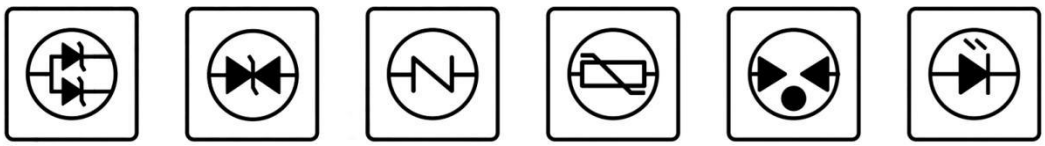
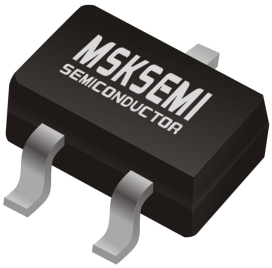
# MSKSEMI
SEMICONDUCTOR



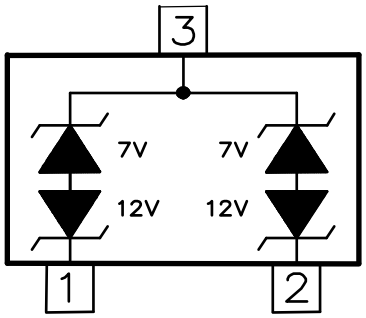

# Product data sheet




## FEATURES

- 400 watts peak pulse power ($t_p$ = 8/20μs)
- Transient protection for asymmetrical data lines to
  **IEC 61000-4-2 (ESD) ±15kV (air), ±8kV (contact)**
  **IEC 61000-4-4 (EFT) 40A (5/50ns)**
  **IEC 61000-4-5 (Lightning) 12A (8/20μs)**
- 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

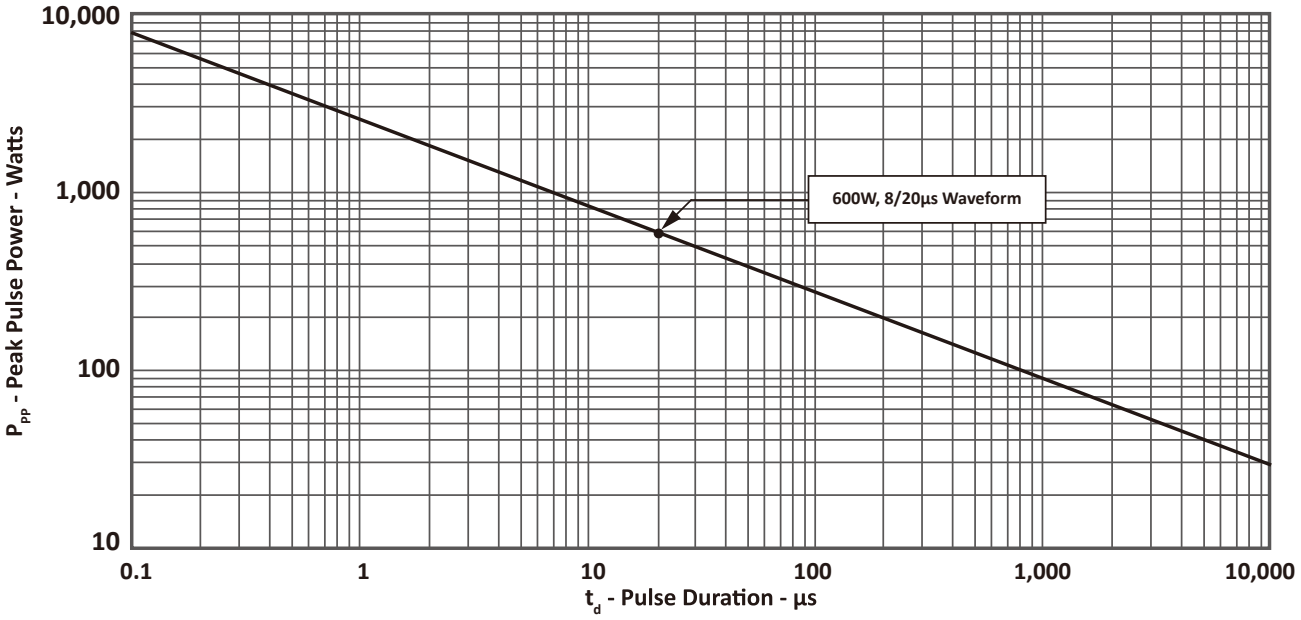
**Absolute Maximum Rating** (Tamb=25°C unless otherwise specified)

| Rating | Symbol | Value | Units |
|---|---|---|---|
| Peak Pulse Power (tp = 8/20μs) | $P_{pk}$ | 260 | Watts |
| Peak Pulse Current (tp = 8/20μs) | $I_{PP}$ | 10 | A |
| ESD per IEC 61000-4-2 (Air)<br>ESD per IEC 61000-4-2 (Contact) | $V_{ESD}$ | 15<br>8 | kV |
| Lead Soldering Temperature | $T_L$ | 260 (10 sec.) | ℃ |
| Operating Temperature | $T_J$ | -55 to +125 | ℃ |
| Storage Temperature | $T_{STG}$ | -55 to +150 | ℃ |

## Electrical Characteristics(Tamb=25 ℃)

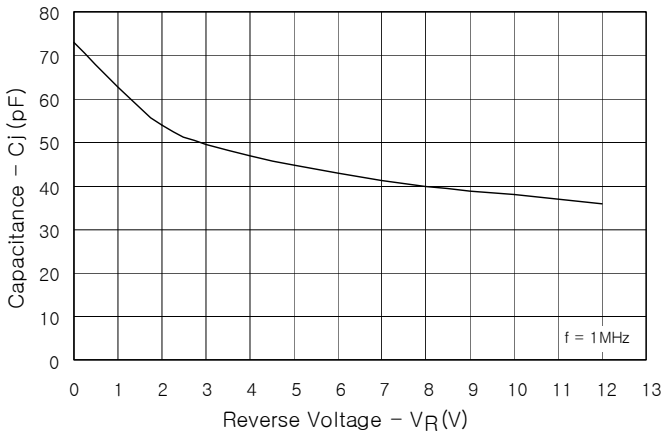
| | | | Pins 1 to 3 and 2 to 3 (12V TVS) | | | Pins 3 to 1 and 3 to 2 (7V TVS) | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Parameter** | **Symbol** | **Conditions** | **MIN** | **TYP** | **MAX** | **MIN** | **TYP** | **MAX** | **Units** |
| Reverse Stand-Off Voltage | $V_{RWM}$ | Pin 3 to 1 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, tp = 8/20μs | | | 20 | | | 10 | V |
| Clamping Voltage | $V_C$ | $I_{PP}$ = 10A, tp = 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 |

## Peak Pulse Power VS Pulse Time

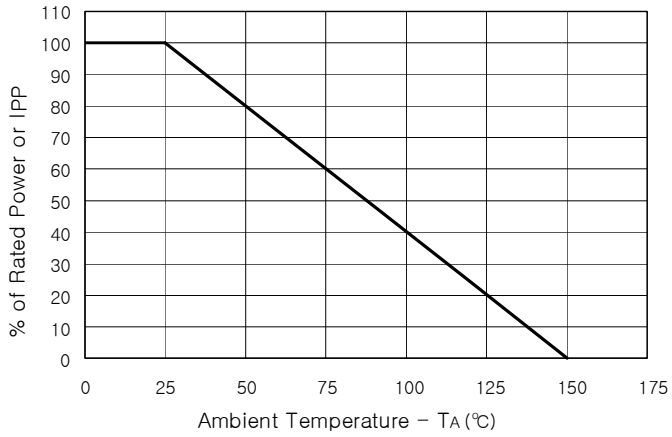


## Electrical Characteristics Curve

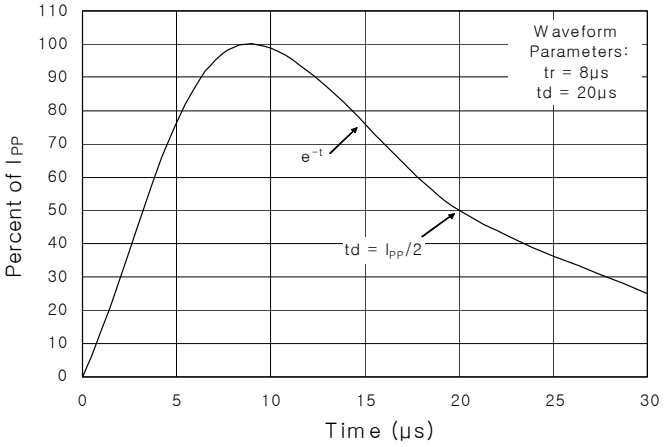
### Capacitance vs. Reverse Voltage



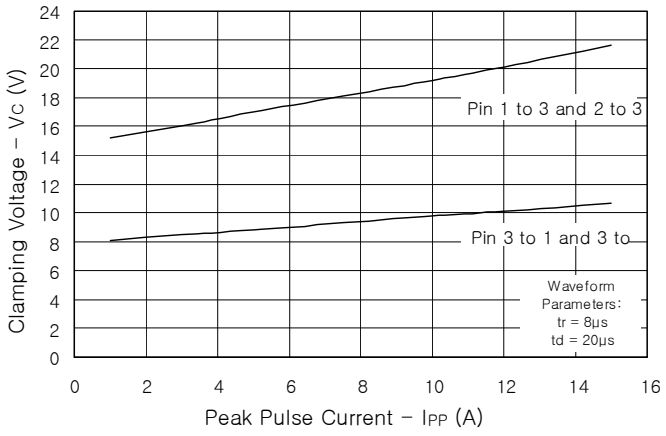

### Power Derating Curve



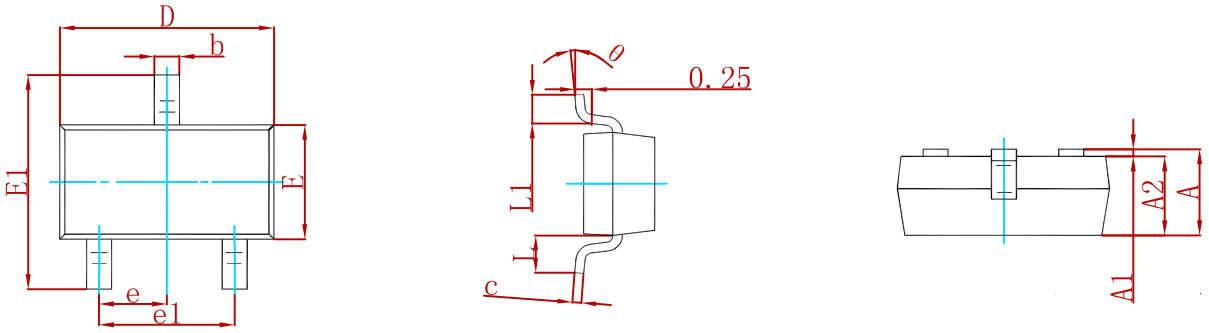

### Pulse Waveform




### Clamping Voltage vs. Peak Pulse Current

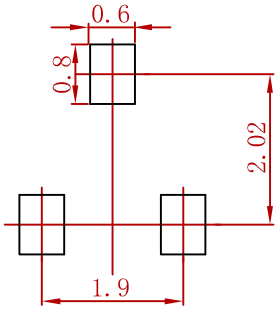


## PACKAGE MECHANICAL DATA




| 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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