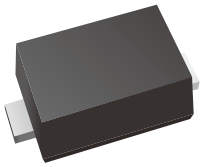
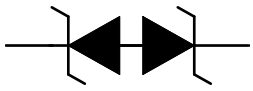
ESD Diodes

Features





- IEC 61000-4-2 Level 4 ESD Protection
  - ±25kV Contact Discharge
  - ±25kV Air Discharge
- 63W Peak pulse Power (8/20μs)
- Low clamping voltage
- Working voltage: 5V
- Low leakage current
- Protecting one Bi-directional lines
- Capacitance: 0.3pF Typ.
- Lead free in comply with EU RoHS 2011/65/EU directives

Applications

- Cellular handsets
- Tablets
- Laptops
- Other portable devices
- Network communication devices

Ordering Information

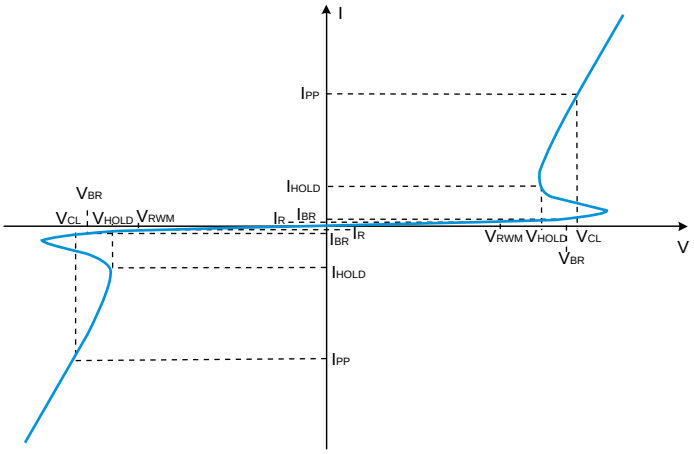
Part Number	Marking	Shipping	Reel
LTE5L05C01LD-TR3	5B	3000PCS Tape&Reel	7 inchs
LTE5L05C01LD-TR10	5B	10000PCS Tape&Reel	7 inchs

Absolute Maximum rating

Over operating free-air temperature range (unless otherwise noted)

Parameters	Symbol	Min.	Max.	Unit
Peak pulse power (tp=8/20μs)	P_{pk}	-	63	W
Peak pulse current (tp=8/20μs)	I_{PP}		4.5	A
ESD (IEC61000-4-2 air discharge)	V_{ESD}	-	±25	kV
ESD (IEC61000-4-2 contact discharge)	V_{ESD}	-	±25	kV
Junction temperature	T_J	-	125	˚C
Operating temperature	T_{OP}	-40	85	˚C
Storage temperature	T_{STG}	-55	150	˚C
Lead temperature	T_L	-	260	˚C

Symbol	Parameters
V_{RWM}	Peak Reverse Working Voltage
I_R	Reverse Leakage Current @ V_{RWM}
V_{BR}	Breakdown Voltage @ I_T
I_{BR}	Test Current
I_{PP}	Maximum Reverse Peak Pulse Current
V_{CL}	Clamping Voltage @ I_{PP}
V_{HOLD}	Reverse holding voltage
I_{HOLD}	Reverse holding current



Electrical Characteristics

At T_A = 25℃ unless otherwise noted

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Reverse Stand-off Voltage	V_{RWM}				5	V
Reverse Breakdown Voltage	V_{BR}	I_T=1mA	5.1			V
Reverse Leakage Current	I_R	V_{RWM}=5V			0.1	μA
Clamping Voltage	V_C	I_{PP}=1A; tp=8/20μs		7.5	9.5	V
		I_{PP}=4.5A; tp=8/20μs		12	14	V
Junction Capacitance	C_J	V_R=0V; f=1MHz		0.3	0.6	pF

Characteristics Curve

Fig.1 8/20μs waveform per IEC61000-4-5

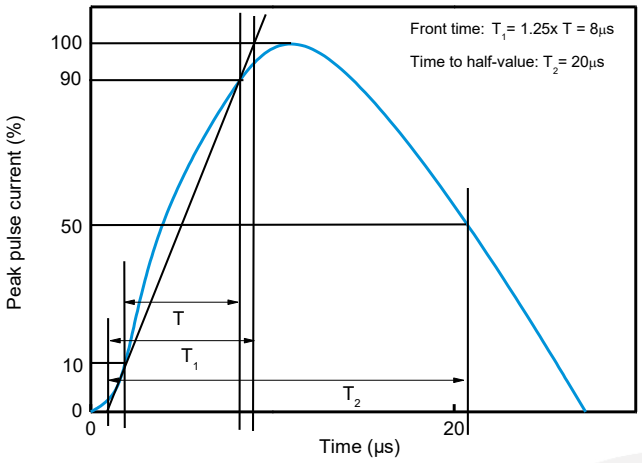


Fig.2 Contact discharge current waveform per IEC61000-4-2

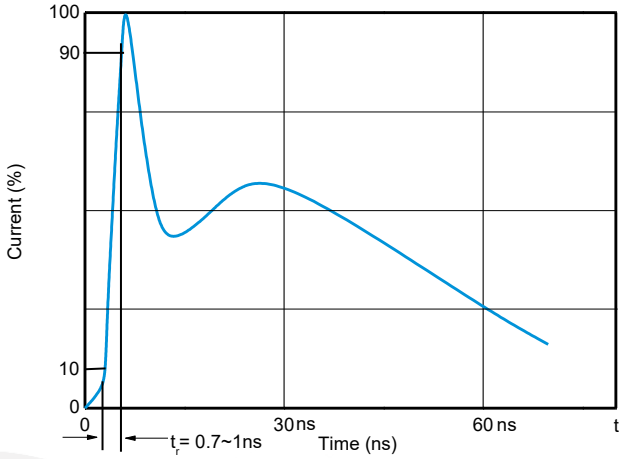


Fig.3 Clamping voltage vs Peak pulse current

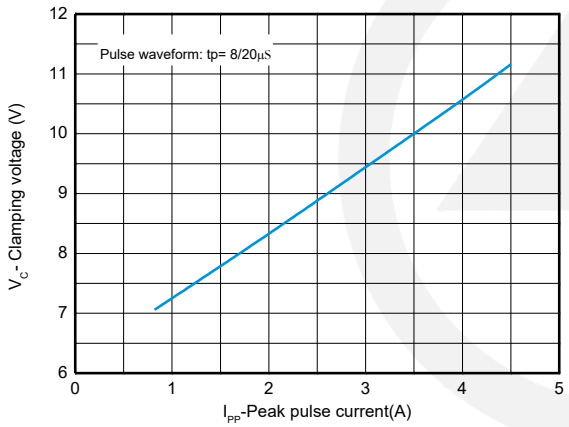


Fig.4 Capacitance vs Reverse voltage

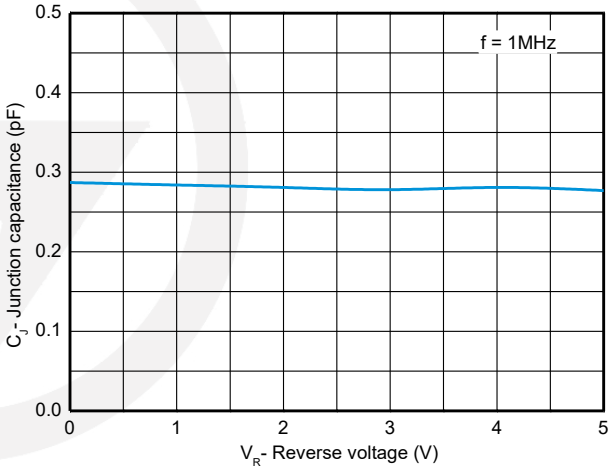


Fig.5 Non-repetitive peak pulse power vs Pulse time

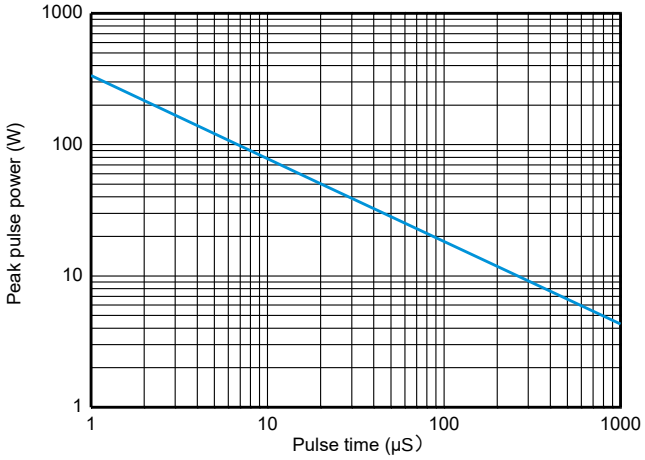
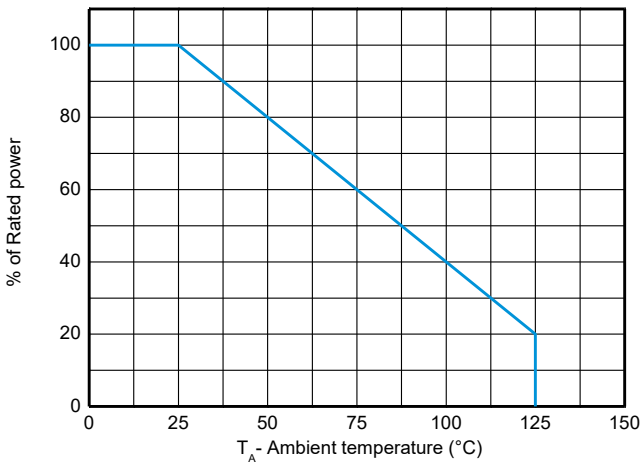
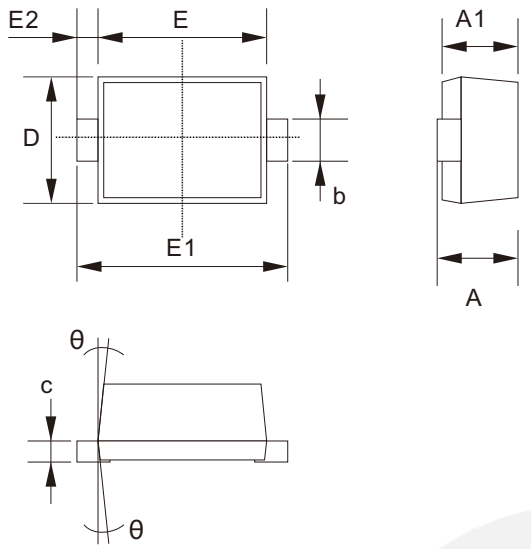


Fig.6 Power derating vs Ambient temperature



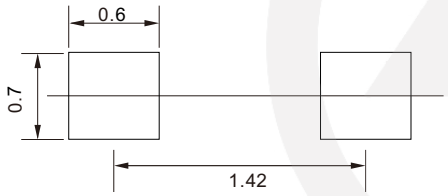
SOD-523 Package Outline

Unit: mm



SYMBOL	DIMENSIONS	
	MIN.	MAX.
A	0.500	0.770
A1	0.500	0.700
b	0.250	0.380
c	0.070	0.200
D	0.700	0.900
E	1.100	1.300
E1	1.500	1.700
E2	0.200 REF	
θ	7° REF	

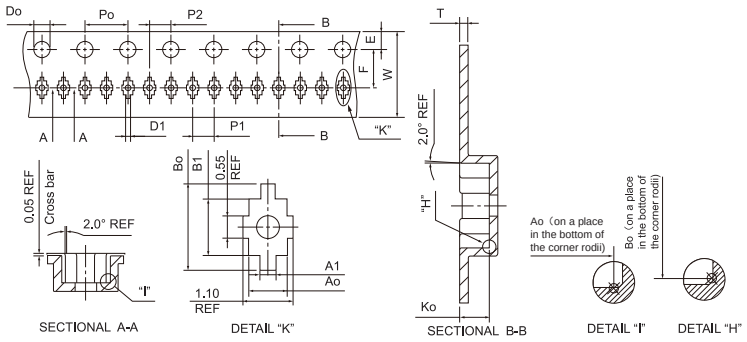
SOD-523 Suggested Pad Layout



Note:
1.Controlling dimension:in millimeters.
2.General tolerance:±0.05mm.
3.The pad layout is for reference purposes only.

Carrier Tape Dimensions

Unit：mm

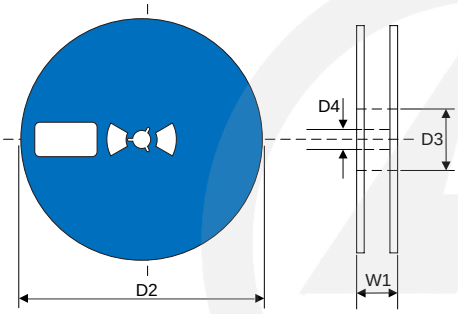


Symbol	Spec	Symbol	Spec
A0	0.90±0.05	P0	4.00±0.10
A1	0.39±0.05	P1	2.00±0.05
B0	1.95±0.10	P2	2.00±0.05
B1	1.30±0.05	D0	1.50 $^{+0.10}_{0}$
K0	0.69±0.05	D1	0.50±0.05
10P0	40.0±0.10	F	3.50±0.05
T	0.18±0.02	W	8.00 $^{+0.30}_{-0.10}$
E	1.75±0.10		

Reel Dimensions

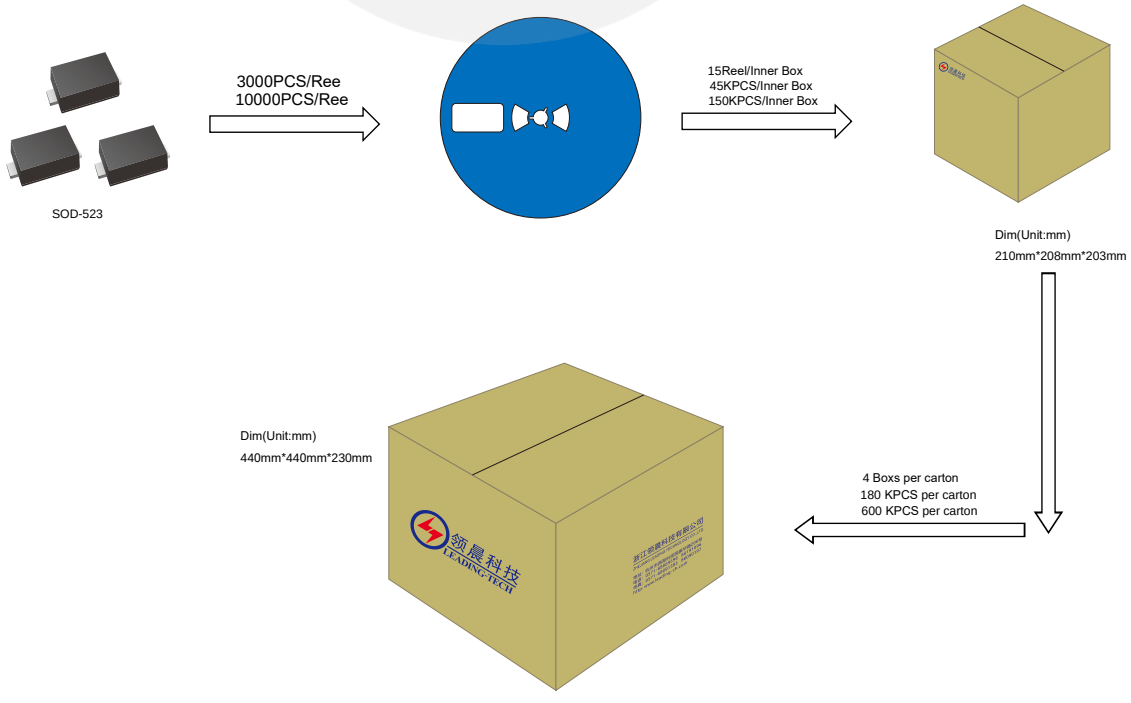
Unit：mm

7” Reel



D2	Φ178.0±2.0
D3	Φ50.0
D4	13.0±0.5
W1	12±0.5
Quantity: 3000/10000PCS	

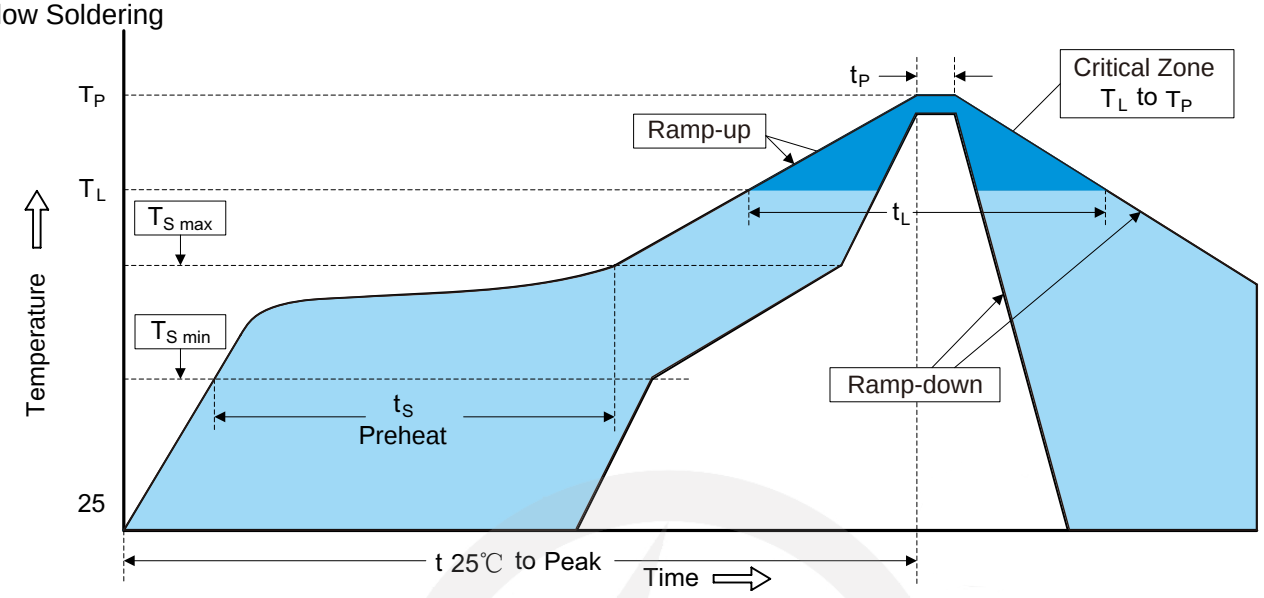
Packaging



7 inchs Reel

Recommended Soldering Conditions

Reflow Soldering



Recommended Conditions

Profile Feature	Pb-Free Assembly
Average ramp-up rate (T_L to T_P)	3℃/second max.
Preheat -Temperature Min ($T_{S\ min}$) -Temperature Max ($T_{S\ max}$) -Time (min to max) (t_S)	 150℃ 200℃ 60-180 seconds
$T_{S\ max}$ to T_L -Ramp-up Rate	 3℃/second max.
Time maintained above: -Temperature (T_L) -Time (t_L)	 217℃ 60-150 seconds
Peak Temperature (T_P)	260℃
Time within 5℃ of actual Peak Temperature (t_P)	20-40 seconds
Ramp-down Rate	6℃/second max.
Time 25℃ to Peak Temperature	8 minutes max.

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Version Update Information

Series NO.	Enactment/Revision Date	Effective Date	Version	Revision content	Revision Reason	Revision Person	Note
01	2024.12.27	2024.12.27	3.0	New File	/	Ding	