1-Line Bi-directional TVS Diode

Description

The FTV24215D is a 24V bidirectional 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 data and power line. The FTV24215D complies with the IEC61000- 4- 2(ESD) with ± 30kV air and ± 30kV contact discharge. It is assembled into an ultra small SOD- 523 leadfree package. The small size and high ESD surge protection make FTV24215D an ideal choice to protect cell phone, digital cameras, audio players

Features

- Protects one data or power line
- Ultra low leakage: nA level
- Operating voltage: 24V
- Low clamping voltage
- Complies with following standards:
  - IEC 61000- 4- 2 (ESD) immunity test
    Air discharge: ± 30kV
    Contact discharge: ± 30kV
  - IEC61000- 4- 5 (Lightning) 5A (8/20μs)
- ROHS Compliant

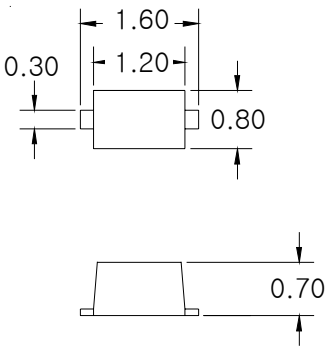
Mechanical Characteristics

- Package: SOD- 523
- Lead Finish: Matte Tin
- Case Material: "Green" Molding Compound.
- Moisture Sensitivity: Level 1 per J- STD- 020
- Terminal Connections: See Diagram Below
- Marking Information: See Below

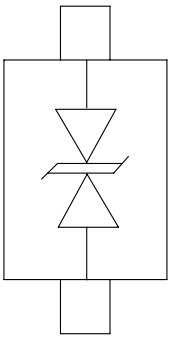
Applications

- Cellular Handsets and Accessories
- Personal Digital Assistants
- Notebooks and Handhelds
- Portable Instrumentation
- Digital Cameras
- Peripherals
- Audio Players

Dimensions and Pin Configuration



Maximum Dimensions (mm)



Package Dimensions Circuit and Pin Schematic

Marking Information

24D = Device Marking Code

Ordering Information

Part Number	Marking	Packaging	Reel Size
FTV24215D	24D	3000/Tape & Reel	7 inch

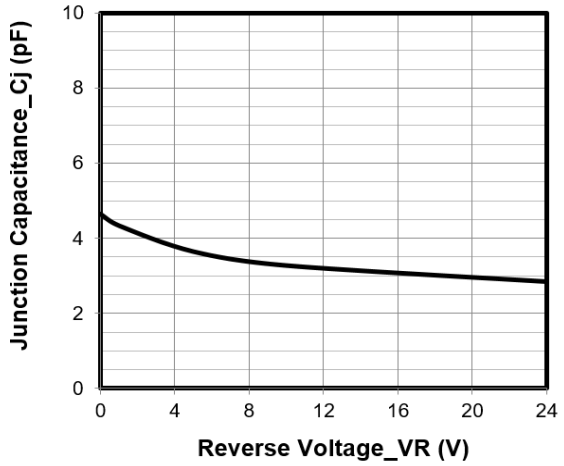
Absolute Maximum Ratings (T_A=25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20μs)	Ppk	180	W
Peak Pulse Current (8/20μs)	Ipp	5	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	−55to +125	°C
Storage Temperature Range	Tstg	−55to +150	°C

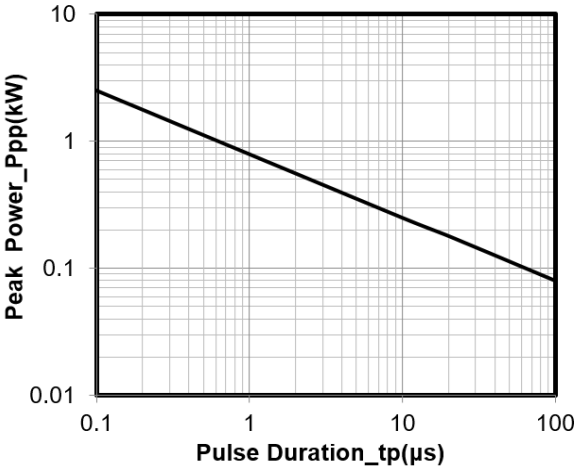
Electrical Characteristics (T_A=25°C unless otherwise specified)

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	V_{RWM}			24	V	
Breakdown Voltage	V_{BR}	25			V	I_T = 2μA
Reverse Leakage Current	I_R			0.2	μA	V_{RWM} = 24V
Clamping Voltage	V_C			32	V	I_{PP} = 1A (8 x 20μs pulse)
Clamping Voltage	V_C			36	V	I_{PP} = 5A (8 x 20μs pulse)
Junction Capacitance	C_J		5		pF	VR = 0V, f = 1MHz

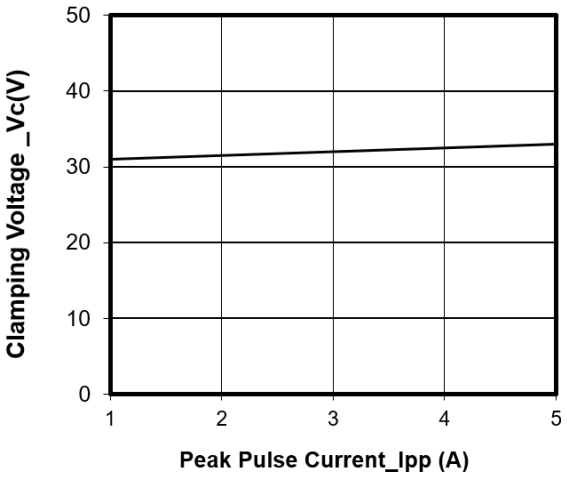
Typical Performance Characteristics (T_A=25℃ unless otherwise Specified)



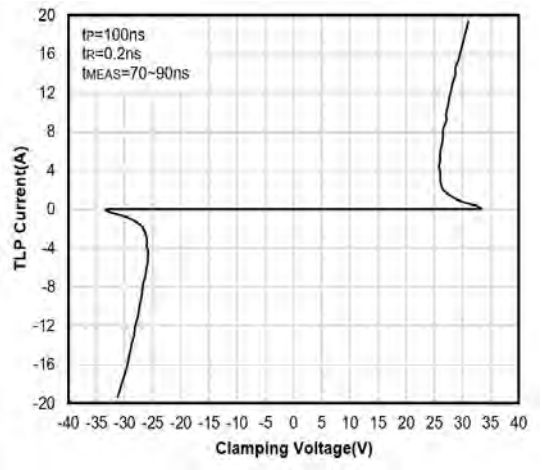
Junction Capacitance vs. Reverse Voltage



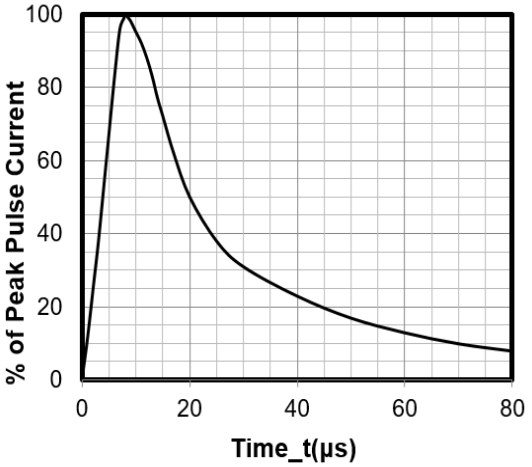
Peak Pulse Power vs. Pulse Time



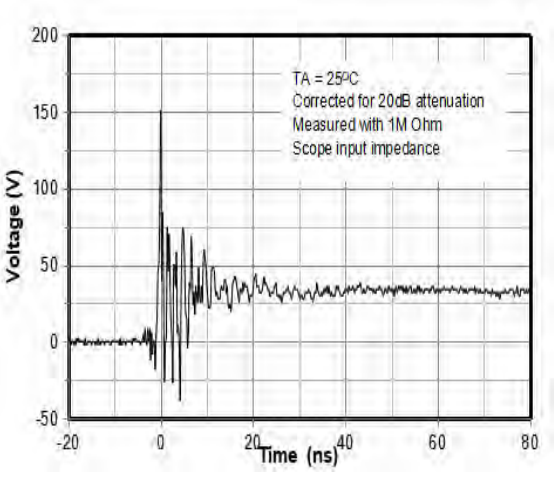
Clamping Voltage vs. Peak Pulse Current



TLP Curve



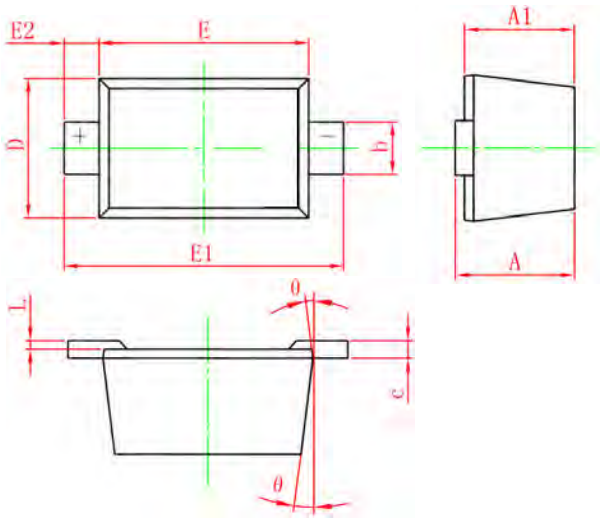
8 X 20μs Pulse Waveform



ESD Clamping Voltage

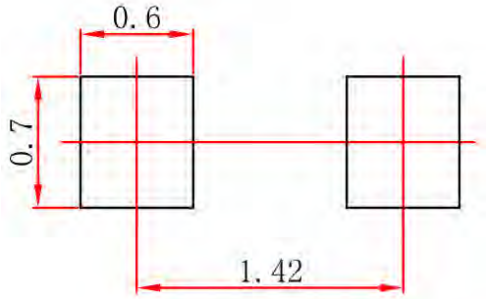
8 kV Contact per IEC61000−4−2

SOD-523 Package Outline Drawing



SYM	DIMENSIONS					
	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.51	- -	0.77	0.020	- -	0.031
A1	0.50	- -	0.70	0.020	- -	0.028
b	0.25	- -	0.35	0.010	- -	0.014
c	0.08	- -	0.15	0.003	- -	0.006
D	0.75	- -	0.85	0.030	- -	0.033
E	1.10	- -	1.30	0.043	- -	0.051
E1	1.50	- -	1.70	0.059		0.067
E2	0.20REF			0.008REF		
L	0.01	- -	0.07	0.001	- -	
⊖	7° REF			7° REF		

Suggested Land Pattern



Unit : mm