



## SSCE5V082L1

Ultra-low Capacitance Bi-directional Micro Packaged TVS Diodes for ESD Protection

### ● Description

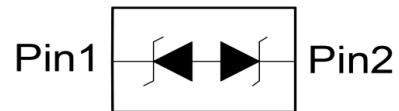
The SSCE5V082L1 is designed with SSC Punch-Through process TVS technology to protect voltage sensitive components from ESD. Excellent clamping capability, low leakage, and fast response time provide best in class protection on designs that are exposed to ESD. Because of its small size, it is suited for use in cellular phones, MP3 players, digital cameras and many other portable applications where board space comes at a premium. Also because of its low capacitance, it is suited for use in high frequency designs such as USB 2.0 high speed, USB 3.0 super speed, VGA, DVI, HDMI, SDI and other high speed line applications.

It has been specifically designed to protect sensitive components which are connected to data and transmission lines from overvoltage caused by ESD (electrostatic discharge), and EFT (electrical fast transients).

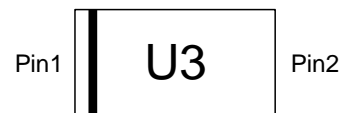
### ● Feature

- ✧ 40W peak pulse power ( $t_p = 8/20\mu s$ )
- ✧ DFN0603-2L Package
- ✧ Working voltage: 5V
- ✧ Low clamping voltage
- ✧ Low capacitance
- ✧ RoHS compliant
- ✧ Complies with following standards:
  - IEC61000-4-2(ESD)  $\pm 20kV$  (contact),  $\pm 25kV$ (air)
  - IEC61000-4-5 (Lightning) 8A (8/20 $\mu s$ )

### ● PIN configuration



**DFN0603-2L**



**Marking**

### ● Applications

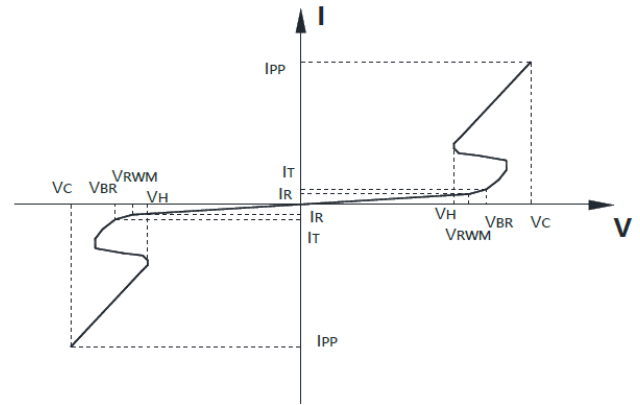
- ✧ High Speed Line: USB1.0/2.0/3.0/3.1, VGA, DVI, SDI
- ✧ HDMI1.3/1.4/2.0
- ✧ Serial and Parallel Ports
- ✧ Notebooks, Desktops, Servers
- ✧ Cellular handsets and accessories
- ✧ Portable instrumentation
- ✧ Peripherals

### ● Mechanical data

- ✧ Lead finish: 100% matte Sn (Tin)
- ✧ Mounting position: Any
- ✧ Qualified max reflow temperature: 260°C
- ✧ Device meets MSL 3 requirements
- ✧ Pure tin plating: 7 ~ 17  $\mu m$
- ✧ Pin flatness:  $\leq 3mil$

## ● Electronic Parameter

Symbol	Parameter
$V_{RWM}$	Peak Reverse Working Voltage
$I_R$	Reverse Leakage Current @ $V_{RWM}$
$V_{BR}$	Breakdown Voltage @ $I_T$
$I_T$	Test Current
$I_{PP}$	Maximum Reverse Peak Pulse Current
$V_C$	Clamping Voltage @ $I_{PP}$
$P_{PP}$	Peak Pulse Power
$C$	Junction Capacitance



## ● Absolute maximum rating @ $T_A=25^\circ\text{C}$

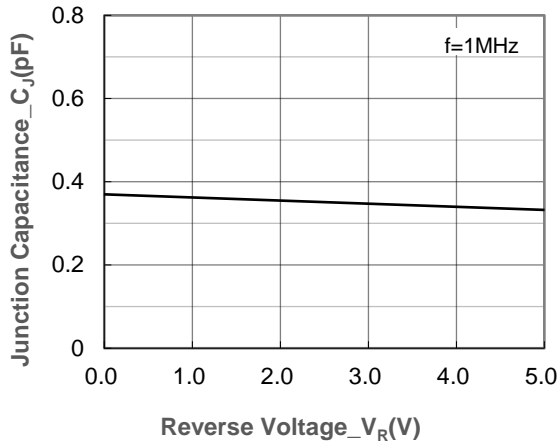
Symbol	Parameter	Value	Units
$P_{PP}$	Peak Pulse Power (8/20 $\mu\text{s}$ )	40	W
$I_{PP}$	Peak Pulse Current (8/20 $\mu\text{s}$ )	8	A
ESD Rating per IEC61000-4-2:	Contact	20	kV
	Air	25	
$T_{STG}$	Storage Temperature	-55/+150	$^\circ\text{C}$
$T_J$	Operating Temperature	-55/+150	$^\circ\text{C}$
$TL$	Lead Solder Temperature - Maximum (10 Second Duration)	260	$^\circ\text{C}$

## ● Electrical Characteristics @ $T_A=25^\circ\text{C}$

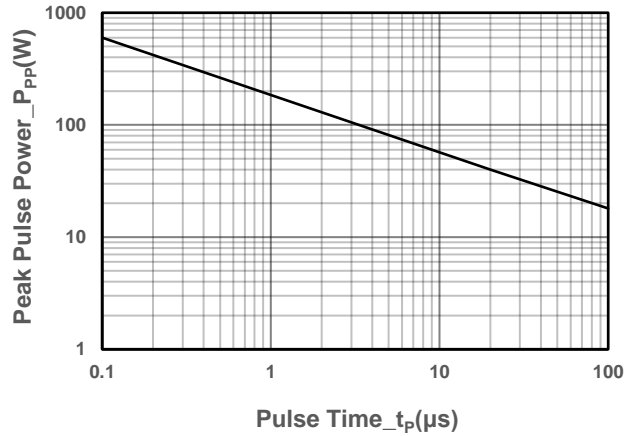
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Peak Reverse Working Voltage	$V_{RWM}$				5	V
Breakdown Voltage	$V_{BR}$	$I_T = 1\text{mA}$	6	8		V
Reverse Leakage Current	$I_R$	$V_{RWM} = 5\text{V}$			0.1	$\mu\text{A}$
Clamping Voltage	$V_C$	$I_{PP} = 8\text{A}$ , $t_P = 8/20\mu\text{s}$		5	8	V
Junction Capacitance	$C_J$	$V_R = 0\text{V}$ , $f = 1\text{MHz}$		0.35	0.5	pF



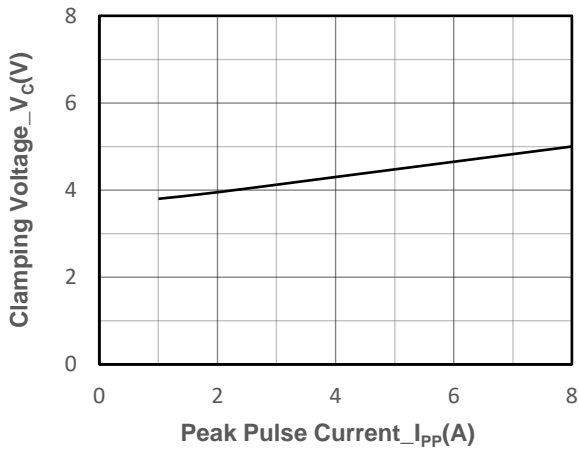
## ● Typical Performance Characteristics



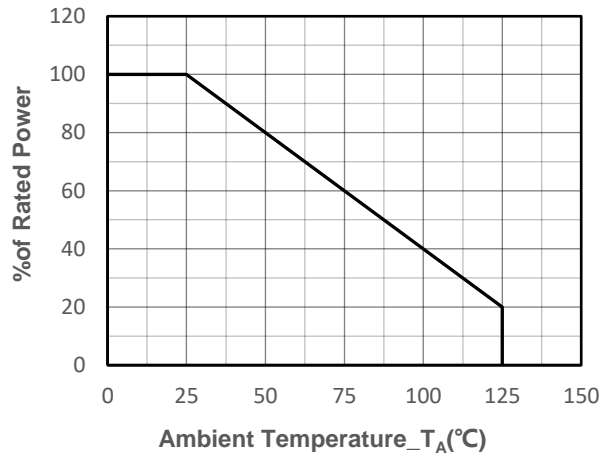
Junction Capacitance vs. Reverse Voltage



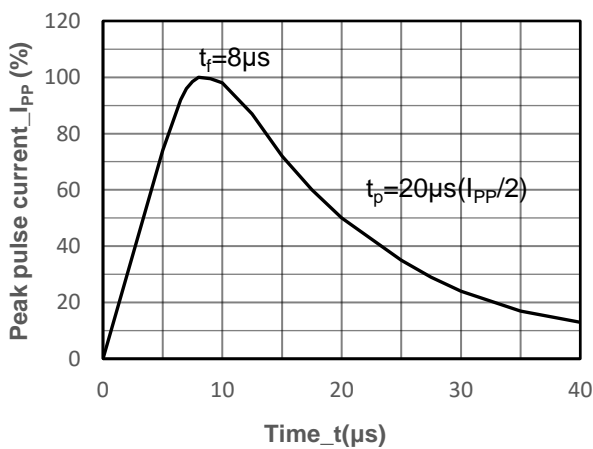
Peak Pulse Power vs. Pulse Time



Clamping Voltage vs. Peak Pulse Current



Power derating vs. Ambient temperature



8/20 $\mu\text{s}$  Pulse Waveform



## ● Package Information

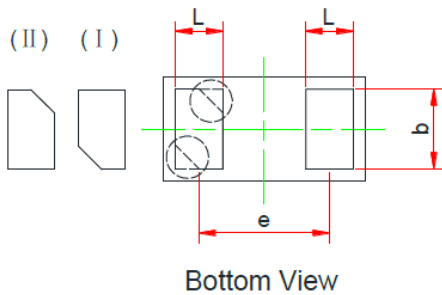
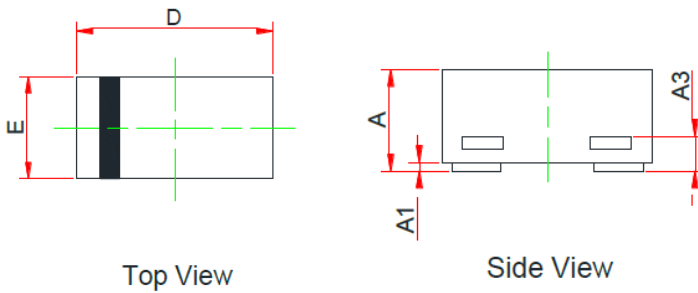
### Ordering Information

Device	Package	Qty per Reel	Reel Size
SSCE5V082L1	DFN0603-2L	15000	7 Inch

### Mechanical Data

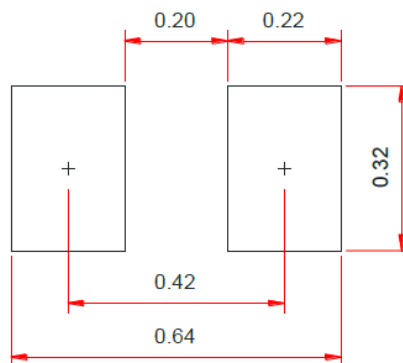
Case: DFN0603-2L

Case Material: Molded Plastic. UL Flammability



DIM	Millimeters		
	Min	Typ	Max
A	0.230	-	0.340
A1	0.000	-	0.050
A3	0.102REF		
D	0.550	0.600	0.670
E	0.250	0.300	0.370
b	0.215	-	0.295
L	0.115	-	0.195
e	0.40BSC		

### Recommended Pad outline (Unit: mm)





## DISCLAIMER

SSCSEMI RESERVES THE RIGHT TO MAKE CHANGES WITHOUT FURTHER NOTICE TO ANY PRODUCTS HEREIN TO IMPROVE RELIABILITY, FUNCTION OR DESIGN. SSCSEMI DOES NOT ASSUME ANY LIABILITY ARISING OUT OF THE APPLICATION OR USE OF ANY PRODUCT OR CIRCUIT DESCRIBED HEREIN; NEITHER DOES IT CONVEY ANY LICIENCE UNDER ITS PATENT RIGHTS, NOR THE RIGHTS OF OTHERS.

THE GRAPHS PROVIDED IN THIS DOCUMENT ARE STATISTICAL SUMMARIES BASED ON A LIMITED NUMBER OF SAMPLES AND ARE PROVIDED FOR INFORMATIONAL PURPOSE ONLY. THE PERFORMANCE CHARACTERISTICS LISTED IN THEM ARE NOT TESTED OR GUARANTEED. IN SOME GRAPHS, THE DATA PRESENTED MAY BE OUTSIDE THE SPECIFIED OPERATING RANGE (E.G. OUTSIDE SPECIFIED POWER SUPPLY RANGE) AND THEREFORE OUTSIDE THE WARRANTED RANGE.

OUR PRODUCT SPECIFICATIONS ARE ONLY VALID IF OBTAINED THROUGH THE COMPANY'S OFFICIAL WEBSITE, CRM SYSTEM, OR OUR SALES PERSONNEL CHANNELS. IF CHANGES OR SPECIAL VERSIONS ARE INVOLVED, THEY MUST BE STAMPED WITH A QUALITY SEAL AND MARKED WITH A SPECIAL VERSION NUMBER TO BE VALID.