

## TVS/ESD Protection Diode

### DESCRIPTION

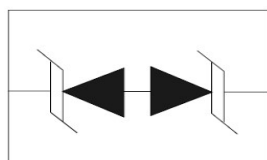
SL0521PZ is a low-capacitance Transient Voltage Suppressor (TVS) designed to provide electrostatic discharge (ESD) protection for data, control or power line. With maximum capacitance of 15pF, SL0521PZ is designed to protect parasitic-sensitive systems against over-voltage and over-current transient events. It complies with IEC 61000-4-2 (ESD), Level 4 ( $\pm 15\text{kV}$  air,  $\pm 8\text{kV}$  contact discharge), IEC 61000-4-4 (electrical fast transient - EFT) (40A, 5/50 ns), very fast charged device model (CDM) ESD and cable discharge event (CDE), etc.

SL0521PZ uses ultra-small DFN1006 package. Each SL0521PZ device can protect one data line. It offers system designers flexibility to protect single data line where space is a premium concern.

### ORDERING INFORMATION

- ✧ Device: SL0521PZ
- ✧ Package: DFN1006
- ✧ Marking: PB
- ✧ Material: RoHS compliant, Halogen free
- ✧ Packing: Tape & Reel
- ✧ Quantity per reel: 10,000pcs

### CIRCUIT DIAGRAM



### FEATURES

- ✧ Transient protection for high-speed data lines
  - IEC 61000-4-2 (ESD)  $\pm 15\text{kV}$  (Air)
  - $\pm 8\text{kV}$  (Contact)
  - IEC 61000-4-4 (EFT) 40A (5/50 ns)
  - Cable Discharge Event (CDE)
- ✧ Package optimized for high-speed lines
- ✧ Ultra-small package (1.0mm $\times$ 0.6mm $\times$ 0.4mm)
- ✧ Protects one data, control or power line
- ✧ Low capacitance
- ✧ Low leakage current
- ✧ Low clamping voltage
- ✧ Each I/O pin can withstand over 1000 ESD strikes for  $\pm 8\text{kV}$  contact discharge

### MACHANICAL DATA

- ✧ DFN1006 package
- ✧ Flammability Rating: UL 94V-0
- ✧ Packaging: Tape and Reel
- ✧ High temperature soldering guaranteed:
  - 260 $^{\circ}\text{C}$ /10s
- ✧ Reel size: 7 inch
- ✧ MSL3

### APPLICATIONS

- ✧ Portable Electronics
- ✧ Desktops, Servers and Notebooks
- ✧ Cellular Phones
- ✧ MP3 Ports
- ✧ Digital Ports
- ✧ Subscriber Identity Module (SIM) card

### PIN CONFIGURATION

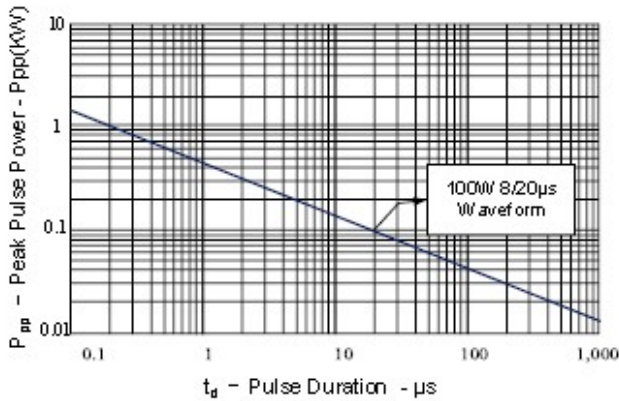


ABSOLUTE MAXIMUM RATING			
Symbol	Parameter	Value	Units
$P_{PP}$	Peak Pulse Power (8/20 $\mu$ s)	60	W
$V_{ESD}$	ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	$\pm 25$ $\pm 20$	kV
$T_j$	Operating Temperature	-55/+125	$^{\circ}$ C
$T_{STG}$	Storage Temperature	-55/+150	$^{\circ}$ C

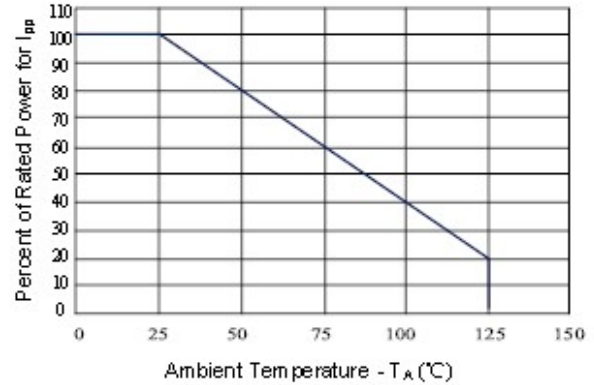
ELECTRICAL CHARACTERISTICS ( $T_{amb}=25^{\circ}$ C)						
Symbol	Parameter	Test Condition	Min	Typ	Max	Units
$V_{RWM}$	Reverse Stand-Off Voltage				5.0	V
$V_{BR}$	Reverse Breakdown voltage	$I_T=1mA$	5.6			V
$I_R$	Reverse leakage current.	$V_{RWM}=5V$			1	$\mu$ A
$I_{PP}$	Peak Pulse Current	$t_p=8/20\mu s$			4	A
$V_C$	Clamping Voltage	$I_{PP}=1A, t_p=8/20\mu s$ $I_{PP}=8A, t_p=8/20\mu s$			9.5 15	V
$C_J$	Junction Capacitance	$V_R=0V, f=1MHz$			15	pF

**ELECTRICAL CHARACTERISTICS CURVE**

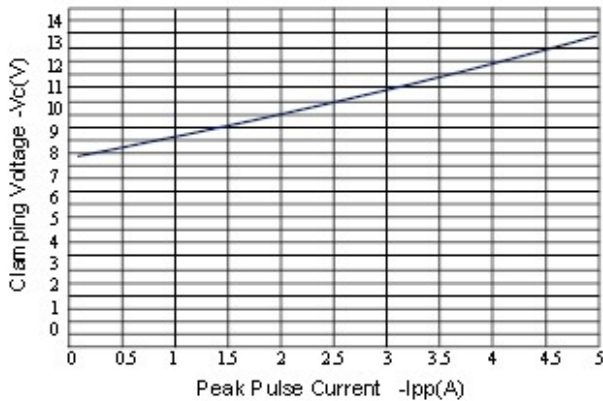
**Figure 1: Peak Pulse Power Vs Pulse Time**



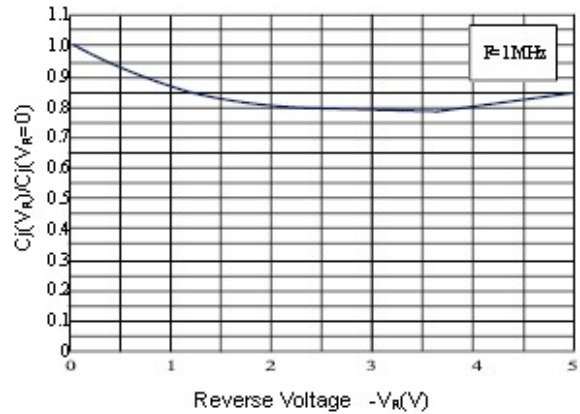
**Figure 2: Power Derating Curve**



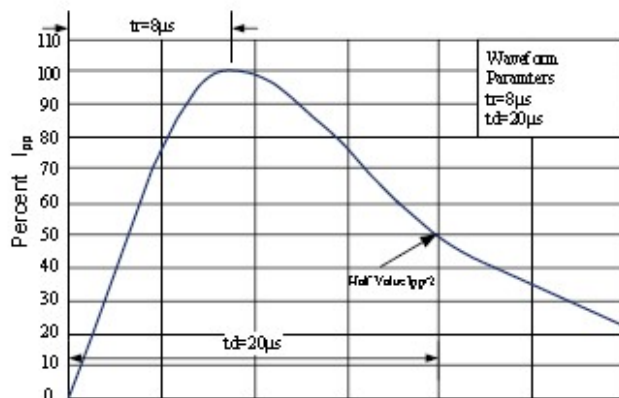
**Figure 3: Clamping Voltage vs. Peak Pulse Current**



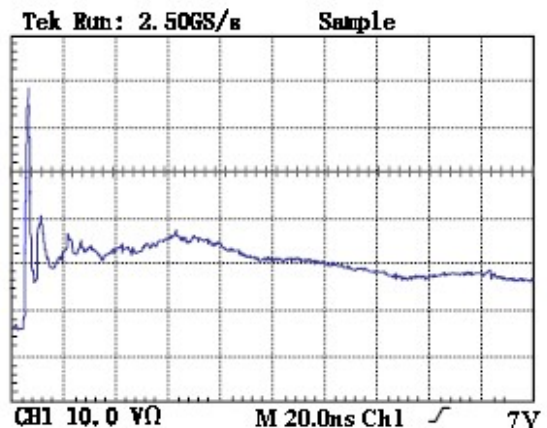
**Figure 4: Normalized Junction Capacitance vs. Reverse Voltage**

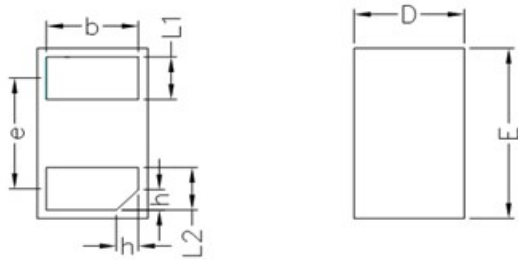


**Figure 5: Pulse Waveform**



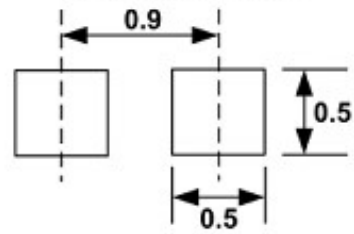
**Figure 6: ESD Clamping (8kV Contact per IEC 61000-4-2)**



**DFN1006 PACKAGE OUTLINE DIMENSIONS**


Unit: mm

	MIN	NOM	MAX
D	0.55	0.60	0.65
E	0.95	1.00	1.05
L1	0.20	0.25	0.30
L2	0.20	0.25	0.30
b	0.45	0.50	0.55
e	0.65BSC		
A	0.45	0.50	0.55
h	0.07	0.12	0.17

 Dimension: Millimeter  
 (Stencil thickness: 0.1)

**Soldering Footprint**