

Description

The FTV0542S3 is a 2-line bi-directional TVS diode array, 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 FTV0542S3 complies with the IEC 61000-4-2 (ESD) standard with $\pm 30\text{kV}$ air and $\pm 30\text{kV}$ contact discharge. It is assembled into a 3-pin SOT-323 lead-free package. The small size, low capacitance and high ESD surge protection make FTV0542S3 an ideal choice to protect cell phone, digital video interfaces, high speed data ports, and many other portable applications.

Features

- Ultra low leakage: nA level
- Operating voltage: 5V
- Low clamping voltage
- Small SOT-323 package
- Up to 2-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) 8A (8/20 μs)
- RoHS Compliant

Mechanical Characteristics

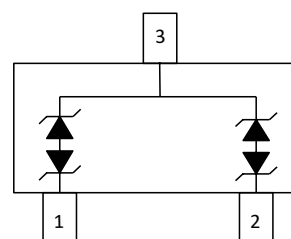
- Package: SOT-323
- Lead Finish: Matte Tin
- Case Material: "Green" Molding Compound.
- Terminal Connections: See Diagram Below
- Marking Information: See Below

Applications

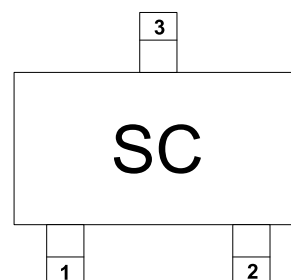
- Cellular Handsets and Accessories
- Notebooks and Handhelds
- Personal Digital Assistants
- Portable Instrumentation
- Digital Cameras
- Peripherals
- Audio Players, Keypads, Side Keys, LCD



SOT-323



Circuit diagram



SC= Device code

Marking (Top View)

Ordering Information

Part Number	Packaging	Reel Size
FTV0542S3	3000/Tape & Reel	7 inch

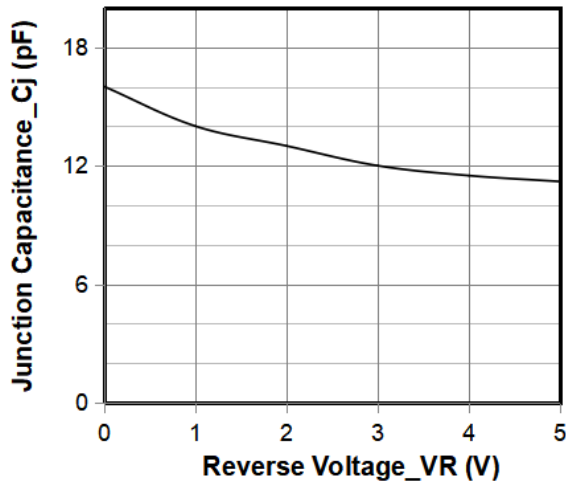
**Absolute Maximum Ratings (TA=25°C unless otherwise specified)**

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20μs)	Ppk	80	W
Peak Pulse Current (8/20μs)	IPP	8	A
ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	VESD	±30 ±30	kV
Operating Temperature Range	TJ	-55 to +125	°C
Storage Temperature Range	Tstg	-55 to +150	°C

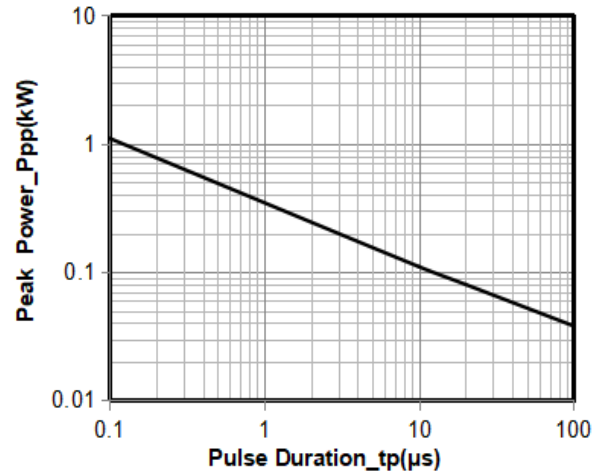
Electrical Characteristics (TA=25°C unless otherwise specified)

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	VRWM			5	V	
Breakdown Voltage	VBR	5.6			V	IT = 1mA
Reverse Leakage Current	IR			0.1	μA	VRWM = 5V
Clamping Voltage	VC			8	V	IPP = 1A (8 x 20μs pulse)
Clamping Voltage	VC			10	V	IPP = 8A (8 x 20μs pulse)
Junction Capacitance	CJ		15		pF	VR = 0V, f = 1MHz, Pin 1 to Pin 3 or Pin 2 to Pin 3
Junction Capacitance	CJ		8		pF	VR = 0V, f = 1MHz, Pin 1 to Pin 2

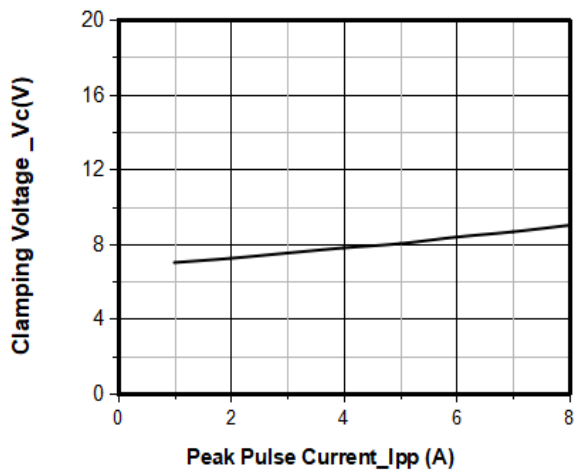
Typical Performance Characteristics (TA=25°C unless otherwise Specified)



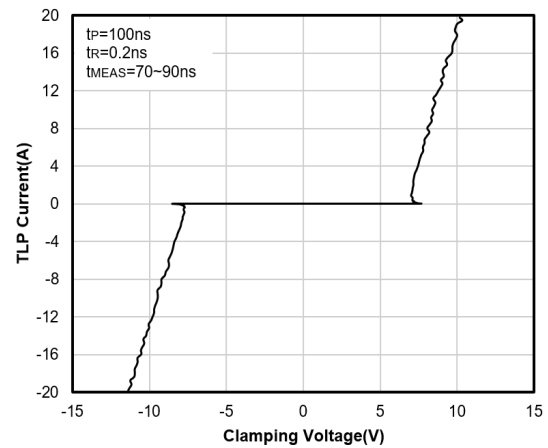
Junction Capacitance vs. Reverse Voltage



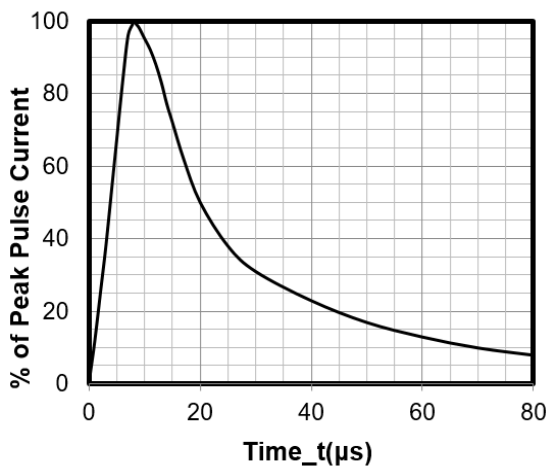
Peak Pulse Power vs. Pulse Time



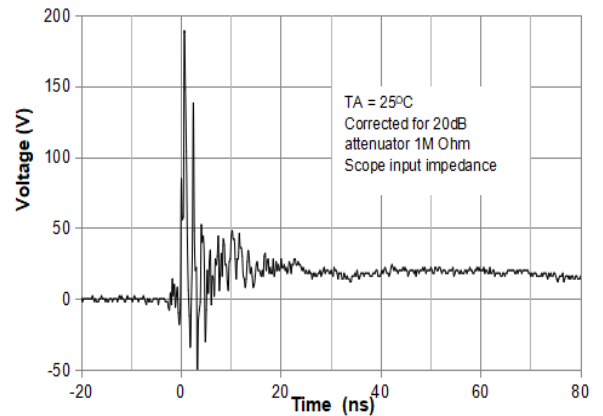
Clamping Voltage vs. Peak Pulse Current (tp = 8/20μs)



Transmission Line Pulsing (TLP) Voltage (V)



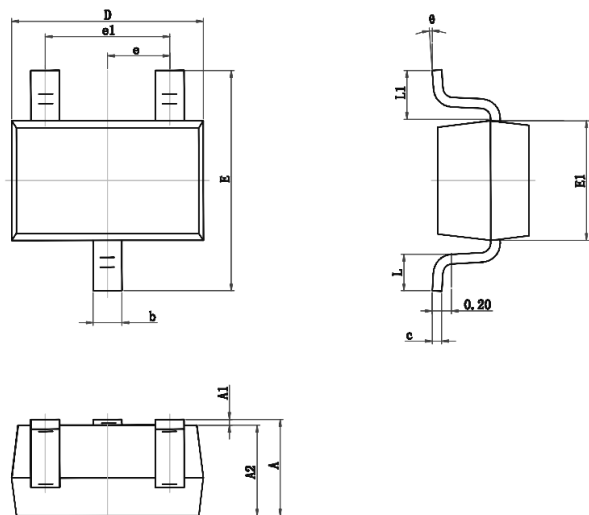
8 X 20μs Pulse Waveform



ESD Clamping Voltage

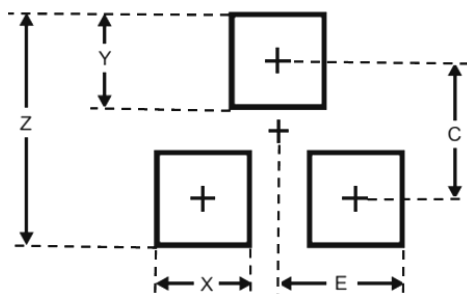
8 kV Contact per IEC61000-4-2

SOT-323 Package Outline Drawing



SYM	DIMENSIONS					
	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.900	--	1.100	0.035	--	0.043
A1	0.000	--	0.100	0.000	--	0.004
A2	0.900	--	1.000	0.035	--	0.039
b	0.200	--	0.400	0.008	--	0.016
c	0.080	--	0.150	0.003	--	0.006
D	2.000	--	2.200	0.079	--	0.087
E	2.150	--	2.450	0.085	--	0.096
E1	1.150	--	1.350	0.045	--	0.053
e	0.650 TYP.			0.026 TYP.		
e1	1.200	--	1.400	0.047	--	0.055
L	0.260	--	0.460	0.010	--	0.018
L1	0.525 REF.			0.021 REF.		
Θ	0°	--	8°	0°	--	8°

Suggested Land Pattern



SYM	DIMENSIONS	
	MILLIMETERS	INCHES
C	1.90	0.075
E	1.00	0.039
X	0.70	0.028
Y	0.90	0.035
Z	2.80	0.110