

SM712C ESD Protection Diode

Feature

- Bi-directional ESD protection of two lines
- 240 Watts peak pulse power ($t_p = 8/20\mu s$)
- Working voltage: 7/12V
- Junction Capacitance: 21pF(Typ)
- Low leakage current
- Low clamping voltage
- IEC 61000-4-2 $\pm 30kV$ contact $\pm 30kV$ air
- IEC 61000-4-5 (Lightning) 12A (8/20 μs)

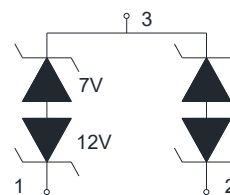
Application

- RS-485
- Security systems
- Automatic teller machines
- HFC systems
- Cellular phones handsets and accessories
- Set top boxes

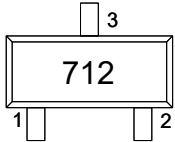
Mechanical Data

- Package: SOT-23
- Molding compound flammability rating: UL 94V-0
- RoHS/WEEE Compliant

Circuit Diagram



Ordering Information

Part Number	Package	Marking	Packing	Reel Size
SM712C	SOT-23		3000 Tape & Reel	7 inches

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

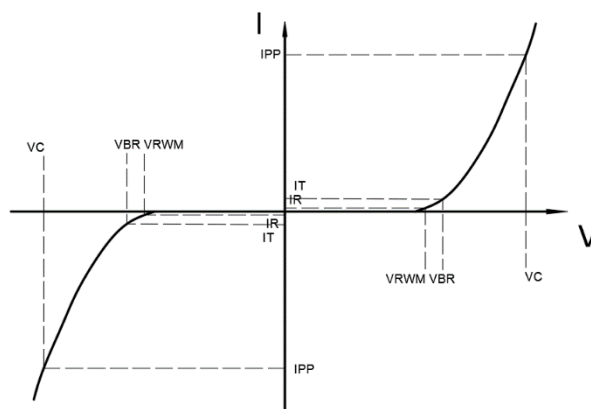
Parameters	Symbol		Min.	Max.	Unit
Peak pulse power ($t_p=8/20\mu\text{s}$)@ 25°C	P_{pk}		-	240	W
Peak pulse current ($t_p=8/20\mu\text{s}$)@ 25°C	I_{PP}	Pin1,2-Pin3	-	12	A
		Pin3-Pin1,2	-	9	
ESD (IEC61000-4-2 air discharge) @ 25°C	V_{ESD}		-	± 30	kV
ESD (IEC61000-4-2 contact discharge) @ 25°C	V_{ESD}		-	± 30	kV
Junction temperature	T_J		-	150	$^{\circ}\text{C}$
Operating temperature	T_{OP}		-40	125	$^{\circ}\text{C}$
Storage temperature	T_{STG}		-55	150	$^{\circ}\text{C}$
Lead temperature	T_L		-	260	$^{\circ}\text{C}$

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

Parameters	Symbol	conditions	Min.	Typ.	Max.	Unit
Reverse stand-off voltage	V_{RWM}	Pin1 or Pin2 to Pin3			12.0	V
		Pin3 to Pin1 or Pin2			7.0	
Reverse Breakdown Voltage	V_{BR}	Pin1 or Pin2 to Pin3; $I_R=1\text{mA}$	12.5	16.2		V
		Pin3 to Pin 1or Pin2; $I_R=1\text{mA}$	7.5	9.8		
Reverse Leakage Current	I_R	Pin1 or Pin2 to Pin3; $V_{RWM}=12\text{V}$			100	nA
		Pin3 to Pin1or Pin2; $V_{RWM}=7\text{V}$			100	
Clamping Voltage	V_{CL}	Pin1 or Pin2 to Pin3; $I_{PP}=9\text{A}$		24.0		V
		Pin3 to Pin1 or Pin2; $I_{PP}=12\text{A}$		18.0		
Junction capacitance	C_O	I/O-GND, $V_R=0\text{V}$; $f=1\text{MHz}$		21		pF

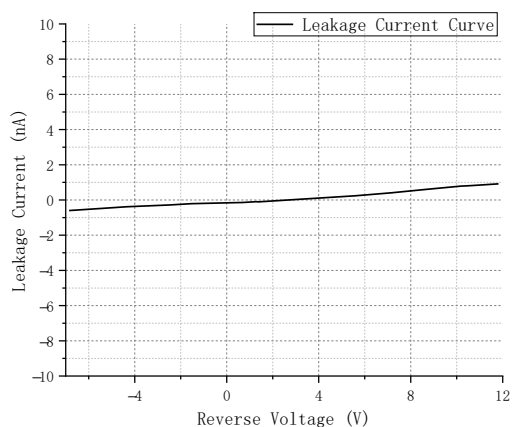
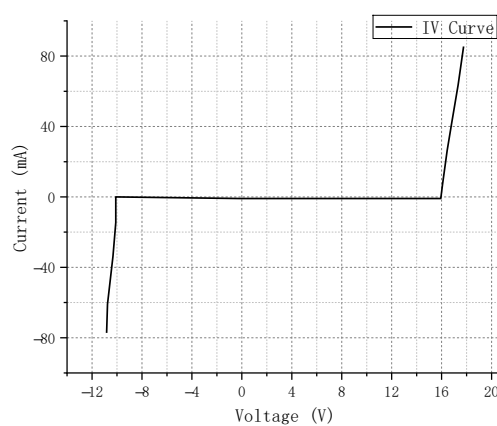
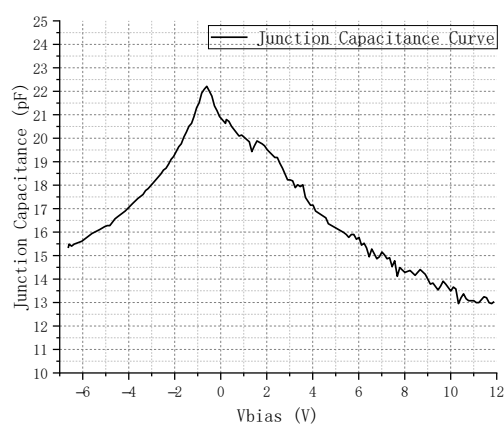
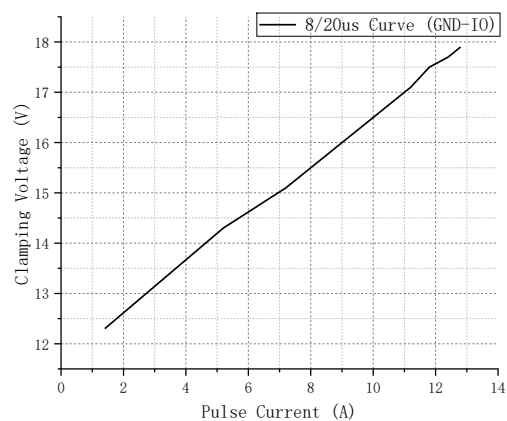
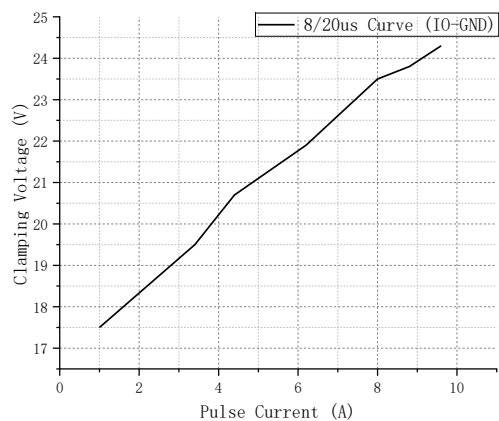
Electrical Parameters

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}





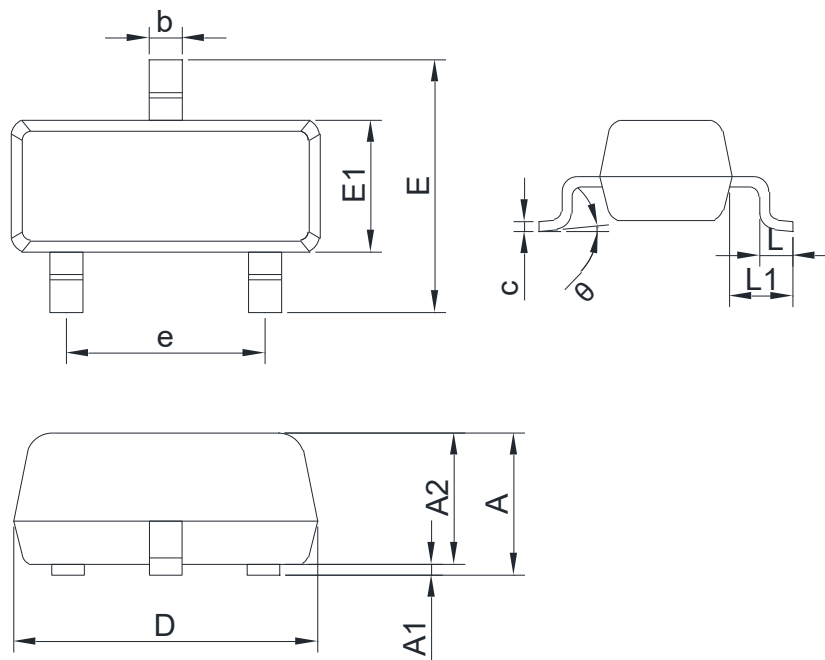
Typical Characteristic





SOT-23 Outline Drawing

POD (Z)



Common Dimensions Cunits Measure=Millimeter					
Symbol	Min	Max	Symbol	Min	Max
A	0.90	1.20	E	2.25	2.55
A1	0.00	0.10	E1	1.20	1.40
A2	0.90	1.10	e	1.80	2.00
b	0.30	0.50	L	0.30	0.50
c	0.07	0.18	L1	0.475	0.625
D	2.80	3.04	θ	0°	8°