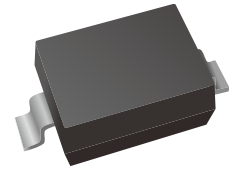


ESD Diode

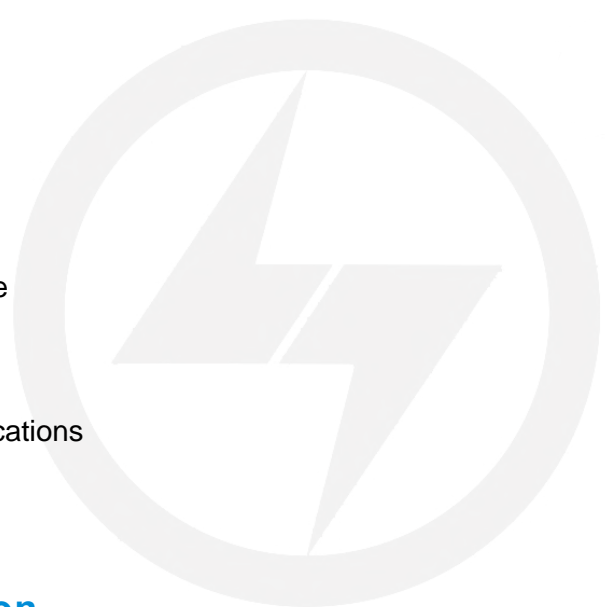
Features

- IEC 61000-4-2 Level 4 ESD Protection
 - ±30kV Contact Discharge
 - ±30kV Air Discharge
- 792W Peak pulse Power (8/20μs)
- Low clamping voltage
- Working voltage: 12V
- Low leakage current
- Lead free in comply with EU RoHS 2011/65/EU directives
- Protecting one Bi-directional lines
- Capacitance: 60pF Typ.



Applications

- MP3 Players
- Battery Protection
- Vbat pin for Mobile Device
- Mobile Phones
- Power Line Protection
- Hand Held portable Applications



Ordering Information

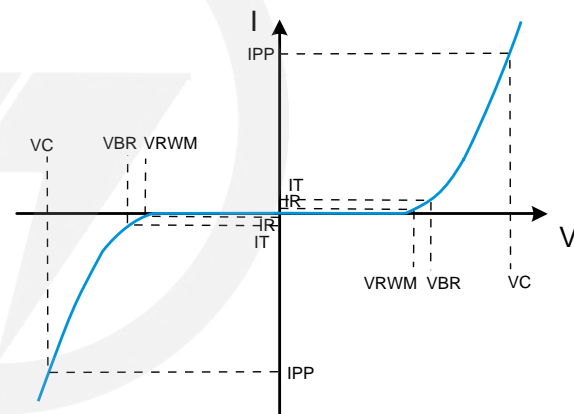
Part Number	Marking	Shipping	Reel
LTES12C01D-TR3	12C	3000PCS Tape&Reel	7 inches
LTES12C01D-TR12	12C	12000PCS Tape&Reel	13 inches

Absolute Maximum Rating

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

Parameters	Symbol	Min.	Max.	Unit
Peak pulse power (tp=8/20us)	P_{pk}		792	W
Peak pulse current (tp=8/20us)	I_{PP}		22	A
ESD (IEC61000-4-2 air discharge)	V_{ESD}		±30	kV
ESD (IEC61000-4-2 contact discharge)	V_{ESD}		±30	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_T	Test Current
I_{PP}	Maximum Reverse Peak Pulse Current
V_C	Clamping Voltage @ I_{PP}



Electrical Characteristics

At $T_A = 25^\circ\text{C}$ unless otherwise noted

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Reverse Stand-off Voltage	V_{RWM}				12	V
Reverse Breakdown Voltage	V_{BR}	$I_T=1\text{mA}$	13.3		16	V
Reverse Leakage Current	I_R	$V_{RWM}=12\text{V}$			0.1	μA
Clamping Voltage	V_C	$I_{PP}=1\text{A}; tp=8/20\text{us}$		19	22	V
		$I_{PP}=22\text{A}; tp=8/20\text{us}$		31	36	V
Junction Capacitance	C_J	$V_R=0\text{V}; f=1\text{MHz}$		60	80	pF

Characteristic Curves

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

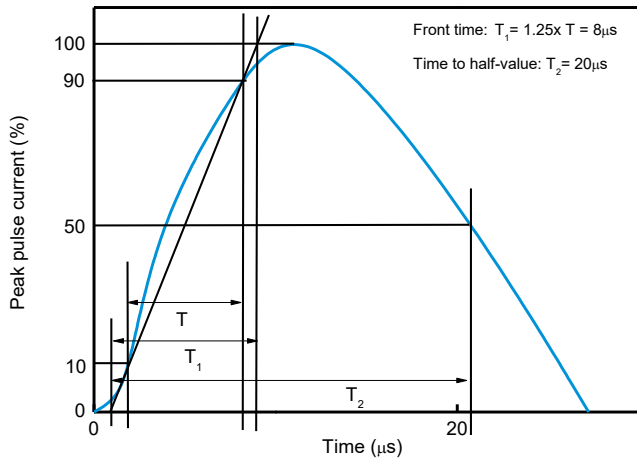


Fig.2 Contact discharge current waveform per IEC61000-4-2

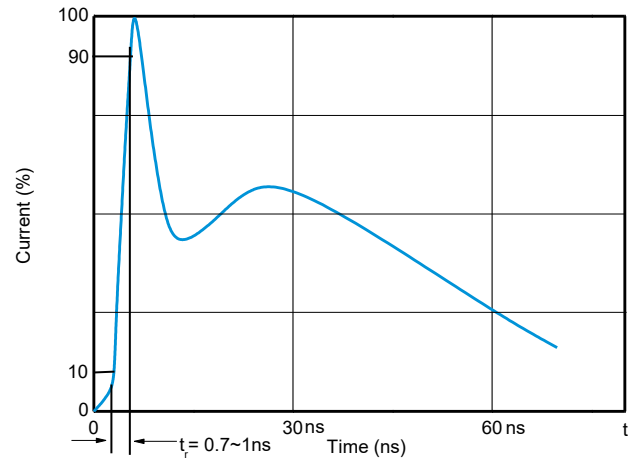


Fig.3 Clamping voltage vs Peak pulse current

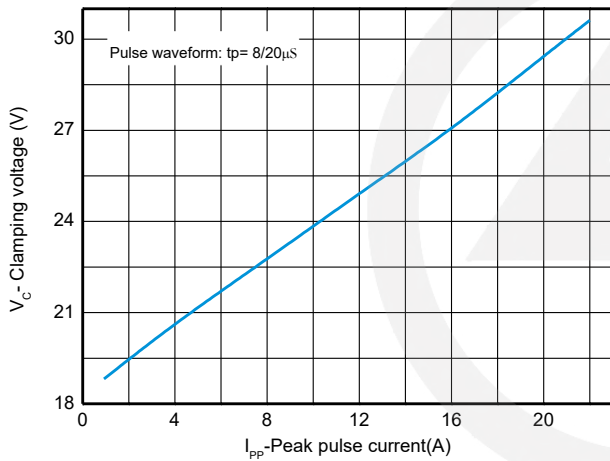


Fig.4 Capacitance vs Reverse voltage

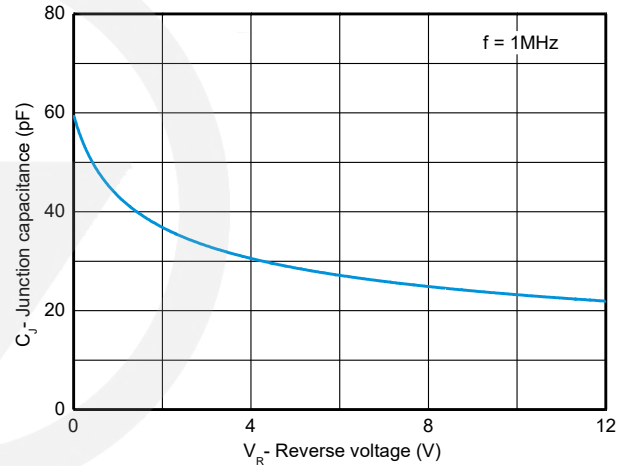


Fig.5 Non-repetitive peak pulse power vs Pulse time

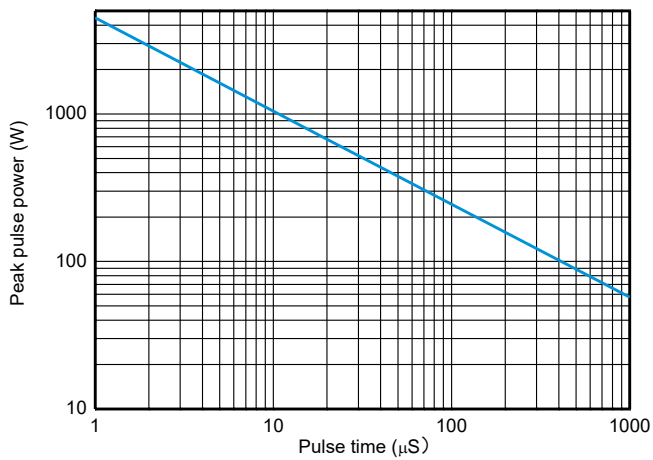
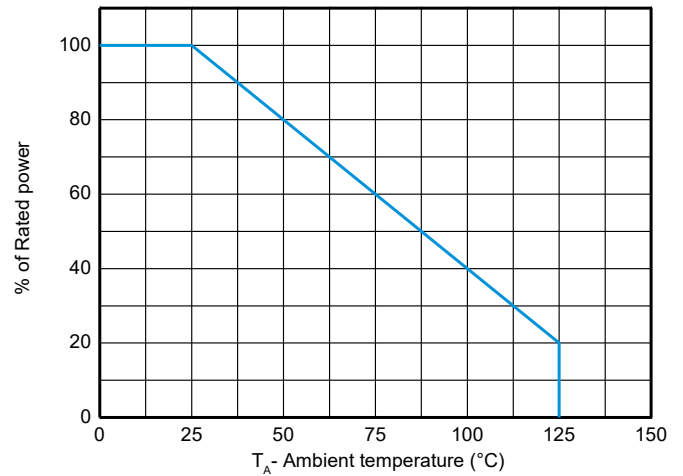
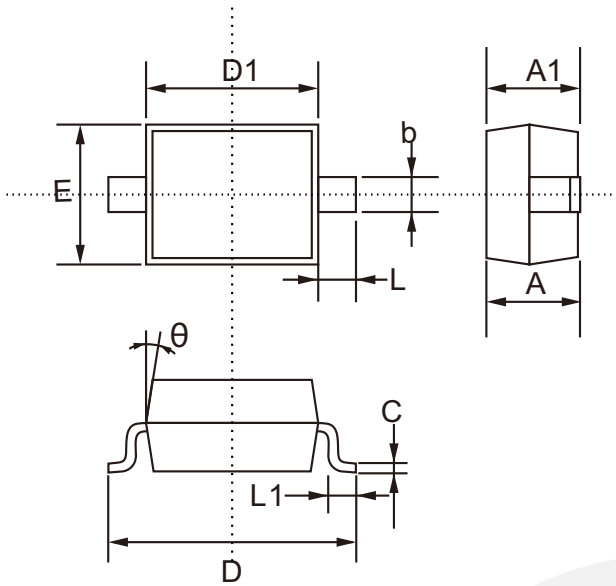


Fig.6 Power derating vs Ambient temperature



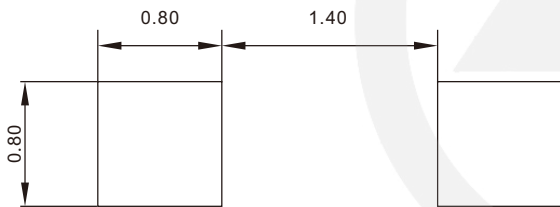
SOD-323 Package Outline

Unit: mm



SYMBOL	DIMENSIONS	
	MIN.	MAX.
A	0.800	1.100
A1	0.800	0.900
b	0.250	0.400
C	0.080	0.177
D	2.300	2.800
D1	1.400	1.800
E	1.150	1.400
L	0.475 TYP.	
θ	8°	

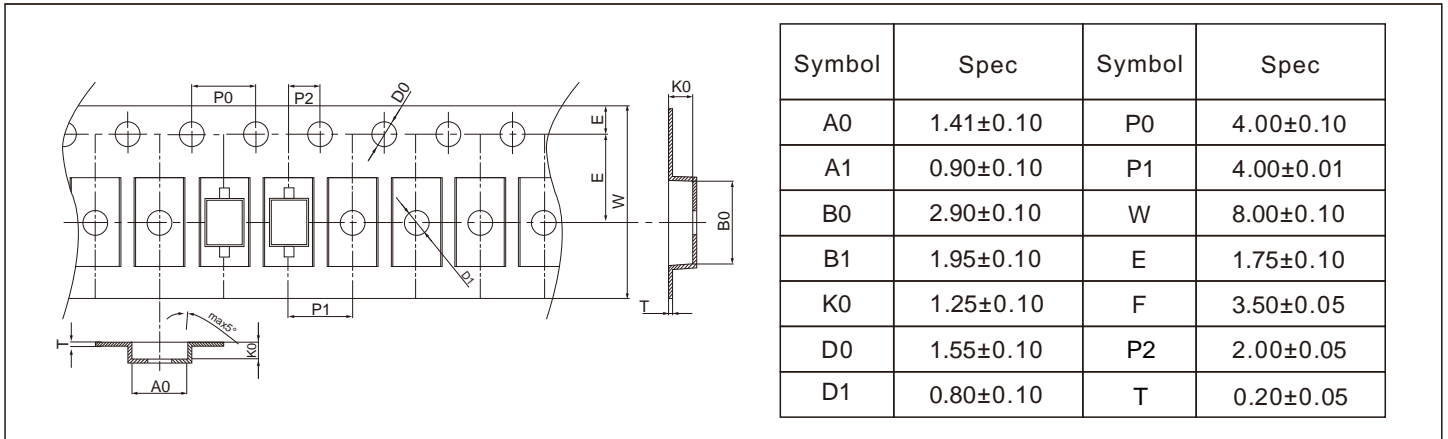
SOD-323 Suggested Pad Layout



- Note:
1. Controlling dimension: in millimeters.
 2. General tolerance: $\pm 0.05\text{mm}$
 3. The pad layout is for reference purpose only.

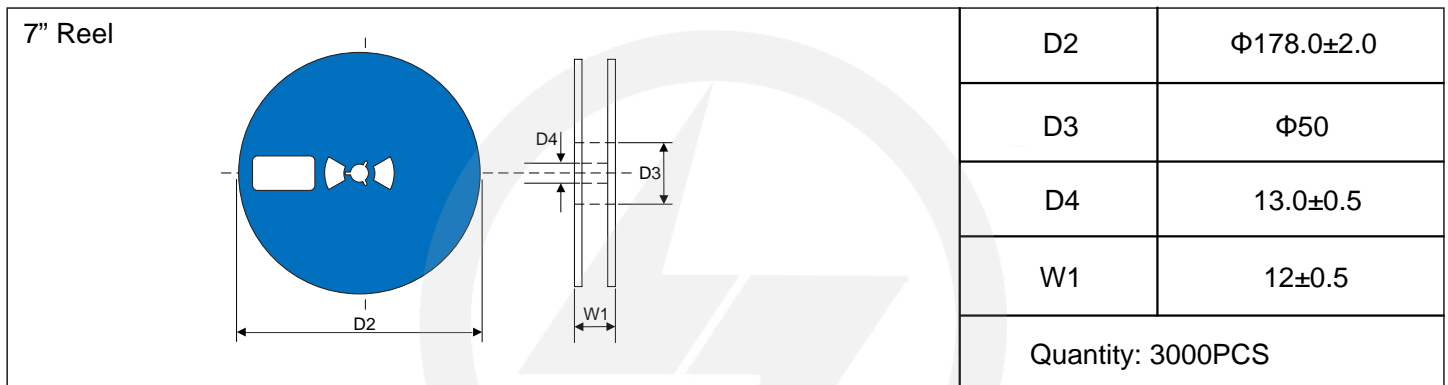
Carrier Tape Dimensions

Unit : mm



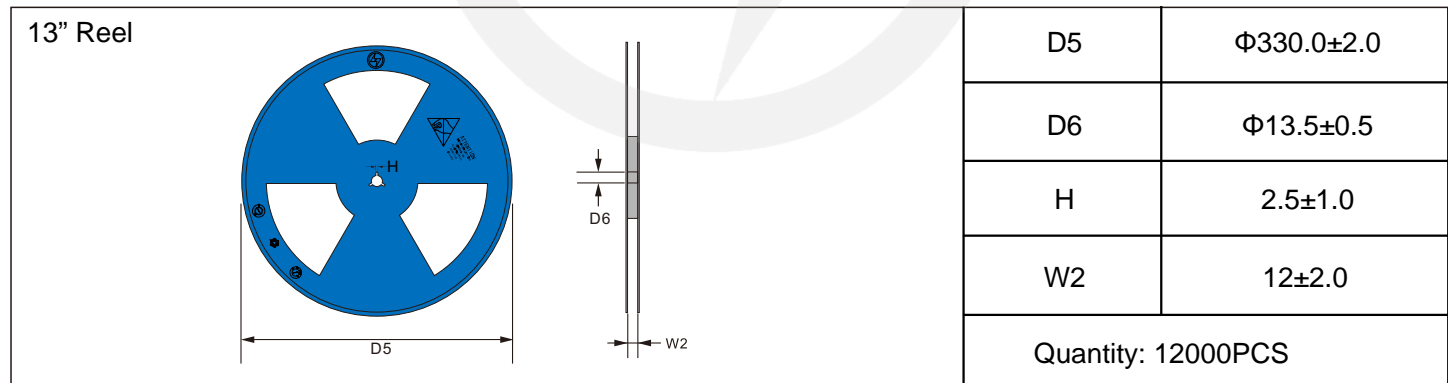
Reel Dimensions

Unit : mm

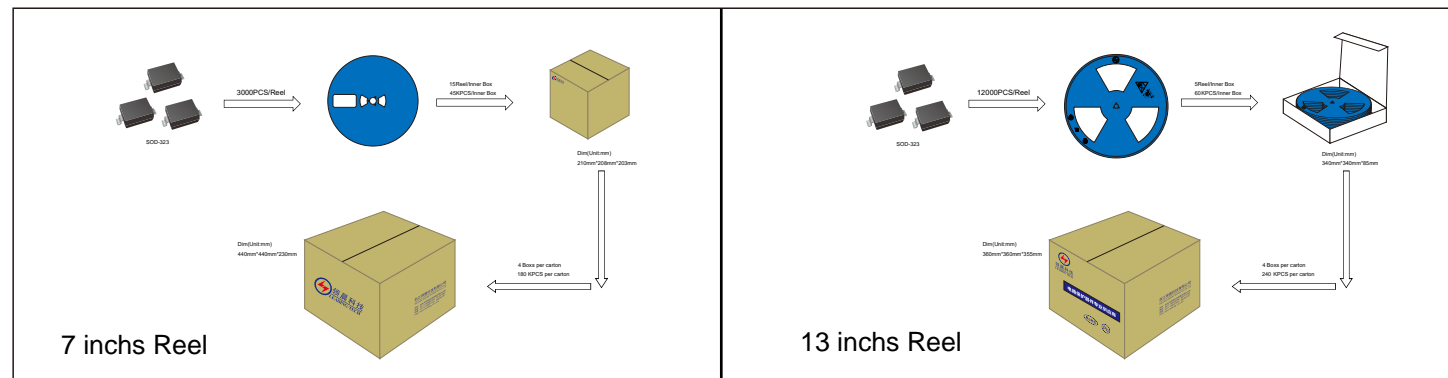


Reel Dimensions

Unit : mm



Packaging





Recommended Soldering Conditions



Recommended Conditions

Profile Feature	Pb-Free Assembly
Average ramp-up rate (T _L to T _P)	3°C/second max.
Preheat	
-Temperature Min (T _{S min})	150°C
-Temperature Max (T _{S max})	200°C
-Time (min to max) (t _s)	60-180 seconds
T _{S max} to T _L	
-Ramp-up Rate	3°C/second max.
Time maintained above:	
-Temperature (T _L)	217°C
-Time (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	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	2024.10.27	2024.10.27	3.0	New File	/	Ding	
02	2025.06.11	2025.06.11	3.1	Update packaging information	/	Ding	