

## Asymmetrical TVS Diode Array

### General description

The SM712 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. The SM712 can absorb repetitive ESD strikes above the maximum level specified in the IEC 61000-4-2 international standard without performance degradation and safely dissipate up to 15A of 8/20us induced surge current (IEC- 61000-4-5 2nd edition) with very low clamping voltages.

### Features and benefits

- Transient Protection to  
IEC 61000-4-2 (ESD): ±15kV (Air), ±8kV (Contact)  
IEC 61000-4-5 (Lightning): 10A for 12V TVS  
& 15A for 7V TVS (tp = 8/20µs)
- Peak pulse power (tp = 8/20µs): 500-700W
- Protects two +12V to -7V lines
- Low capacitance
- Low clamping voltage
- Solid-State Silicon-Avalanche Technology
- RoHS compliant and lead-free

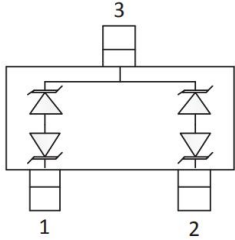
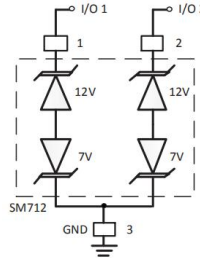
### Application information

- RS-485 transceivers with extended common mode range
- Security systems
- Automatic Teller Machines
- Lighting Control - DALI
- Communication Equipments
- HFC systems
- Networks

### Ordering information

Device	Package	Marking	Packaging
SM712	SOT23	712	3000/Tape & Reel

### Schematic & Pin configuration

Schematic and Pin Configuration	Circuit diagram
<p>Top View</p> 	

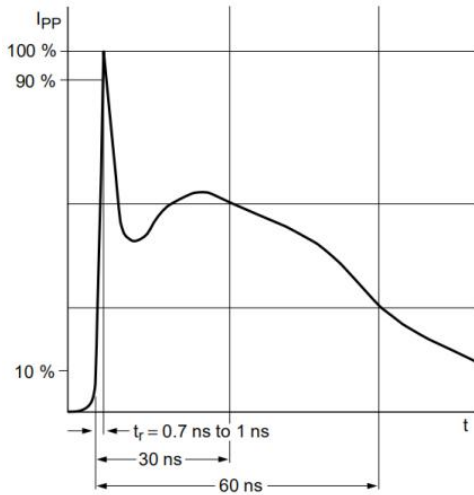
### Maximum Ratings (T<sub>OP</sub> = 25 °C, unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power (tp = 8/20μs),(V <sub>RWM</sub> =7V/V <sub>RWM</sub> =12V)	P <sub>PPM</sub>	300/300	W
Peak Pulse Current (tp = 8/20μs),(V <sub>RWM</sub> =7V/V <sub>RWM</sub> =12V)	I <sub>PPM</sub>	15/10	A
ESD voltage IEC 61000-4-2 (air discharge)	V <sub>ESD</sub>	15	kV
ESD voltage IEC 61000-4-2 (contact discharge)	V <sub>ESD</sub>	8	kV
Maximum lead temperature for soldering during 10s	T <sub>L</sub>	260	°C
Storage Temperature Range	T <sub>stg</sub>	-55 to +150	°C
Operating Temperature Range	T <sub>OP</sub>	-40 to +125	°C

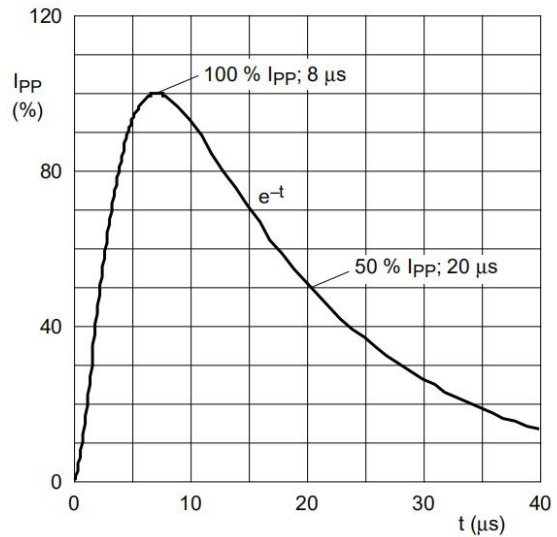
### Electrical Characteristics (T<sub>OP</sub> = 25 °C, unless otherwise specified)

Parameter	Symbol	Min	Typ	Max	Unit	Condition
Reverse Working Voltage	V <sub>RWM</sub>	--	--	7.0	V	Pin3 to Pin1 or 2
		--	--	12.0		Pin1 or 2 to Pin3
Breakdown Voltage	V <sub>BR</sub>	7.5	--	--	V	I <sub>T</sub> =1mA, Pin3 to Pin1 or 2
		13.3	--	--		I <sub>T</sub> =1mA, Pin1 or 2 to Pin3
Leakage Current I <sub>Leak</sub>	I <sub>R</sub>	--	--	1.0	μA	V <sub>RWM</sub> =7V, Pin3 to Pin1 or 2
		--	--	1.0		V <sub>RWM</sub> =12V, Pin1 or 2 to Pin3
Clamping Voltage	V <sub>C</sub>	--	--	20.0	V	I <sub>PP</sub> =15A, T <sub>p</sub> =8/20μs, Pin3 to Pin1 or 2
		--	--	30.0		I <sub>PP</sub> =10A, T <sub>p</sub> =8/20μs, Pin1 or 2 to Pin3
Junction Capacitance	C <sub>J</sub>	--	--	20.0	pF	V <sub>R</sub> =0V, f=1MHz, Pin1 or 2 to Pin3

**Typical Characteristics**



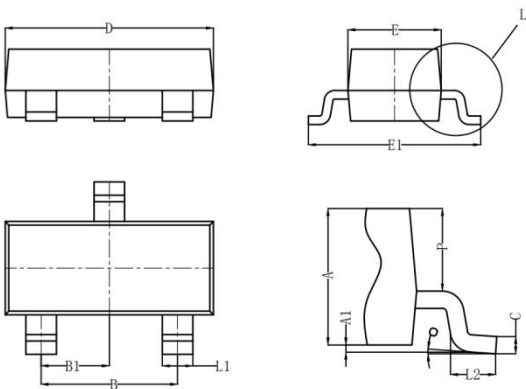
IEC61000-4-2 Waveform



IEC 61000-4-5 Waveform( 8/20μs pulse)

**Package Outline Dimensions**

**SOT23**



Symbol	Dimensions (mm)		
	Min	Typ	Max
A	0.900	1.000	1.1100
A1	0.000	0.050	0.100
L1	0.350	0.400	0.500
C	0.100	0.110	0.120
D	2.800	2.900	3.000
E	1.250	1.300	1.350
E1	2.250	2.400	2.550
B	1.800	1.900	2.000
B1	0.950 Typ		
L2	0.200	0.350	0.450
P	0.550	0.575	0.600

单击下面可查看定价，库存，交付和生命周期等信息

[>>DIOS\(迪恩思\)](#)