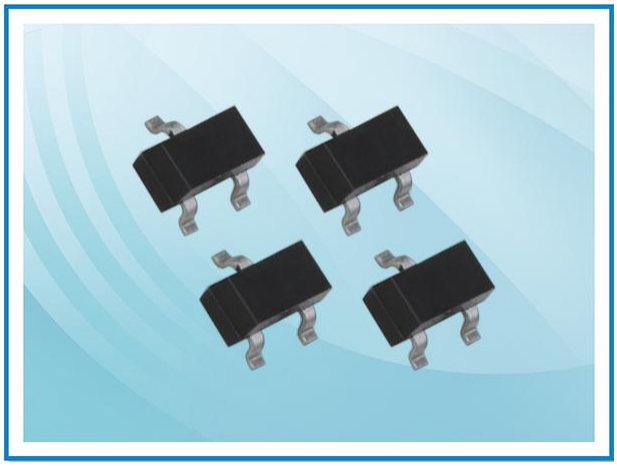
PT712M – ESD Protection Diode

Feature

- 400 Watts peak pulse power (8/20μs)
- Bidirectional configurations
- Solid state silicon-avalanche technology
- Low clamping voltage
- Low leakage current
- Capacitance (C_J = 60 pF typ.)
- Protect two data/power line
- IEC61000-4-2 (ESD) ±15kV (Air), ±8kV (Contact)
- IEC61000-4-4 (EFT) 40A (5/50ns)
- IEC61000-4-5 (Lightning): 12A (8/20μs)



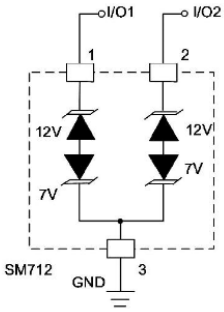
Applications

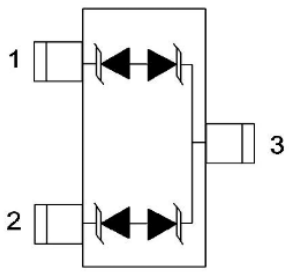
- Data lines
- Automatic Teller Machine
- Networks
- Power lines

Mechanical Data

- SOT23 package
- Molding compound flammability rating: UL94 V-0
- Tape and Reel Packaging
- RoHS/WEEE Compliant

Schematic and PIN Configuration





Maximum Rating

Parameter	Symbol	Limit	Unit
IEC61000-4-2 ESD Voltage – Air Mode	V_{ESD}(1)	±15	kV
IEC61000-4-2 ESD Voltage – Contact Mode		±8	
Peak Pulse Power	P_{PP}(2)	400	W
Peak Pulse Current	I_{PP}(2)	12	A
Maximum Lead Solder Temperature (10 seconds duration)	T_L	260	°C
Junction Temperature	T_J	-55~125	°C
Storage Temperature Range	T_{stg}	-55~125	°C

Note:

1. Device stressed with ten non-repetitive ESD pulses.
2. Non-repetitive current pulse 8/20μs exponential decay waveform according to IEC61000-4-5.
3. All ratings are measured at environmental temperature of TA = 25°C unless otherwise noted.

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Electrical Characteristics

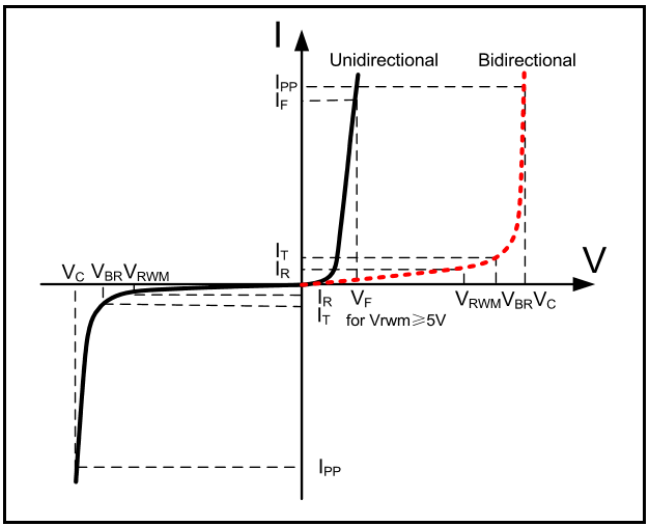
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Reverse Stand-off Voltage	V_{RWM}(1)	Pin 1 to 3 and 2 to 3			12	V
		Pin 3 to 1 and 3 to 2			7	V
Reverse Breakdown Voltage	V_{BR}	I_T = 1mA, Pin 1 to 3 and 2 to 3	13.3			V
		I_T = 1mA, Pin 3 to 1 and 3 to 2	7.5			V
Reverse Leakage Current	I_R	V_{RWM} = 12V, Pin 1 to 3 and 2 to 3			1	μA
		V_{RWM} = 7V, Pin 3 to 1 and 3 to 2			1	μA
Peak Pulse Current	I_{PP}	tp = 8/20μs			12	A
Clamping Voltage	V_C(2)	I_{PP} = 12A, tp = 8/20μs, Pin 1 to 3 and 2 to 3			20	V
		I_{PP} = 12A, tp = 8/20μs, Pin 3 to 1 and 3 to 2			10	V
Junction Capacitance	C_J	V_R = 0V, f = 1MHz		60	75	pF

Note:

1. Other voltages available upon request.
2. Non-repetitive current pulse 8/20μs exponential decay waveform according to IEC61000-4-5.
3. All ratings are measured at environmental temperature of T_A = 25°C unless otherwise noted.

Electrical Parameters

Symbol	Parameter
V_C	Clamping Voltage @ I_{PP}
I_{PP}	Peak Pulse Current
V_{BR}	Breakdown Voltage @ I_T
I_T	Test Current
I_R	Reverse Leakage Current @ V_{RWM}
V_{RWM}	Reverse Stand-off Voltage
V_F	Forward Voltage @ I_F



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Typical Characteristics

Figure 1: Peak Pulse Power vs. Pulse Time

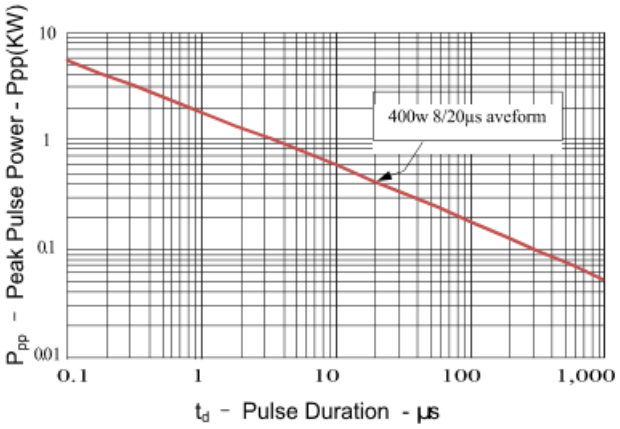


Figure 2: Power Derating Curve

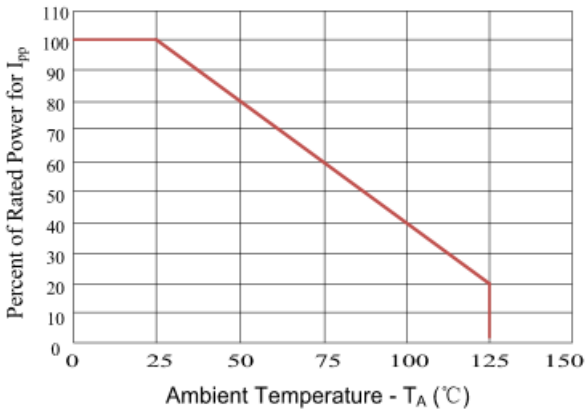


Figure3: Pulse Waveform

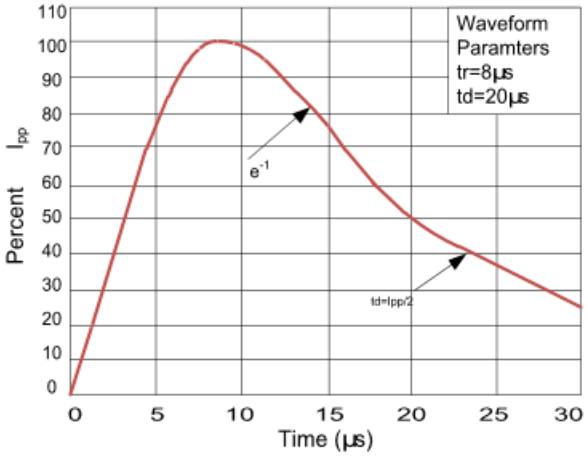
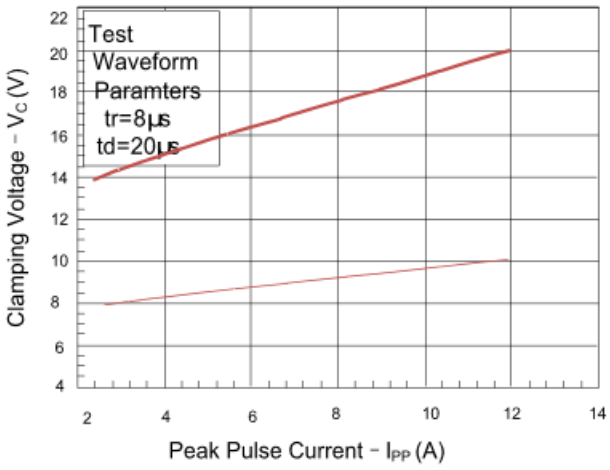


Figure 4: Clamping Voltage vs.Ipp



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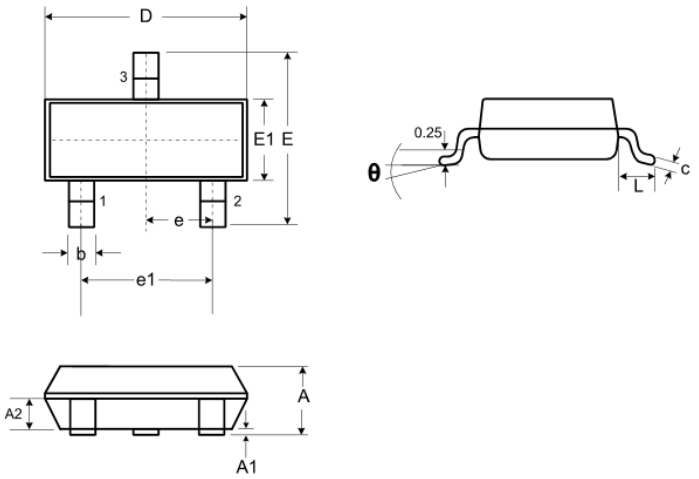
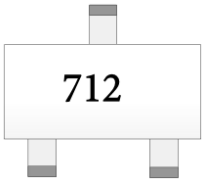
SOT-23 Package Outline Dimensions



Symbol	Dimensions (mm)	
	Min	Max
A	0.90	1.15
A1	0.00	0.10
A2	0.60	0.70
b	0.30	0.50
c	0.08	0.15
D	2.80	3.00
E	2.25	2.55
E1	1.20	1.40
e	0.95 BSC	
e1	1.80	2.00
L	0.30	0.50
θ	0°	8°

Marking



Packaging Information

Order Code	Packaging	Reel Size	PCS/Reel
PT712M	SOT-23	7 inch	3,000