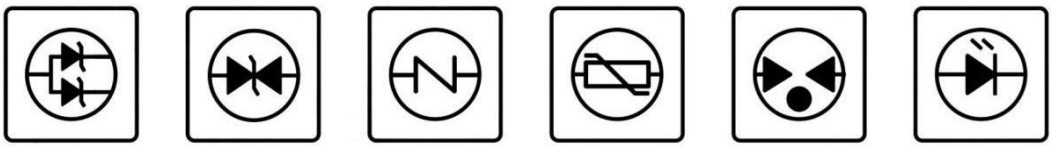
MSKSEMI 美森科
SEMICONDUCTOR



ESD05V14T-MS

Product specification

ESD05V14T-MS

Features

- 60Watts peak pulse power (tp = 8/20μs)
- Tiny SOT-143 package
- Bidirectional configurations
- Solid-state silicon-avalanche technology
- Low clamping voltage
- Low leakage current
- Low capacitance (Cj=0.45pF typ I/O to I/O.)
- Protection one data/power line to:
- IEC 61000-4-2 ±20kV contact ±20kV air
- IEC 61000-4-4 (EFT) 40A (5/50ns)
- IEC 61000-4-5 (Lightning) 4A (8/20μs)

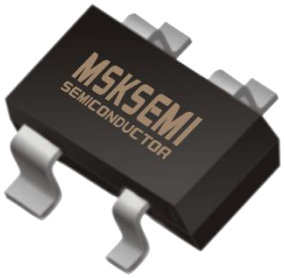
Mechanical Data

- SOT-143 package
- Molding compound flammability rating: UL 94V-0
- Packaging: Tape and Reel
- RoHS/WEEE Compliant

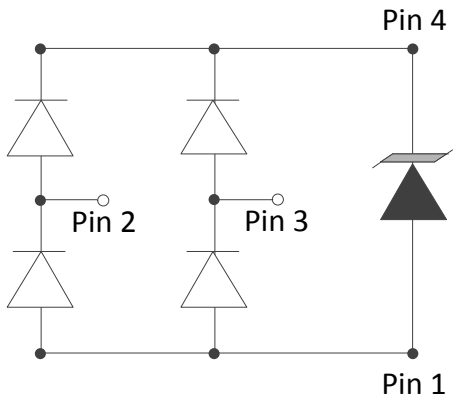
Applications

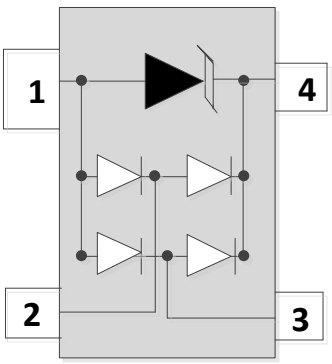
- USB2.0,
- Ethernet
- Notebooks, Desktops, and Servers
- Video Line Protection

Reference News

SOT-143	Marking
	WR1**

Schematic & PIN Configuration





Absolute Maximum Rating

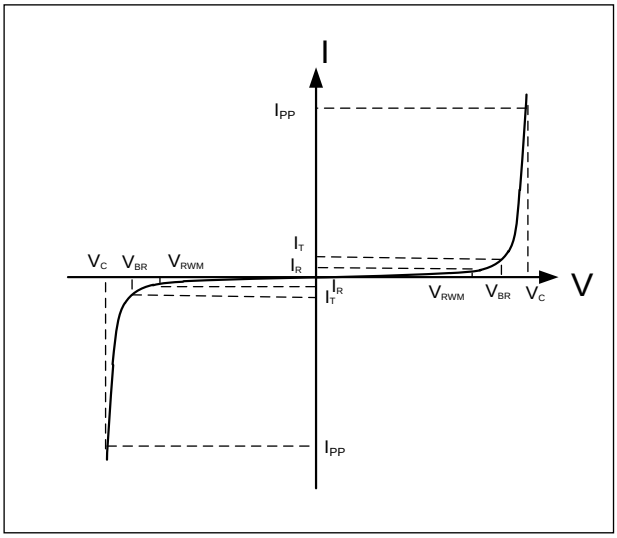
Rating	Symbol	Value	Units
Peak Pulse Power (t_p =8/20μs)	P_{PP}	60	Watts
Peak Pulse Current (t_p =8/20μs) (note1)	I_{pp}	5	A
ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	V_{ESD}	20 20	kV
Lead Soldering Temperature	T_L	260(10seconds)	℃
Junction Temperature	T_J	-55 to + 125	℃
Storage Temperature	T_{stg}	-55 to + 125	℃

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	6.7		V
Reverse Leakage Current	I_R	V_{RWM}=5V,T=25℃			100	nA
Clamping Voltage	V_C(I/O-GND)	I_{PP}=5A,t_p=8/20μs		12.5		V
Junction Capacitance	C_j	V_R = 0V, f = 1MHz IO to IO		0.45		pF
		V_R = 0V, f = 1MHz IO to GND		0.95		
		V_R = 0V, f = 1MHz VCC to GND		1.0		

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

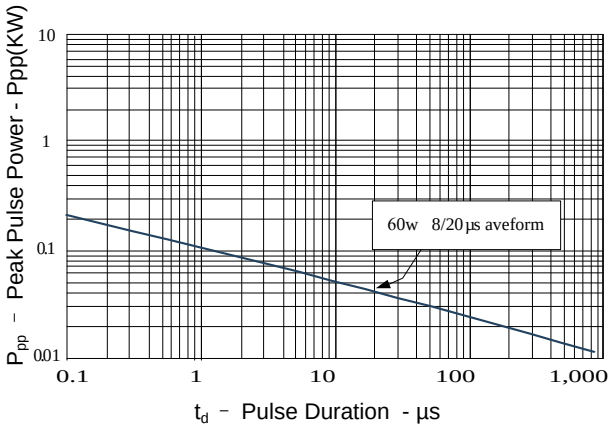


Figure 2: Power Derating Curve

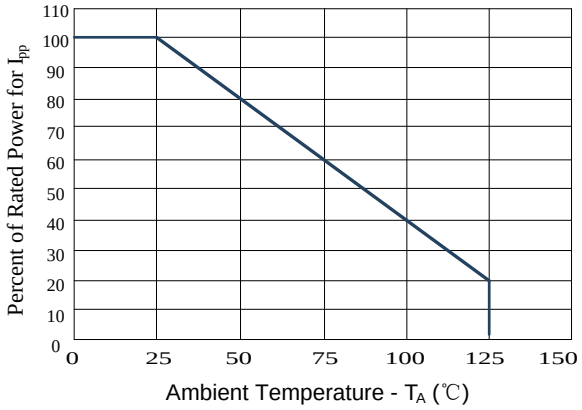


Figure3: Pulse Waveform

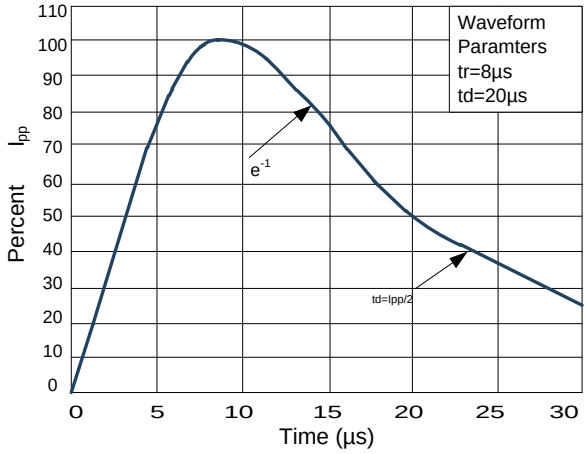
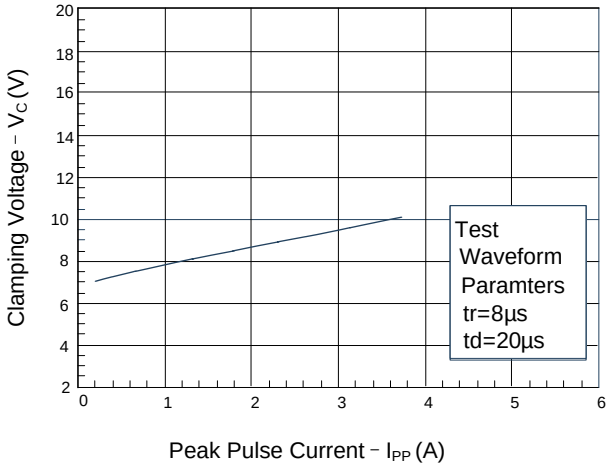
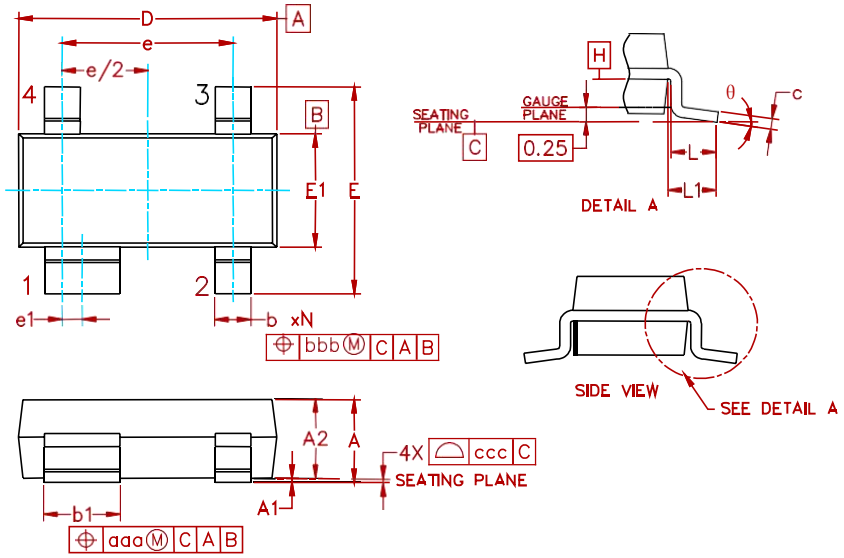


Figure 4: Clamping Voltage vs.Ipp

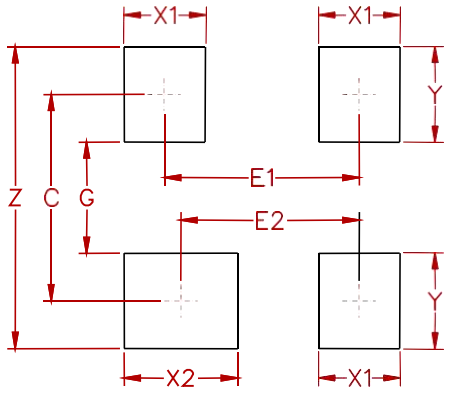


PACKAGEMECHANICALDATA



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



Order information

Orderable Device	Package	Packing Option
ESD05V14T-MS	SOT-143	3000PCS

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