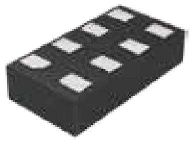
FEATURES

- 200W Peak Pulse Power per Line (tp=8/20µs)
- Protects Up To Two Bidirectional I/O Lines
- Low Capacitance (0.4pF) For High-Speed Interfaces
- Working Voltages : 3.0V
- Ultra-small Package Requires Less Than 2.0x1.0mm of PCB area

APPLICATIONS

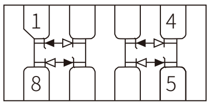
- 10/100/1000 Ethernet
- Integrated magnetics/RJ-45 connectors
- LAN/WAN Equipment
- Security Cameras
- Industrial Controls
- Peripherals
- Notebooks & Desktop Computers



DFN2010-8L

U33

Marking



Schematic Symbol

IEC COMPATIBILITY

- IEC61000-4-2 (ESD) ±30kV (air), ±30kV (contact)
- IEC61000-4-4 (EFT) 40A (5/50ns)

APPROVALS

RoHS	Compliance with 2011/65/EU
HF	Compliance with IEC61249-2-21:2003

THERMAL CONSIDERATIONS

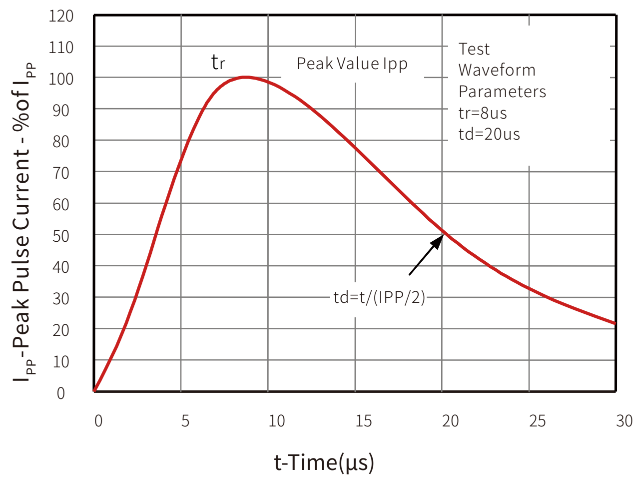
Symbol	Parameter	Value	Unit
P_{pp}	Peak Pulse Power (tp=8/20µs waveform)	200	Watts
T_J	Operating Temperature Range	-55 to +150	°C
T_{STG}	Storage Temperature Range	-55 to +150	°C

ELECTRICAL CHARACTERISTICS

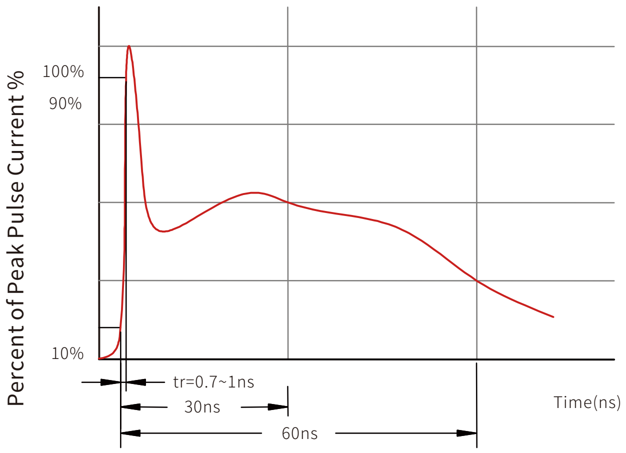
Symbol	Parameter	Condition	Min.	Typ.	Max.	Unit
V_{RWM}	Reverse Stand-off Voltage				3	V
V_{BR}	Reverse Breakdown Voltage	I_T=1mA	3.5			V
I_R	Reverse Leakage Current	V_{RWM}=3V			0.1	µA
V_C	Clamping Voltage	I_{PP}=1A,tp=8/20µs			7	V
V_C	Clamping Voltage	I_{PP}=13A,tp=8/20µs			17	V
I_{PP}	Peak Pulse Current	tp=8/20µs			13	A
C_J	Off State Junction Capacitance	V_R=0V, f=1MHz		0.6		pF

CHARACTERISTIC CURVES

8/20µs Pulse Waveform

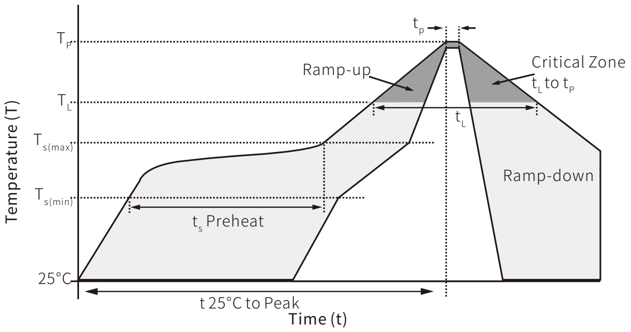


ESD Pulse Waveform (according to IEC 61000-4-2)

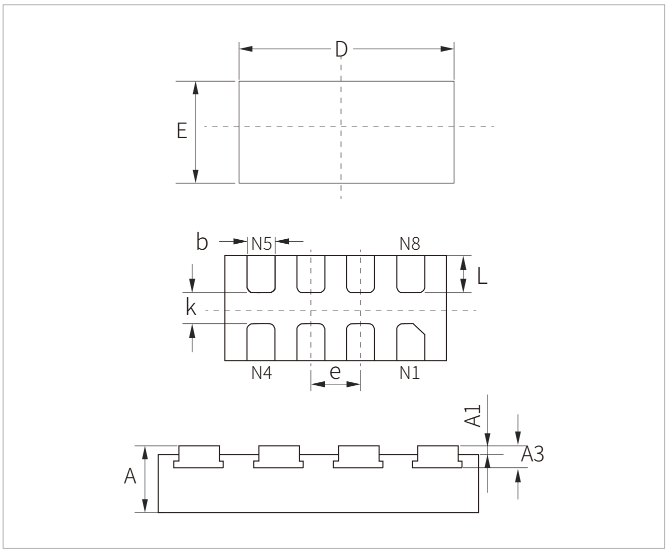


SOLDERING PARAMETERS

Reflow Condition		Lead–free assembly
Pre Heat	Temperature Max ($T_{s(min)}$)	150°C
	Temperature Max ($T_{s(max)}$)	200°C
	Time (min to max) (t_s)	60 – 180 secs
Average ramp up rate (Liquidus Temp (T_L) to peak		3°C/second max
	$T_{S(max)}$ to T_L - Ramp-up Rate	3°C/second max
Reflow	Temperature (T_L) (Liquidus)	217°C
	Time (min to max) (t_L)	60 – 150 seconds
Peak Temperature (T_P)		260°C
Time within 5°C of actual peak Temperature (t_p)		20 – 40 seconds
Ramp-down Rate		6°C/second max
Time 25°C to peak Temperature (T_P)		8 minutes max.
Do not exceed		260°C

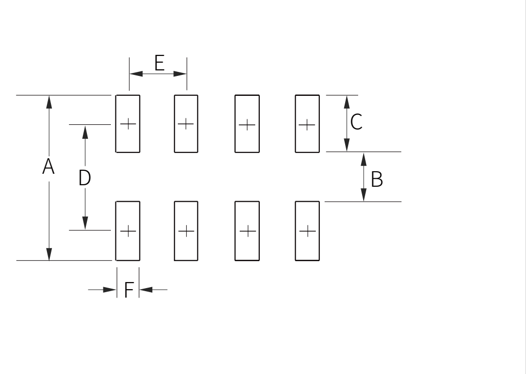


DFN2010-8L PACKAGE INFORMATION



Ref.	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.320	0.400	0.013	0.016
A1	0.000	0.046	0.000	0.002
A3	0.110REF		0.004REF	
D	1.900	2.100	0.075	0.083
E	0.900	1.100	0.035	0.043
k	0.300REF		0.012REF	
b	0.200	0.300	0.008	0.012
e	0.500TYP		0.020TYP	
L	0.274	0.426	0.011	0.017

RECOMMENDED PAD LAYOUT DIMENSIONS



Ref.	Millimeters	Inches
A	1.55	0.061
B	0.25	0.010
C	0.65	0.026
D	0.90	0.035
E	0.50	0.020
F	0.30	0.012

ORDERING INFORMATION

Part Number	Component Package	QTY/Reel	Reel Size
SE20F20B3.0MA	DFN2010-8L	3000PCS	7”

Headquarters
No.3387 Shendu Road
Pujiang I&E Park
Minhang Shanghai China
201000

Hotline
400-021-5756

Web
Https://www.semiware.com

Sales Center
Tel: 86-21-3463-7458
Email: sales18@semiware.com

Customer Service
Tel: 86-21-5484-1001
Email: sales17@semiware.com

Technical Support
Tel: 86-21-3463-7654
Email: fae01@semiware.com

Complaint & Suggestions
Tel: 86-21-3463-7172
Ext: 8868
Email: cs03@semiware.com

By QR Code
Website Wechat

To find your local partner within Semiware’ s global website: www.semiware.com