



## SSCE3V382L1

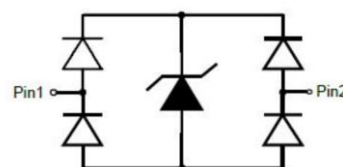
Ultra-low Capacitance Bi-directional Micro Packaged TVS Diodes for ESD Protection

### ● Description

The SSCE3V382L1 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 4.0 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).

### ● PIN configuration



**DFN0603-2L**



### ● Feature

- ✧ 34W peak pulse power ( $t_P = 8/20\mu s$ )
- ✧ DFN0603-2L Package
- ✧ Working voltage: 3.3V
- ✧ Low clamping voltage
- ✧ Low capacitance
- ✧ RoHS compliant
- ✧ Complies with following standards:
  - IEC61000-4-2(ESD)  $\pm 15kV$  (contact),  
 $\pm 20kV$  (air)
  - IEC61000-4-5 (Lightning)  
4A (8/20 $\mu s$ )

### ● Applications

- ✧ High Speed Line: USB1.0/2.0/3.0/4.0, VGA, DVI, SDI
- ✧ HDMI1.3/1.4/2.0
- ✧ Serial and Parallel Ports
- ✧ Notebooks, Desktops, Servers
- ✧ Cellular handsets and accessories
- ✧ Portable instrumentation
- ✧ Peripherals

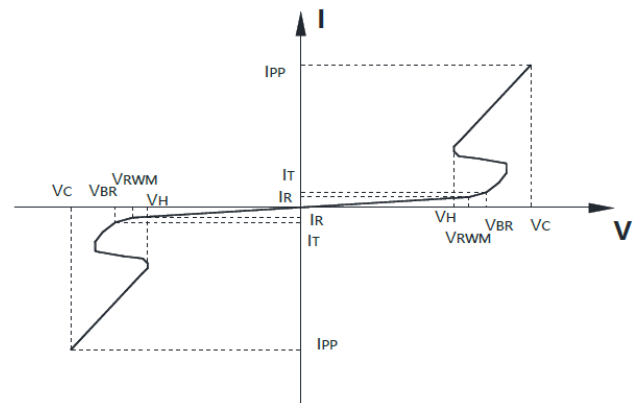
### ● Mechanical data

- ✧ 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 $\mu\text{s}$ )	34	W
$I_{PP}$	Peak Pulse Current (8/20 $\mu\text{s}$ )	4	A
ESD Rating per IEC61000-4-2: Contact Air	$V_{ESD}$	15 20	kV
$T_{STG}$	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	$^{\circ}\text{C}$

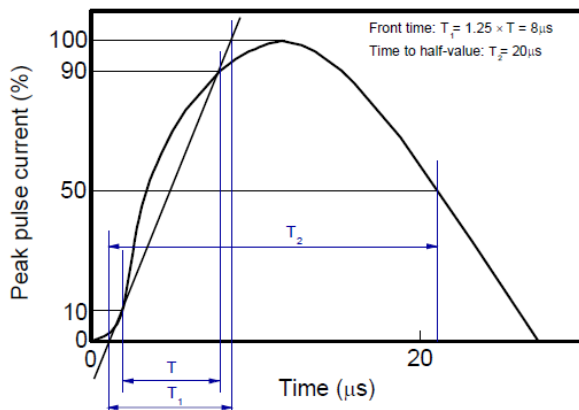
- Electrical Characteristics @ $T_A=25^{\circ}\text{C}$**

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Peak Reverse Working Voltage	$V_{RWM}$				3.3	V
Breakdown Voltage	$V_{BR}$	$I_T = 1\text{mA}$	7	10.5		V
Reverse Leakage Current	$I_R$	$V_{RWM} = 3.3\text{V}$		1	50	nA
Clamping Voltage	$V_C$	$I_{PP} = 1\text{A}$ , $t_P = 8/20\mu\text{s}$		4.5		V
Clamping Voltage	$V_C$	$I_{PP} = 4\text{A}$ , $t_P = 8/20\mu\text{s}$		5.5	7	V
Clamping Voltage <sup>1)</sup>	$VC2$	$I_{PP} = 16\text{A}$ , $t_P = 100\text{ns}$		9		V
Dynamic resistance <sup>2)</sup>	$RDYN$			0.25		$\Omega$
Junction Capacitance	$C_J$	$V_R = 0\text{V}$ , $f = 1\text{MHz}$		0.30	0.45	pF

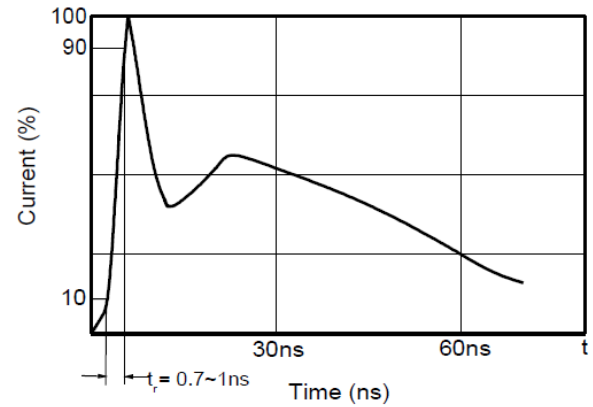
Notes:

1) TLP parameter:  $Z_0 = 50\Omega$ ,  $t_p = 100\text{ns}$ ,  $t_r = 2\text{ns}$ , averaging window from 60ns to 80ns.  $RDYN$  is calculated from 4A to 16A.

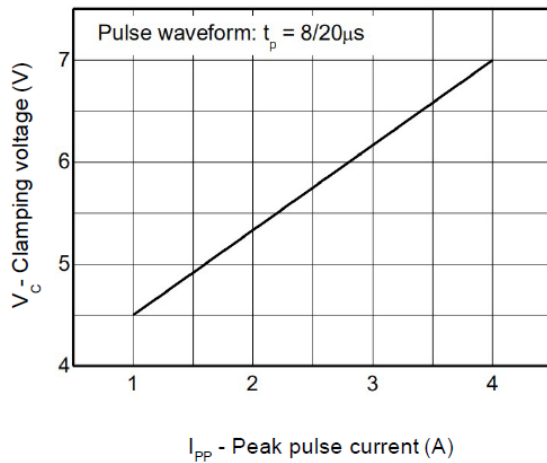
## Typical Performance Characteristics



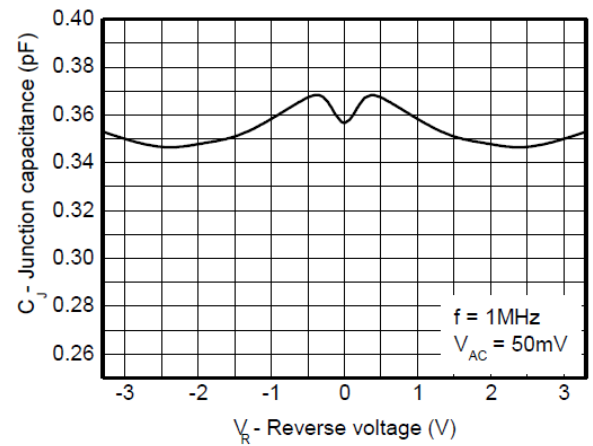
8/20μs waveform per IEC61000-4-5



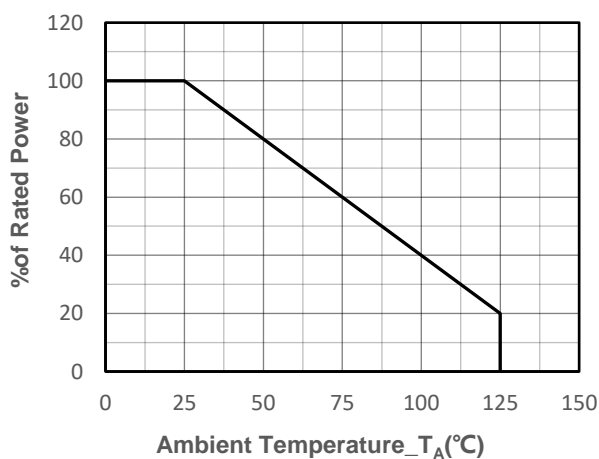
Contact discharge current waveform per IEC61000-4-2



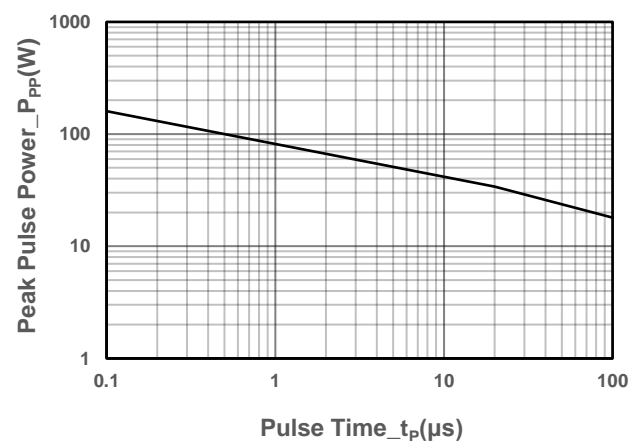
Clamping voltage vs. Peak pulse current



Capacitance vs. Reverse voltage



Power derating vs. Ambient temperature



Peak Pulse Power vs. Pulse Time



## ● Package Information

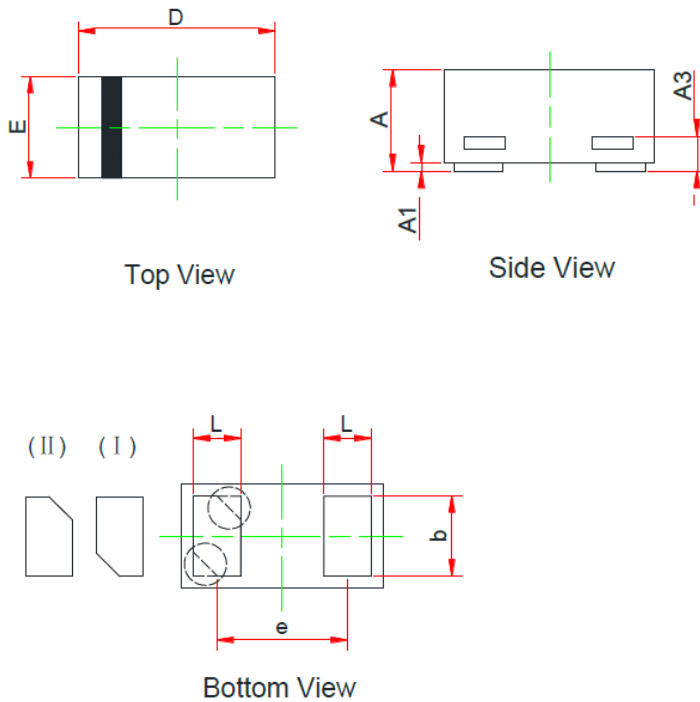
### Ordering Information

Device	Package	Qty per Reel	Reel Size
SSCE3V382L1	DFN0603-2L	15000	7 Inch

### Mechanical Data

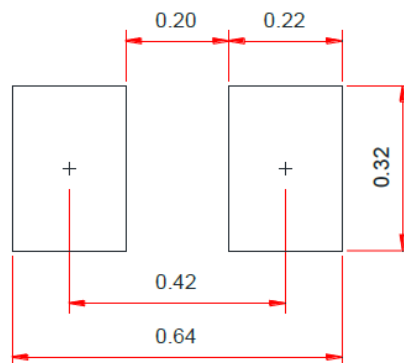
Case: DFN0603-2L

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)





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