SuperESD - PSM712

1. Description

The PSM712 protects sensitive semiconductor components from damage or upset due to electrostatic discharge (ESD) and other voltage induced transient events. They feature large cross-sectional area junctions for conducting high transient currents, offer desirable electrical characteristics for board level protection, such as fast response time, low operating voltage. It gives designer the flexibility to protect one bi-directional line in applications where arrays are not practical.

2. Features

- IEC 61000-4-2 Level 4 ESD Protection
  - ±8kV Contact Discharge
  - ±15kV Air Discharge
- IEC 61000-4-4 EFT Protection
  - 40A (5/50ns)
- 350W Peak pulse Power (8/20us)
- RoHS compliance
- Bidirectional configuration
- IO Capacitance: 55pF (Typical)
- Low clamping voltage
- SOT-23 package

3. Applications

- RS-485
- Security systems
- Automatic teller machines
- HFC systems

4. Ordering Information

Part Number	Package	Marking	Material	Packing	Quantity per reel	Flammability Rating	Reel Size
PSM712	SOT-23	712	Halogen free	Tape & Reel	3,000 PCS	UL 94V-0	7 inches

Table-1 Ordering information

5. Pin Configuration and Functions

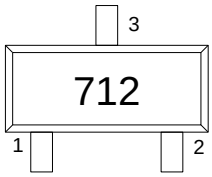
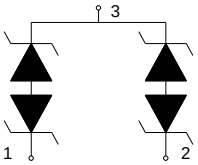
Pin	Name	Description	Outline	Circuit Diagram
1	IO	Connect to IO		
2	IO	Connect to IO		
3	GND	Connect to GND		

Table-2 Pin configuration

6. Specification

6.1. Absolute Maximum rating

Over operating free-air temperature range (unless otherwise noted)

Parameters	Symbol	Min.	Max.	Unit
Peak pulse power (tp=8/20us)@25℃	P_{pk}	-	350	W
Peak pulse current (tp=8/20us)@25℃	I_{PP}		17	A
ESD (IEC61000-4-2 air discharge) @25℃	V_{ESD}	-	±15	kV
ESD (IEC61000-4-2 contact discharge) @25℃	V_{ESD}	-	±8	kV
Junction temperature	T_J	-	150	℃
Operating temperature	T_{OP}	-40	125	℃
Storage temperature	T_{STG}	-55	150	℃
Lead temperature	T_L	-	260	℃

Table-3 Absolute Maximum rating

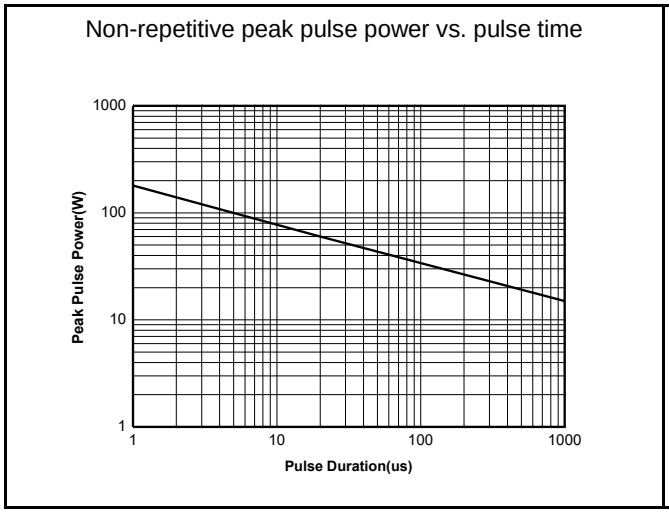
6.2. Electrical Characteristics

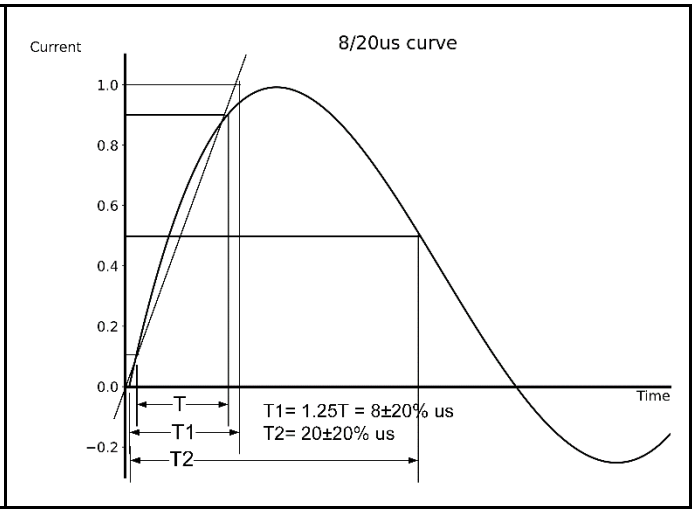
At TA = 25℃ unless otherwise noted

Parameters	Symbol	conditions	Min.	Typ.	Max.	Unit
Reverse stand-off voltage	V_{RWM}	Pin1 or Pin2 to Pin3			12	V
		Pin3 to Pin1 or Pin2			7	
Reverse Breakdown Voltage	V_{BR}	Pin1 or Pin2 to Pin3; I_R= 1mA	13.3			V
		Pin3 to Pin 1or Pin2; I_R= 1mA	7.5			
Reverse Leakage Current	I_R	Pin1 or Pin2 to Pin3; V_{RWM}=12V			1	uA
		Pin3 to Pin1or Pin2; V_{RWM}=7V			1	
Peak Pulse Current	I_{PP}	Pin1 or Pin2 to Pin3		17		A
		Pin3 to Pin1 or Pin2		17		
Clamping Voltage	V_{CL}	Pin1 or Pin2 to Pin3; I_{PP}=17A		26		V
		Pin3 to Pin1 or Pin2; I_{PP}=17A		19		
Junction capacitance	C_O	V_R=0V; f = 1MHz		55		pF

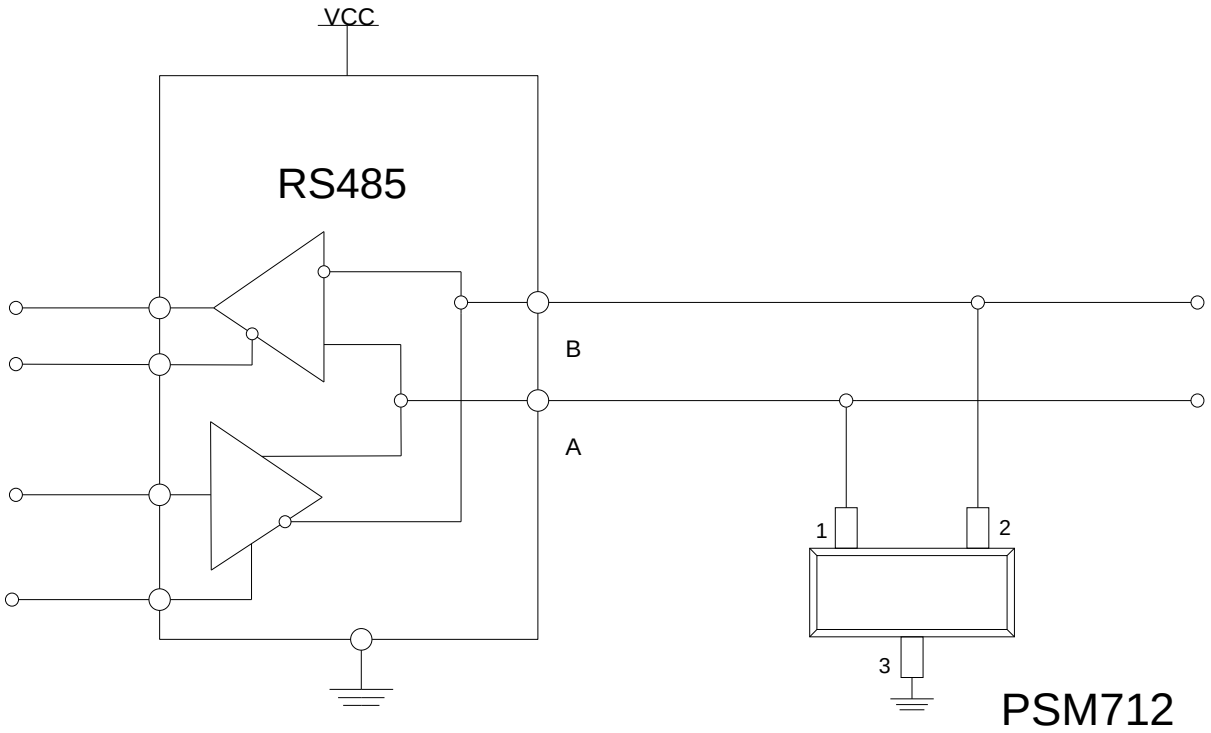
Table-4 Electrical Characteristics

7. Typical Characteristic



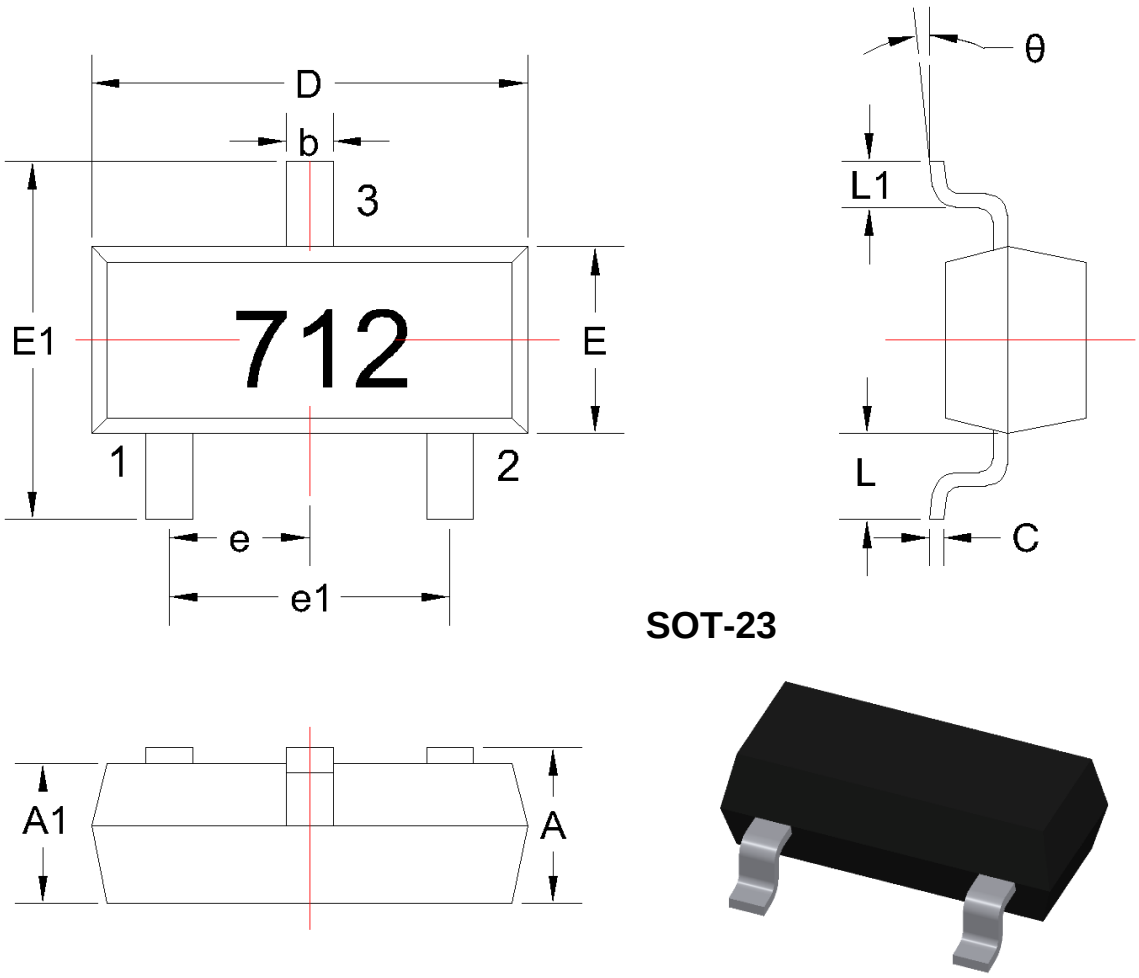


8. Typical Application



Typical RS485 Interface Application

9. Dimension

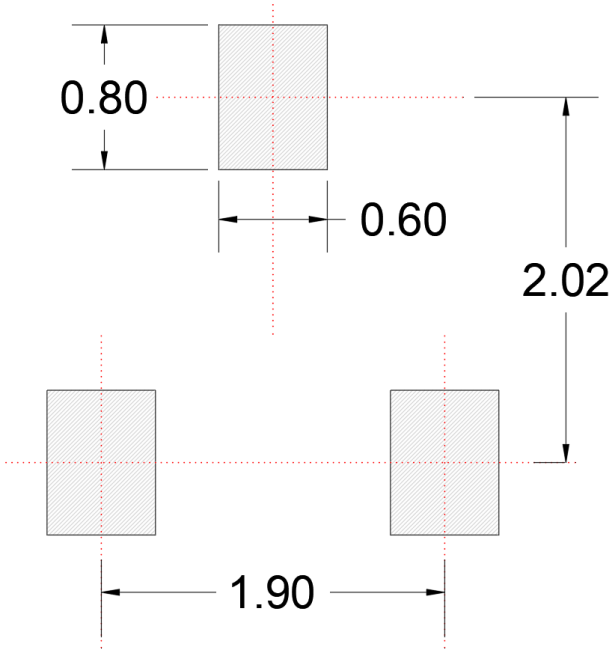


SOT-23

Dimensions in Millimeters					
Symbol	Min.	Max.	Symbol	Min.	Max.
A	0.9	1.15	e1	1.80	2.00
A1	0.00	0.10	L	0.55REF	
b	0.30	0.50	L1	0.30	0.50
C	0.08	0.15	θ	0°	8°
D	2.80	3.00			
E	1.20	1.40			
E1	2.25	2.55			
e	0.95TYP				

Table-5 Product dimensions

10. Recommended Land Pattern



Note:

1. Controlling dimension: in millimeters
2. General tolerance: ±0.05mm
3. The pad layout is for reference only

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