



SM712

Asymmetrical TVS Diode for Extended Common-Mode RS-485

FEATURES

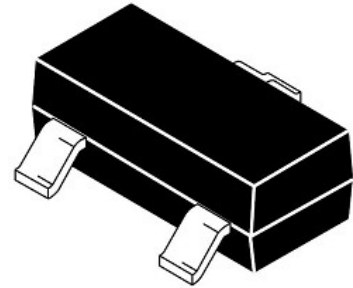
- 400 watts peak pulse power ($t_p = 8/20\mu s$)
- Transient protection for asymmetrical data lines to
IEC 61000-4-2 (ESD) $\pm 15kV$ (air), $\pm 8kV$ (contact)
IEC 61000-4-4 (EFT) 40A (5/50ns)
IEC 61000-4-5 (Lightning) 12A (8/20 μs)
- Protects two +12V to -7V lines
- Low capacitance
- Low clamping voltage
- Solid-state silicon avalanche technology



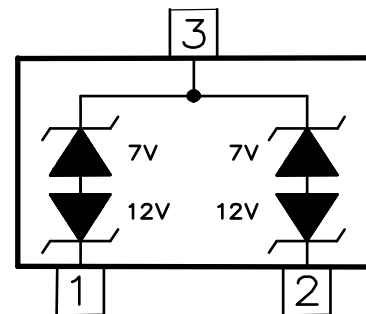
APPLICATIONS

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

SOT-23



Pin Configuration



Absolute Maximum Rating ($T_{amb}=25^{\circ}C$ unless otherwise specified)

Rating	Symbol	Value	Units
Peak Pulse Power ($t_p = 8/20\mu s$)	P_{pk}	400	Watts
Peak Pulse Current ($t_p = 8/20\mu s$)	I_{pp}	17	A
ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	V_{ESD}	15 8	kV
Lead Soldering Temperature	T_L	260 (10 sec.)	$^{\circ}C$
Operating Temperature	T_J	-55 to +125	$^{\circ}C$
Storage Temperature	T_{STG}	-55 to +150	$^{\circ}C$



SM712

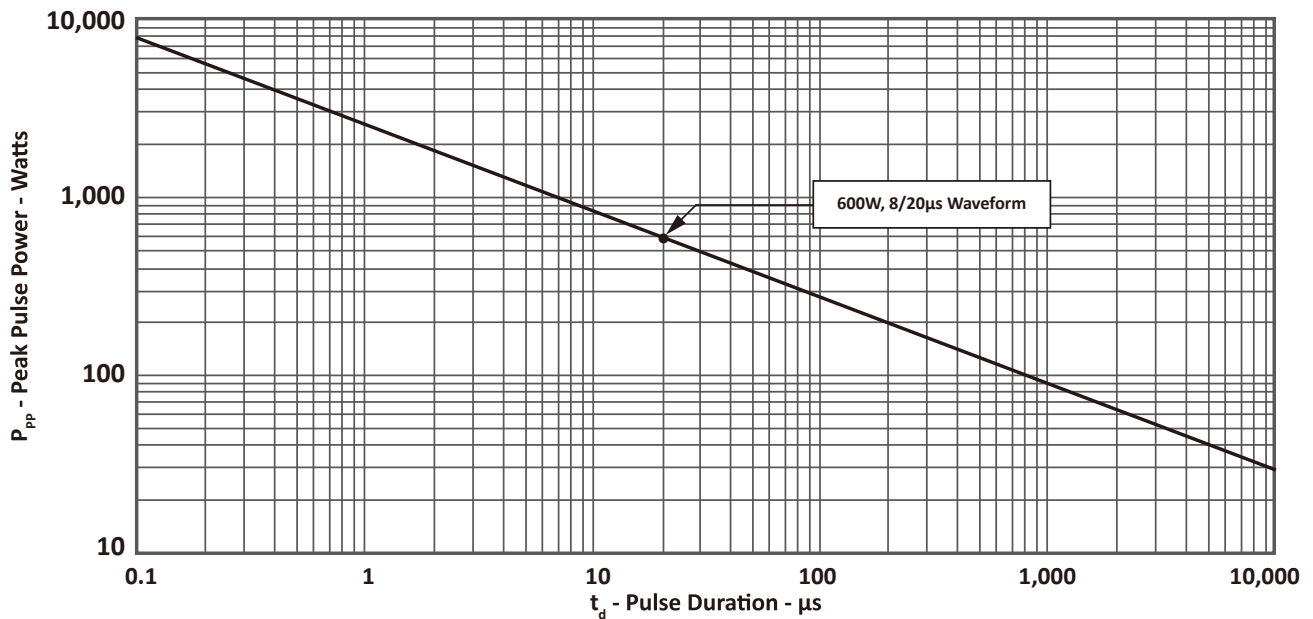
Asymmetrical TVS Diode for Extended Common-Mode RS-485

● Electrical Characteristics(T_{amb}=25 °C)

Parameter	Symbol	Conditions	Pins 1 to 3 and 2 to 3 (12V TVS)			Pins 3 to 1 and 3 to 2 (7V TVS)			Units
			MIN	TYP	MAX	MIN	TYP	MAX	
Reverse Stand-Off Voltage	V _{RWM}	Pin 3 to 1 or Pin 2 to 1			12			7	V
Reverse Breakdown Voltage	V _{BR}	I _{PT} = 1mA	13.3			7.5			V
Reverse Leakage Current	I _R	V _R = V _{RWM}			1			20	μA
Clamping Voltage	V _C	I _{PP} = 5A, t _p = 8/20μs			20			10	V
Clamping Voltage	V _C	I _{PP} = 17A, t _p = 8/20μs			26			12	V
Junction Capacitance	C _j	V _R = 0V, f = 1MHz			75			75	pF
		V _R = V _{RWM} , f = 1MHz		45			45		pF

● Electrical Characteristics Curve

Peak Pulse Power VS Pulse Time



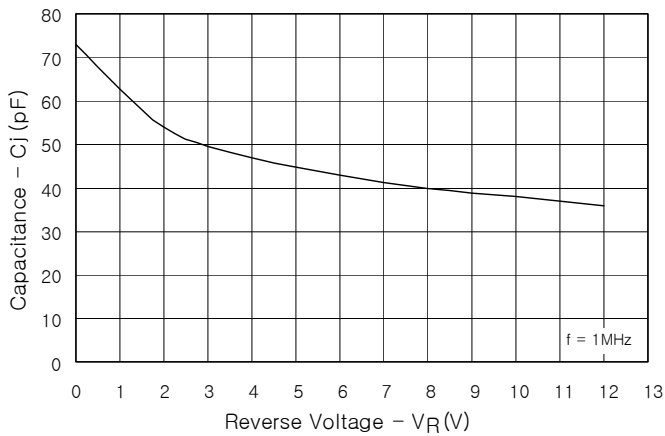


SM712

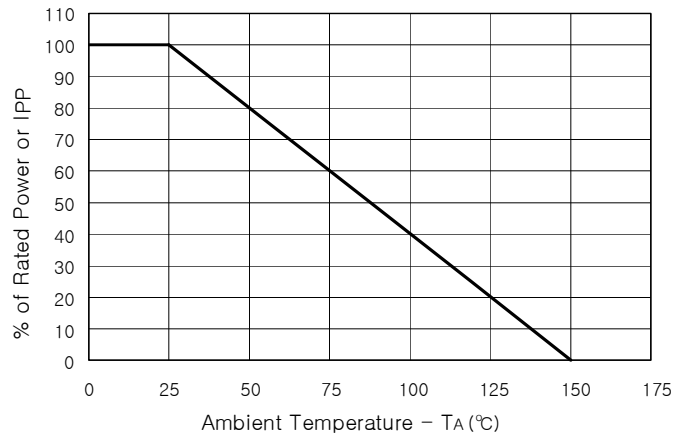
Asymmetrical TVS Diode for Extended Common-Mode RS-485

● Electrical Characteristics Curve

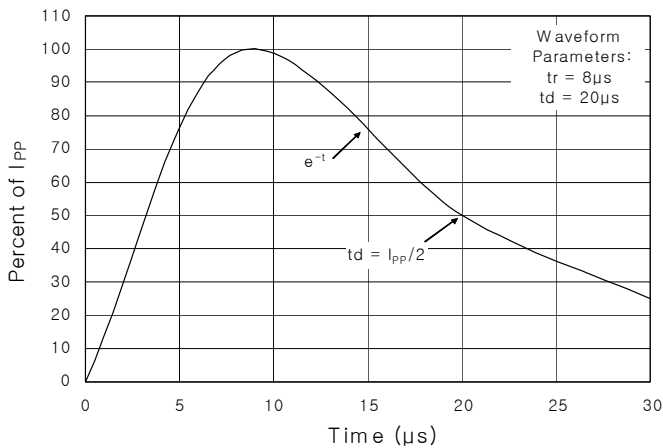
Capacitance vs. Reverse Voltage



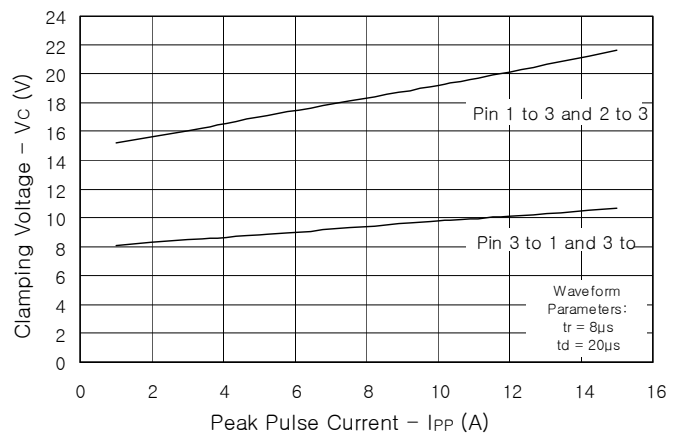
Power Derating Curve



Pulse Waveform



Clamping Voltage vs. Peak Pulse Current

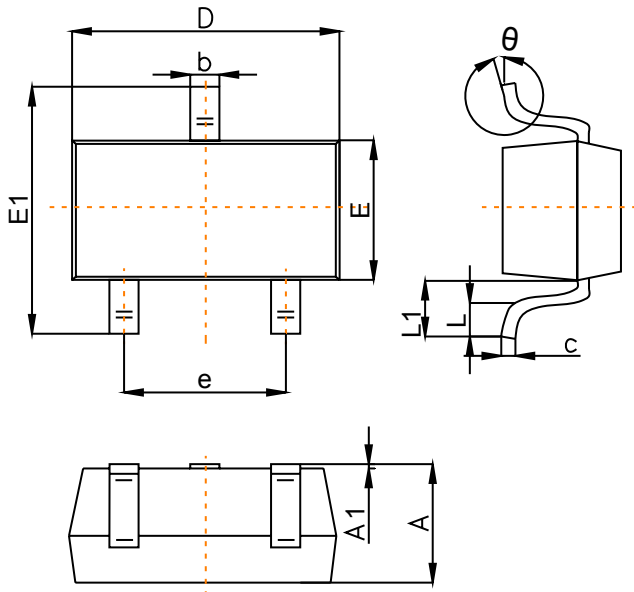




SM712

Asymmetrical TVS Diode for Extended Common-Mode RS-485

SOT-23 PACKAGE OUTLINE DIMENTION



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°