

# MSKSEMI

SEMICONDUCTOR



ESD



TVS



TSS



MOV

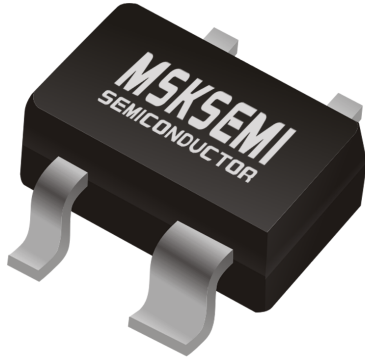


GDT



PLED

Product data sheet



SOT-143

### Features

- 150Watts peak pulse power ( $t_p = 8/20\mu s$ )
- Tiny SOT143 package
- Bidirectional configurations
- Solid-state silicon-avalanche technology
- Low clamping voltage
- Low leakage current
- Low capacitance ( $C_j = 1.5pF$  typ I/O to I/O.)
- Protection one data/power line to:
- IEC 61000-4-2  $\pm 15kV$  contact  $\pm 20kV$  air
- IEC 61000-4-4 (EFT) 40A (5/50ns)
- IEC 61000-4-5 (Lightning) 5A (8/20 $\mu s$ )

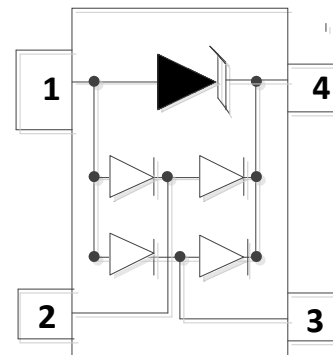
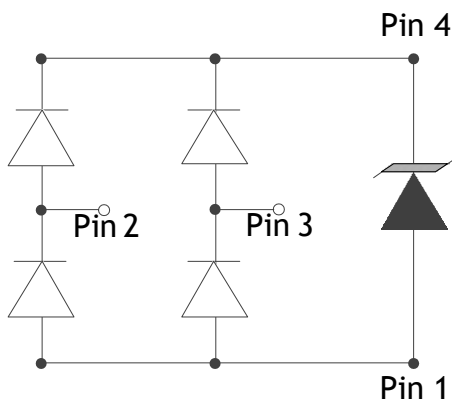
### Mechanical Data

- SOT143 package
- Molding compound flammability rating: UL 94V-0
- Packaging: Tape and Reel
- RoHS/WEEE Compliant

### Applications

- USB2.0,
- Ethernet
- Notebooks, Desktops, and Servers
- Video Line Protection

### Schematic & PIN Configuration



### Absolute Maximum Rating

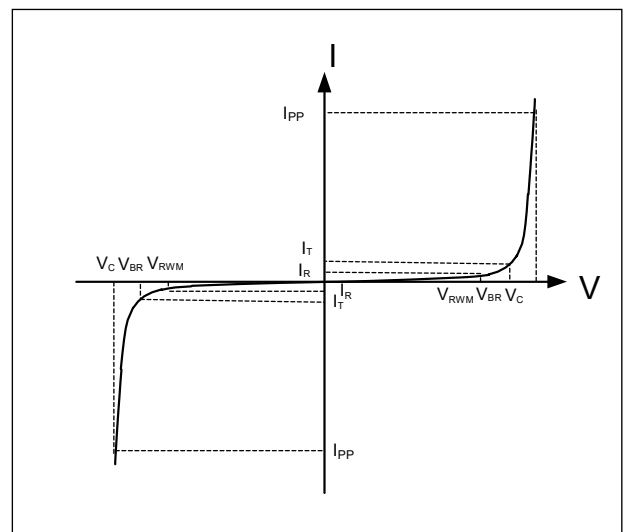
Rating	Symbol	Value	Units
Peak Pulse Power ( $t_p = 8/20\mu s$ )	$P_{PP}$	150	Watts
Peak Pulse Current ( $t_p = 8/20\mu s$ ) (note1)	$I_{pp}$	5	A
ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	$V_{ESD}$	20 15	kV
Lead Soldering Temperature	$T_L$	260(10seconds)	°C
Junction Temperature	$T_J$	-55 to + 125	°C
Storage Temperature	$T_{stg}$	-55 to + 125	°C

### Electrical Characteristics

Parameter	Symbol	Conditions	Min	Typical	Max	Units
Reverse Stand-Off Voltage	$V_{RWM}$				5.5	V
Reverse Breakdown Voltage	$V_{BR}$	$I_T = 1mA$	6.0			V
Reverse Leakage Current	$I_R$	$V_{RWM} = 5V, T = 25^\circ C$			500	nA
Clamping Voltage	$V_C$	$I_{PP} = 5A, t_p = 8/20\mu s$		14		V
Junction Capacitance	$C_j$	$V_R = 0V, f = 1MHz$ IO to IO		1.5		pF
		$V_R = 0V, f = 1MHz$ IO to GND		1.0	2.0	

### 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: 8/20µs pulse waveform.

## Typical Characteristics

Figure 1: Peak Pulse Power vs. Pulse Time

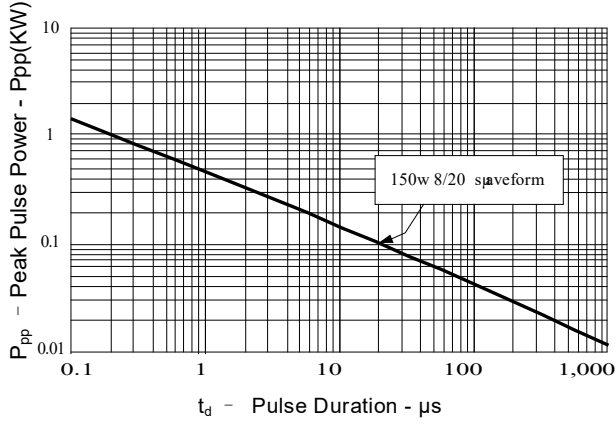


Figure 2: Power Derating Curve

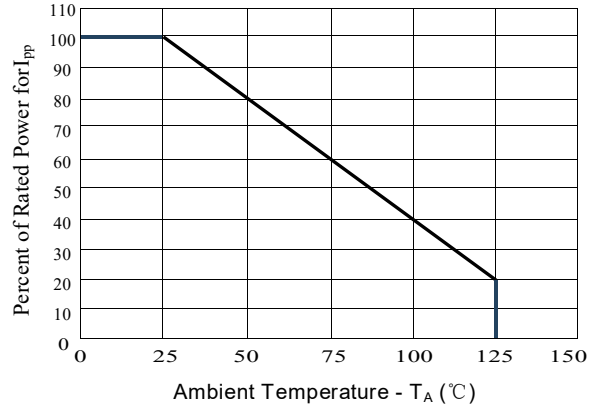


Figure3: Pulse Waveform

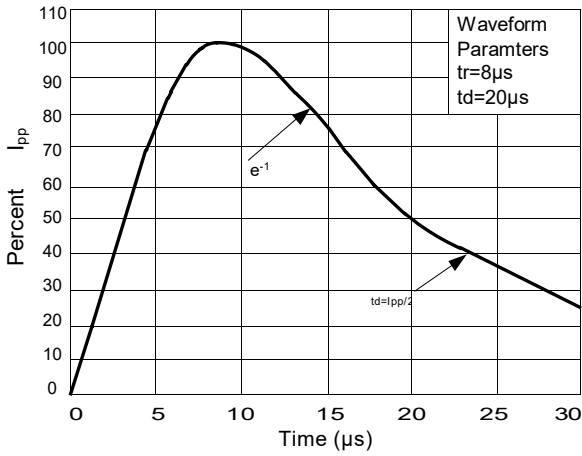
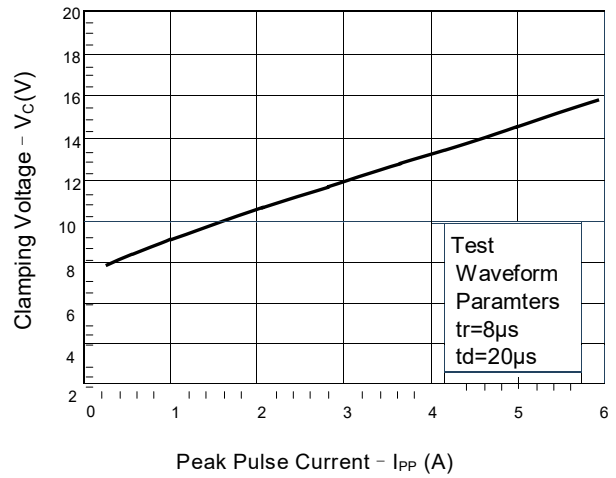
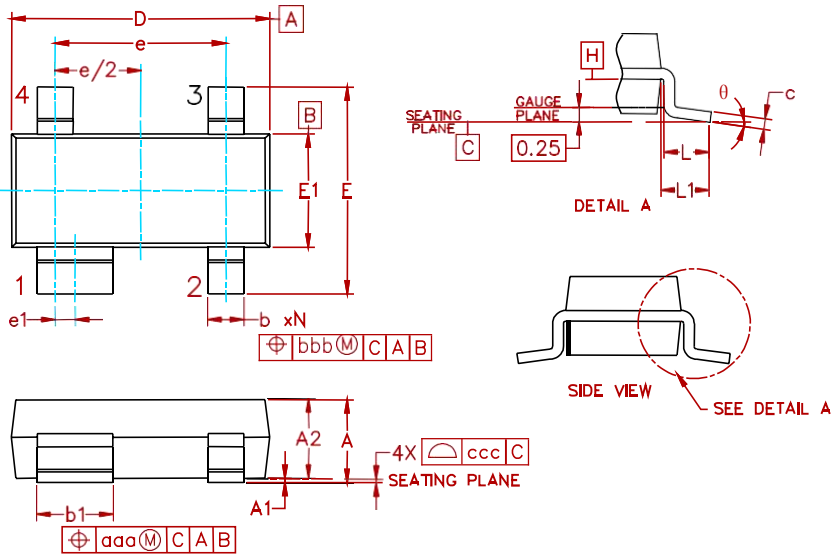


Figure 4: Clamping Voltage vs. I\_pp

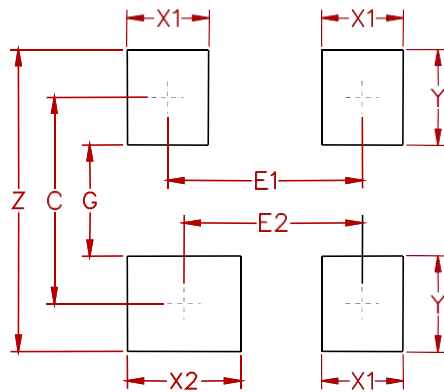


**PACKAGE MECHANICAL DATA**



Symbol	Inches			Millimeters		
	Min.	Nom.	Max.	Min.	Nom.	Max.
A	0.031	-	0.048	0.80	-	1.22
A1	0.000	-	0.008	0.013	-	0.15
A2	0.020	0.035	0.042	0.75	0.90	1.07
b	0.011	-	0.020	0.30	-	0.51
b1	0.029	-	0.037	0.76	-	0.94
c	0.003	-	0.008	0.08	-	0.20
D	0.110	0.114	0.120	2.80	2.90	3.04
E	0.082	0.093	0.104	2.10	2.37	2.64
E1	0.047	0.051	0.055	1.20	1.30	1.40
e	0.075			1.92 BSC		
e1	0.008			0.20 BSC		
L	0.015	0.020	0.024	0.40	0.50	0.60
L1	(0.021)			(0.54)		
N	4			4		
θ	0°	-	8°	0°	-	8°
aaa	0.006			0.15		
bbb	0.008			0.20		
ccc	0.004			0.10		

**Suggested Pad Layout**



**REEL SPECIFICATION**

P/N	PKG	QTY
CM1213A-02SR	SOT-143	3000

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