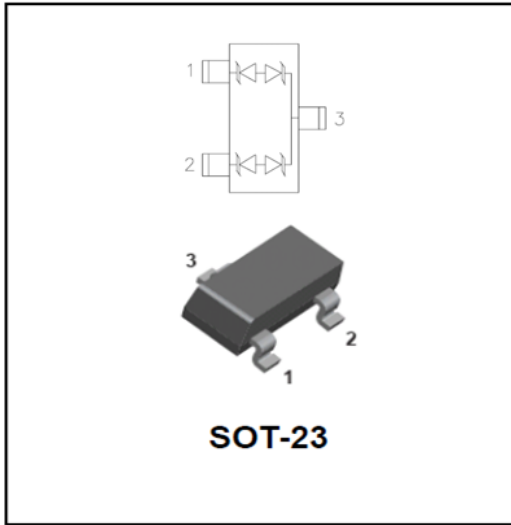
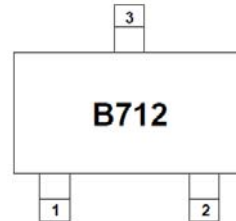


## ESD Protection Diode



### Features

- Low clamping voltage
- Low leakage
- Operating voltage: 7V or 12V
- Marking: B712



### ■ Maximum Ratings

PARAMETER	SYMBOL	VALUE	UNIT
Operating Junction	$T_J$	-55 to +125	°C
Storage Temperature	$T_{STG}$	-55 to +150	°C
IEC61000-4-2(ESD)Air	$V_{ESD}^{(1)}$	±30	KV
IEC61000-4-2(ESD)Contact		±30	KV
Peak Pulse Power	$P_{PP}^{(2)}$	325	W
Peak Pulse Current	$I_{PP}^{(2)}$	13	A

(1).Device stressed with ten non-repetitive ESD pulses.

(2).Non-repetitive current pulse 8/20μs exponential decay waveform according to IEC61000-4-5.



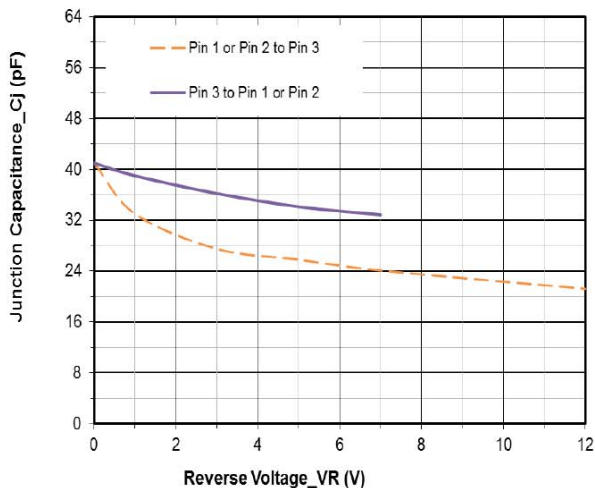
## ■ Electrical Characteristics (T<sub>a</sub>=25°C Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	CONDITIONS	MIN	TYP	MAX
Reverse Standoff Voltage	V <sub>RWM</sub> <sup>(1)</sup>	V	Pin 1 to Pin 3 and Pin2 to Pin 3			12
			Pin 3 to Pin 1 and Pin3 to Pin 2			7
Reverse Leakage Current	I <sub>R</sub>	uA	Pin 1 to Pin 3 and Pin2 to Pin 3	VR = V <sub>RWM</sub>		0.5
			Pin 3 to Pin 1 and Pin3 to Pin 2	VR = V <sub>RWM</sub>		0.5
Breakdown Voltage	V <sub>(BR)</sub>	V	Pin 1 to Pin 3 and Pin2 to Pin 3	IT = 1mA	13.3	
			Pin 3 to Pin 1 and Pin3 to Pin 2	IT = 1mA	7.5	
Clamping Voltage	V <sub>C</sub> <sup>(2)</sup>	V	Pin 1 to Pin 3 and Pin2 to Pin 3	I <sub>PP</sub> = 5A		20
			Pin 3 to Pin 1 and Pin3 to Pin 2	I <sub>PP</sub> = 5A		14
Clamping Voltage	V <sub>C</sub> <sup>(2)</sup>	V	Pin 1 to Pin 3 and Pin2 to Pin 3	I <sub>PP</sub> = 13A		25
			Pin 3 to Pin 1 and Pin3 to Pin 2	I <sub>PP</sub> = 13A		16
Junction Capacitance	C <sub>J</sub>	pF	Pin 1 to Pin 3 and Pin2 to Pin 3	VR = 0V, f = 1MHz		40
			Pin 3 to Pin 1 and Pin3 to Pin 2	VR = 0V, f = 1MHz		40
Junction Capacitance	C <sub>J</sub>	pF	Pin 1 to Pin 3 and Pin2 to Pin 3	VR = V <sub>RWM</sub> , f = 1MHz		20
			Pin 3 to Pin 1 and Pin3 to Pin 2	VR = V <sub>RWM</sub> , f = 1MHz		30

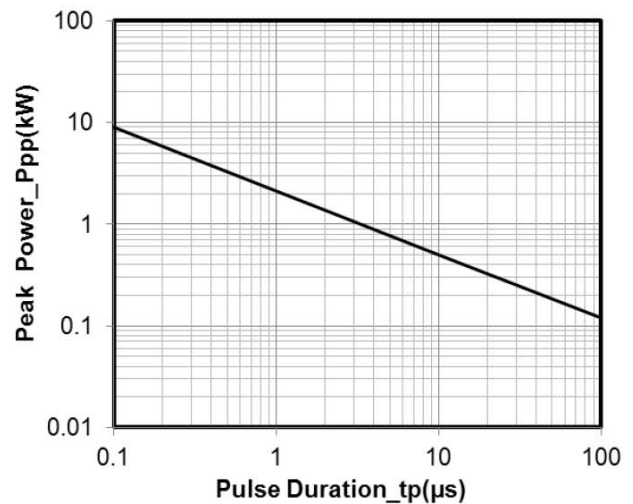
(1).Other voltages available upon request.

(2).Non-repetitive current pulse 8/20μs exponential decay waveform according to IEC61000-4-5

## ■ Characteristics (Typical)



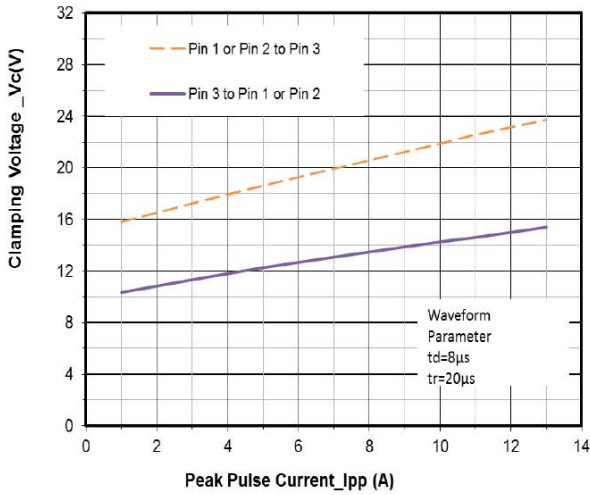
Junction Capacitance vs. Reverse Voltage



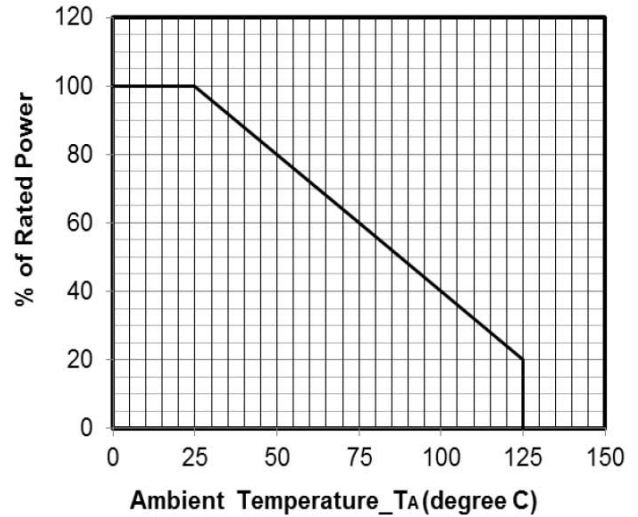
Peak Pulse Power vs. Pulse Time



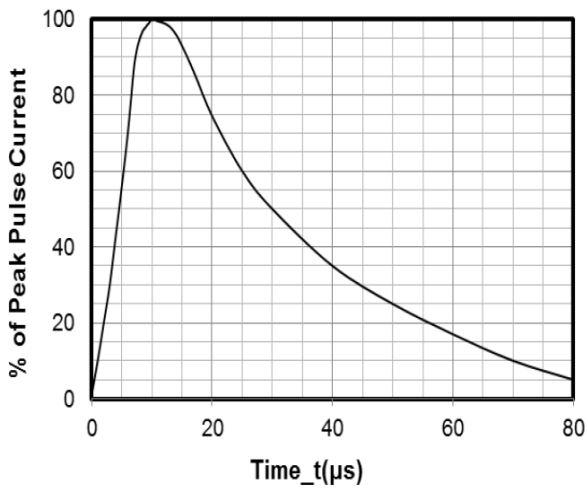
# SM712



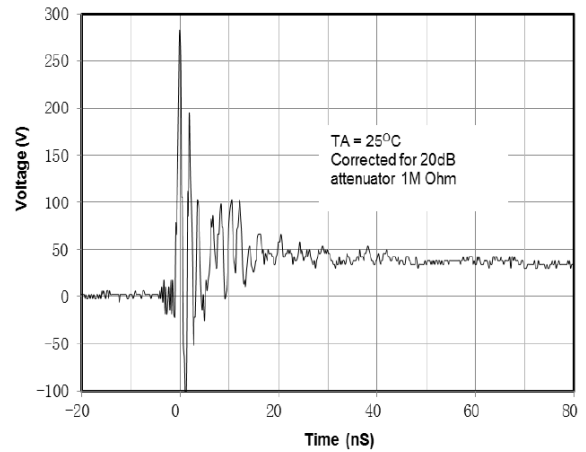
Clamping Voltage vs. Peak Pulse Current



Power Derating Curve



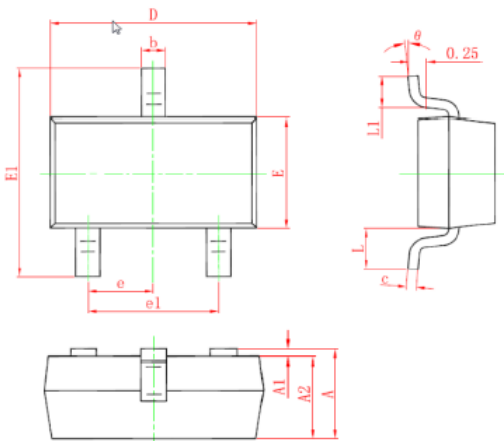
8 X 20µs Pulse Waveform



ESD Clamping Voltage

8 kV Contact per IEC61000-4-2

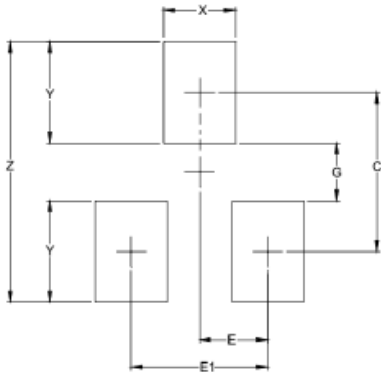
## Outline Dimensions



SYM	DIMENSIONS					
	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.90	--	1.15	0.035	--	0.045
A1	0.00	--	0.10	0.000	--	0.004
A2	0.90	--	1.05	0.035	--	0.041
b	0.30	--	0.50	0.012	--	0.020
c	0.08	--	0.15	0.003	--	0.006
D	2.80	--	3.00	0.110	--	0.118
E	1.20	--	1.40	0.047	--	0.055
E1	2.25	--	2.55	0.089	--	0.100
e	0.95TYP			0.037TYP		
e1	1.80	--	2.00	0.071	--	0.079
L	0.55REF			0.022REF		
L1	0.30	--	0.50	0.012	--	0.020
θ	0°	--	8°	0°	--	8°



## ■ Soldering Footprint



SYM	DIMENSIONS	
	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



## SM712

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