

Features

- Low operating voltage: 24V
- Peak Pulse Power (8/20 μ s):800W
- Ultra low leakage: nA level
- Low clamping voltage
- -IEC 61000-4-2 (ESD) immunity test
Air discharge: ± 30 kV
Contact discharge: ± 30 kV
- -IEC61000-4-4 (EFT) 40A (5/50ns)
- 3-pin leadless package
- These are Pb-Free Devices
- Response Time is Typically < 1 ns

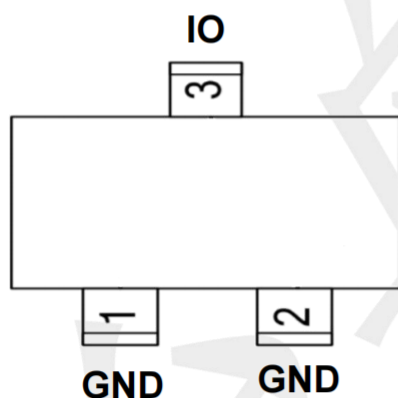
Mechanical Characteristics

- Package: SOT-23
- Lead Finish: Matte Tin
- Case Material: "Green" Molding Compound
- Terminal Connections: See Diagram Below
- -IEC 61000-4-2 (ESD) immunity test

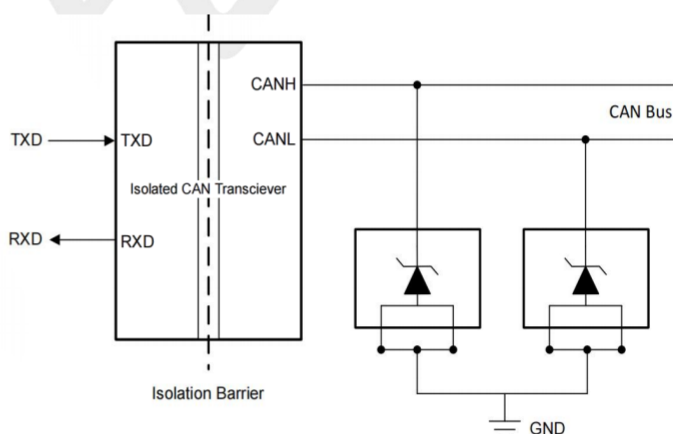
Applications

- Industrial sensors
- PLC I/O modules
- Controller area network (CAN)
- 24-V power lines or digital inputs or output lines

Pin configuration



Functional Block Diagram



Pin function

Pin Number	Pin Name	Pin Function
1,2	GND	Connect to ground. To achieve the rated performance, connect pin 1 and 2 together on the PCB as close to the device as possible
3	IO	Surge and ESD protected IO

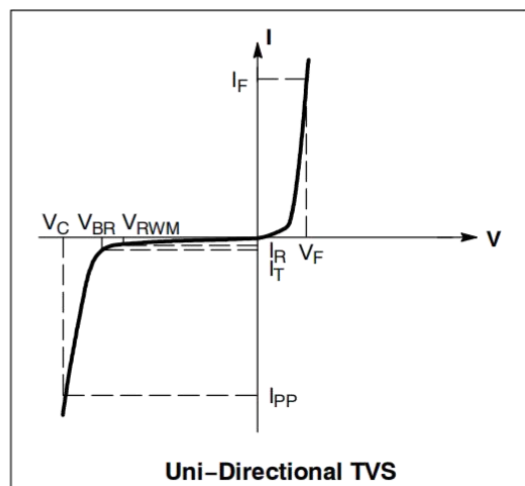
Absolute Maximum Ratings (T_{amb}=25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20μs)	P _{pk}	800	W
Peak Pulse Current (8/20μs)	I _{pp}	16	A
ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	VESD	±30 ±30	KV
Operating Temperature Range	T _J	-55 to +125	°C
Storage Temperature Range	T _{stg}	-55 to +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}	26.5	--	--	V	I _T = 1mA
Reverse Leakage Current	I _R	--	--	0.2	uA	V _{RWM} =24V
Forward Voltage	V _F	--	0.7	1.2	V	I _F = 1mA
Clamping Voltage	V _C	--	35	--	V	I _{pp} =1A(8x 20us pulse)
Clamping Voltage	V _C	--	40	46	V	I _{pp} =16A(8x 20us pulse)
Junction Capacitance	C _J	--	--	38	pF	V _R = 0V, f = 1MHz, Pin1,2 to Pin3

Symbol	Parameter
I _{pp}	Maximum Reverse Peak Pulse Current
V _C	Clamping Voltage @ I _{pp}
V _{RWM}	Working Peak Reverse Voltage
I _R	Maximum Reverse Leakage Current @ V _{RWM}
V _{BR}	Breakdown Voltage @ I _T
I _T	Test Current
I _F	Forward Current
V _F	Forward Voltage @ I _F
P _{pk}	Peak Power Dissipation
C	Capacitance @ V _R = 0 and f = 1.0 MHz



Characteristic Curves

Fig1. 8/20 μ s Pulse Waveform

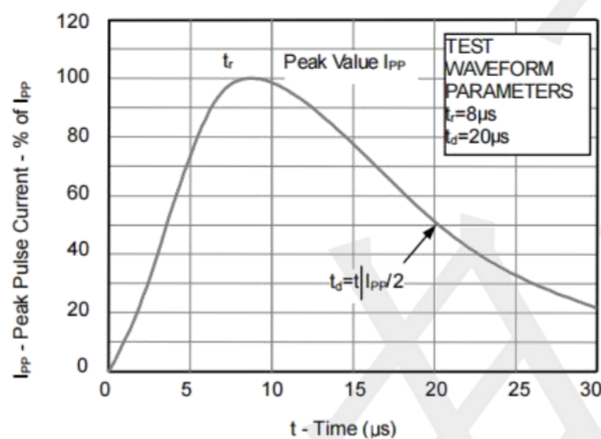


Fig2. ESD Pulse Waveform (according to IEC 61000-4-2)

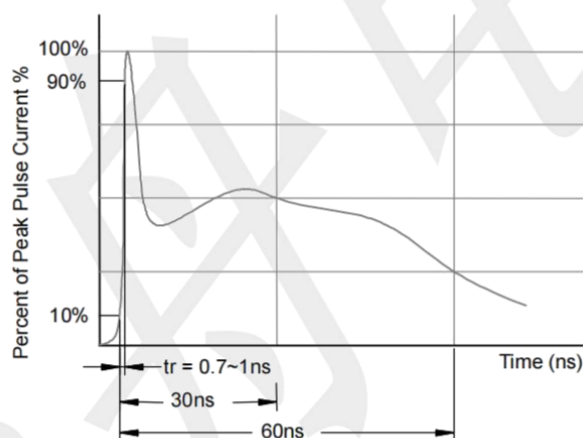
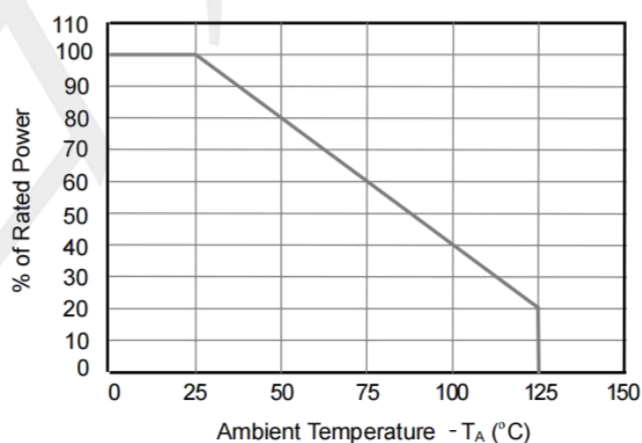
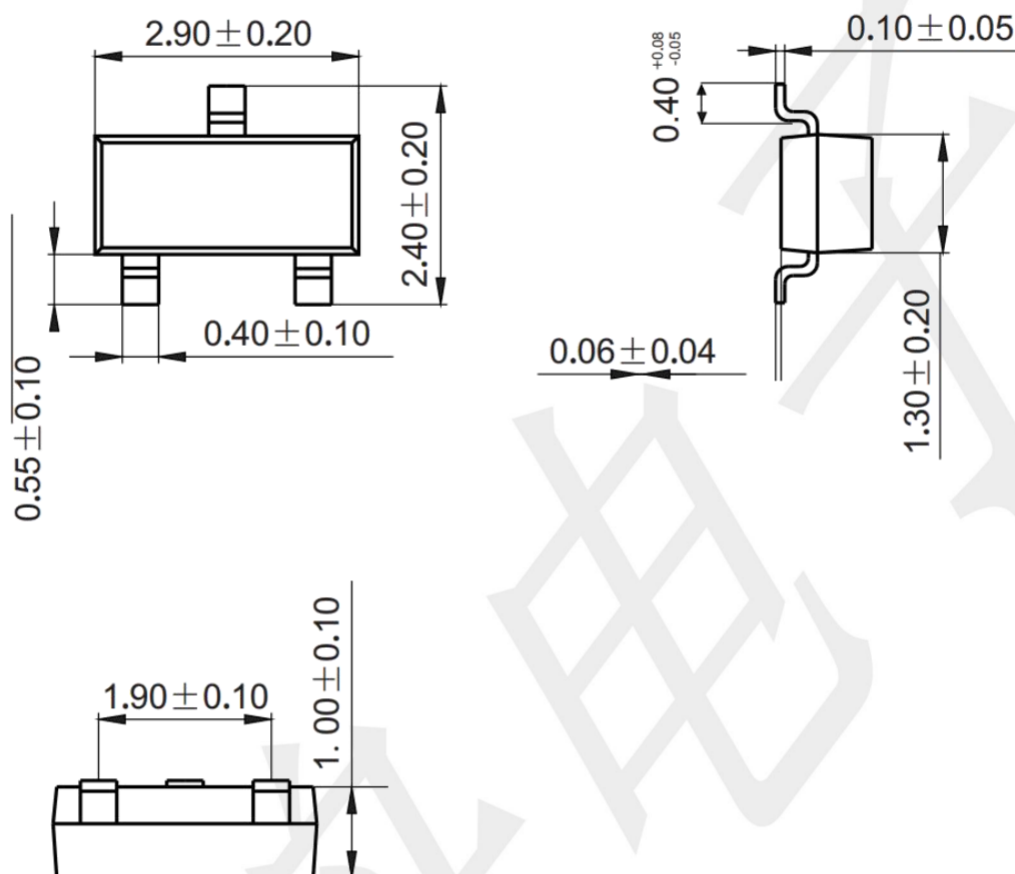


Fig3. Power Derating Curve



Package Outline Dimensions (unit: mm)

SOT-23



Mounting Pad Layout (unit: mm)

