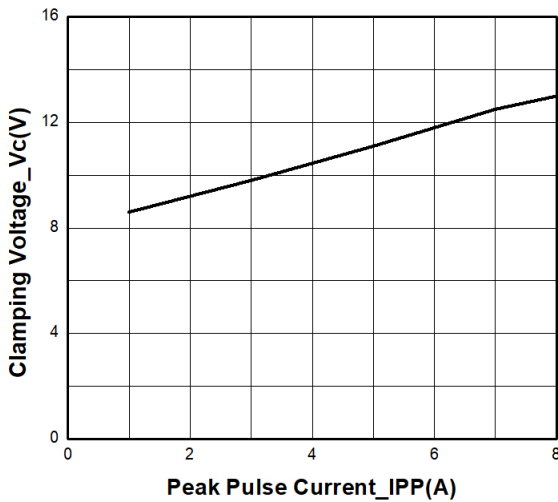
**Typical Performance Characteristics (TA=25°C unless otherwise Specified)**



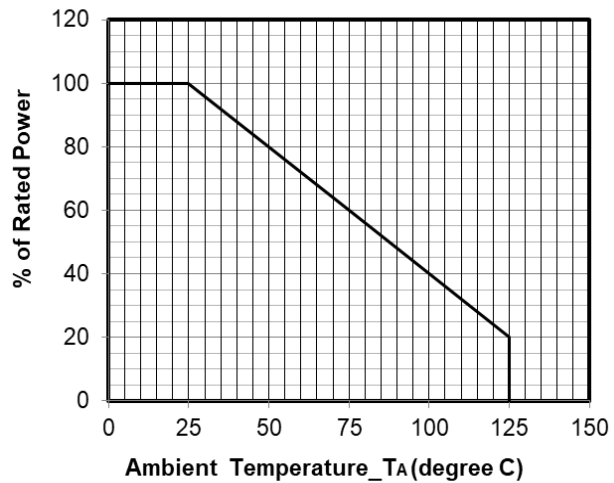
Junction Capacitance vs. Reverse Voltage



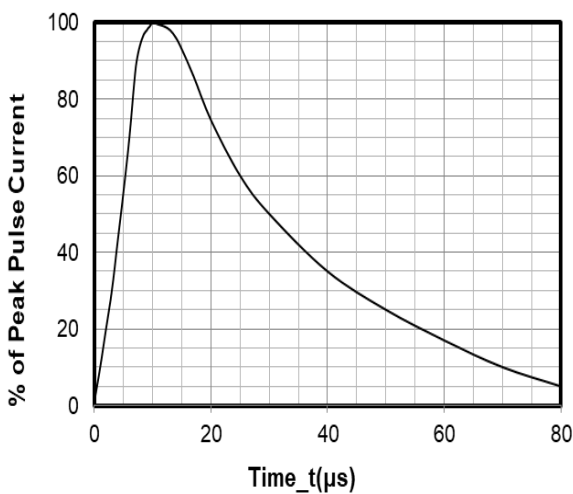
Peak Pulse Power vs. Pulse Time



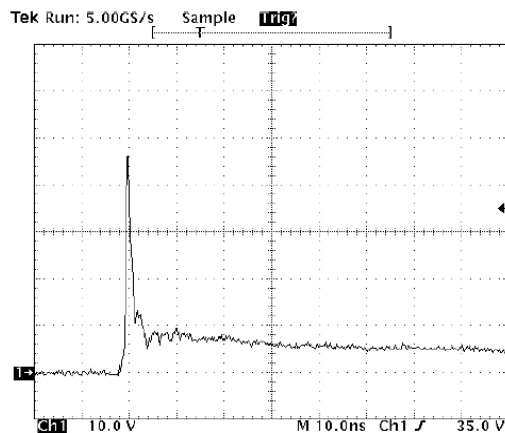
Clamping Voltage vs. Peak Pulse Current



Power Derating Curve



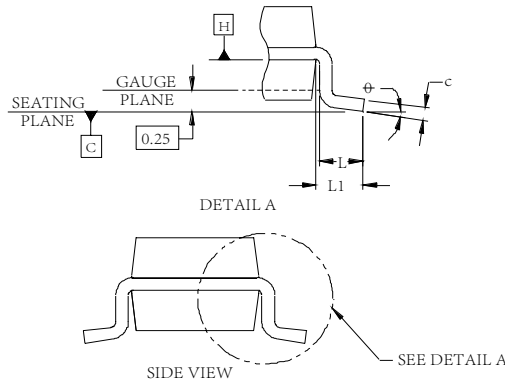
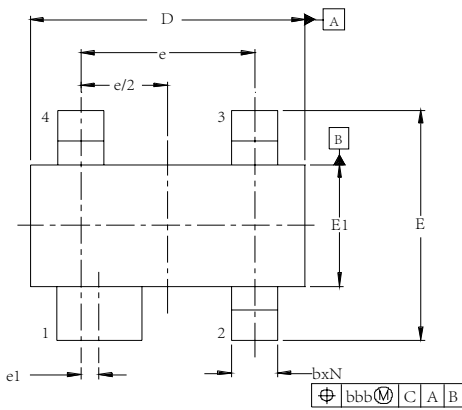
8 X 20μs Pulse Waveform



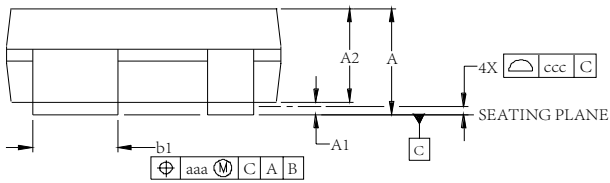
Note: Data is taken with a 10x attenuator

ESD Clamping Voltage  
8 kV Contact per IEC61000-4-2

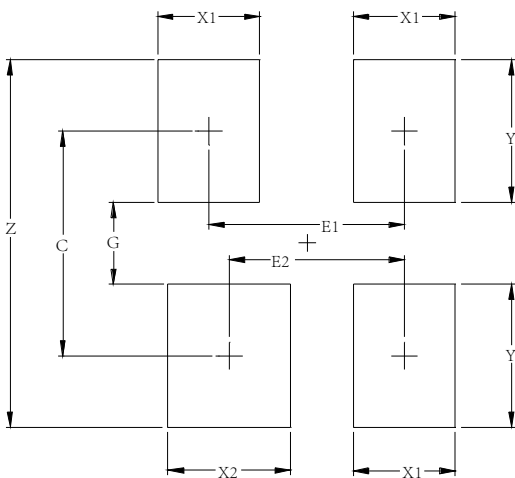
### SOT-143 Package Outline Drawing



DIM	DIMENSIONS					
	INCHES			MILLIMETERS		
	MIN	NOM	MAX	MIN	NOM	MAX
A	.031	-	.048	0.80	-	1.22
A1	.000	-	.006	0.013	-	0.15
A2	.029	.035	.042	0.75	0.90	1.07
b	.011	-	.020	0.30	-	0.51
b1	.029	-	.037	0.76	-	0.94
c	.003	-	.008	0.08	-	0.20
D	.110	.114	.120	2.80	2.90	3.04
E	.082	.093	.104	2.10	2.37	2.64
E1	.047	.051	.055	1.20	1.30	1.40
e	.075			1.92 BSC		
e1	.008			0.20 BSC		
L	.015	.020	.024	0.40	0.50	0.60
L1	(0.021)			(0.54)		
N	4			4		
⊕	0°	-	8°	0°	-	8°
aaa	.006			0.15		
bb b	.008			0.20		
ccc	.004			0.10		



### Suggested Land Pattern



SYM	DIMENSIONS	
	MILLIMETERS	INCHES
C	2.20	0.087
E1	1.92	0.076
E2	1.72	0.068
G	0.80	0.031
X1	1.00	0.039
X2	1.20	0.047
Y	1.40	0.055
Z	3.60	0.141

### Contact Information

Changzhou D-first Electronics CO.,Ltd.  
 www.first-electronic.com  
 Email: xhf@first-electronic.cn  
 Phone: +86 (0519) 88171671