

# MSKSEMI

SEMICONDUCTOR



ESD



TVS



TSS



MOV



GDT



PLED

Product data sheet

[www.msksemi.com](http://www.msksemi.com)

**Applications**

- Cellular phones audio
- MP3 players
- Digital cameras
- Portable applications
- mobile telephone

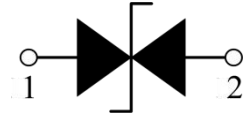
**Features**

- Small Body Outline Dimensions:  
0.039" x 0.024"(1.0 mm x 0.60 mm)
- Low Body Height: 0.020" (0.50 mm) Max
- Stand-off Voltage: 12 V
- Low Leakage
- Response Time is Typically < 1 ns
- IEC61000-4-2 Level 4 ESD Protection
- We declare that the material of product compliance with RoHS requirements.

**Pin Description**



**Schematic Diagram**



DFN1006-2L

**ELECTRICAL CHARACTERISTICS** (T<sub>A</sub>=25°C unless otherwise noted, V<sub>F</sub>=0.9V Max. @ I<sub>F</sub>=10Ma for all types)

P/N	V <sub>RWM</sub> (V)	I <sub>R</sub> (μA) @ V <sub>RWM</sub>	V <sub>BR</sub> (V) @ I <sub>T</sub> (Note 2)	I <sub>T</sub> (mA)	I <sub>PP</sub> (A) (Note 3)	V <sub>C</sub> (V) @ Max I <sub>PP</sub> (Note 3)	P <sub>PK</sub> (W) (8*20 μs)	C (pF)
	Max	Max	Min		Max	Max	Typ	Typ
ESD9N12BA-MS	12	1.0	1.33	1.0	5.8	23.4	140	30

Other voltage available upon request.

2. V<sub>BR</sub> is measured with a pulse test current I<sub>T</sub> at an ambient temperature of 25°C
3. Surge current waveform per Figure 3.

**MAXIMUM RATINGS**

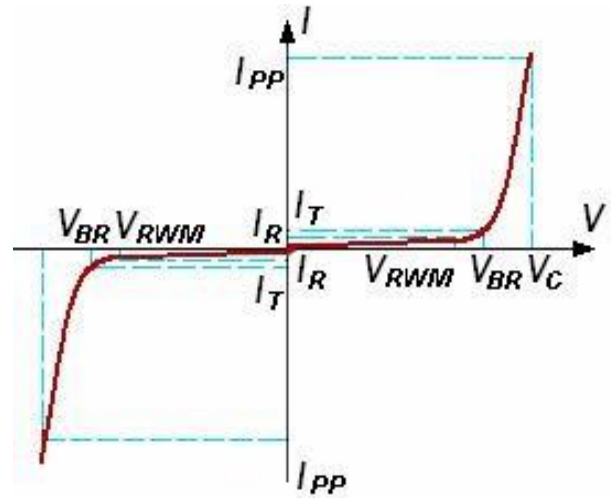
Rating	Symbol	Value	Unit
IEC 61000-4-2 (ESD) Air Contact Contact discharge		±15 ±8	kV kV
ESD Voltage Per Human Body Model		16	kV
Total Power Dissipation on FR-5 Board (Note 1) @ T <sub>A</sub> =25°C	PD	150	Mw
Junction and Storage Temperature Range	T <sub>J</sub> ,T <sub>STTh</sub>	-55 to 150	°C
Lead Solder Temperature – Maximum (10 Second Duration)	TL	260	°C

Stresses exceeding Maximum Ratings may damage the device. Maximum Rating are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

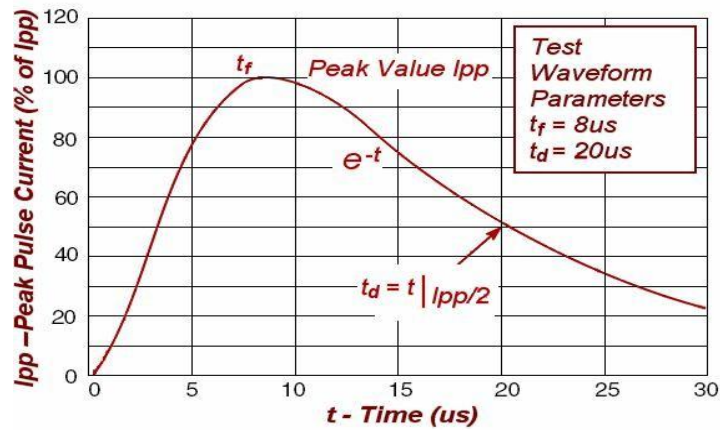
1 FR-5 = 1 0\*0 75\*0 62 in

**Electrical Parameter**

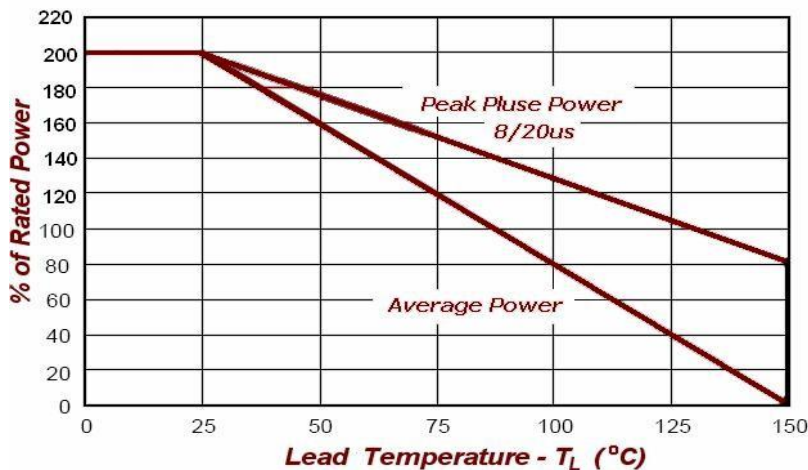
Symbol	Parameter
$I_{PP}$	Maximum Reverse Peak Pulse Current
$V_C$	Clamping Voltage @ $I_{PP}$
$V_{RWM}$	Working Peak Reverse Voltage
$I_R$	Maximum Reverse Leakage Current @ $V_{RWM}$
$I_T$	Test Current
$V_{BR}$	Breakdown Voltage @ $I_T$



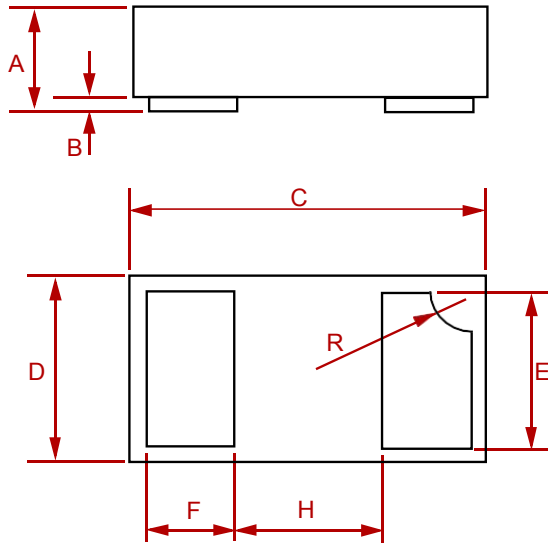
**FIG1: Pulse Waveform**



**FIG2: Power Derating**

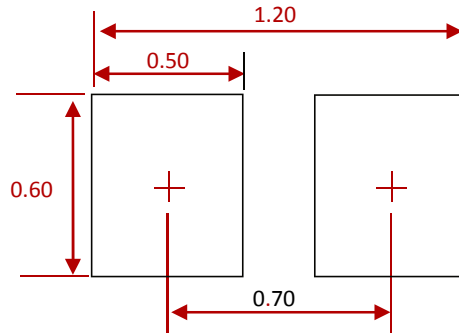


**PACKAGE MECHANICAL DATA**



Dim	Inches		Millimeters	
	MIN	MAX	MIN	MAX
A	0.0125	0.02	0.32	0.52
B	0.000	0.002	0.00	0.05
C	0.037	0.043	0.95	1.080
D	0.022	0.027	0.55	0.680
E	0.016	0.024	0.40	0.60
F	0.008	0.012	0.20	0.30
H	0.015Typ.		0.40Typ.	
R	0.001	0.005	0.05	0.15

**Suggested Pad Layout**



**NOTES:**

1. CONTROLLING DIMENSIONS ARE IN MILLIMETERS (ANGLES IN DEGREES).
2. THIS LAND PATTERN IS FOR REFERENCE PURPOSES ONLY. CONSULT YOUR MANUFACTURING GROUP TO ENSURE YOUR COMPANY'S MANUFACTURING GUIDELINES ARE MET.

**REEL SPECIFICATION**

P/N	PKG	QTY
ESD9N12BA-MS	DFN1006-2L	10000

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