MSKSEMI 美森科
SEMICONDUCTOR

ESD TVS TSS MOV GDT PLED

ESD9N12BA-MS

Product specification

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
- ESD Rating of Class 3 (> 16 kV) per Human Body Model
- IEC61000−4−2 Level 4 ESD Protection
- We declare that the material of product compliance with RoHS requirements.

Applications

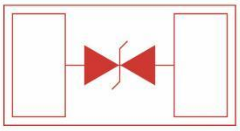
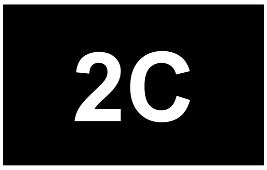
- Cellular phones audio
- MP3 players
- Digital cameras
- Portable applicationss
- mobile telephone

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
IEC 61000-4-2 (ESD) Air Contact Contact discharge		±25 ±25	kV kV
ESD Voltage Per Human Body Model		16	kV
Total Power Dissipation on FR-5 Board (Note 1) @ T_A=25℃	PD	150	Mw
Junction and Storage Temperature Range	TJ,TSTTh	-55 to 150	℃
Lead Solder Temperature – Maximum (10 Second Duration)	TL	260	℃

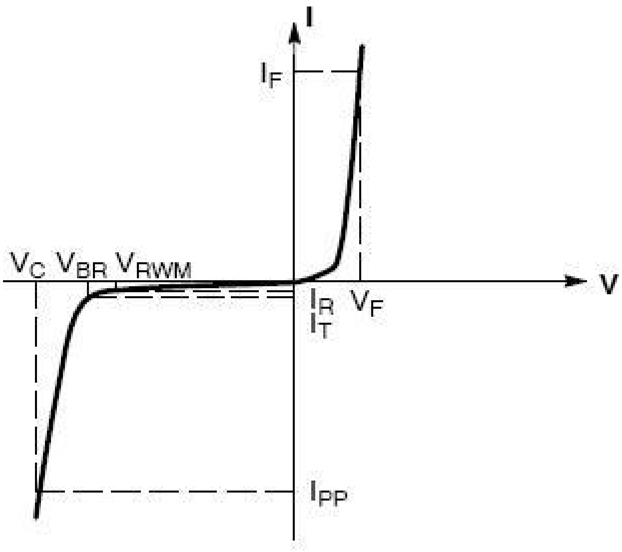
Stresses exceeding Maximum Ratings may damage the device. Maximum Rating are stress ratings onyl. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.1. FR-5 = 1.0*0.75*0.62 in.

Reference News

PACKAGE OUTLINE	Circuit Diagram	Marking
		
DFN1006-2L		

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
I_F	Forward Current
V_F	Forward voltage @ I_F
P_{PK}	Peak Power Dissipation
C	Max. Capacitanoe @V_R = 0 and f =1 MHz



Uni-Directional TVS

ELECTRICAL CHARACTERISTICS

(TA=25℃unless otherwise noted, VF=0.9V Max. @ IF=10Ma for all types)

Device	V_{RWM} (V)	I_R (μA) @ V_{RWM}	V_{BR} (V) @ I_T (Note 2)	I_T （mA）	I_{PP} (A) (Note 3)	V_C (V) @ Max I_{PP} (Note 3)	P_{PK} (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_{BR} is measured with a pulse test current IT at an ambient temperature of 25℃

3. Surge current waveform per Figure 3.

TYPICALCHARACTERISTICS

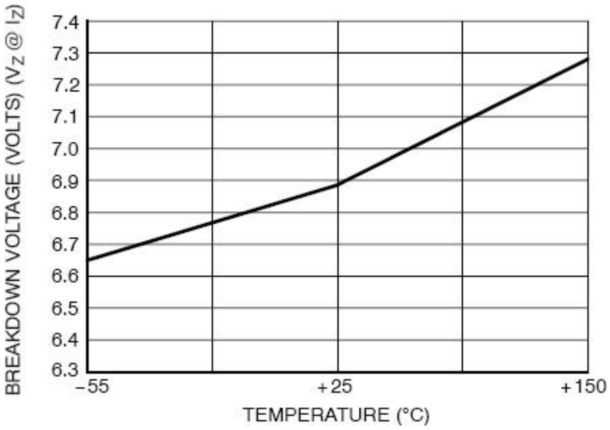


Figure 1. Typical Breakdown Voltage versus Temperature

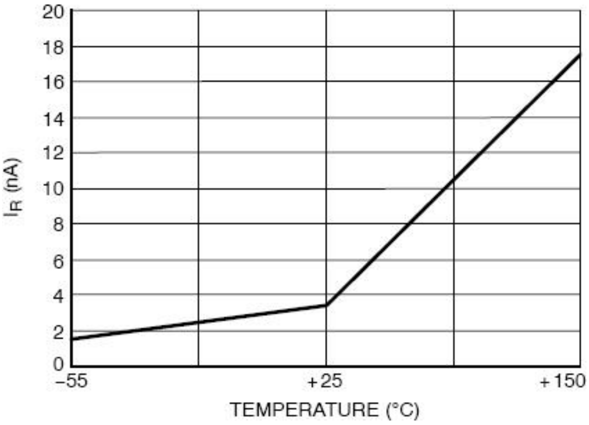


Fig 2. Typical Leakage Current versus Temperature

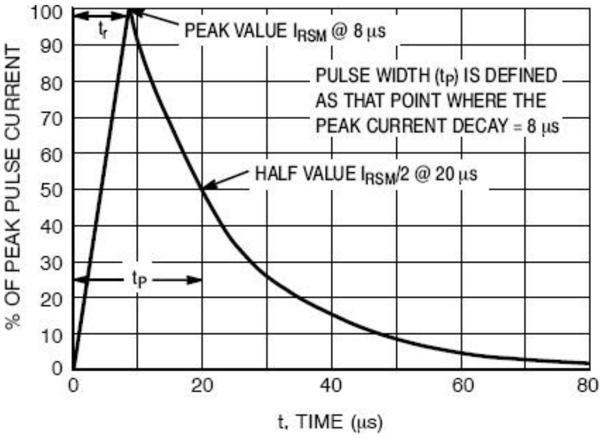


*Figure 3. 8*20 μs Pulse Waveform*

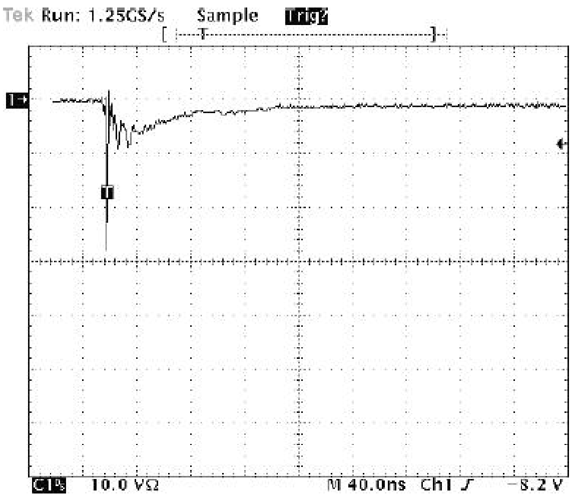
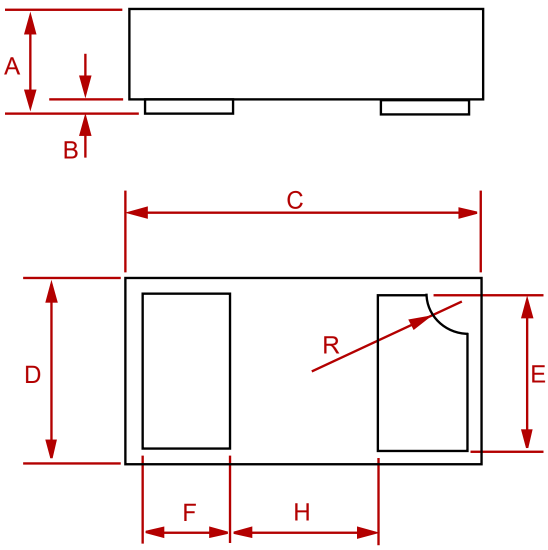


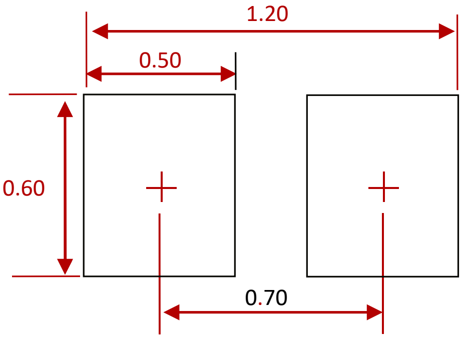
Fig 5. Negative 8kV contact per IEC 61000-4-2-

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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