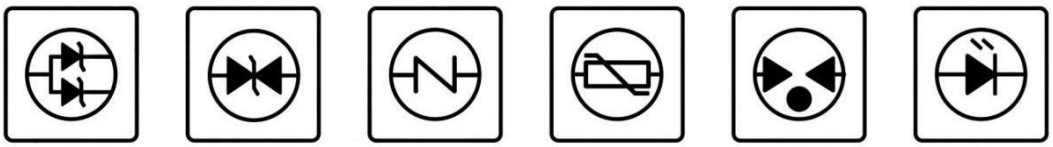
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SEMICONDUCTOR



MSESD56101D15

Product specification

Features

- 2-pin lead-less package
- Junction capacitance (Typ. value: 300pF)
- Peak Pulse Current (8/20μs) Max：110A
- IEC61000-4-2 (ESD) ±30kV (air), ±30kV (contact)
- Low clamping voltage
- Low leakage current
- Working voltages:15V
- RoHS Compliant

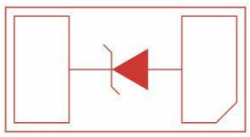
Mechanical Characteristics

- Package: DFN1610-2L
- Lead Finish:Matte Tin
- Case Material: “Green” Molding Compound.
- UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 3 per J-STD-020

Applications

- Mobile Phone, Digital cameras
- Battery Protection
- Power Line Protection
- Vbat pin for Mobile Devices
- Hand Held Portable Applications

Reference News

DFN1610-2L	Graphic symbol	Marking
		15HA

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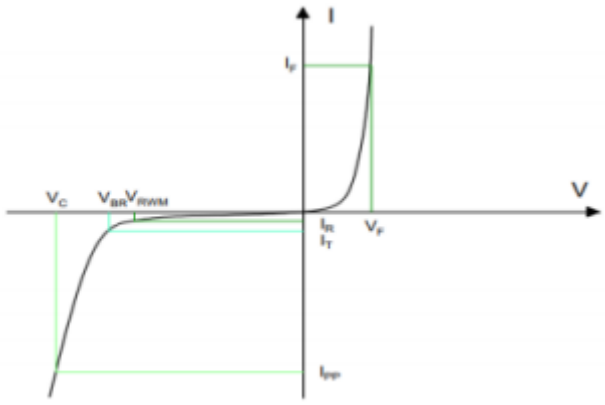
Absolute Maximum Ratings (T=25ºC, RH=45%-75%, unless otherwise noted)

Parameters	Symbol	Value	Unit
Peak Pulse Power (tp=8/20μs waveform)	P_{PP}	3850	W
Peak Pulse Current (8/20μs)	I_{PP}	110	A
ESD per IEC 61000−4−2 (Air) ESD per IEC 61000−4−2 (Contact)	V_{ESD}	±30 ±30	KV
Operating Temperature Range	T_J	−55 to +125	°C
Storage Temperature Range	Tstg	−55 to +150	°C

Electrical Characteristics (T=25ºC, RH=45%-75%, unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Reverse Working Voltage	V_{RWM}				15	V
Breakdown Voltage	V_{BR}	I_T = 1mA	16.5		19.5	V
Reverse Leakage Current	I_R	V_{RWM} =15 V			0.2	μA
Forward Voltage	V_F	I_F=10mA		1.0	1.2	V
Clamping Voltage	V_C	I_{PP} = 10A (8 x 20μs pulse)			22	V
Clamping Voltage	V_C	I_{PP} = 150A (8 x 20μs pulse)		30	35	V
Junction Capacitance	C_J	V_R = 0V, f = 1MHz		300	450	pF

Symbol	Parameter
V_{RWM}	Peak Reverse Working Voltage
I_R	Reverse Leakage Current @V_{RWM}
V_{BR}	Breakdown Voltage @I_T
I_T	Test Current
I_{PP}	Maximum Reverse Peak Pulse Current
V_C	Clamping Voltage @I_{PP}
P_{PP}	Peak Pulse Power
C_J	Junction Capacitance
I_F	Forward Current
V_F	Forward Voltage @I_F



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Typical Performance Characteristics (TA=25°C unless otherwise Specified)

FIG1：Power rating derating curve

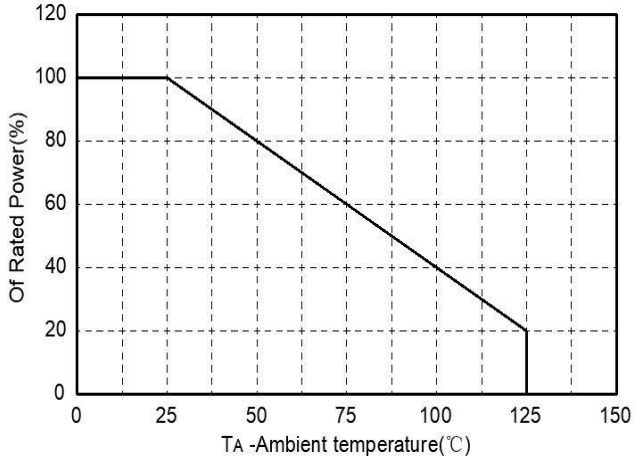


FIG2： pulse Waveform

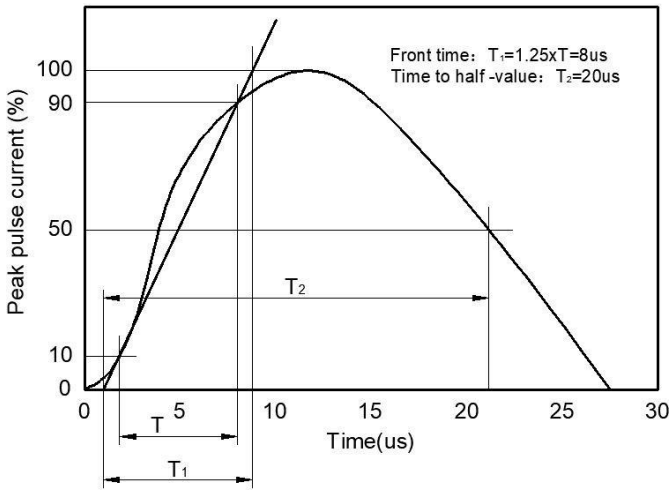


FIG3：Capacitance between teminals charateristics

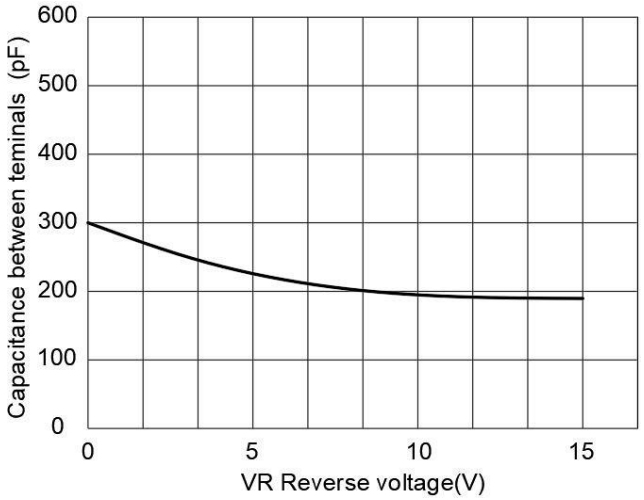
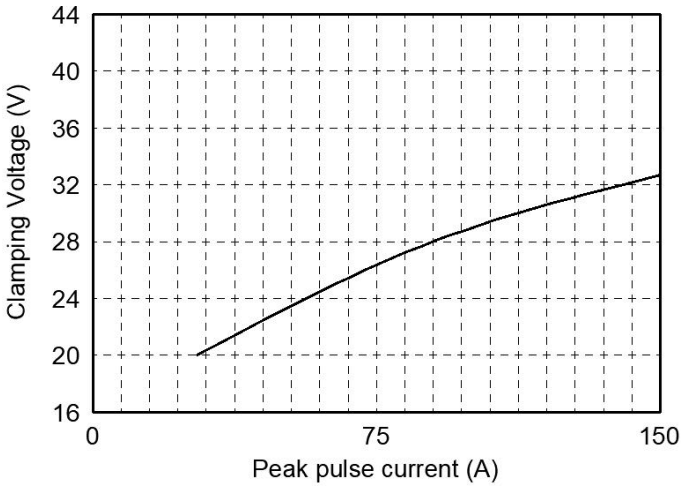
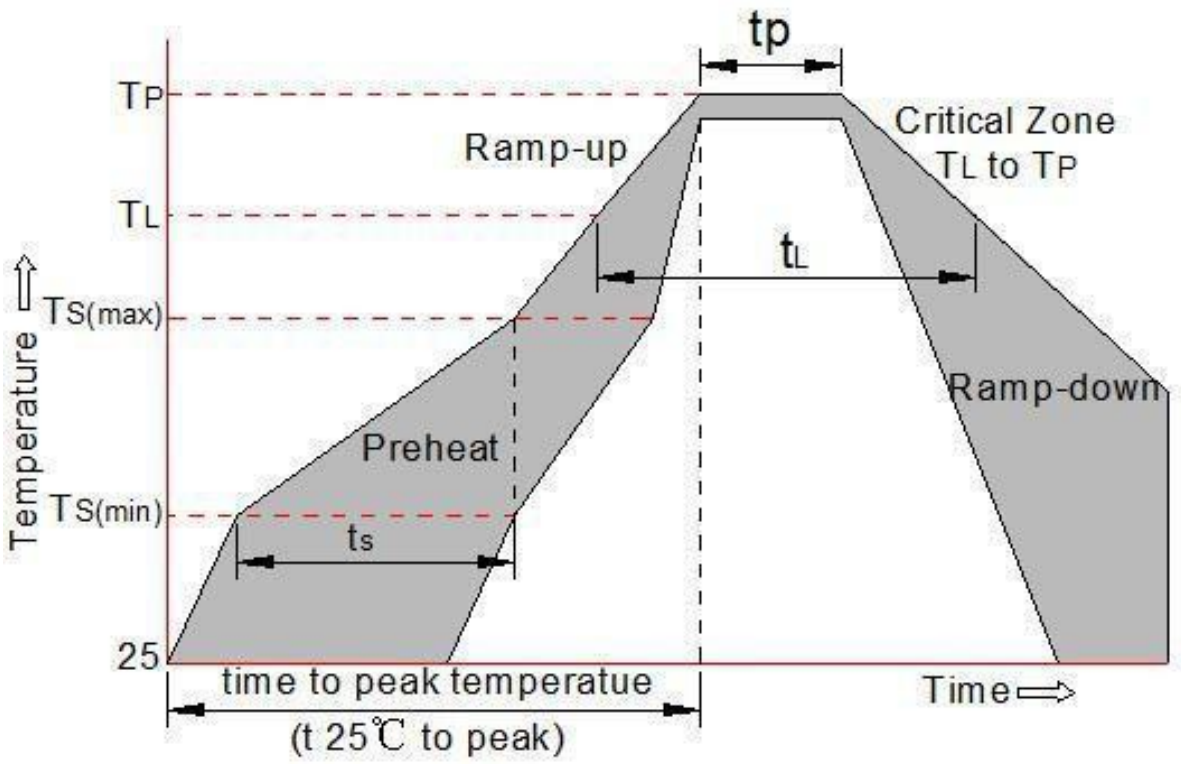


Figure 5: Clamping Voltage vs. Peak Pulse Current



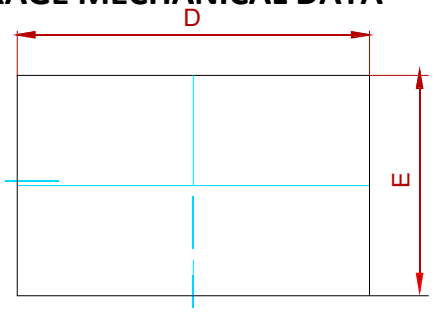
Soldering Parameters

Reflow Condition		Pb-Free assembly (see as bellow)
Pre Heat	-Temperature Min ($T_{s(min)}$)	+150℃
	-Temperature Max($T_{s(max)}$)	+200℃
	-Time (Min to Max) (ts)	60-180 secs.
Average ramp up rate (Liquid us Temp (T_L) to peak)		3℃/sec. Max
$T_{s(max)}$ to T_L - Ramp-up Rate		3℃/sec. Max
Reflow	-Temperature(T_L) (Liquid us)	+217℃
	-Temperature(t_L)	60-150 secs.
Peak Temp (T_p)		+260(+0/-5)℃
Time within 5℃of actual Peak Temp (t_p)		30 secs. Max
Ramp-down Rate		6℃/sec. Max
Time 25℃to Peak Temp (T_P)		8 min. Max
Do not exceed		+260℃

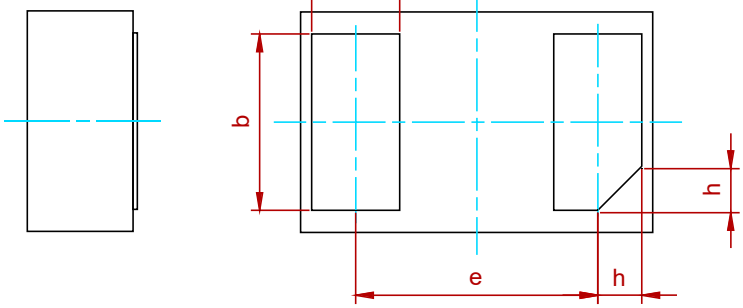


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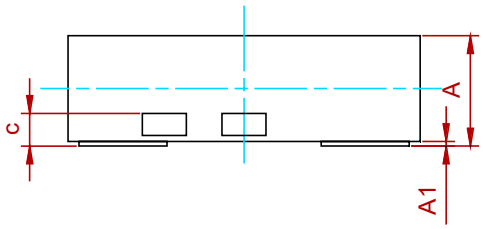
PACKAGE MECHANICAL DATA



TOP VIEW



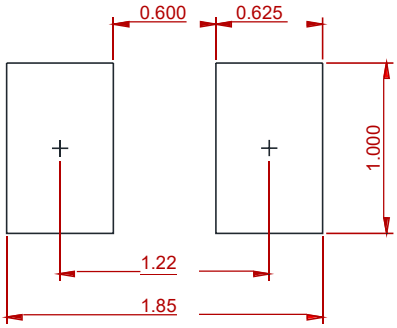
BOTTOM VIEW



SIDE VIEW

Symbol	Dimensions in Millimeters		
	Min.	Typ.	Max.
A	0.45	0.50	0.60
A1	0.00	0.02	0.05
c	0.15 Ref.		
b	0.75	0.80	0.95
L	0.35	0.40	0.45
D	1.55	1.60	1.70
E	0.95	1.00	1.10
e	1.10 BSC		
h	0.20 Ref.		

Recommend PCB Layout (Unit: mm)



Notes:
This recommended land pattern is for reference purposes only. Please consult your manufacturing group to ensure your PCB design guidelines are met.

REEL SPECIFICATION

P/N	PKG	QTY
MSESD56101D15	DFN1610-2L	3000

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