



SSCE5V011S8

2-Line Ultra Low Capacitance TVS Diode

● Description

The SSCE5V011S8 is an uni-directional TVS diode, 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 SSCE5V011S8 has an ultra-low capacitance with a typical value at 0.3pF, and complies with the IEC 61000-4-2 (ESD) standard with $\pm 25\text{kV}$ air and $\pm 20\text{kV}$ contact discharge. It is assembled into a lead-free SOT-523 package.

The small size, ultra-low capacitance and high ESD surge protection make SSCE5V011S8 an ideal choice to protect cell phone, digital video interfaces and other high speed ports.

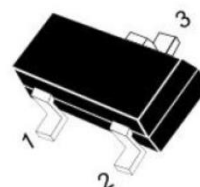
● Feature

- ✧ 80W peak pulse power ($t_P = 8/20\mu\text{s}$)
- ✧ SOT-23 Package
- ✧ Working voltage: 5V
- ✧ Ultra low capacitance: 0.3pF typical
- ✧ Low clamping voltage
- ✧ Low leakage current
- ✧ RoHS compliant
- ✧ Complies with following standards:
 - IEC 61000-4-2 (ESD) immunity test
 - Air discharge: $\pm 25\text{kV}$
 - Contact discharge: $\pm 20\text{kV}$
 - IEC61000-4-5 (Surge) 5A (8/20 μs)

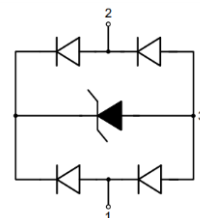
● Mechanical data

- ✧ 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 μm

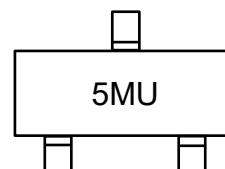
● PIN configuration



SOT-523



Circuit diagram



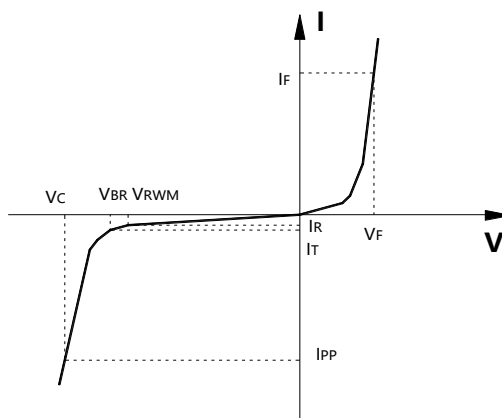
Marking(Top view)

● Applications

- ✧ Cellular Handsets and Accessories
- ✧ Display Ports
- ✧ MDDI Ports
- ✧ USB 2.0 and 3.0 Ports
- ✧ HDMI 1.3 and 1.4
- ✧ Digital Visual Interface (DVI)
- ✧ PCI Express and Serial SATA Ports
- ✧ Notebook Computer

**● 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_J	Junction Capacitance

**● Absolute maximum rating @TA=25℃**

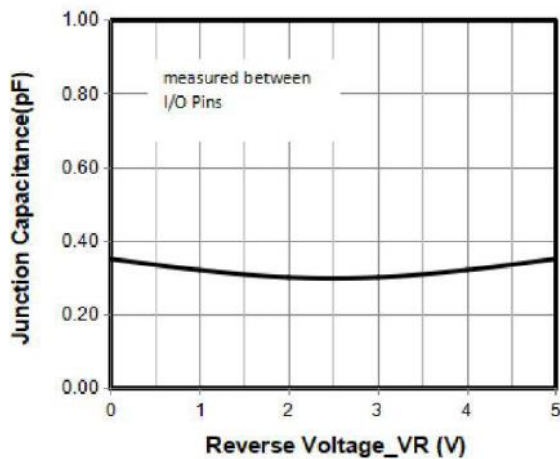
Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20us)	P_{PP}	80	W
Peak Pulse Current (8/20us)	I_{PP}	5	A
ESD Rating per IEC61000-4-2: Contact Air	V_{ESD}	20 25	KV
Storage Temperature	T_{STG}	-55/+150	℃
Operating Temperature	T_J	-55/+125	℃

● Electrical Characteristics @TA=25℃

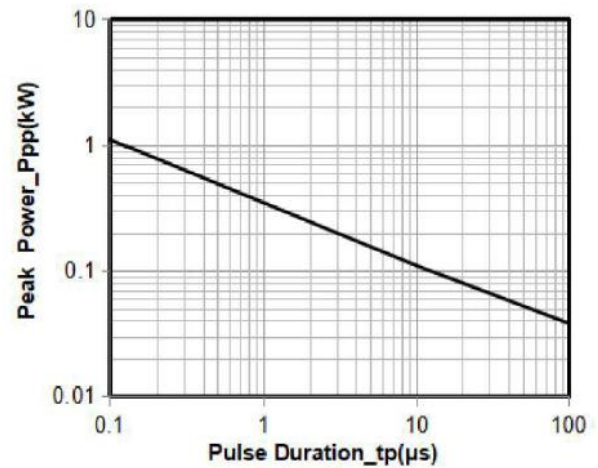
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Peak Reverse Working Voltage	V_{RWM}				5	V
Breakdown Voltage	V_{BR}	$I_T = 1\text{mA}$	6			V
Reverse Leakage Current	I_R	$V_{RWM} = 5\text{V}$			0.5	uA
Clamping Voltage	V_C	$I_{PP} = 1\text{A}$, $t_P = 8/20\text{us}$			9	V
Clamping Voltage	V_C	$I_{PP} = 5\text{A}$, $t_P = 8/20\text{us}$			16	V
Junction Capacitance	C_J	$V_R = 0\text{V}$, $f = 1\text{MHz}$, between I/O pins, between pin1 and pin2		0.3	0.4	pF
Junction Capacitance	C_J	$V_R = 0\text{V}$, $f = 1\text{MHz}$, any I/O pin to GND, between pin1 or pin2 to pin3		0.6	0.8	pF



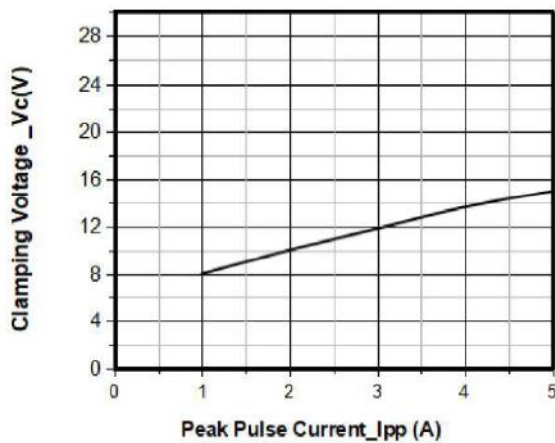
● Typical Performance Characteristics



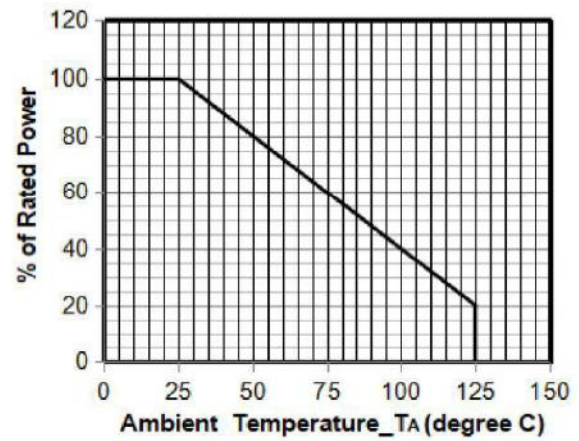
Junction Capacitance vs. Reverse Voltage



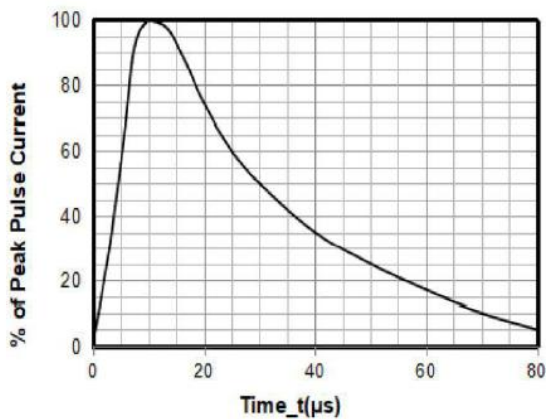
Peak Pulse Power vs. Pulse Time



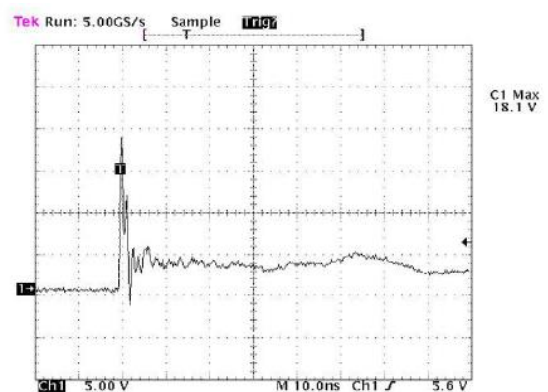
Clamping Voltage vs. Peak Pulse Current



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



● Package Information

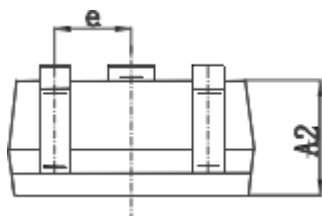
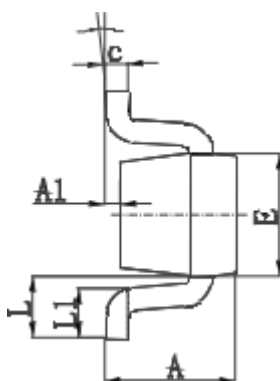
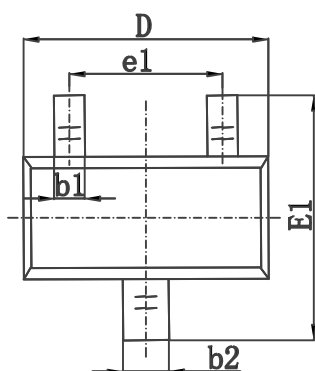
Ordering Information

Device	Package	Qty per Reel	Reel Size
SSCE5V011S8	SOT-523	3000	7 Inch

Mechanical Data

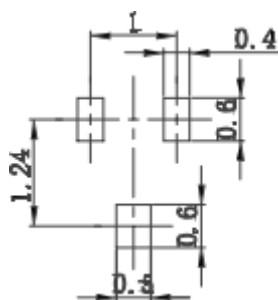
Case:SOT-523

Case Material: Molded Plastic. UL Flammability



Symbol	Dimensions In Millimeters	
	Min.	Max.
A	0.700	0.900
A1	0.000	0.100
A2	0.700	0.800
b1	0.150	0.250
b2	0.250	0.350
c	0.100	0.200
D	1.500	1.700
E	0.700	0.900
E1	1.450	1.750
e	0.500 TYP.	
e1	0.900	1.100
L	0.400 REF.	
L1	0.260	0.460
θ	0°	8°

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 LICENCE 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.