SSCE5V021S6

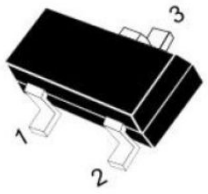
2-Line Ultra Low Capacitance TVS Diode

Description

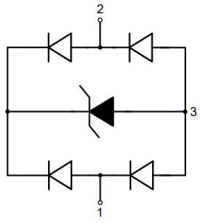
The SSCE5V021S6 is an uni-directional TVS diode, utilizing leading monolithic silicon technology to provide fast response time and low ESD clamping voltage, making this device an ideal solution for protecting voltage sensitive high-speed data lines. The SSCE5V021S6 has an ultra-low capacitance with a typical value at 0.3pF, and complies with the IEC 61000-4-2 (ESD) standard with ±25kV air and ±20kV contact discharge. It is assembled into a lead-free SOT-23 package.

The small size, ultra-low capacitance and high ESD surge protection make SSCE5V021S6 an ideal choice to protect cell phone, digital video interfaces and other high speed ports.

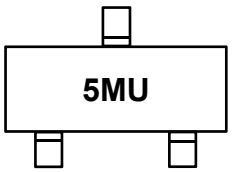
PIN configuration



SOT-23



Circuit diagram



Marking(Top view)

Feature

- 80W peak pulse power (t_P = 8/20us)
- 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: ±25kV
    - Contact discharge: ±20kV
  - – IEC61000-4-5 (Surge) 5A (8/20us)

Applications

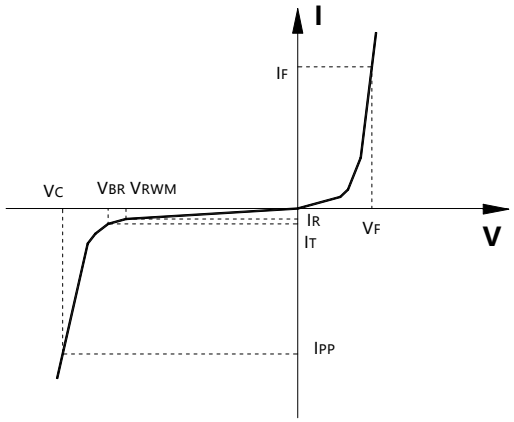
- Cellular Handsets and Accessories
- Display Ports
- MDDI Ports
- USB 2.0 and 3.0 Ports
- HDMI 1.3 and 1.4
- Digital Visual Interface (DVI)
- PCI Express and Serial SATA Ports
- Notebook Computer

Mechanical data

- Lead finish:100% matte Sn(Tin)
- Mounting position: Any
- Qualified max reflow temperature:260℃
- Device meets MSL 1 requirements
- Pure tin plating: 7 ~ 17 um

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



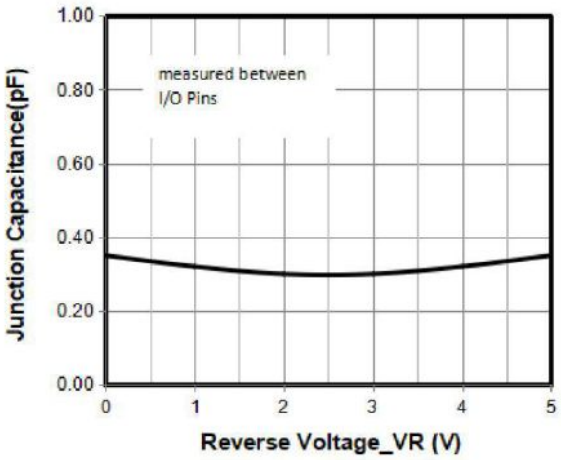
Absolute maximum rating @TA=25℃

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	℃

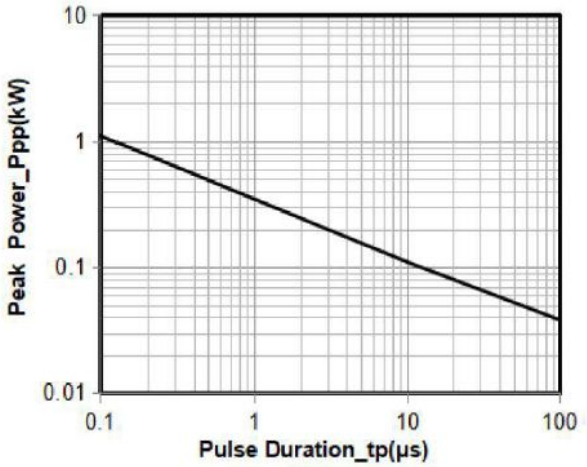
Electrical Characteristics @TA=25℃

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

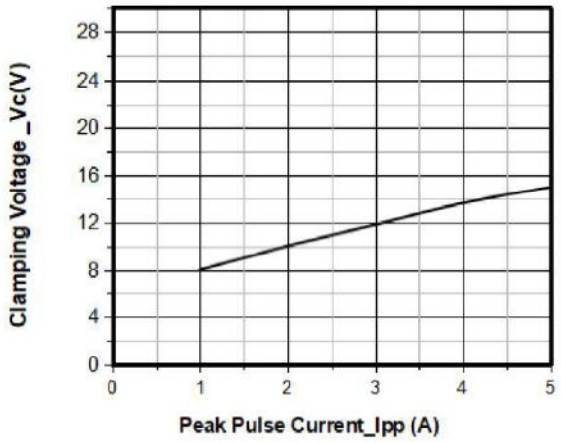
- **Typical Performance Characteristics**



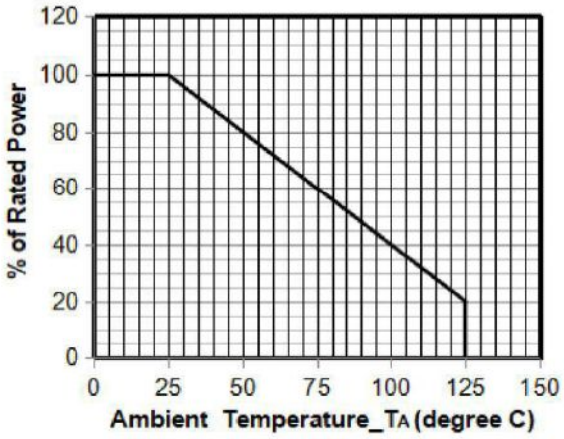
Junction Capacitance vs. Reverse Voltage



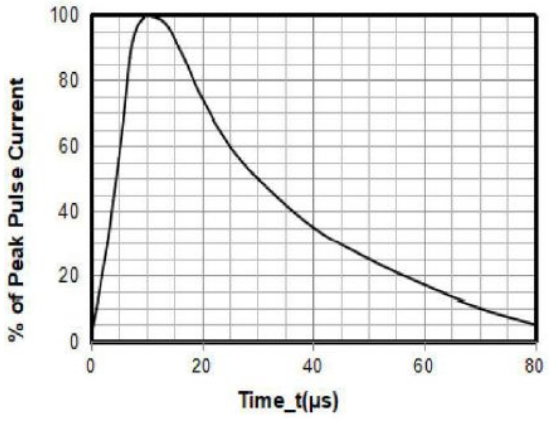
Peak Pulse Power vs. Pulse Time



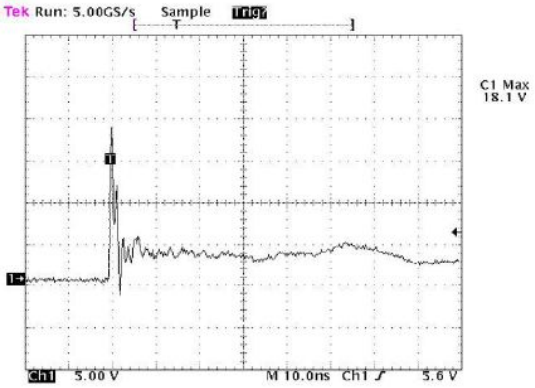
Clamping Voltage vs. Peak Pulse Current



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**

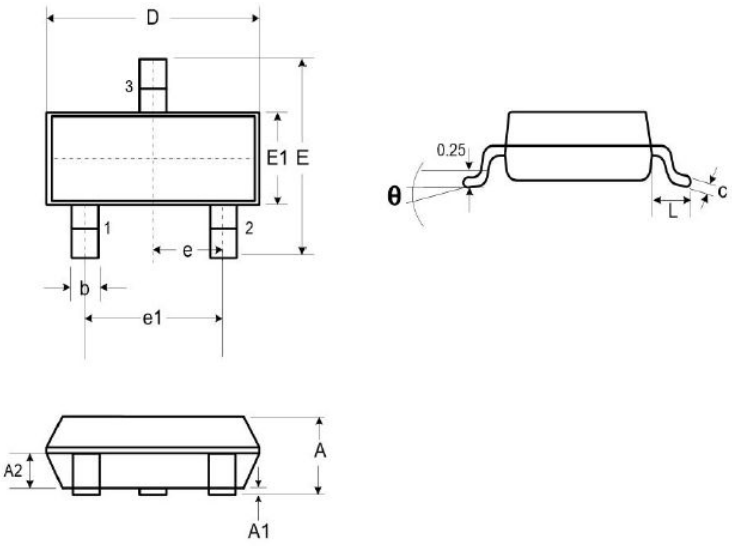
Ordering Information

Device	Package	Qty per Reel	Reel Size
SSCE5V021S6	SOT-23	3000	7 Inch

Mechanical Data

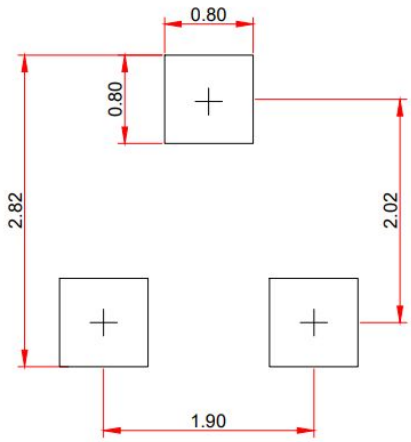
Case:SOT-23

Case Material: Molded Plastic. UL Flammability



DIM	Millimeters		
	Min.	Typ.	Max.
A	0.89	-	1.12
A1	0.01	-	0.10
A2	0.88	0.95	1.02
b	0.30	-	0.51
c	0.08	-	0.18
D	2.80	2.90	3.04
E	2.10	2.37	2.64
E1	1.20	1.30	1.40
e	1.90		
e1	0.95		
L	0.40	0.50	0.60
L1	0.55		
N	3		
θ	0°	-	8°

Recommended Pad outline(Unit: mm)



- **History Version**

V1.0	First edition	2021-12-02

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