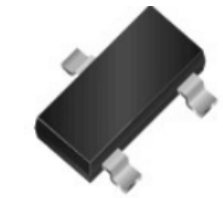
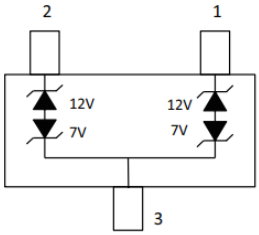
ESDSM712

Features

- SOT-23 package
- Operating voltage: -7V～12V
- Low leakage current
- Low clamping voltage
- Response time is typically < 1ns
- Complies with following standards:
  - IEC 61000-4-2 (ESD) immunity test
    Air discharge: ±30kV
    Contact discharge: ±30kV

Circuit Diagram





Description

The ESDSM712 TVS Diode Array is designed to protect RS-485 applications with asymmetrical working voltages (-7V to 12V) from damage due to electrostatic discharge (ESD), electrical fast transients (EFT), and lightning induced surges

Applications

- RS-485
- Fieldbus
- Modbus

Absolute Maximum Ratings

Tamb=25°C unless otherwise specified

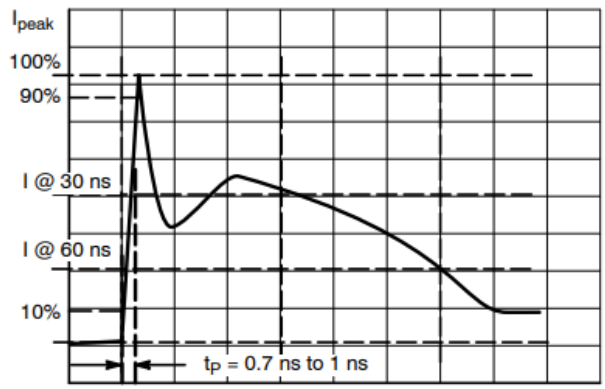
Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20μs)	Ppp	400	W
ESD per IEC 61000−4−2 (Air)	V_{ESD}	±30	KV
ESD per IEC 61000−4−2 (Contact)		±30	
Storage Temperature Range	T_{STJ}	-55 to +150	℃
Operating Temperature Range	T_J	-55 to +125	℃

Electrical Characteristics

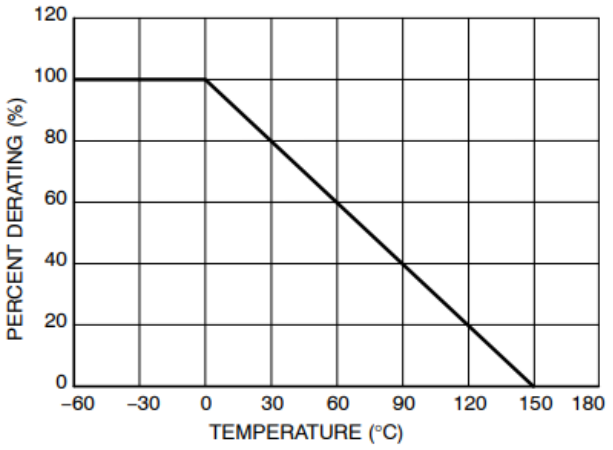
TA=25°C unless otherwise specified

Symbol	Parameter	Conditions	Pin 1 or Pin2 to Pin3			Pin3 to Pin 1 or Pin2			Units
			Min	Typ	Max	Min	Typ	Max	
V_{RWM}	Reverse Working Peak Voltage	-			12			7	V
V_{BR}	Reverse Breakdown Voltage	IT = 1mA	13.3			7.5			V
I_R	Reverse Current	@V_{RWM}			0.1			0.1	μA
V_C	Clamping Voltage	I_{PP}=1A, t_P =8/20μs			17			10.5	V
V_C	Clamping Voltage	@I_{PP}, t_P =8/20μs			24@15A			20@20A	V
C_D	Diode Capacitance	VR = 0V, f = 1MHz		75			75		pF

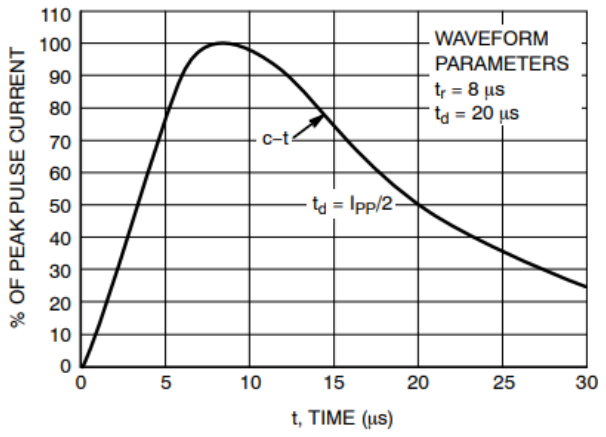
Characteristic Curves



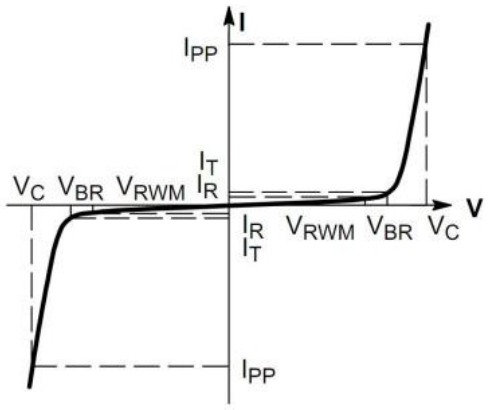
IEC61000−4−2 Pulse Waveform



Power Derating Curve

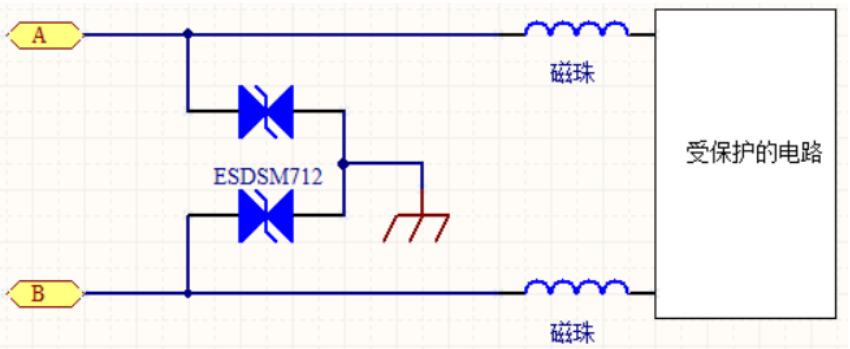


8/20μ s Pulse Waveform

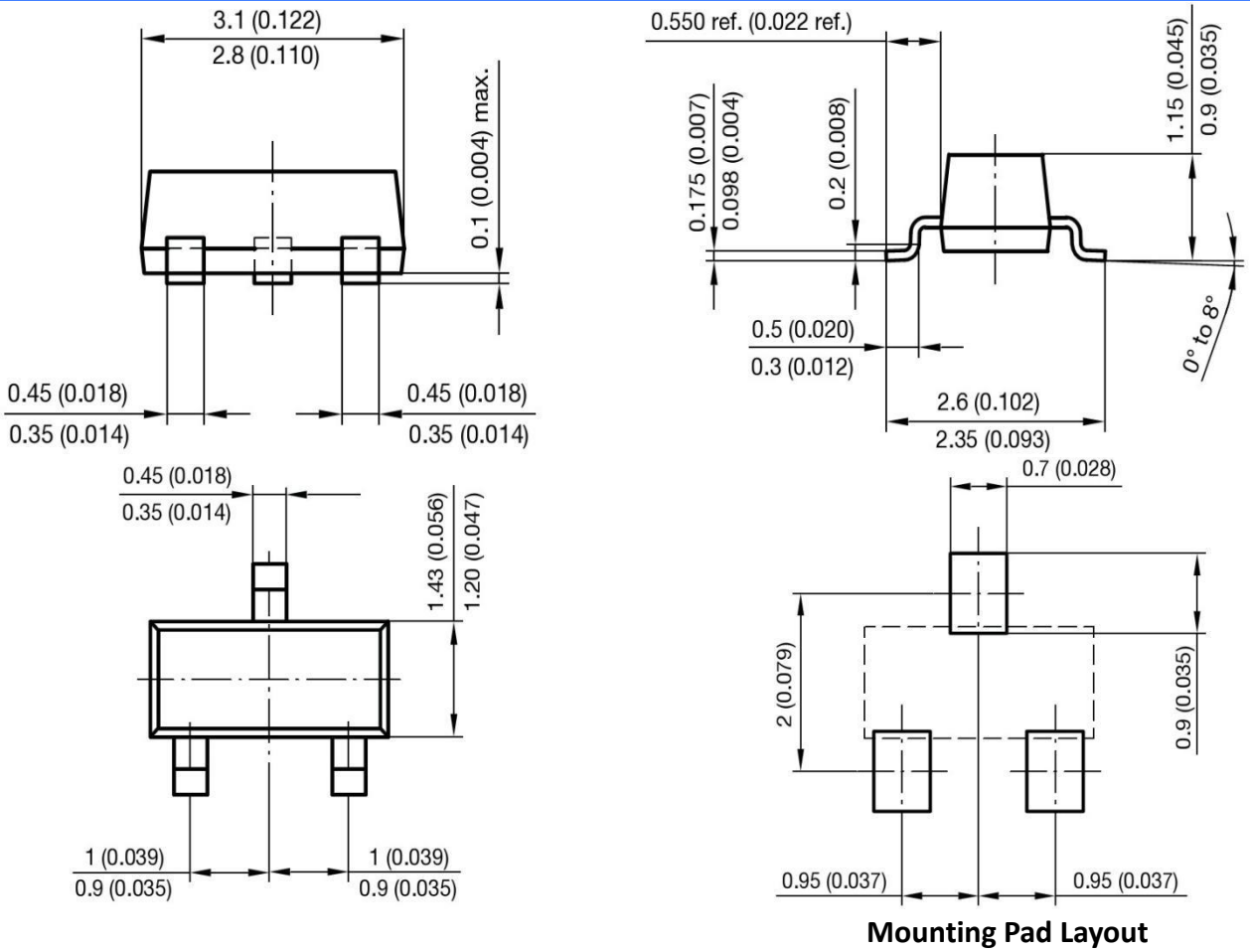


V-I Characteristics for Bidirectional Diode

RS-485 Application Example



SOT-23 Package Outline & Dimensions



Mounting Pad Layout

Disclaimer

Specifications are subject to change without notice.

The device characteristics and parameters in this data sheet can and do vary in different applications and actual device performance may vary over time.

Users should verify actual device performance in their specific applications.