



Discription

The SM712D protects sensitive semiconductor components from damage or upset due to electrostatic discharge (ESD) and other voltage induced transient events. Excellent clamping capability, low leakage, low capacitance, and fast response time provide best in class protection on designs that are exposed to ESD.

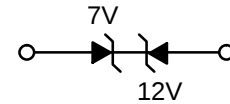
It gives designer the flexibility to protect one bi-directional line in applications where arrays are not practical.



SOD-323

Features

- Protects two +12V to -7V lines
- Low clamping voltage: $V_{CL}=19V @ I_{PP}=18A(P1-P2)$,
 $V_{CL}=12V @ I_{PP}=18A(P2-P1)$,
- Ultra low leakage current: $I_{RM} < 10 \text{ nA}$
- IEC 61000-4-2(ESD): $\pm 30kV$ (Air), $\pm 30kV$ (Contact)
- IEC 61000-4-5 (surge): $I_{PPM}=18 \text{ A}$



Circuit Diagram

Application information

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

Ordering Information

Product ID	Pack	Qty(PCS)
SM712D	SOD-323	3000

Absolute Ratings($T_{amb} = 25^{\circ}C$)

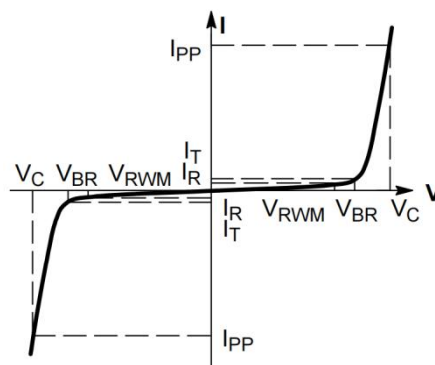
Parameter	Symbol	Value	Unit
Peak Pulse Power ($t_p = 8/20\mu S$)	P_{PK}	360/252	W
Peak Pulse Current($t_p = 8/20\mu S$)	I_{PP}	18/18	A
ESD voltage IEC 61000-4-2 (air discharge)	V_{ESD}	30	KV
ESD voltage IEC 61000-4-2 (contact discharge)	V_{ESD}	30	KV
Storage Temperature Range	T_{stg}	-55 to +150	$^{\circ}C$
Operating Temperature Range	T_{OP}	-40 to +85	$^{\circ}C$



Electrical Characteristics Ratings at 25°C ambient temperature unless otherwise specified.

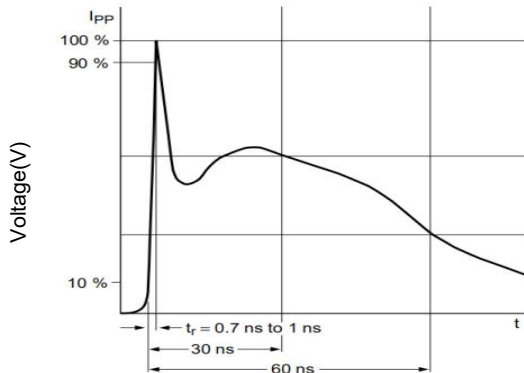
Parameter	Symbol	Min	Typ	Max	Unit	Condition
Reverse Working Voltage	V_{RWM}	--	--	12	V	Pin1 To Pin2
		--	--	7	V	Pin2 To Pin1
Breakdown Voltage	V_{BR}	13	14.5	17.0	V	Pin1 To Pin2, $I_T=1mA$
		7.5	8.5	9.5	V	Pin2 To Pin1, $I_T=1mA$
Leakage Current I_{Leak}	I_R	--	--	50	nA	Pin1 To Pin2, $V_R=12V$
		--	--	50	nA	Pin2 To Pin1, $V_R=7V$
Clamping Voltage	V_C	--	19	20	V	Pin1 To Pin2, $I_{PP}=18A, T_p=8/20\mu s$
Clamping Voltage	V_C	--	12	14	V	Pin2 To Pin1, $I_{PP}=18A, T_p=8/20\mu s$
Junction Capacitance	C_J	--	30	32	pF	$V_R=0V, f=1MHz$

Symbol	Parameters
V_{RWM}	Peak Reverse Working Voltage
I_R	Reverse Leakage Current @ V_{RWM}
V_{BR}	Breakdown Voltage @ I_T
I_T	Test Current
I_{PP}	Maximum Reverse Peak Pulse Current
V_C	Clamping Voltage @ I_{PP}

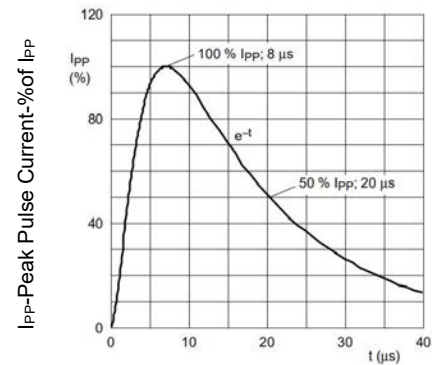




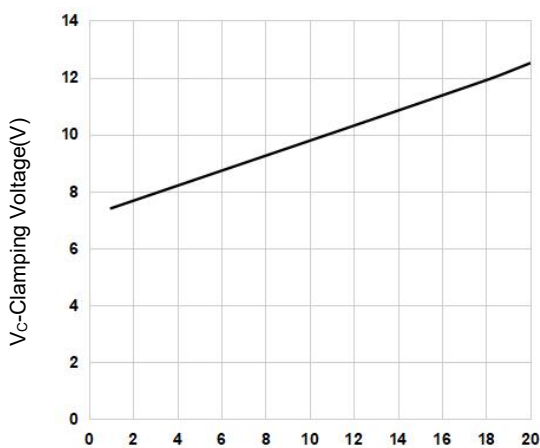
Typical Characteristics



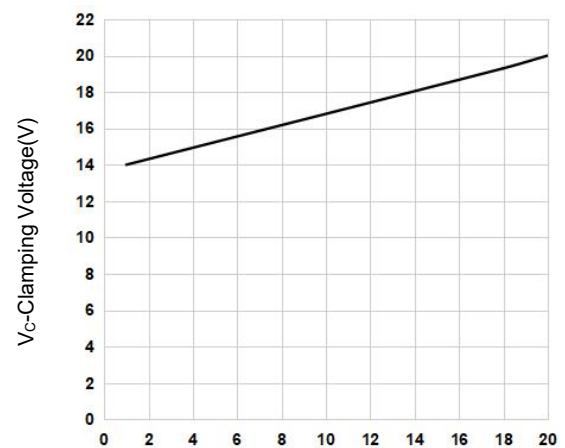
Time(nS)
IEC61000-4-2 Pulse Waveform



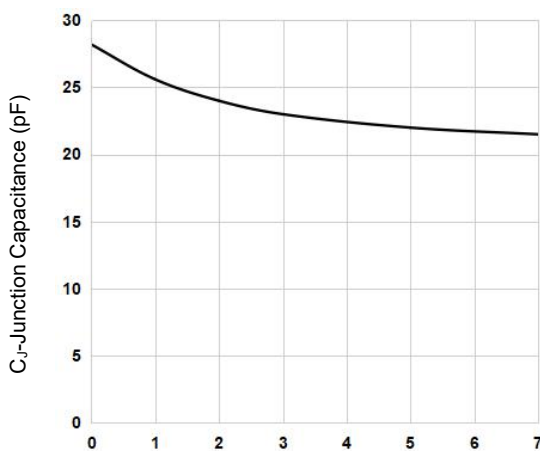
T-Time(μS)
IEC61000-4-5 8X20μs Pulse Waveform



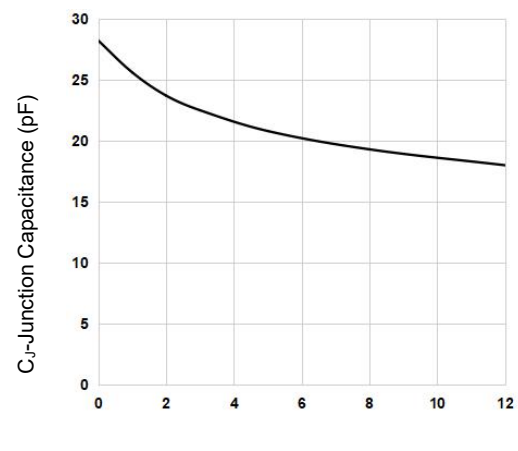
Clamping Voltage vs. Peak Pulse Current (P1-P2 7V)



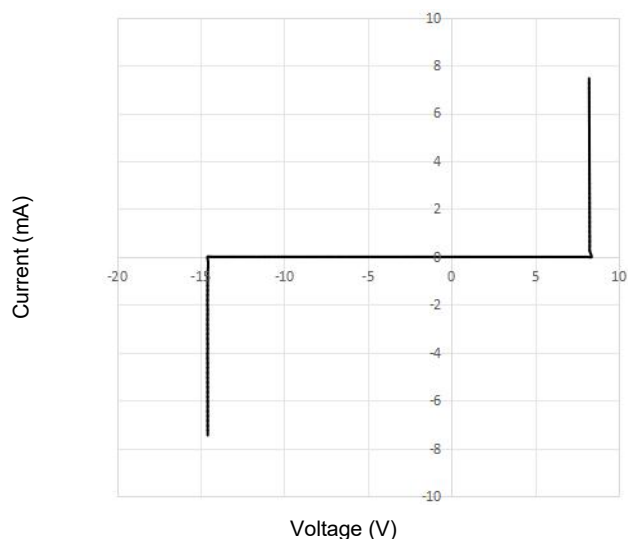
Clamping Voltage vs. Peak Pulse Current (P2-P1 12V)



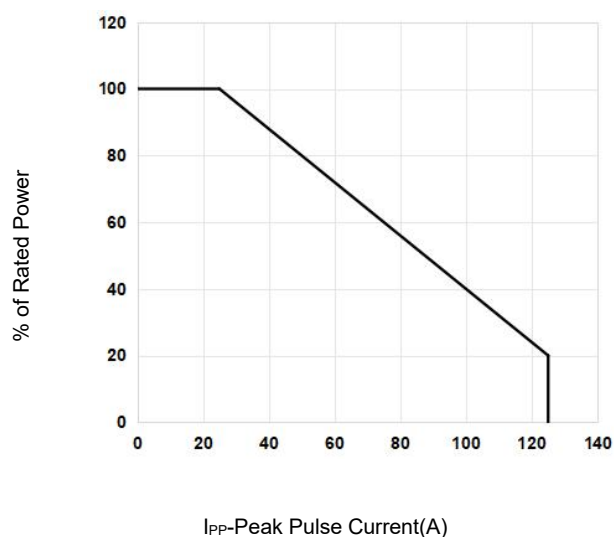
Peak Pulse Power vs. Pulse Time (P1-P2 7V)



Junction Capacitance vs. Reverse Voltage(P2-P1 12V)

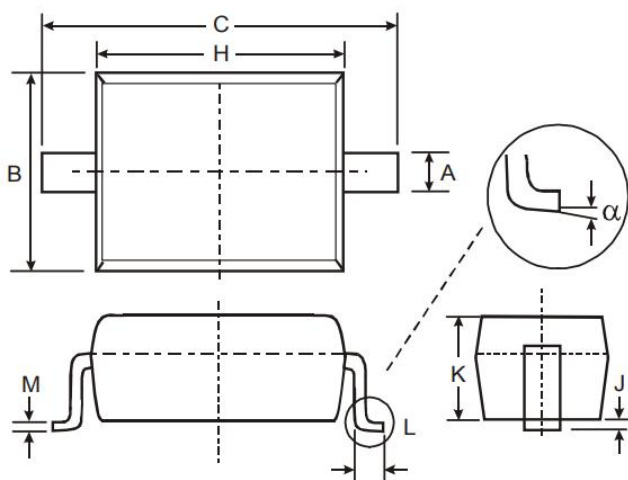


Voltage vs Current (P2-P1)



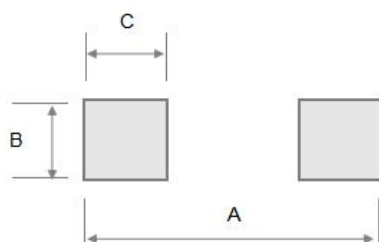
Clamping Voltage vs. Peak Pulse Current

OUTLINE AND DIMENSIONS



SYMBOL	DIMENSIONS	
	MIN	MAX
A	0.25	0.40
B	1.20	1.40
C	2.35	2.75
H	1.50	1.80
J	0.01	0.15
K	0.75	1.05
L	0.20	0.40
M	0.08	0.25
α	0°	8°

SOLDERING FOOTPRINT



SYMBOL	DIMENSIONS
A	3.20
B	0.80
C	0.80



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