SE10F10U5.0MA-SP

Electrostatic Discharge Protection Device

FEATURES

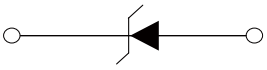
- 96 Watts Peak Pulse Power per Line (tp=8/20μs)
- Protects one high-speed data line
- Ultra Low capacitance
- Low Leakage Current
- Low Clamping Voltage

APPLICATIONS

- Serial ATA
- Desktops, Servers and Notebooks
- Cellular Phones
- MDDI Ports
- USB Data Line Protection
- Display Ports
- Digital Visual Interfaces (DVI)

DFN1006

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)	96	Watts
T_J	Operating Temperature Range	-55 to +125	°C
T_{STG}	Storage Temperature Range	-55 to +150	°C

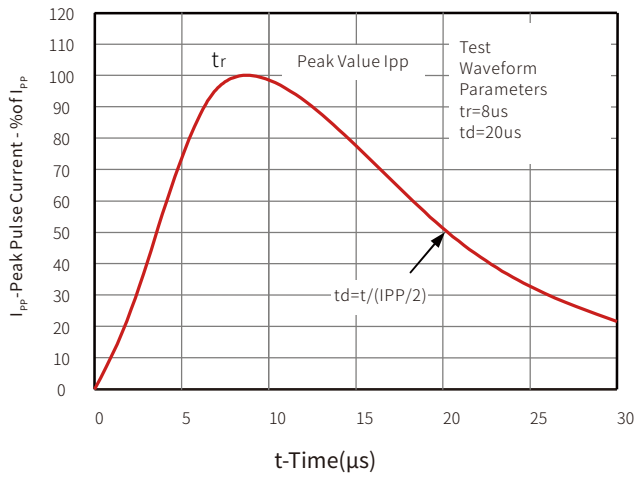
ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Condition	Min.	Typ.	Max.	Unit
V_{RWM}	Reverse Working Voltage				5.0	V
V_{BR}	Reverse Breakdown Voltage	I_T=1mA	6.0		9.5	V
V_F	Forward Voltage	I_T=10mA	0.5	0.8	1.2	V
I_R	Reverse Leakage Current	V_{RWM}=5V			100	nA
V_{CF}	Forward Clamping Voltage (1)	I_{PP}=16A,tp=100ns		3.8		V
V_C	Clamping Voltage	I_{PP}=1A,tp=8/20μs		5.7	7.0	V
V_C	Clamping Voltage	I_{PP}=8A,tp=8/20μs		9.8	12.0	V
R_{DYN}	Dynamic Resistance (1)			0.19		Ω
I_{PP}	Peak Pulse Current	tp=8/20μs			8	A
C_J	Junction Capacitance	V_R=0V, f=1MHz		0.4	0.6	pF

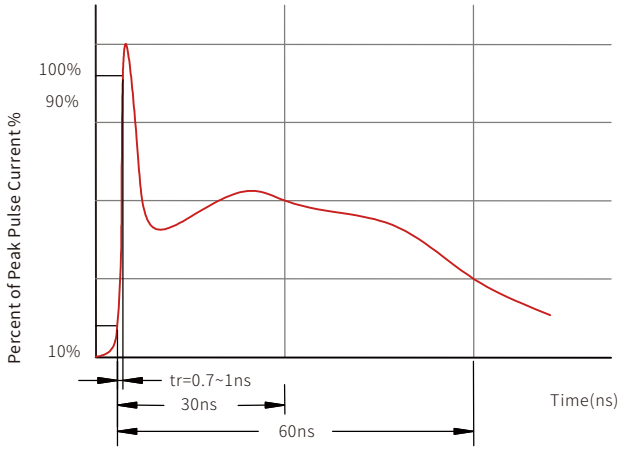
(1) Clamping Voltage was measured by Transmission Line Pulse Test (TLP), TLP conditions: Z_0 = 50 Ω, t_r = 0.6ns, t_p = 100ns, I_{TLP} and V_{TLP} averaging window from 70ns to 90ns. R_{DYN} is calculated from 4A to 16A.

CHARACTERISTIC CURVES

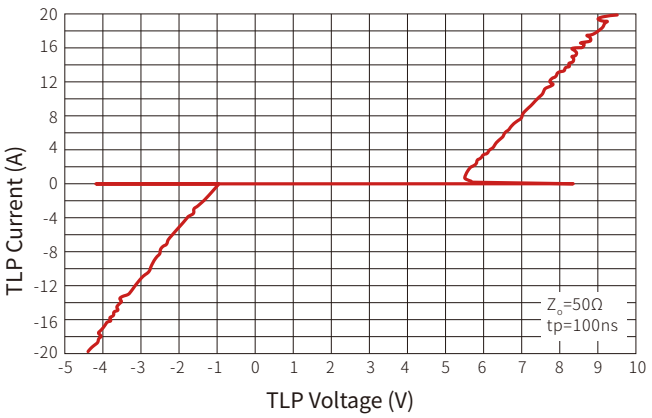
8/20μs Pulse Waveform



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

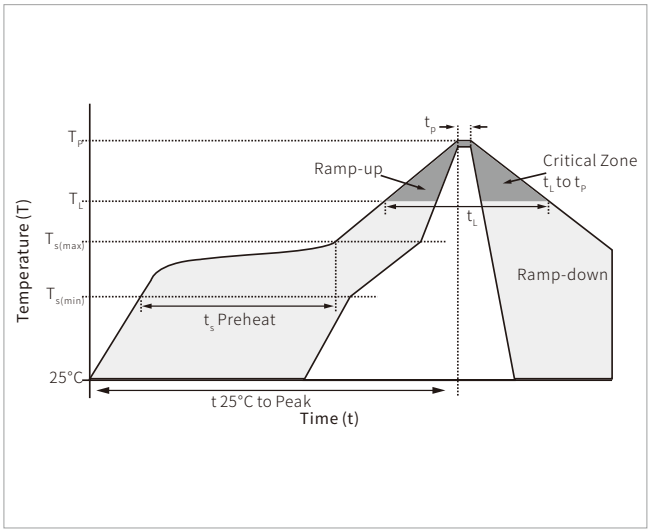


Transmission Line Pulsing Measurement

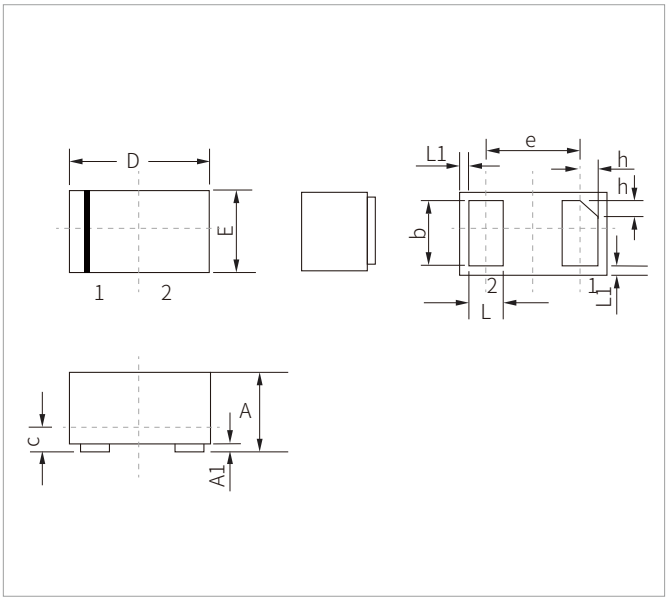


SOLDERING PARAMETERS

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

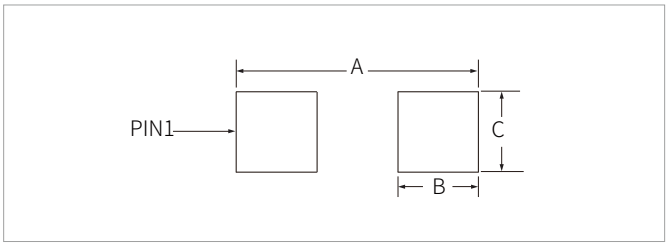


DFN1006 PACKAGE INFORMATION



Ref.	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.40	0.60	0.016	0.024
A1	0	0.05	0	0.002
b	0.40	0.55	0.016	0.022
c	0.12	0.18	0.005	0.007
D	0.90	1.10	0.035	0.043
e	0.65BSC		0.026BSC	
E	0.55	0.75	0.022	0.030
L	0.20	0.35	0.008	0.014
L1	0.05REF		0.002REF	
h	0.07	0.17	0.003	0.007

RECOMMENDED PAD LAYOUT DIMENSIONS



Ref.	Millimeters	Inches
A	1.20	0.047
B	0.47	0.019
C	0.60	0.024

ORDERING INFORMATION

Part Number	Component Package	QTY/Reel	Reel Size
SE10F10U5.0MA-SP	DFN1006	10000PCS	7”

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