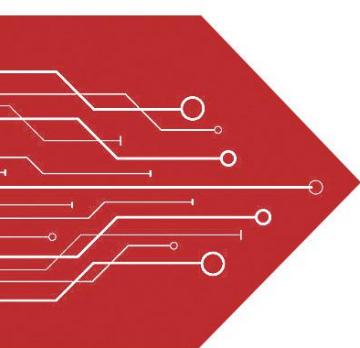


# MSKSEMI

SEMICONDUCTOR



ESD



TVS



TSS



MOV

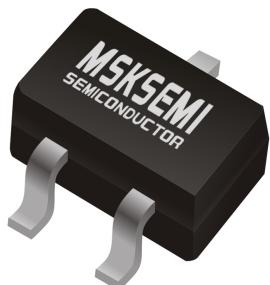


GDT



PLED

Product data sheet



SOT-23

## Features

- 300 Watts peak pulse power ( $tp = 8/20\mu s$ )
- Bidirectional configurations
- Solid-state silicon-avalanche technology
- Low clamping voltage
- Low leakage current
- Protection two data lines:
- IEC 61000-4-2  $\pm 30\text{kV}$  contact  $\pm 30\text{kV}$  air
- IEC 61000-4-4 (EFT) 40A (5/50ns)
- IEC 61000-4-5 (Lightning) 15A (8/20 $\mu s$ )

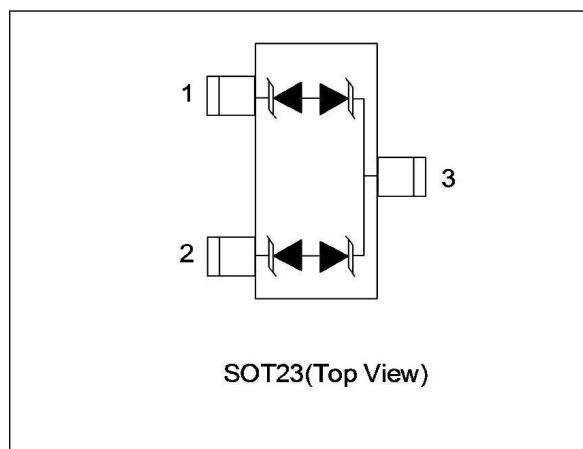
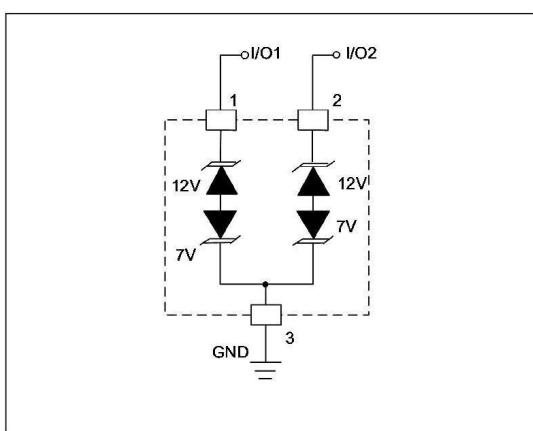
## Mechanical Data

- SOT-23 package
- Molding compound flammability rating: UL 94V-0
- Packaging: Tape and Reel
- RoHS/WEEE Compliant

## Applications

- Dataline
- Automatic Teller Machines
- Net works
- Power line

## Schematic & PIN Configuration



## Absolute Maximum Rating

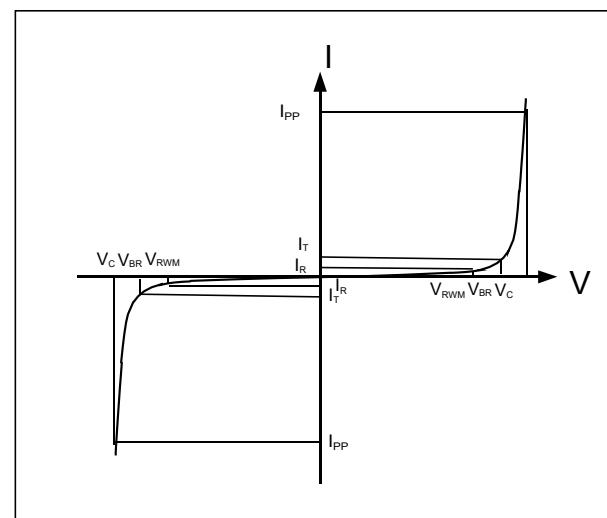
Rating	Symbol	Value	Units
Peak Pulse Power ( $t_p = 8/20\mu s$ )	$P_{PP}$	300	Watts
Peak Pulse Current ( $t_p = 8/20\mu s$ ) (note1)	$I_{PP}$	18	A
ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	$V_{ESD}$	30 30	kV
Lead Soldering Temperature	$T_L$	260(10seconds)	°C
Junction Temperature	$T_J$	-55 to + 125	°C
Storage Temperature	$T_{stg}$	-55 to + 125	°C

## Electrical Characteristics

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	Typical	Max	Min	Typical	Max	
Reverse Stand-Off Voltage	$V_{RWM}$				12			7	V
Reverse Breakdown Voltage	$V_{BR}$	$I_T = 1\text{mA}$	13.5		16	7.5		9.5	V
Reverse Leakage Current	$I_R$	$V_R = V_{RWM}$			1			1	$\mu\text{A}$
Clamping Voltage	$V_C$	$I_{PP} = 15\text{A}, t_p = 8/20\mu\text{s}$		18					V
Clamping Voltage	$V_C$	$I_{PP} = 18\text{A}, t_p = 8/20\mu\text{s}$					14		V
Junction Capacitance	$C_J$	$V_R = 0\text{V}, f = 1\text{MHz}$		27			35		$\text{pF}$

## Electrical Parameters (TA = 25°C unless otherwise noted)

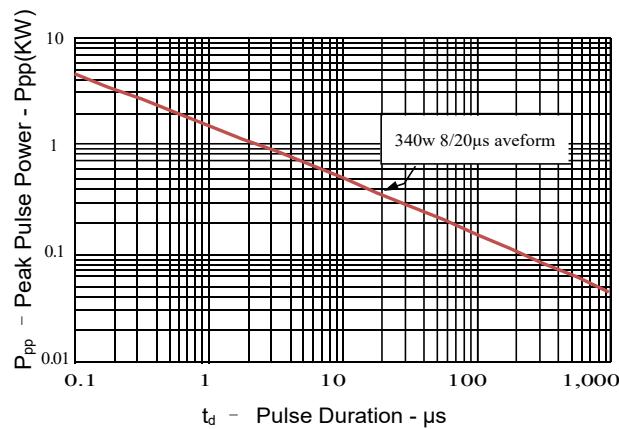
Symbol	Parameter
$I_{PP}$	Maximum Reverse Peak Pulse Current
$V_C$	Clamping Voltage @ $I_{PP}$
$V_{RWM}$	Working Peak Reverse Voltage
$I_R$	Maximum Reverse Leakage Current @ $V_{RWM}$
$V_{BR}$	Breakdown Voltage @ $I_T$
$I_T$	Test Current



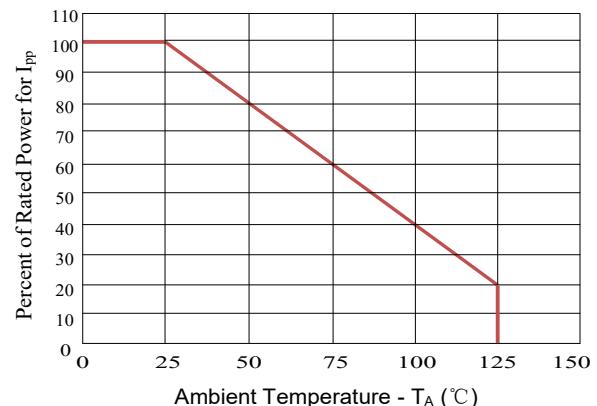
Note: 8/20 $\mu\text{s}$  pulse waveform.

## Typical Characteristics

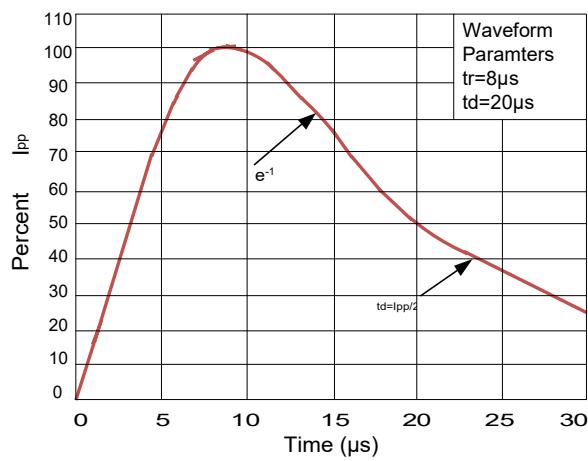
**Figure 1: Peak Pulse Power vs. Pulse Time**



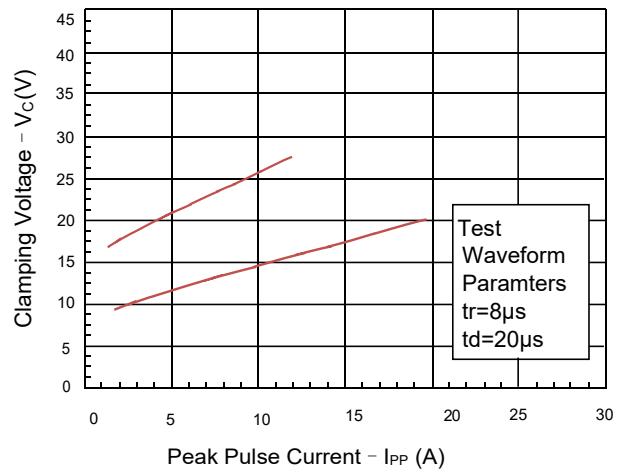
**Figure 2: Power Derating Curve**

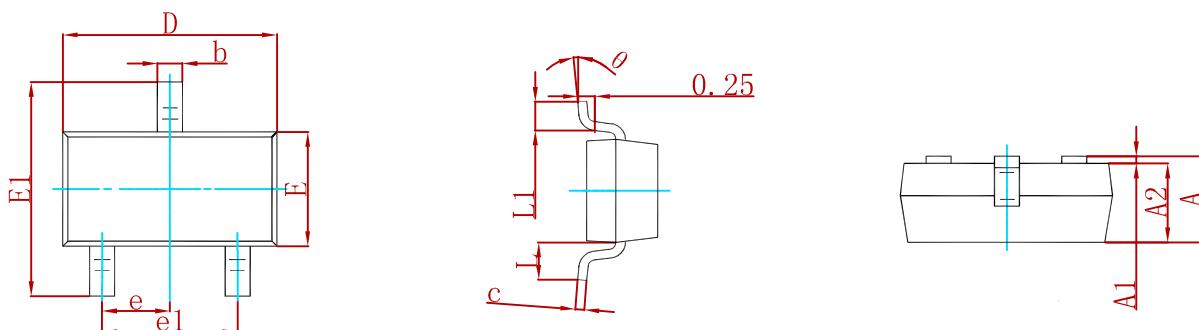


**Figure 3: Pulse Waveform**

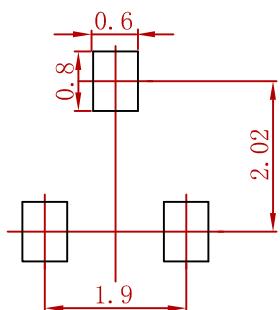


**Figure 4: Clamping Voltage vs. Ipp**



**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
$\theta$	0°	8°	0°	8°

**Suggested Pad Layout**

**Note:**

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

**REEL SPECIFICATION**

P/N	PKG	QTY
SDT23C712L02-MS	SOT-23	3000

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