

Bi-directional ESD Protection Diodes

Features

- 350 Watts Peak Pulse Power per Line (tp=8/20μs)
- Protects one I/O or power line
- Low clamping voltage
- Working voltages: 3.3V, 5V, 12V, 15V, 18V, 24V and 36V
- Low leakage current

IEC Compatibility

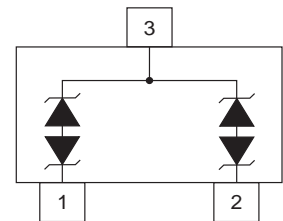
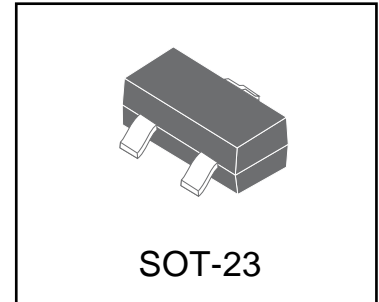
- IEC61000-4-2 (ESD) ±30kV (air), ±30kV (contact)--3.3V~18V
- IEC61000-4-2 (ESD) ±15kV (air), ±8kV (contact)--24V~36V
- IEC61000-4-4 (EFT) 40A (5/50ns)
- IEC61000-4-5 (Lightning) 21A (8/20μs)

Applications

- RS-232, RS-422 & RS-423 Data Lines
- Audio/Video Inputs
- Wireless Network Systems
- Digit Video Interface (DVI)
- Medical Sensors
- Notebook Computers

Mechanical Characteristics

- JEDEC SOT-23 Package
- Molding Compound Flammability Rating:UL 94V-O
- Weight 8.0 Milligrams(Approximate)
- Quantity Per Reel:3000pcs
- Reel Size:7 inch
- Lead Finish:Lead Free



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

Parameter	Symbol	Value	Units
Peak Pulse Power(tp=8/20μs)	P _{PP}	350	Watts
Lead Soldering Temperature	T _L	260(10 sec.)	°C
Operating Temperature Range	T _J	-55~150	°C
Storage Temperature Range	T _{STG}	-55~150	°C



FTV03G2B~FTV36G2B

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

FTV03G2B(Marking:C03)						
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Reverse Stand-off Voltage	V_{RWM}				3.3	V
Breakdown Voltage	V_{BR}	$I_T=1\text{mA}$	3.6			V
Clamping Voltage	V_C	$I_{PP}=1\text{A}, t_p=8/20\mu\text{s}$			7	V
		$I_{PP}=15\text{A}, t_p=8/20\mu\text{s}$			15	V
Reverse Leakage Current	I_R	@ V_{RWM}			40	μA
Junction Capacitance	$C_{I/O}$	0Vdc, f=1MHz Between I/O Pins and GND		220		pF

FTV05G2B(Marking:C05)						
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Reverse Stand-off Voltage	V_{RWM}				5	V
Breakdown Voltage	V_{BR}	$I_T=1\text{mA}$	6			V
Clamping Voltage	V_C	$I_{PP}=1\text{A}, t_p=8/20\mu\text{s}$			9.8	V
		$I_{PP}=14\text{A}, t_p=8/20\mu\text{s}$			18	V
Reverse Leakage Current	I_R	@ V_{RWM}			10	μA
Junction Capacitance	$C_{I/O}$	0Vdc, f=1MHz Between I/O Pins and GND		150		pF

FTV12G2B(Marking:C12)						
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Reverse Stand-off Voltage	V_{RWM}				12	V
Breakdown Voltage	V_{BR}	$I_T=1\text{mA}$	13.3			V
Clamping Voltage	V_C	$I_{PP}=1\text{A}, t_p=8/20\mu\text{s}$			19	V
		$I_{PP}=11\text{A}, t_p=8/20\mu\text{s}$			32	V
Reverse Leakage Current	I_R	@ V_{RWM}			1	μA
Junction Capacitance	$C_{I/O}$	0Vdc, f=1MHz Between I/O Pins and GND		65		pF



FTV03G2B~FTV36G2B

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

FTV15G2B(Marking:C15)						
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Reverse Stand-off Voltage	V _{RWM}				15	V
Breakdown Voltage	V _{BR}	I _T =1mA	16.7			V
Clamping Voltage	V _C	I _{PP} =1A, tp=8/20μs			24	V
		I _{PP} =10A, tp=8/20μs			38	V
Reverse Leakage Current	I _R	@V _{RWM}			1	μA
Junction Capacitance	C _{I/O}	0Vdc, f=1MHz Between I/O Pins and GND		60		pF

FTV18G2B(Marking:C18)						
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Reverse Stand-off Voltage	V _{RWM}				18	V
Breakdown Voltage	V _{BR}	I _T =1mA	20			V
Clamping Voltage	V _C	I _{PP} =1A, tp=8/20μs			29	V
		I _{PP} =9A, tp=8/20μs			45	V
Reverse Leakage Current	I _R	@V _{RWM}			1	μA
Junction Capacitance	C _{I/O}	0Vdc, f=1MHz Between I/O Pins and GND		55		pF

FTV24G2B(Marking:C24)						
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Reverse Stand-off Voltage	V _{RWM}				24	V
Breakdown Voltage	V _{BR}	I _T =1mA	26.7			V
Clamping Voltage	V _C	I _{PP} =1A, tp=8/20μs			43	V
		I _{PP} =6A, tp=8/20μs			52	V
Reverse Leakage Current	I _R	@V _{RWM}			1	μA
Junction Capacitance	C _{I/O}	0Vdc, f=1MHz Between I/O Pins and GND		40		pF

FTV36G2B(Marking:C36)						
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Reverse Stand-off Voltage	V _{RWM}				36	V
Breakdown Voltage	V _{BR}	I _T =1mA	40			V
Clamping Voltage	V _C	I _{PP} =1A, tp=8/20μs			60	V
		I _{PP} =5A, tp=8/20μs			75	V
Reverse Leakage Current	I _R	@V _{RWM}			1	μA
Junction Capacitance	C _{I/O}	0Vdc, f=1MHz Between I/O Pins and GND		35		pF

Ratings and Characteristic Curves

Fig.1 ESD Clamping Voltage Screenshot
Positive 8 kV Contact per IEC61000-4-2

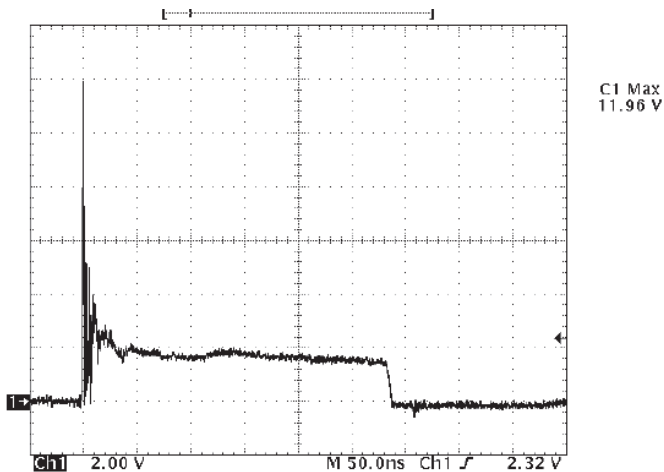
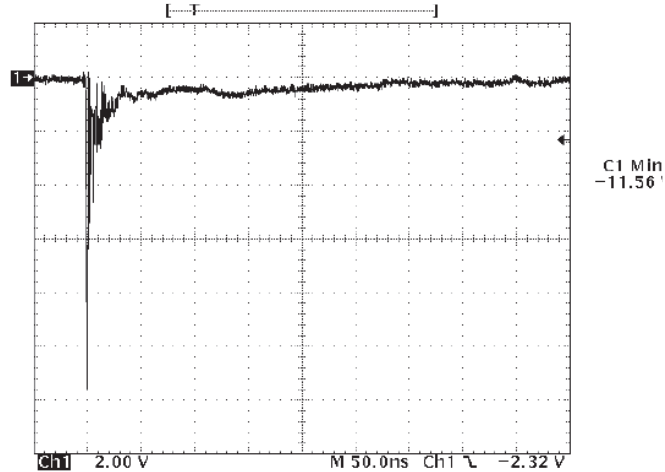
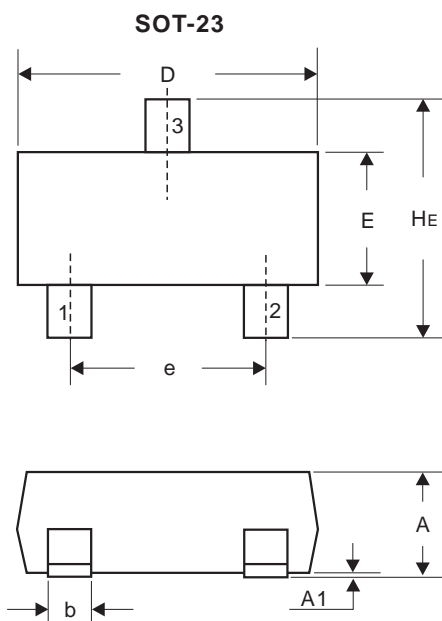


Fig.2 ESD Clamping Voltage Screenshot
Negative 8 kV Contact per IEC61000-4-2



Outline and Dimensions



DIM	Millimeters		Inches	
	Min	Max	Min	Max
A	0.89	1.11	0.035	0.044
A1	0.01	0.10	0.001	0.004
b	0.37	0.50	0.015	0.020
c	0.09	0.18	0.003	0.007
D	2.80	3.04	0.110	0.120
E	1.20	1.40	0.047	0.055
e	1.78	2.04	0.070	0.081
L	0.35	0.69	0.014	0.029
HE	2.10	2.64	0.083	0.104

Recommended Mounting Pad Layout

