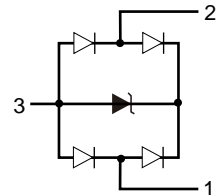
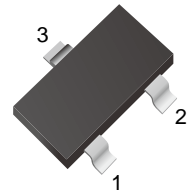


ESD Protection Diode

Features

- Transient protection for high-speed data lines
 - IEC 61000-4-2 (ESD) $\pm 15\text{kV}$ (Air)
 - $\pm 8\text{kV}$ (Contact)
 - IEC 61000-4-4 (EFT) 40A (5/50 ns)
 - Cable Discharge Event (CDE)
- Small package (2.9mm×2.4mm×1.0mm)
- Protects two data lines
- Low capacitance: 0.2pF Typical (I/O-I/O)
- Low leakage current
- Low clamping voltage
- Lead free in comply with EU RoHS 2011/65/EU directives



Mechanical Data

- Case: SOT-23
- Material: Halogen free
- Approx. Weight: 8.1mg

Applications

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

Ordering Information

Part Number	Marking	Shipping	Reel
LTE23T05A02LG-TR3	52L	3000PCS Tape&Reel	7 inches
LTE23T05A02LG-TR12	52L	12000PCS Tape&Reel	13 inches



Absolute Maximum Ratings

Symbol	Parameter	Value	Units
P _{PP}	Peak Pulse Power (8/20μs)	60	W
V _{ESD}	ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	±20 ±20	kV
T _{OPT}	Operating Temperature	-55/+125	°C
T _{STG}	Storage Temperature	-55/+150	°C

Electrical Characteristics (T_{amb}=25)

Symbol	Parameter	Test Condition	Min	Typ	Max	Units
V _{RWM}	Reverse Working Voltage	I/O to GND			5.0	V
V _{BR}	Reverse Breakdown Voltage	I _T = 1mA Between I/O and GND	6.0			V
I _R	Reverse Leakage Current	V _{RWM} = 5V Between I/O and GND			100	nA
V _C	Clamping Voltage	I _{PP} = 1A, t _p = 8/20μs Between I/O and GND			10	V
		I _{PP} = 4A, t _p = 8/20μs Between I/O and GND			15	V
V _F	Forward Voltage	I _T = 10mA Between I/O and GND			1.2	V
C _T	Total Capacitance	V _R = 0V, f = 1MHz Between I/O and GND		0.4		pF
		V _R = 0V, f = 1MHz Between I/O and I/O		0.2		pF



Characteristics Curves

Fig.1 Power Derating Curve

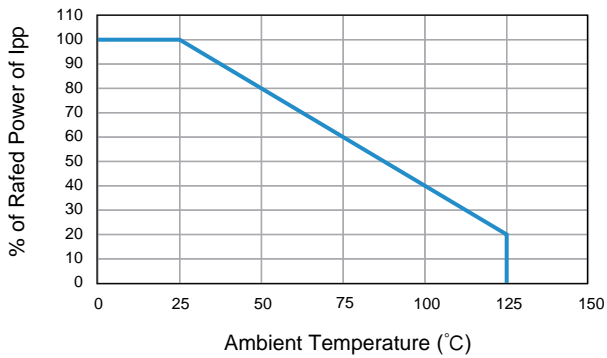


Fig.2 Clamping Voltage vs Peak Pulse Current

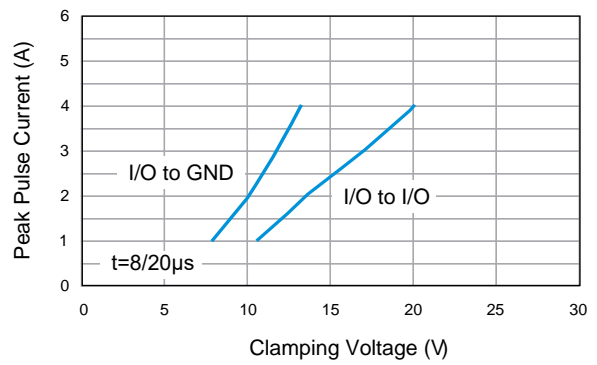


Fig.3 Transmission Line Pulsing (TLP) Measurement

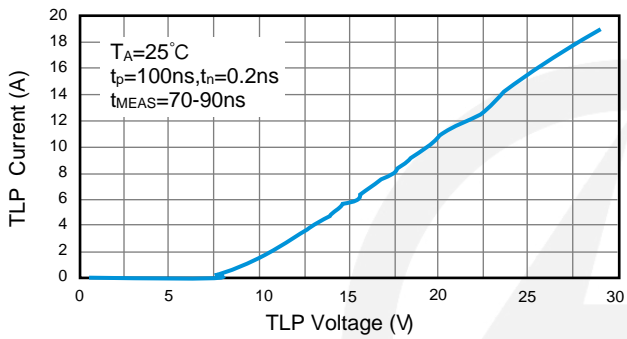


Fig.4 Voltage vs Capacitance

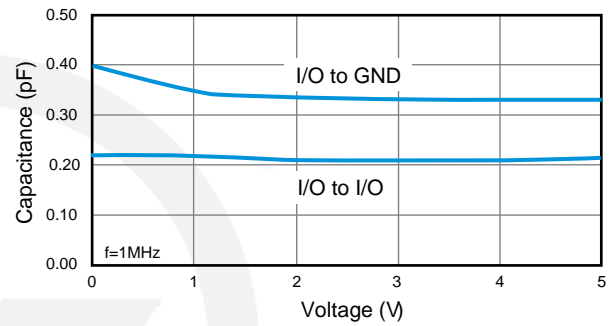


Fig.5 ESD Clamping of I/O to GND (+8kv Contact per IEC 61000-4-2)

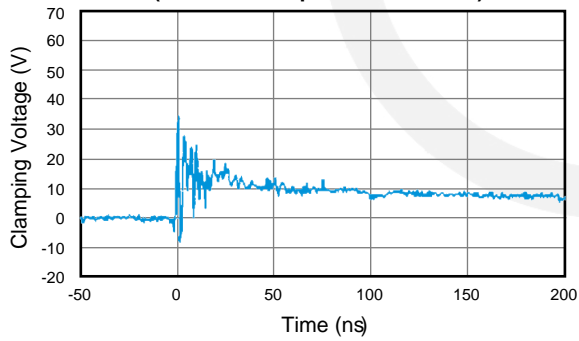
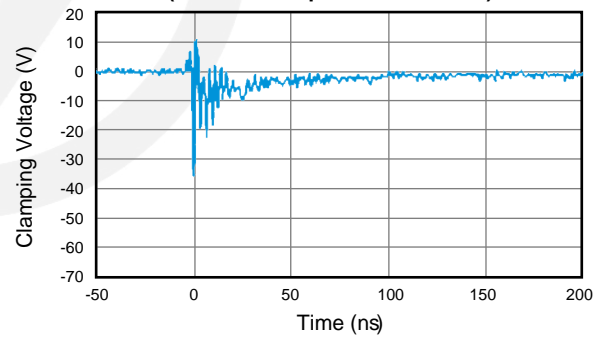


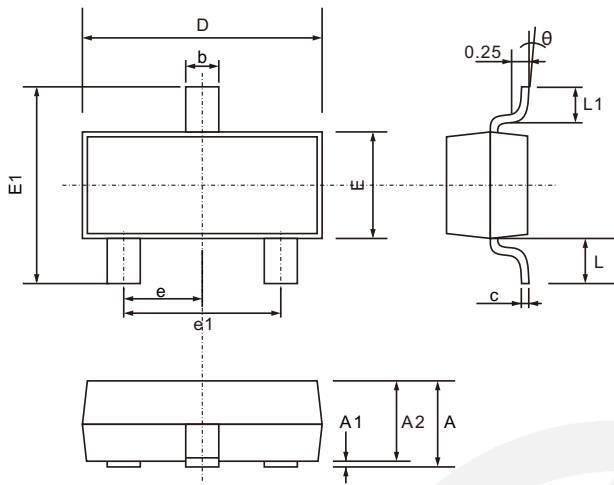
Fig.6 ESD Clamping of I/O to GND (-8kv Contact per IEC 61000-4-2)





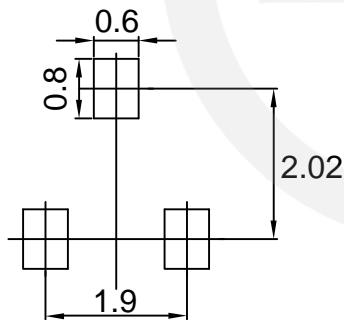
SOT-23 Package Outline

Unit: mm



SYMBOL	DIMENSIONS	
	MIN.	MAX.
A	0.900	1.200
A1	0.000	0.100
A2	0.900	1.050
b	0.300	0.500
c	0.080	0.200
D	2.700	3.100
E	1.200	1.400
E1	2.200	2.600
e	0.950 TYP.	
e1	1.750	2.050
L	0.550 TYP.	
L1	0.300	0.500
θ	0°	8°

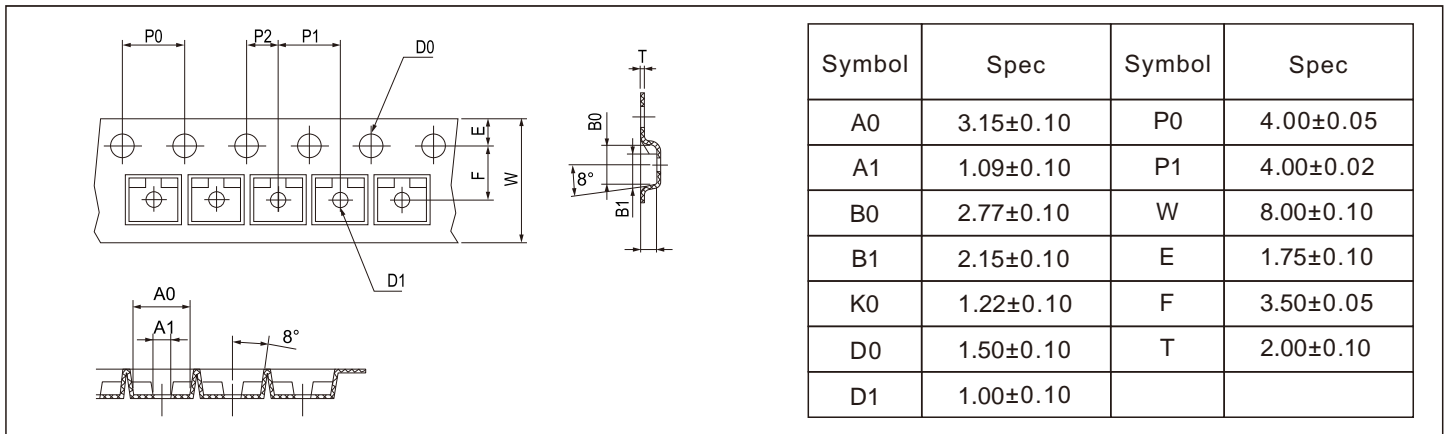
SOT-23 Suggested Pad Layout



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

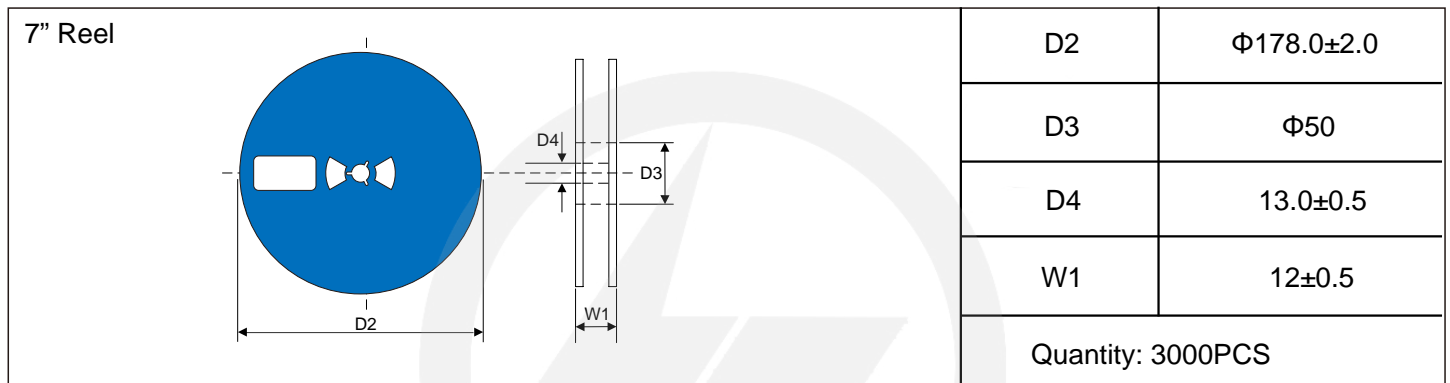
Carrier Tape Dimensions

Unit : mm



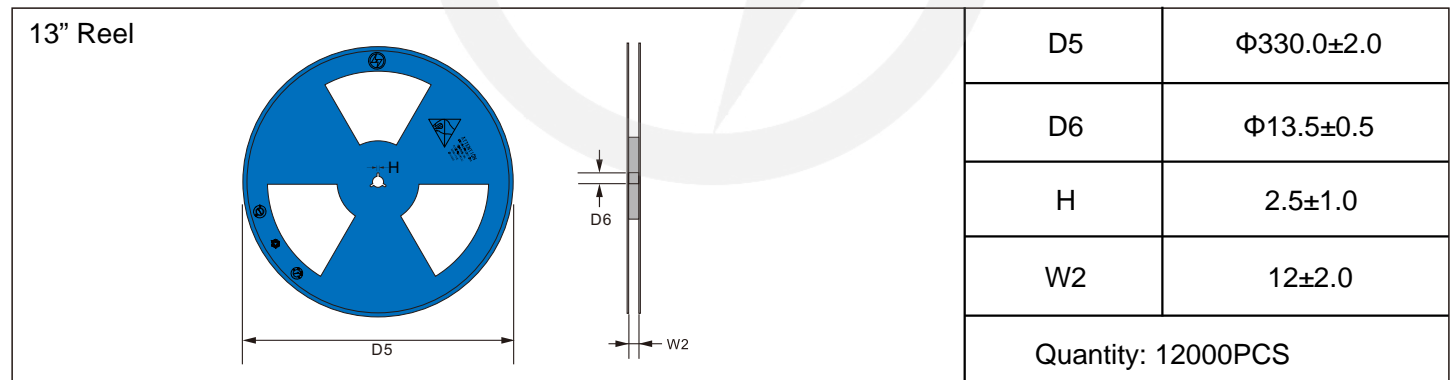
Reel Dimensions

Unit : mm

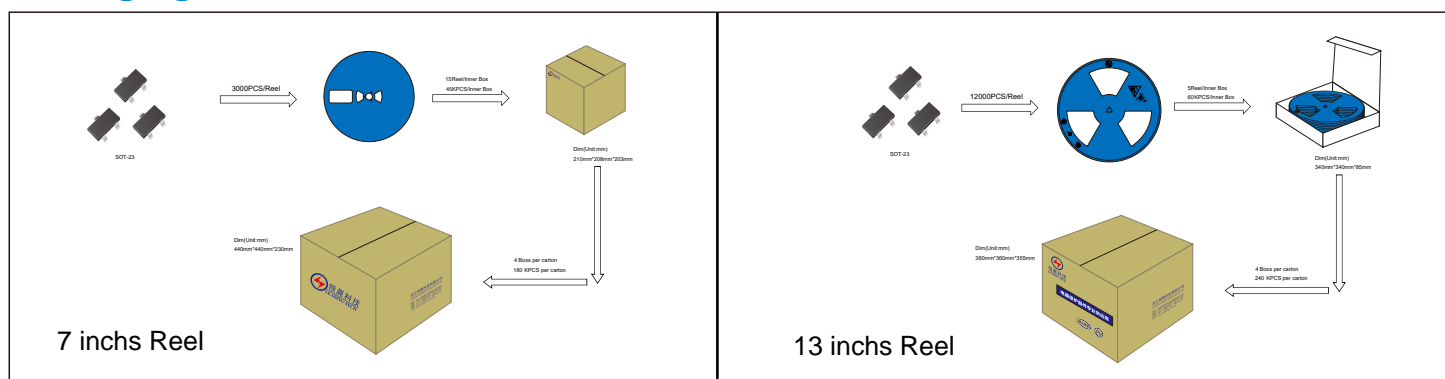


Reel Dimensions

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	2025.04.23	2025.04.23	3.0	New file	/	Ding	
02	2026.03.06	2026.03.06	3.1	Package outline E1(max)=2.6mm	/	Ding	