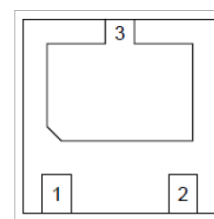


1-Line High Power TVS Diode

Description

The BTSC045V2020A is a high power TVS, 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 lines. The BTSC045V2020A complies with the IEC 61000-4-2 (ESD) with $\pm 30\text{kV}$ air and $\pm 30\text{kV}$ contact discharge. It is assembled into a 3-pin DFN2020-3 lead-free package. The leads are finished with NiPdAu. Each device will protect one line. The combination of small size, and high surge capability makes them ideal for use in applications such as cellular phones, LCD displays, USB, and multi media card interfaces.

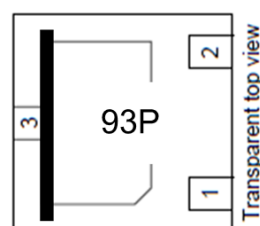


DFN2020-3

Features

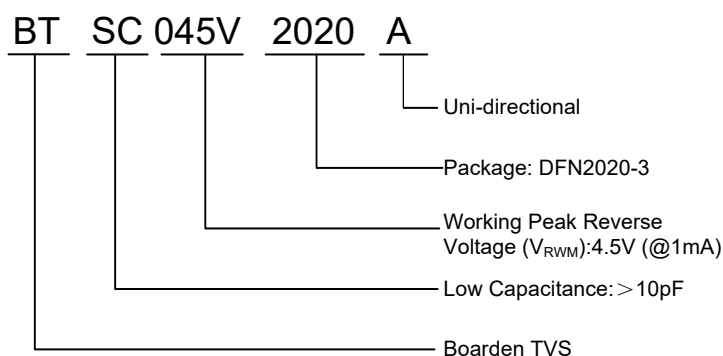
- Low leakage: nA level
- Operating voltage: 4.8V
- Ultra low clamping voltage
- One power line protects
- Complies with following standards:
 - IEC 61000-4-2 (ESD) immunity test
 - Air discharge: $\pm 30\text{kV}$
 - Contact discharge: $\pm 30\text{kV}$
 - IEC61000-4-5 (Lightning) 320A (8/20 μs)
- RoHS Compliant

Marking Information



93P: Device Marking Code
Bar denotes Cathode

Part Numbering System



Applications

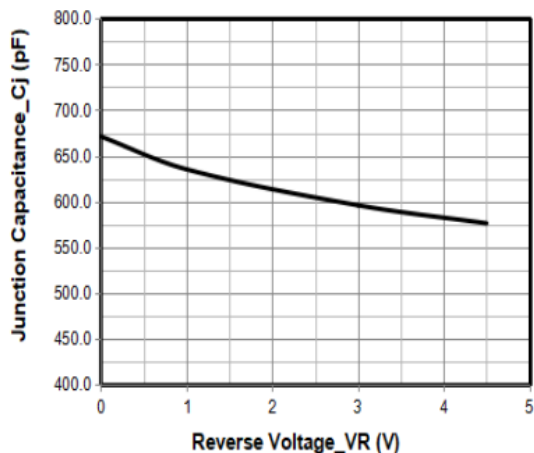
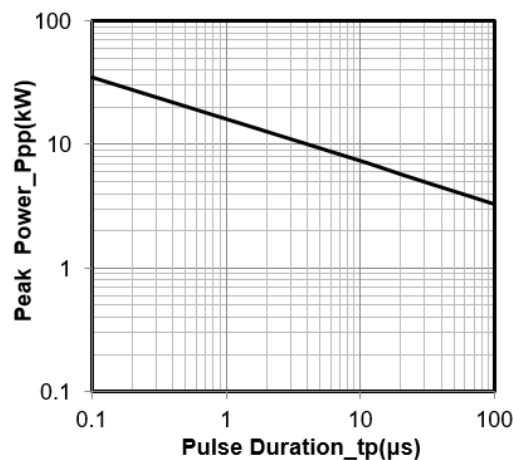
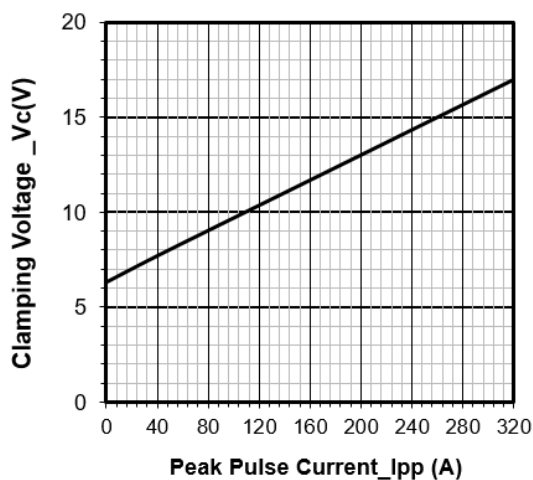
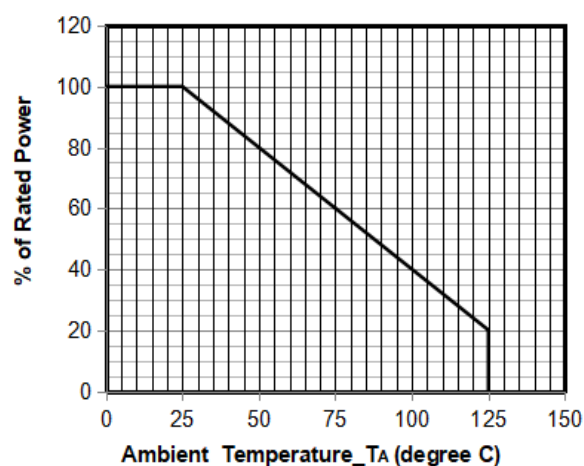
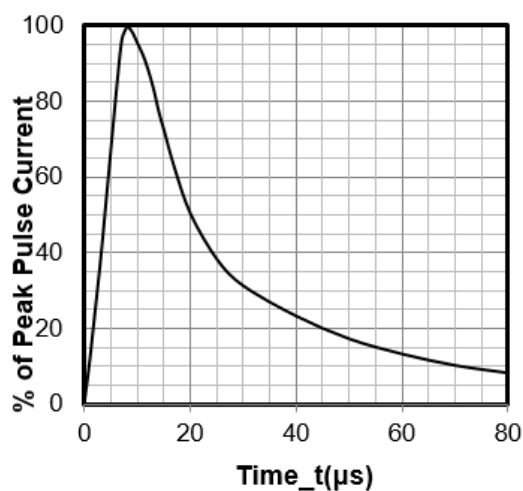
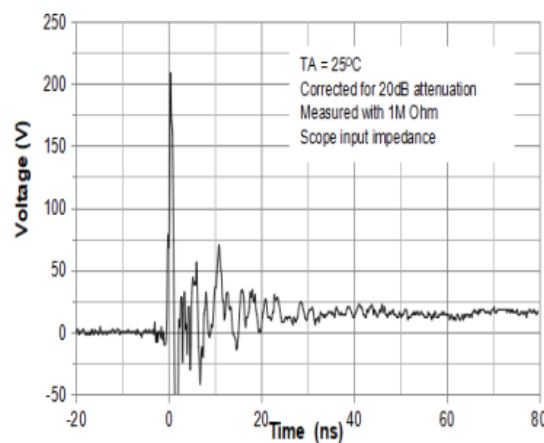
- Power Management
- Industrial Application
- Power Supply Protection

Absolute Maximum Ratings ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

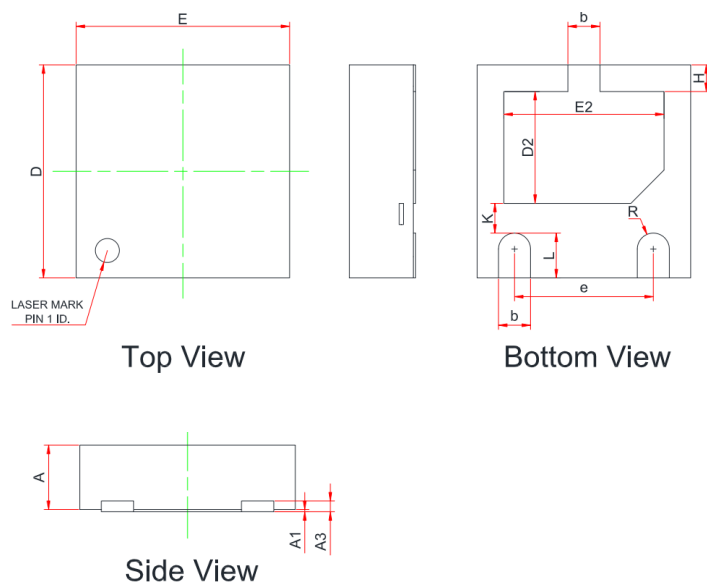
Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20 μs)	Ppk	5760	W
Peak Pulse Current (8/20 μs)	I _{PP}	320	A
ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	V _{ESD}	± 30 ± 30	kV
Operating Temperature Range	T _J	-55 to +125	$^{\circ}\text{C}$
Storage Temperature Range	T _{stg}	-55 to +150	$^{\circ}\text{C}$

Electrical Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	V _{RWM}			4.8	V	
Breakdown Voltage	V _{BR}	5		6.8	V	I _T = 1mA
Reverse Leakage Current	I _R			2.0	μA	V _{RWM} = 4.8V
Clamping Voltage	V _C			10	V	I _{PP} = 50A (8 x 20 μs pulse)
Clamping Voltage	V _C			18	V	I _{PP} = 320A (8 x 20 μs pulse)
Junction Capacitance	C _J		680	1300	pF	V _R = 0V, f = 1MHz

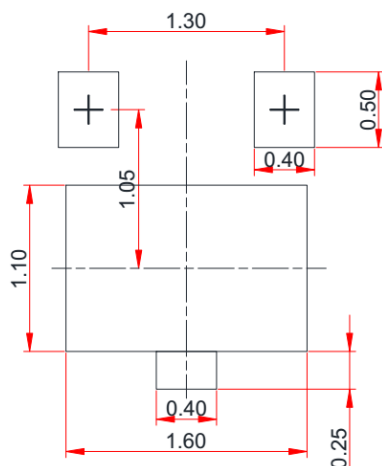
Typical Performance Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise Specified)

Junction Capacitance vs. Reverse Voltage

Peak Pulse Power vs. Pulse Time

Clamping Voltage vs. Peak Pulse Current

Power Derating Curve

8 X 20 μs Pulse Waveform

**ESD Clamping Voltage
8 kV Contact per IEC61000-4-2**

DFN2020-3 Package Outline Drawing



	MILLIMETERS		
	MIN	NOM	MAX
A	0.55	0.60	0.65
A1	0.00	0.02	0.05
A3	0.10REF.		
b	0.25	--	0.35
D	1.90	--	2.10
E	1.90	--	2.10
D2	0.95	--	1.15
E2	1.40	--	1.60
e	1.20		1.40
H	0.20	--	0.30
K	0.20		0.40
L	0.35	--	0.45
R	0.13	--	--

Suggested Land Pattern



Ordering Information

Part Number	Packaging	Reel Size
BTSC045V2020A	3000/Tape & Reel	7 inch