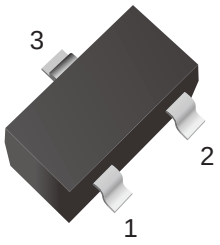
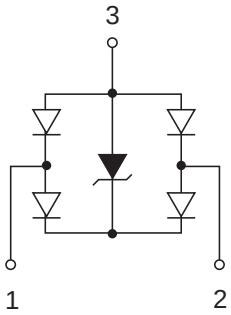
LTE52A05L02LG

Ultra Low Capacitance TVS/ESD Protection Diode

Features



- Transient protection for high-speed data lines
  IEC 61000-4-2 (ESD) ±15kV (Air)
  ±8kV (Contact)
  IEC 61000-4-4 (EFT) 40A (5/50 ns)
  Cable Discharge Event (CDE)
- Small package (1.6mm×0.8mm×0.75mm)
- 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-523
- Flammability Rating: UL 94V-0
- MSL1
- Material: Halogen free

Applications

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

Ordering Information

Part Number	Marking	Shipping	Reel
LTE52A05L02LG-TR3	52L	3000PCS Tape&Reel	7 inchs
LTE52A05L02LG-TR10	52L	10000PCS Tape&Reel	13 inchs

Absolute Maximum Ratings

Symbol	Parameter	Value	Unit
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/+125	°C

Electrical Characteristics (Tamb=25°C)

Symbol	Parameter	Test Condition	Min	Typ	Max	Unit
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_F	Forward Voltage	I_T = 10mA Between I/O and GND			1.2	V
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
C_T	Total Capacitance	V_R = 0V, f = 1MHz Between I/O and GND		0.4	0.6	pF
		V_R = 0V, f = 1MHz Between I/O and I/O		0.2	0.3	pF

Characteristics Curves

Fig.1 Power Derating Curve

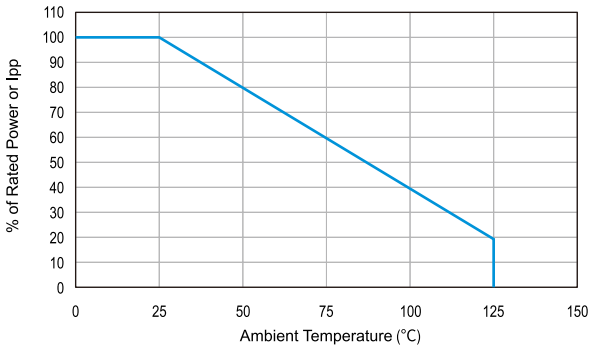


Fig.2 Clamping Voltage vs Peak Pulse Current

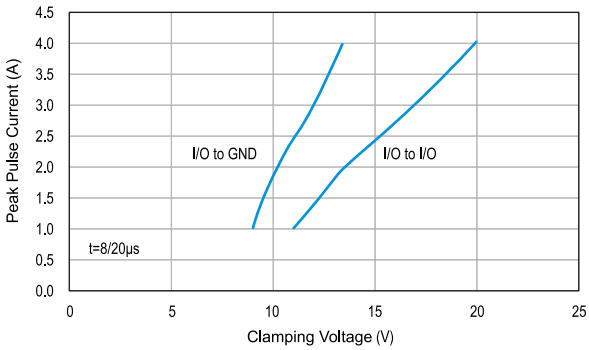


Fig.3 Voltage Sweeping of I/O to I/O

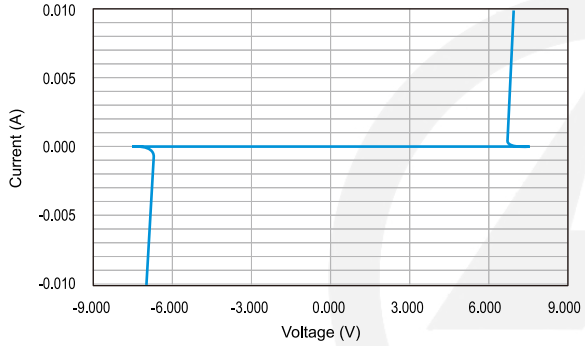


Fig.4 Voltage vs Capacitance

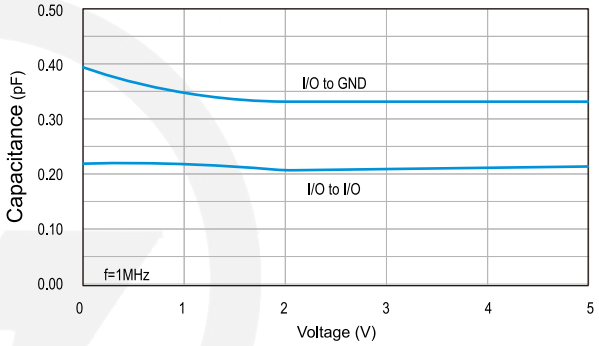


Fig.5 ESD Clamping of I/O to GND
(+8kV Contact per IEC 61000-4-2)

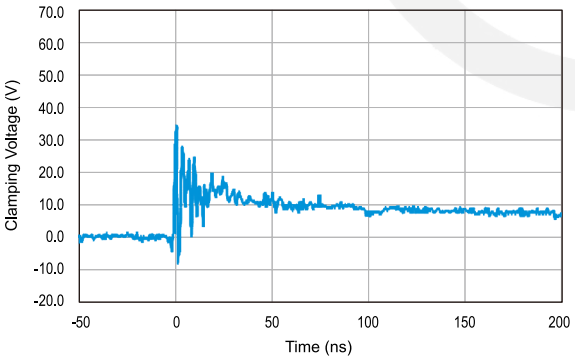
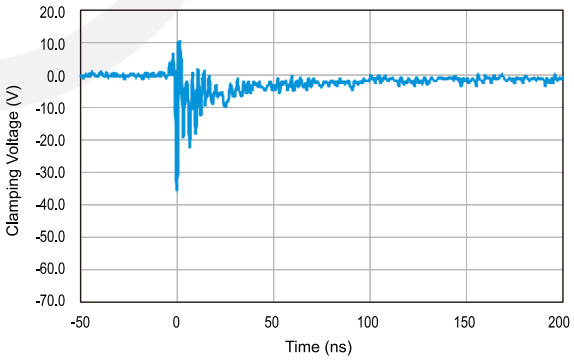
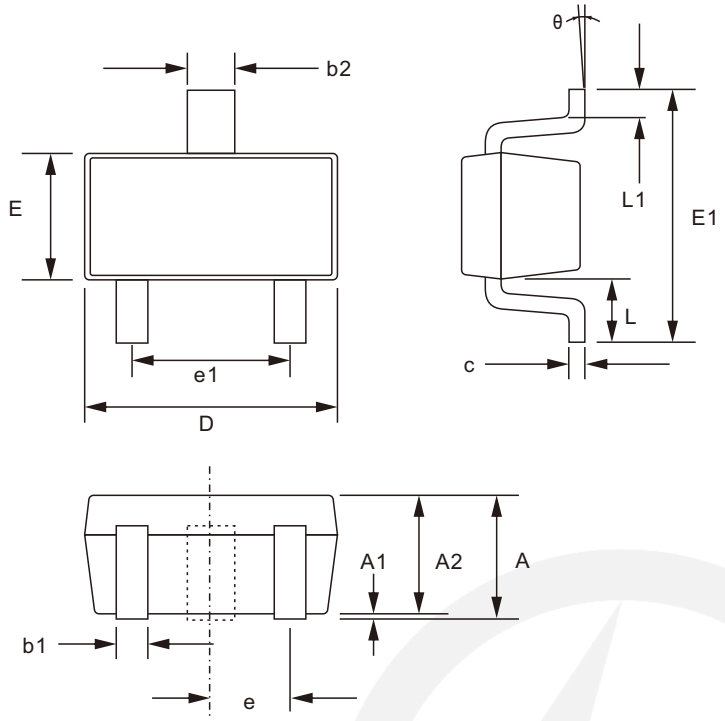


Fig.6 ESD Clamping of I/O to GND
(-8kV Contact per IEC 61000-4-2)



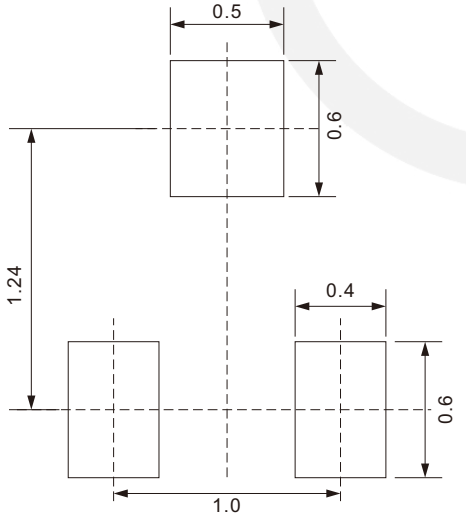
SOT-523 Package Outline



Unit : mm

SYMBOL	DIMENSIONS	
	MIN.	MAX.
A	0.70	0.90
A1	0.00	0.10
A2	0.70	0.80
b1	0.15	0.25
b2	0.25	0.35
c	0.10	0.20
D	1.50	1.70
E	0.70	0.90
E1	1.45	1.75
e	0.50 TYP.	
e1	0.90	1.10
L	0.40 TYP.	
L1	0.10	0.30
θ	0°	8°

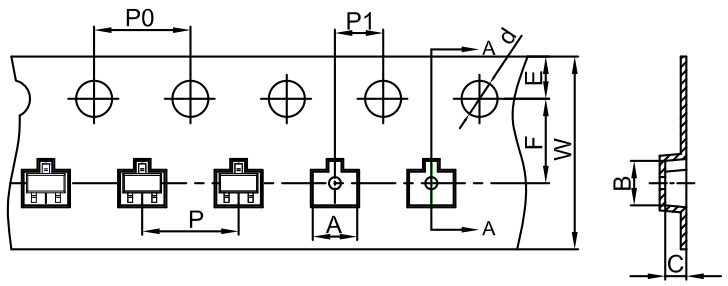
SOT-523 Suggested Pad Layout



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

Carrier Tape Dimensions

Unit：mm

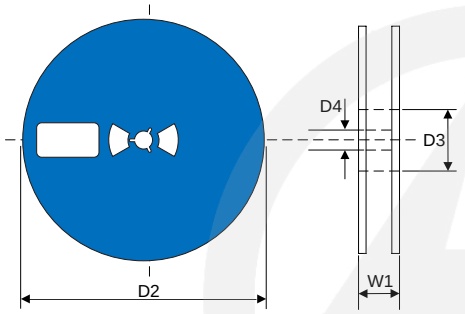


Symbol	Spec	Symbol	Spec
A	1.85	F	3.50
B	1.85	W	8.00
C	0.875	P	4.00
d	Φ1.50	P0	4.00
E	1.75	P1	2.00

Reel Dimensions

Unit：mm

7” Reel

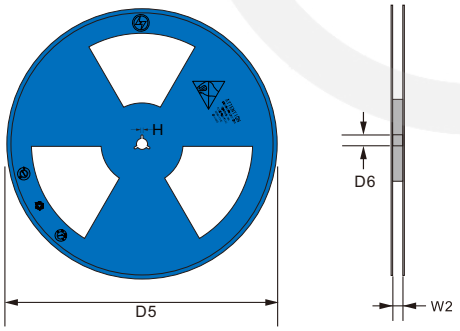


D2	Φ178.0±2.0
D3	Φ50
D4	13.0±0.5
W1	12±0.5
Quantity: 3000PCS	

Reel Dimensions

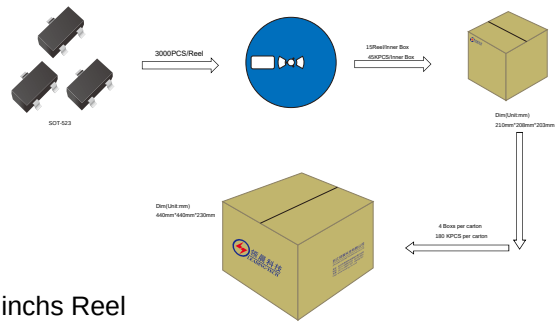
Unit：mm

13” Reel

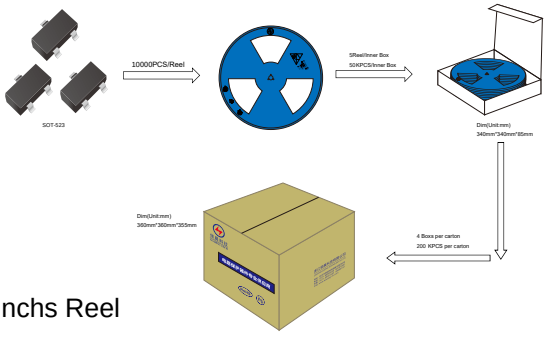


D5	Φ330.0±2.0
D6	Φ13.5±0.5
H	2.5±1.0
W2	12±2.0
Quantity: 10000PCS	

Packaging



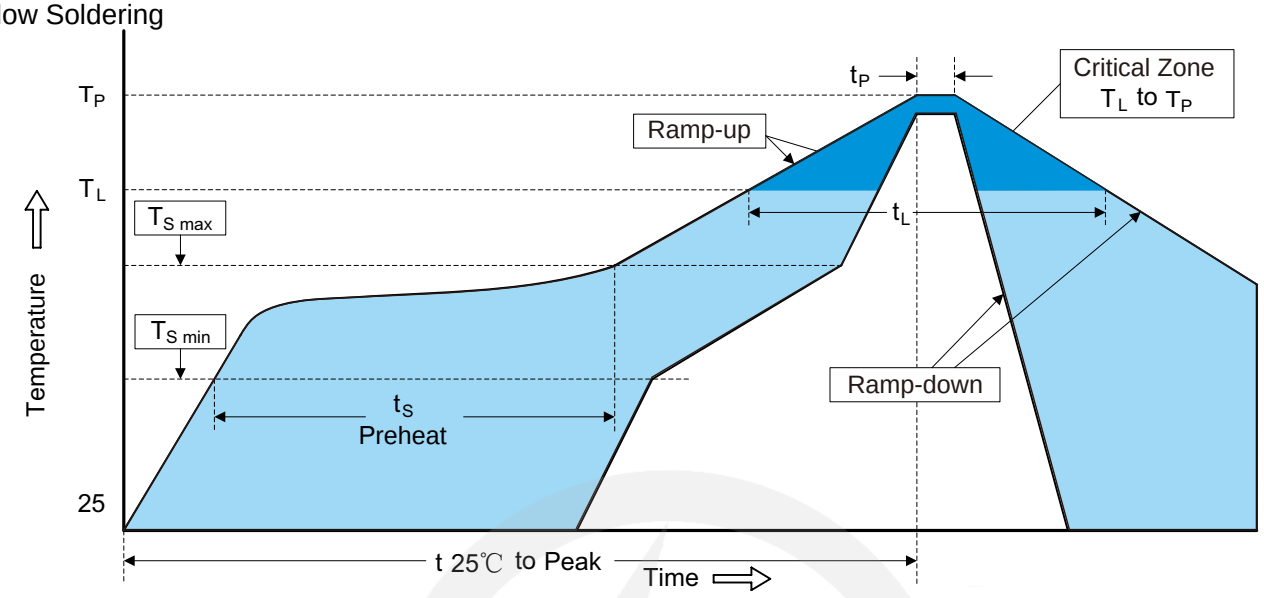
7 inchs Reel



13 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	2024.4.5	2024.4.5	3.0	New File	/	Ding	
02	2025.06.18	2025.06.18	3.1	Update packaging information	/	Ding	