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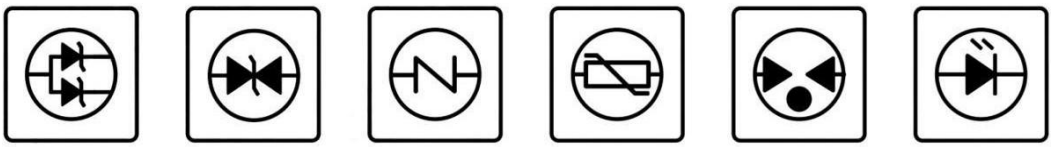
SEMICONDUCTOR



MSESD56241D12

Product specification

Features

- 3-pin lead-less package
- Junction capacitance (Max value: 1550pF)
- Peak Pulse Current (8/20μs) MAX：200A
- IEC61000-4-2 (ESD) ±30kV (air), ±30kV (contact)
- Low clamping voltage
- Low leakage current
- Working voltages：12V
- RoHS Compliant

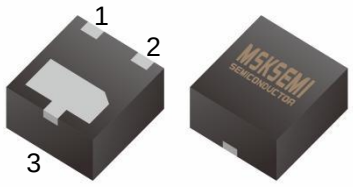
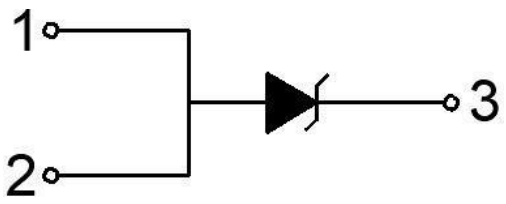
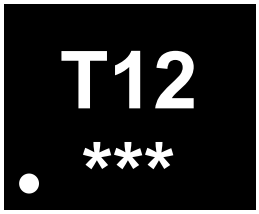
Mechanical Characteristics

- Package: DFN2020-3L
- Lead Finish:Matte Tin
- Case Material: “Green” Molding Compound.
- UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 3 per J-STD-020

Applications

- Power Management
- Industrial Application
- Power Supply Protection

Reference News

DFN2020-3L	Graphic symbol	Marking
		

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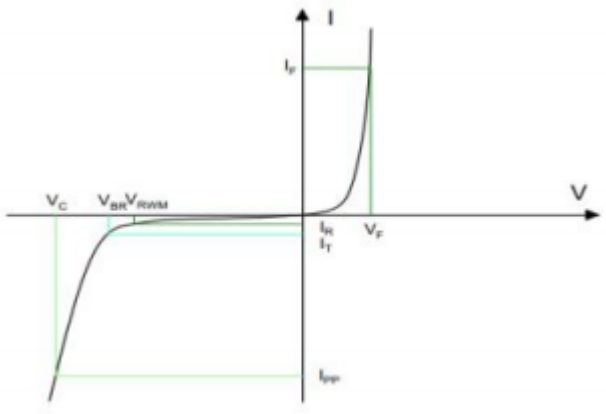
Absolute Maximum Ratings (T=25ºC, RH=45%-75%, unless otherwise noted)

Parameters	Symbol	Value	Unit
Peak Pulse Power (tp=8/20μs waveform)	P_{PP}	7000	W
Peak Pulse Current (8/20μs)	I_{PP}	200	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}				12	V
Reverse Breakdown Voltage	V_{BR}	I_R = 1mA	13		16.5	V
Reverse Leakage Current	I_R	V_R = 12V			1	uA
Clamping voltage	V_C	I_{PP} = 20A,T_P=8/20us			15	V
Clamping voltage	V_C	I_{PP} = 200A,T_P=8/20us			35	V
Junction capacitance	C_J	V_R =0V,f =1MHz			1550	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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TypicalCharacteristics

FIG1：Power rating derating curve

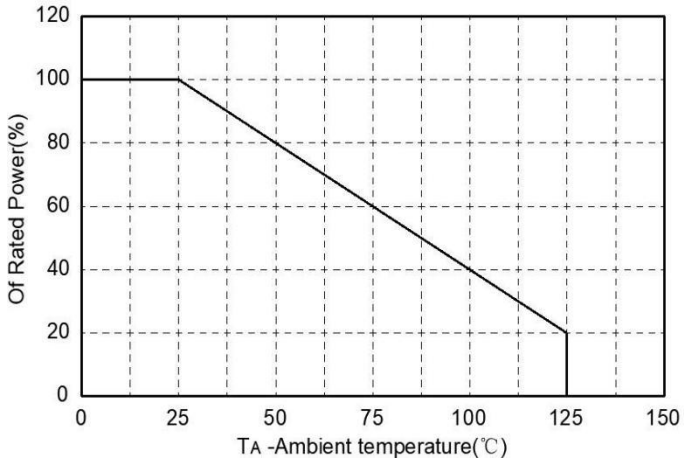


FIG2： pulse Waveform

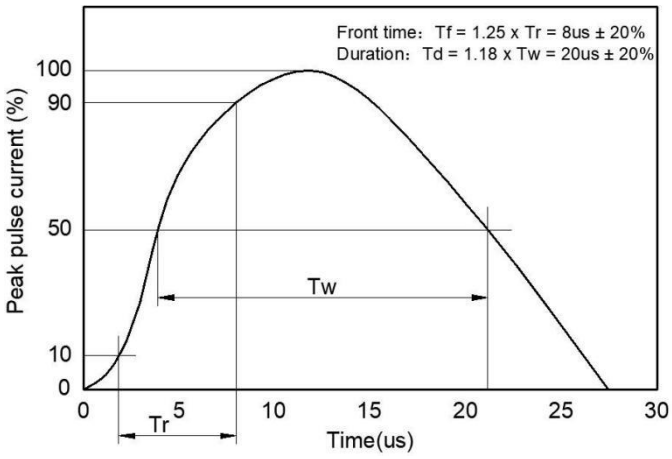


FIG3：Capacitance between teminals charateristics

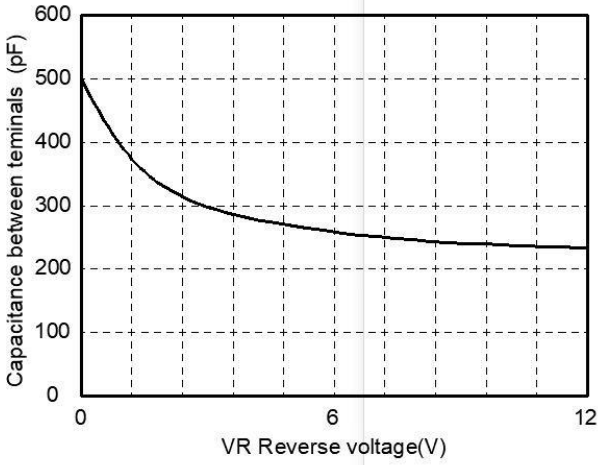
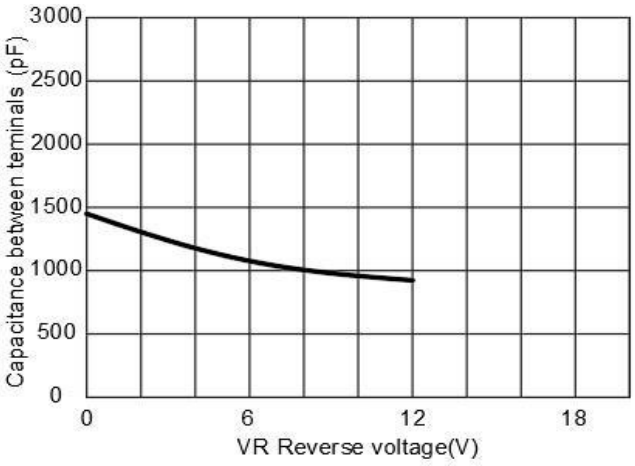


FIG4: Clamping Voltage vs. Peak Pulse Current



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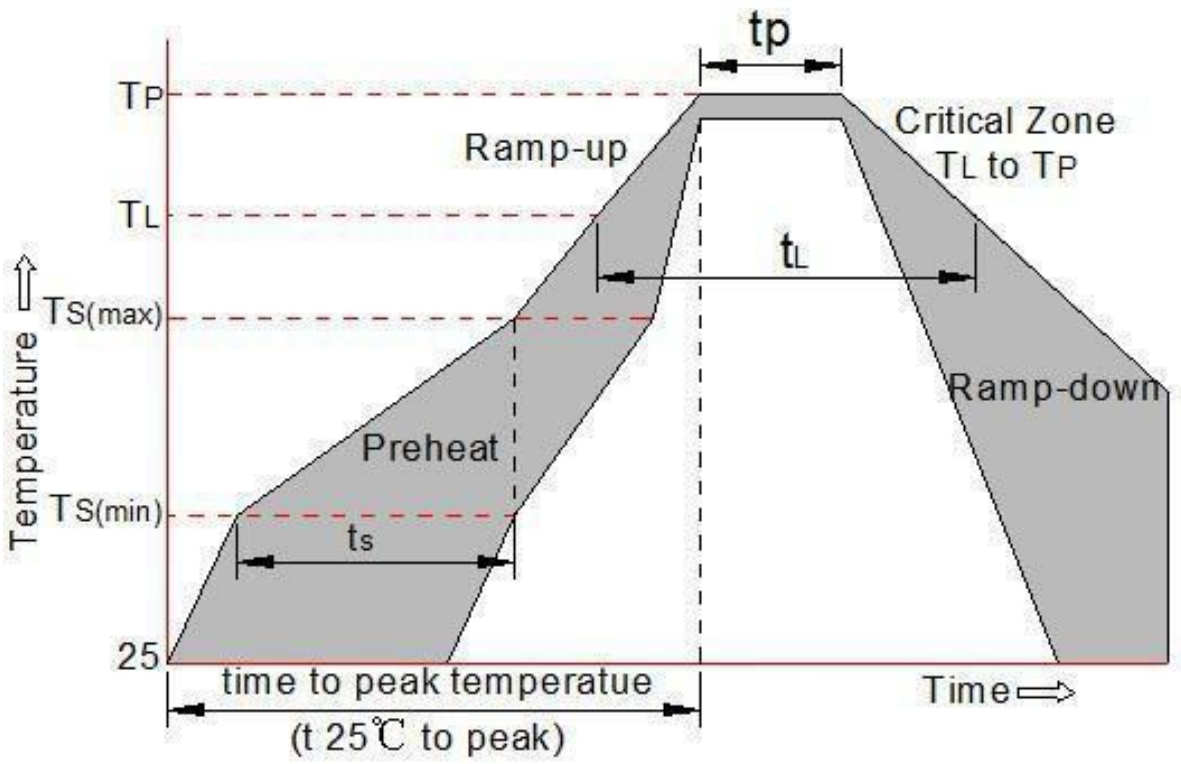
Soldering Parameters

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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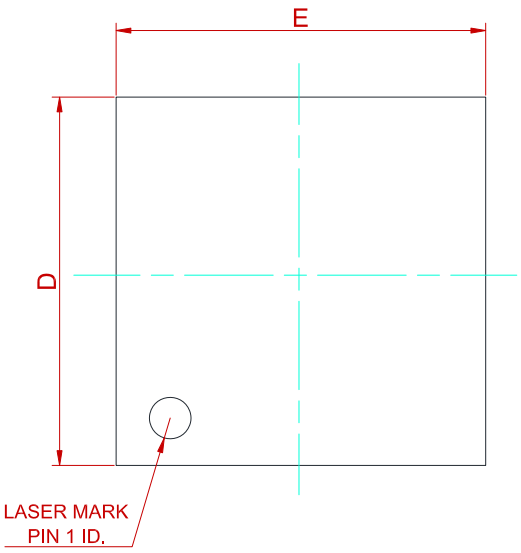
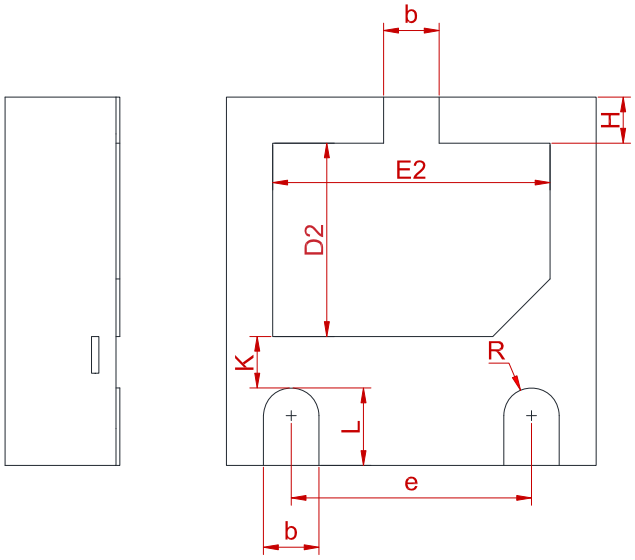
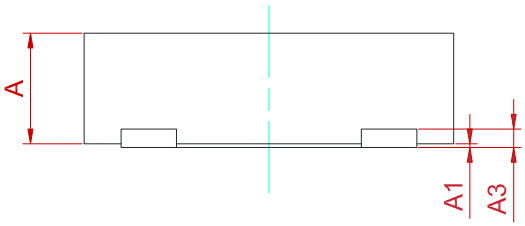
PACKAGEMECHANICALDATA



Top View



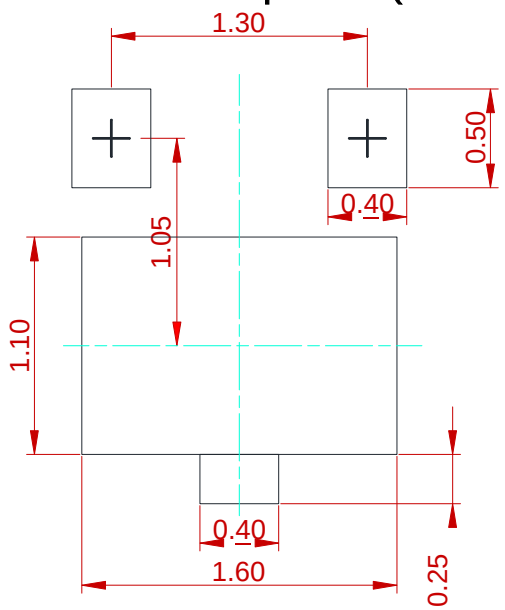
Bottom View



Side View

Symbol	Dimensions In Millimeters		
	Min.	Typ.	Max.
A	0.50	0.58	0.60
A1	0.00	0.02	0.05
A3	0.10 REF.		
b	0.25	0.30	0.35
D	1.90	2.00	2.10
E	1.90	2.00	2.10
D2	0.95	1.05	1.15
E2	1.40	1.50	1.60
e	1.20	1.30	1.40
H	0.20	0.25	0.30
K	0.20	0.30	0.40
L	0.33	0.39	0.45
R	0.13	-	-

Recommended land pattern (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.

REELSPECIFICATION

P/N	PKG	QTY
MSESD56241D12	DFN2020-3L	3000

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