

# MSKSEMI

SEMICONDUCTOR



ESD



TVS



TSS



MOV

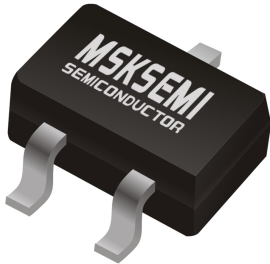


GDT



PLED

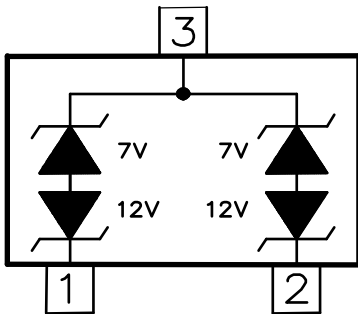
Product data sheet



## 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 $\mu s$ )**
- Protects two +12V to -7V lines
- Low capacitance
- Low clamping voltage
- Solid-state silicon avalanche technology

## Pin Configuration



## APPLICATIONS

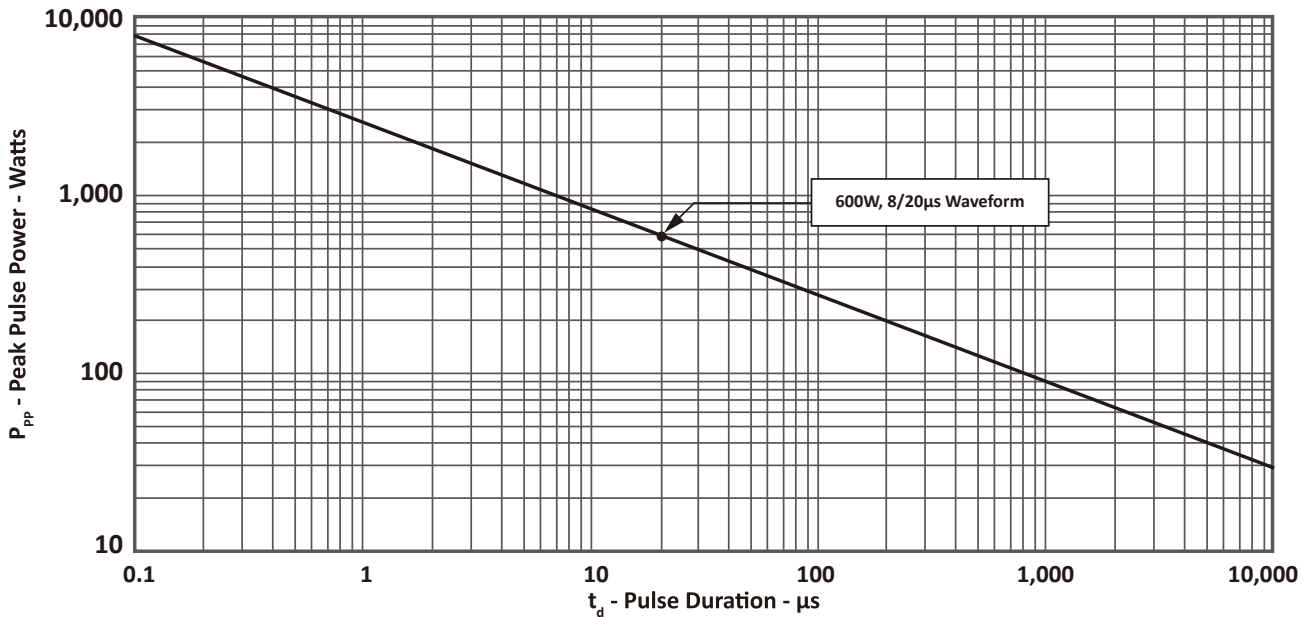
- Protection of RS-485 transceivers with extended common-mode range
- Security systems
- Automatic Teller Machines
- HFC systems
- Networks

### Absolute Maximum Rating (T<sub>amb</sub>=25°C unless otherwise specified)

Rating	Symbol	Value	Units
Peak Pulse Power ( $t_p = 8/20\mu s$ )	$P_{pk}$	260	Watts
Peak Pulse Current ( $t_p = 8/20\mu s$ )	$I_{pp}$	10	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.)	°C
Operating Temperature	$T_J$	-55 to +125	°C
Storage Temperature	$T_{STG}$	-55 to +150	°C

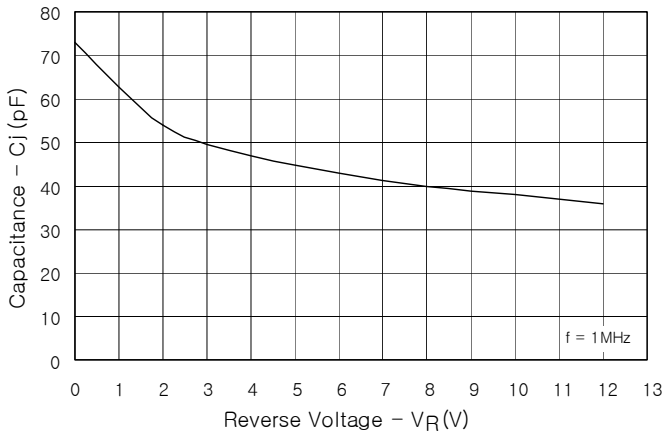
Electrical Characteristics(T <sub>amb</sub> =25 °C)									
			Pins 1 to 3 and 2 to 3 (12V TVS)			Pins 3 to 1 and 3 to 2 (7V TVS)			
Parameter	Symbol	Conditions	MIN	TYP	MAX	MIN	TYP	MAX	Units
Reverse Stand-Off Voltage	V <sub>RWM</sub>	Pin 3 to 1 or Pin 2 to 1			12			7	V
Reverse Breakdown Voltage	V <sub>BR</sub>	I <sub>PT</sub> = 1mA	13.3			7.5			V
Reverse Leakage Current	I <sub>R</sub>	V <sub>R</sub> = V <sub>RWM</sub>			1			20	μA
Clamping Voltage	V <sub>C</sub>	I <sub>pp</sub> = 5A, tp = 8/20μs			20			10	V
Clamping Voltage	V <sub>C</sub>	I <sub>pp</sub> = 10A, tp = 8/20μs			26			12	V
Junction Capacitance	C <sub>j</sub>	V <sub>R</sub> = 0V, f = 1MHz			75			75	pF
		V <sub>R</sub> = V <sub>RWM</sub> , f = 1MHz		45			45		pF

**Peak Pulse Power VS Pulse Time**

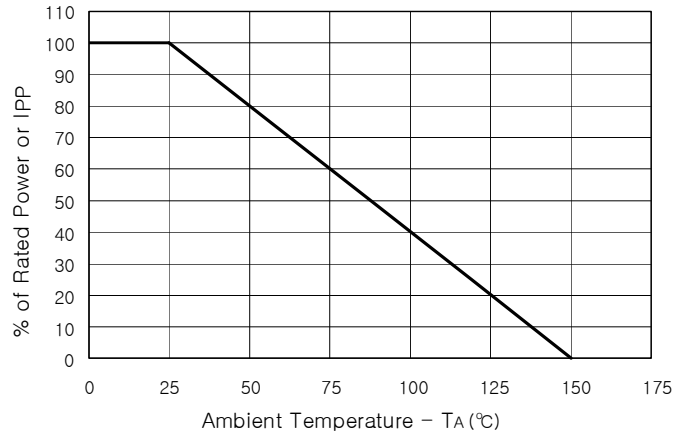


**Electrical Characteristics Curve**

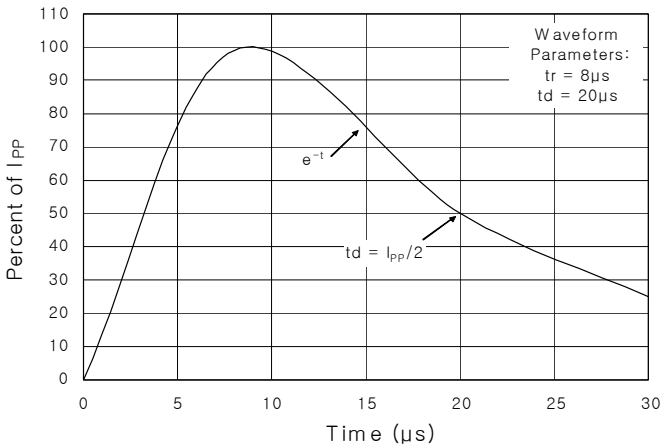
**Capacitance vs. Reverse Voltage**



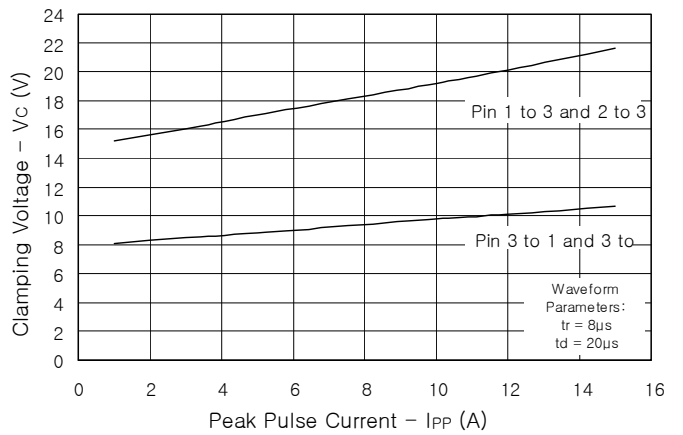
**Power Derating Curve**



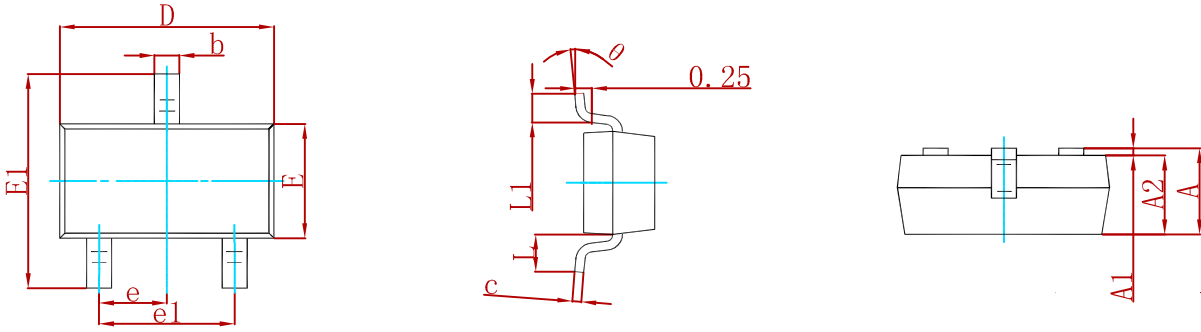
**Pulse Waveform**



**Clamping Voltage vs. Peak Pulse Current**

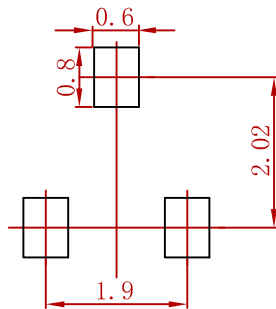


**PACKAGE MECHANICAL DATA**



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP		0.037 TYP	
e1	1.800	2.000	0.071	0.079
L	0.550 REF		0.022 REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°

**Suggested Pad Layout**



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

**REEL SPECIFICATION**

P/N	PKG	QTY
ESDBW712C2-MS	SOT-23	3000

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