DESCRIPTION

The PSM712 transient voltage suppressor (TVS) diode is designed for asymmetrical (12V to -7V) protection in multi-point data transmission standard RS-485 applications. The PSM712 may be used to protect devices from transient voltages resulting from electrostatic discharge (ESD), electrical fast transients (FET), and lightning.

The PSM712 features 300 Watts (tp=8/20μs) of power handling capability to accommodate the higher transient voltage levels which may be expected in extended common mode applications. This provides higher equipment reliability and eliminates the " guess work" required when using zener diodes that are not rated to handle such transient conditions.

The integrated design aids in reducing voltage over-shoot associated with trace inductance. The low clamping voltage of the PSM712 minimizes the stress on the protected transceiver. The SOT-23 package allows flexibility in the design of "crowed" circuit boards.

FEATURES

✧ 350 watts peak pulse power (tp=8/20μs)
✧Transient protection for asymmetrical data lines to
IEC 61000-4-2 (ESD) ±15kV(air), ±8kV(contact)
IEC 61000-4-4 (FET) 40A (5/50ns)
IEC 61000-4-5 (Lightning) 12A (8/20μs)
✧Protects two +12V to -7V lines
✧Low capacitance
✧Low leakage current
✧Low clamping voltage
✧Solid-state silicon avalanche technology
✧RoHS compliant

MACHANICAL DATA

✧SOT-23 package
✧Flammability Rating: UL 94V-0
✧Terminal: Matte tin plated.
✧Packaging: Tape and Reel
✧High temperature soldering guaranted:260℃/10s
✧Reel size: 7 inch

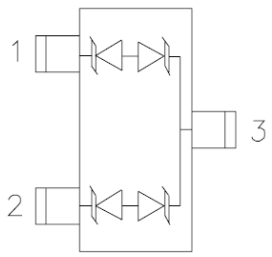
ORDERING INFORMATION

✧Device:PSM712
✧Package: SOT-23
✧Marking:712
✧Material: Halogen free
✧Packing: Tape & Reel
Quantity per reel: 3,000pcs

APPLICATIONS

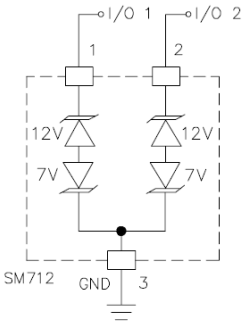
✧Protection of RS-485 transceivers with extended common-mode range
✧Security systems
✧Automatic Teller Machines
✧HFC systems
✧Networks

PIN CONFIGURATION & SCHEMATIC



SOT23 (Top View)

CIRCUIT DIAGRAM



ABSOLUTE MAXIMUM RATING

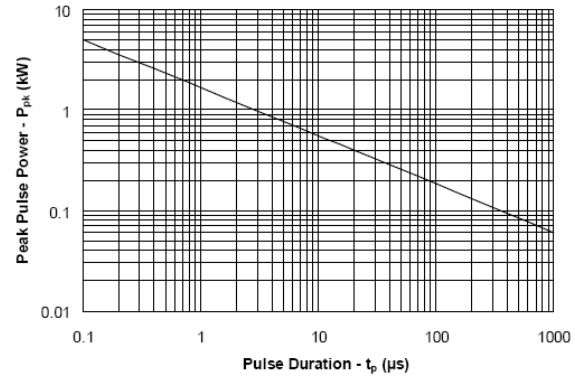
Symbol	Parameter	Value	Units
P_{PP}	Peak Pulse Power (8/20μs)	350	W
I_{PP}	Peak Pulse Current (8/20μs)	15	A
V_{ESD}	ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	±25 ±25	kV
T_{OPT}	Operating Temperature	-55/+150	°C
T_{STG}	Storage Temperature	-55/+150	°C

ELECTRICAL CHARACTERISTICS (Tamb=25°C)

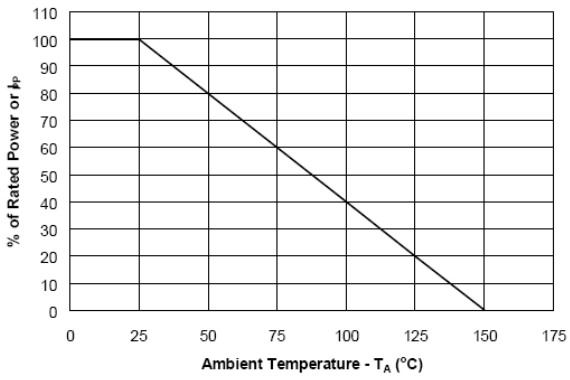
Symbol	Parameter	Test Condition	Pin 1 to 3 and Pin 2 to 3 (12V) TVS			Pin 3 to 1 and Pin 3 to 2 (7V TVS)			Units
			Min	Typ	Max	Min	Typ	Max	
V_{RWM}	Reverse Working Voltage	Pin 3 to 1 or Pin 2 to 1			12			7	V
V_{BR}	Reverse Breakdown Voltage	I_T = 1mA	13.3			7.5			V
I_R	Reverse Leakage Current	$V_R = V_{RWM}$			1			20	μA
V_{C1}	Clamping Voltage 1	I_{PP} = 5A, t_p = 8/20μs			20			10	V
V_{C2}	Clamping Voltage 2	I_{PP} = 15A, t_p = 8/20μs			30			24	V
C_{J1}	Junction Capacitance 1	V_R = 0V, f = 1MHz			75			75	pF
C_{J2}	Junction Capacitance 2	$V_R = V_{RWM}$, f = 1MHz		45			45		pF

ELECTRICAL CHARACTERISTICS CURVE

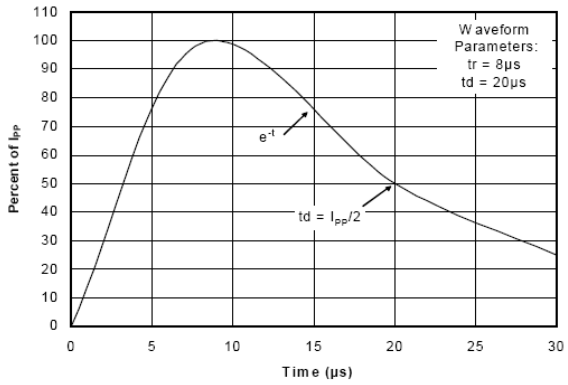
Non-Repetitive Peak Pulse Power vs. Pulse Time



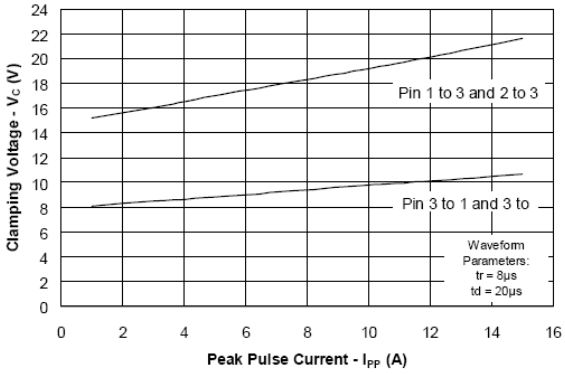
Power Derating Curve



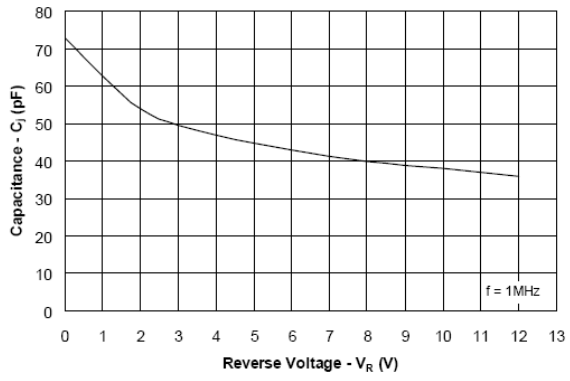
Pulse Waveform



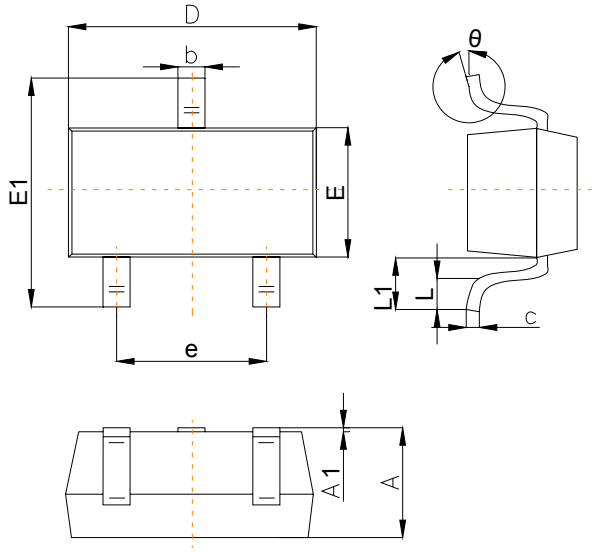
Clamping Voltage vs. Peak Pulse Current



Capacitance vs. Reverse Voltage



SOT-23 PACKAGE OUTLINE DIMENSIONS



Symbol	Dimensions In Millimeters		
	Min	Typ	Max
A	1.00		1.40
A1			0.10
b	0.35		0.50
c	0.10		0.20
D	2.70	2.90	3.10
E	1.40		1.60
E1	2.40		2.80
e		1.90	
L	0.10		0.30
L1	0.40		
θ	0°		10°