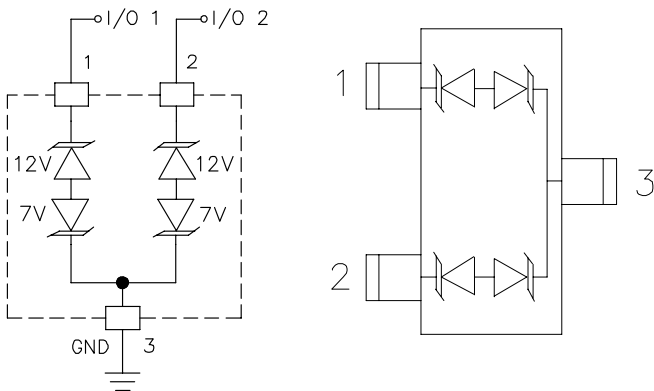


Description

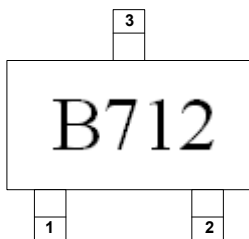
The SM712 is designed for asymmetrical (7V or 12V) protection in multi-point data transmission application, The ASM712 replace four discrete components by integrating two 12V and two 7V TVS diodes in a single package. The SM712 complies with the IEC 61000-4-2 (ESD) standard with $\pm 30\text{kV}$ air and $\pm 30\text{kV}$ contact discharge. It is assembled into a lead-free SOT-23 package. It is designed to protect components which are connected to data and transmission lines from voltage surges.

Circuit Diagram



Circuit Diagram

Package Outline



Transparent top view

B712:Device Marking Code

Features

- * 400W peak pulse power (8/20 μs)
- * Ultra low leakage: nA level
- * Operating voltage: 7V or 12V
- * Low clamping voltage
- * Complies with following standards:
IEC 61000-4-2 (ESD) immunity test
Air discharge: $\pm 30\text{kV}$
Contact discharge: $\pm 30\text{kV}$
IEC61000-4-4 (EFT) 40A (5/50ns)
- * IEC61000-4-5 (Lightning) 17A (8/20 μs)
- * RoHS Compliant
- * Package: SOT-23

Applications

- * Wireless System
- * Networks
- * Portable Instrumentation
- * RS485 Ports

Ordering Information

Part Number	Packaging	Reel Size
SM712	3000/Tape & Reel	7 inch

Absolute Maximum Ratings ($T_A=25^\circ\text{C}$ unless otherwise specified)

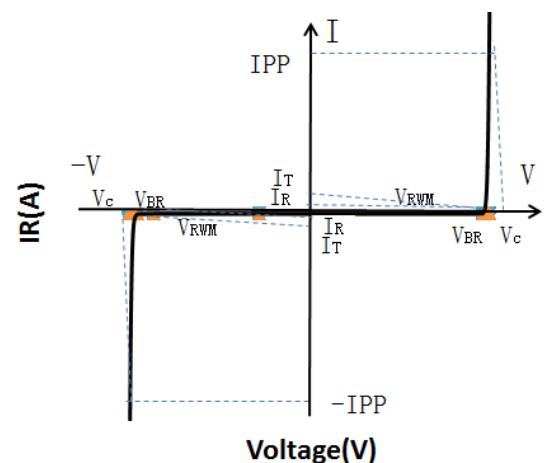
Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20 μs)	Ppk	400	W
Peak Pulse Current (8/20 μs)	IPP	17	A
ESD per IEC 61000-4-2 (Air)	VESD	± 30	kV
ESD per IEC 61000-4-2 (Contact)		± 30	
Operating Temperature Range	TJ	-55 to +125	$^\circ\text{C}$
Storage Temperature Range	Tstg	-55 to +150	$^\circ\text{C}$

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

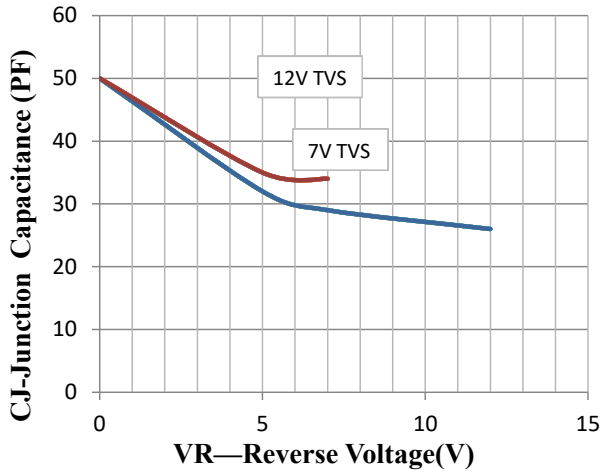
Parameter	Symbol	Test Condition	Pin1/2 to 3(12v)			Pin3 to 1/2(7v)			Unit
			Min	Typ	Max	Min	Typ	Max	
Reverse Working Voltage	VRWM				12.0			7	V
Breakdown Voltage	VBR	$I_T = 1\text{mA}$	13.3			7.5			V
Reverse Leakage Current	I_R	VRWM = 12 V			0.5			2	μA
Clamping Voltage	VC	IPP = 1A (8 x 20 μs pulse)			18			10	V
Clamping Voltage	VC	IPP = 17A (8 x 20 μs pulse)			28			18	V
Junction Capacitance	CJ	VR = 0V, f = 1MHz			65			65	pF

Portion Electronics Parameter

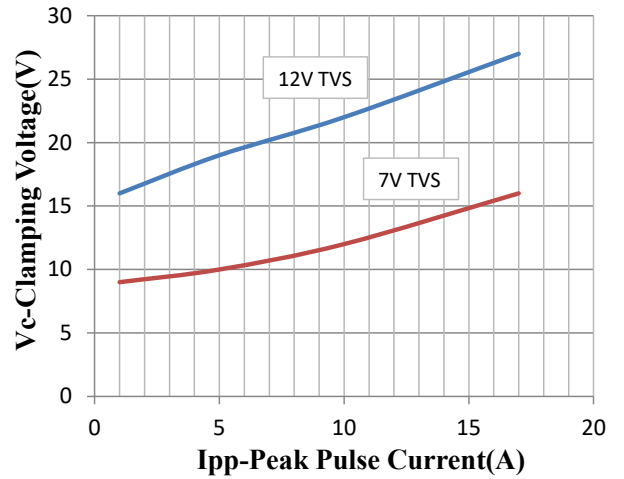
Symbol	Parameter
I_T	Test Current
IPP	Maximum Reverse Peak Pulse Current
Vc	Clamping Voltage @Ic



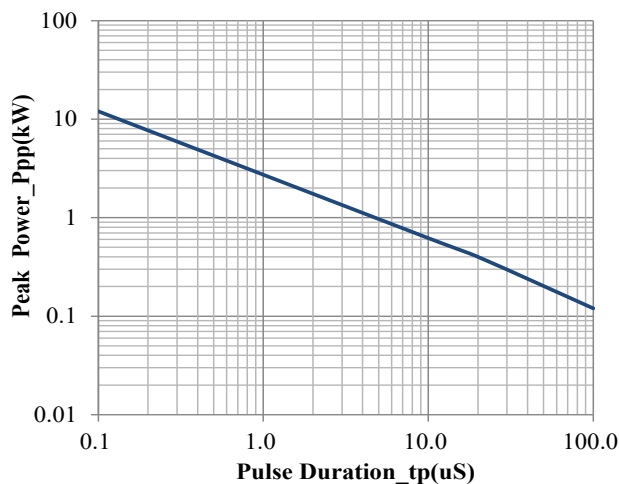
Typical Performance Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise Specified)



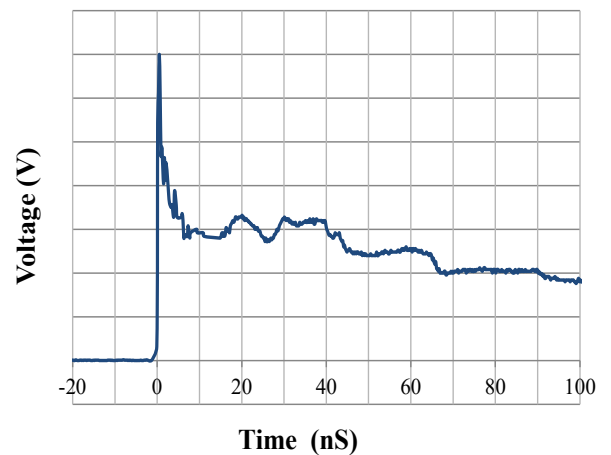
Junction Capacitance vs. Reverse Voltage



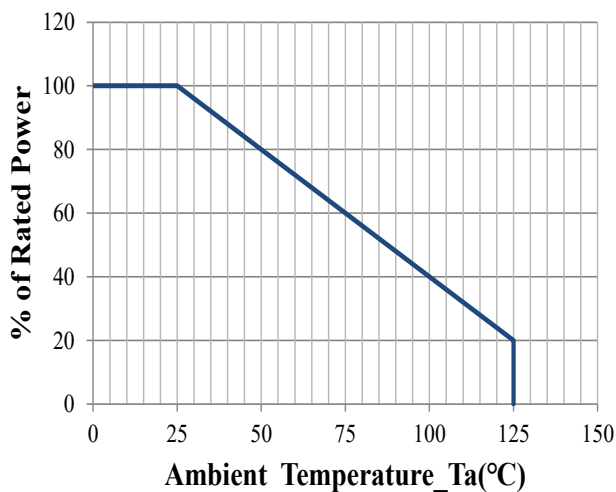
Clamping Voltage vs. Peak Pulse Current



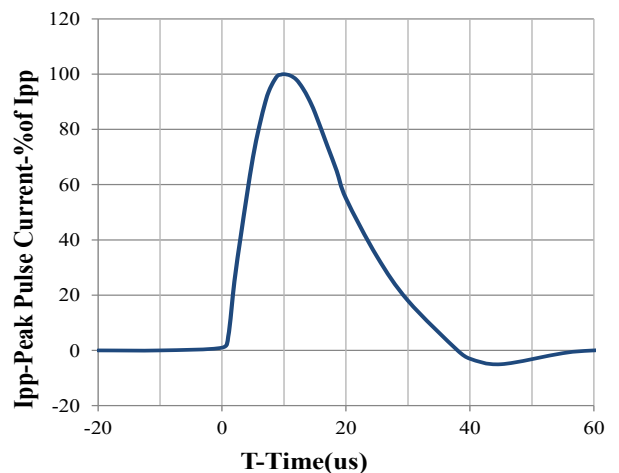
Peak Pulse Power vs. Pulse Time



IEC61000-4-2 Pulse Waveform

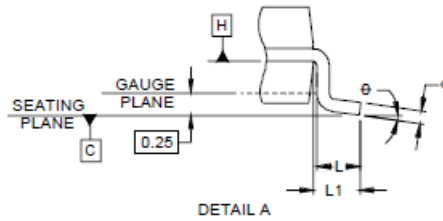
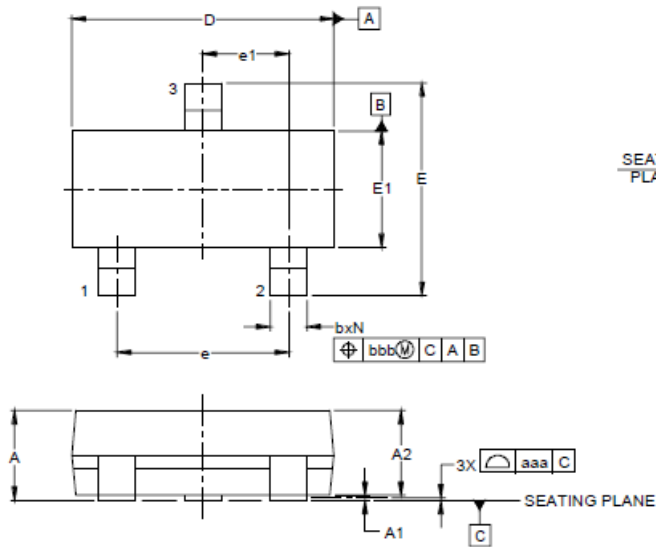


Power Derating Curve

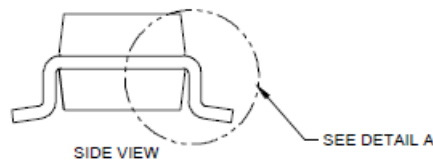


8 X 20us Pulse Waveform

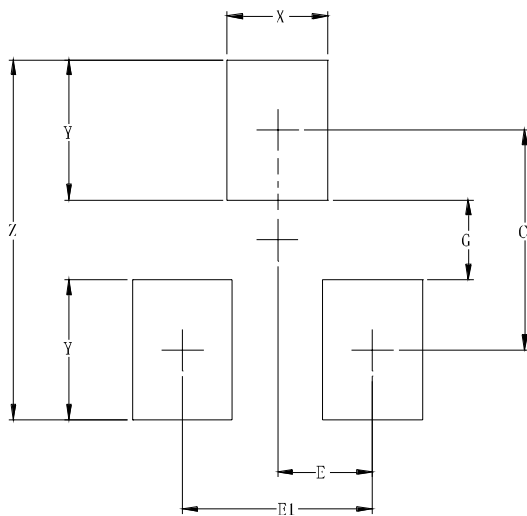
SOT-23 Package Outline Drawing



DIM	INCHES		MILLIMETERS	
	MIN	NOM MAX	MIN	NOM MAX
A	.035	-.044	0.89	- 1.12
A1	.000	-.004	0.01	- 0.10
A2	.035	.037	.040	0.88 1.02
b	.012	-.020	0.30	- 0.51
c	.003	-.007	0.08	- 0.18
D	.110	.114	.120	2.80 2.90 3.04
E	.082	.093	.104	2.10 2.37 2.64
E1	.047	.051	.055	1.20 1.30 1.40
e	.075			1.90 BSC
e1	.037			0.95 BSC
L	.015	.020	.024	0.40 0.50 0.60
L1	.022			(0.55)
N	3			3
theta	0°	- 8°	0°	- 8°
aaa	.004			0.10
bbb	.008			0.20



Suggested Land Pattern



DIM	DIMENSTONS	
	INCHES	MILLIMETERS
C	.087	2.20
E	.037	0.95
E1	.075	1.90
G	.031	0.80
X	.039	1.00
Y	.055	1.40
Z	.141	3.60

NOTICE

Jelan-Link reserves the right to make changes without further notice to any products here in.

Only obligations are those in the Jelan-Link Standard Terms and Conditions of Sale and in no case will Jelan-Link be liable for any incidental, indirect, or consequential damages arising from the sale, resale, use, or misuse of its products.