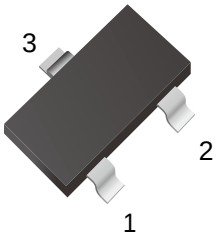
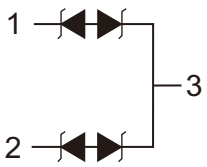
LTE23T712A02DA

Features

- IEC 61000-4-2 Level 4 ESD Protection
- - ±30kV Contact Discharge
- - ±30kV Air Discharge
- 544W Peak pulse Power (8/20μs)
- Low clamping voltage
- Working voltage: 7V/12V
- Low leakage current
- Protecting two Bi-directional lines
- Capacitance: 45pF Typ.
- Lead free in comply with EU RoHS 2011/65/EU directives





Mechanical Data

- Case: SOT-23
- Approx. Weight: 8.1mg

Applications

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

Ordering Information

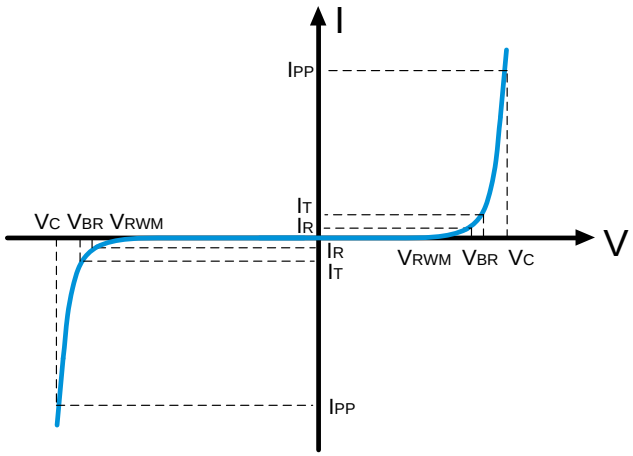
Part Number	Marking	Shipping	Reel
LTE23T712A02DA-TR3	712	3000PCS Tape&Reel	7 inchs
LTE23T712A02DA-TR12	712	12000PCS Tape&Reel	13 inchs

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}		544	W
Peak pulse current (tp=8/20μs)	I_{PP}		17	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℃ unless otherwise noted

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Reverse Stand-off Voltage	V_{RWM}	Pin1 or Pin2 to Pin3			12	V
		Pin3 to Pin1 or Pin2			7	
Reverse Breakdown Voltage	V_{BR}	Pin1 or Pin2 to Pin3; IT= 1mA	13.5			V
		Pin3 to Pin 1or Pin2; IT= 1mA	7.5			
Reverse Leakage Current	I_R	Pin1 or Pin2 to Pin3; V_{RWM}=12V			0.1	μA
		Pin3 to Pin1or Pin2; V_{RWM}=7V			0.1	
Clamping Voltage	V_C	Pin1 or Pin2 to Pin3; IPP=17A; tp=8/20us		27	32	V
		Pin3 to Pin1 or Pin2; IPP=17A; tp=8/20us		18	21	
Junction Capacitance	C_J	V_R=0V; f=1MHz, I/O-GND		45	55	pF

Characteristics Curves

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

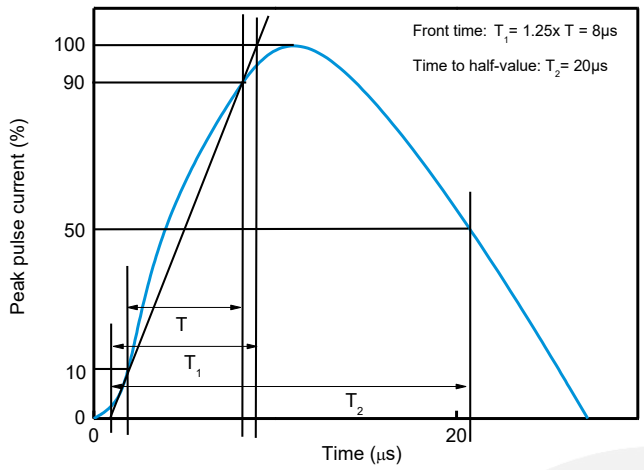


Fig.2 Contact discharge current waveform per IEC61000-4-2

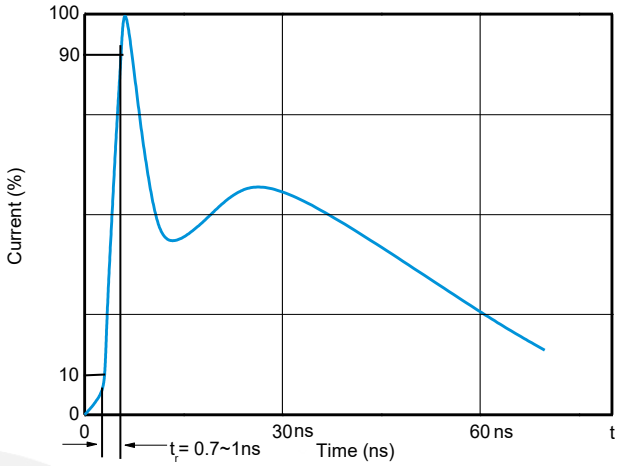


Fig.3 Clamping voltage vs Peak pulse current

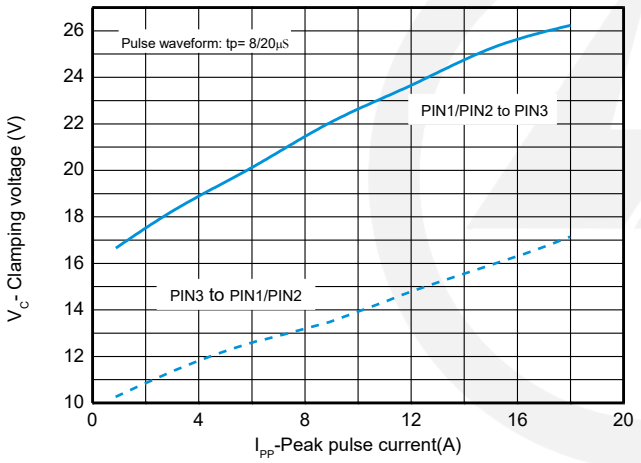


Fig.4 Capacitance vs Reverse voltage

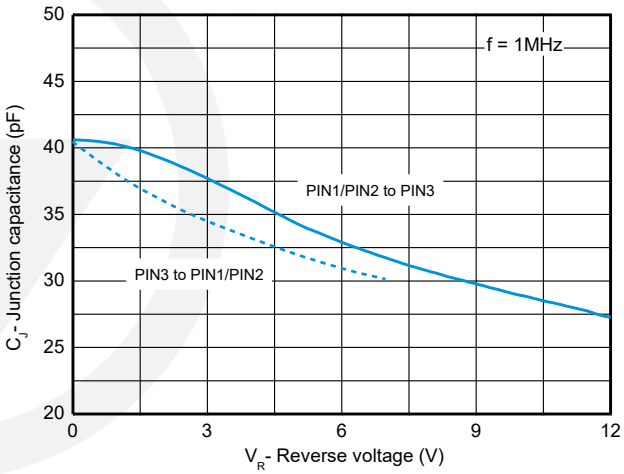


Fig.5 Non-repetitive peak pulse power vs Pulse time

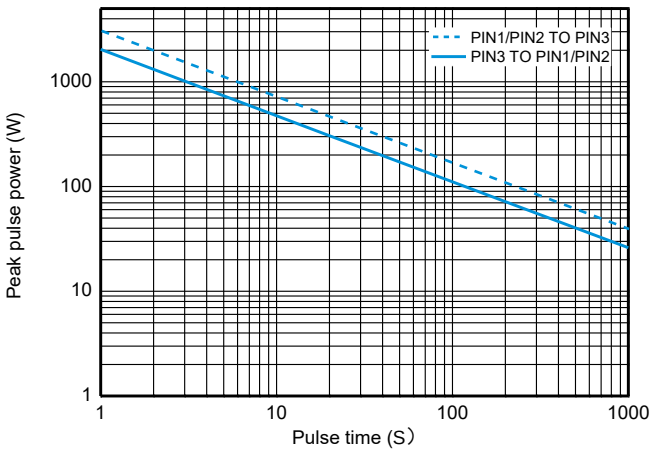
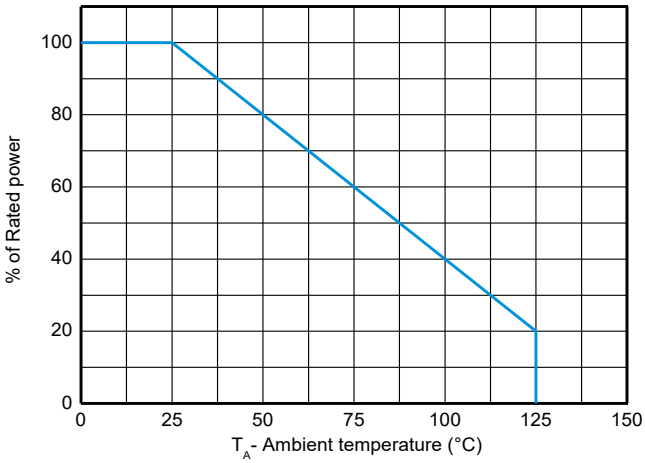
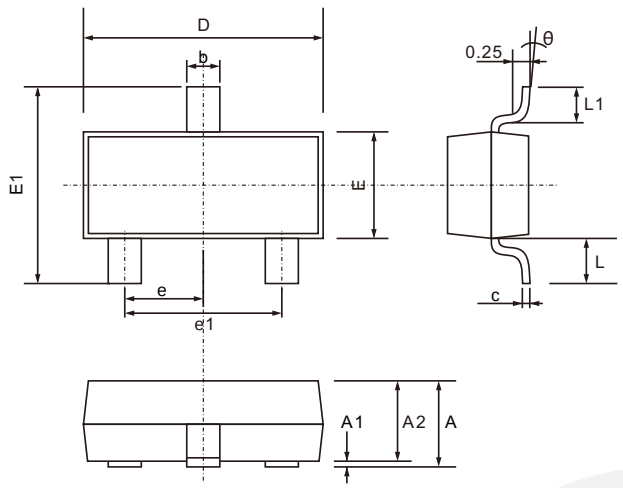


Fig.6 Power derating vs Ambient temperature



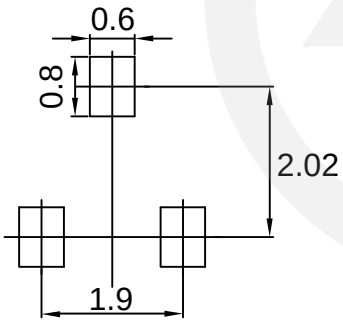
SOT-23 Package Outline



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°

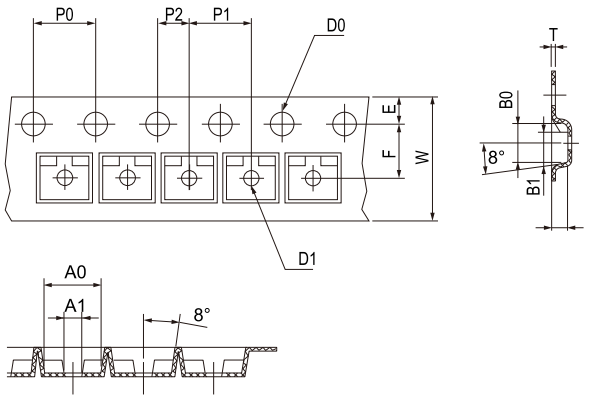
SOT-23 Suggested Pad Layout



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

Carrier Tape Dimensions

Unit：mm

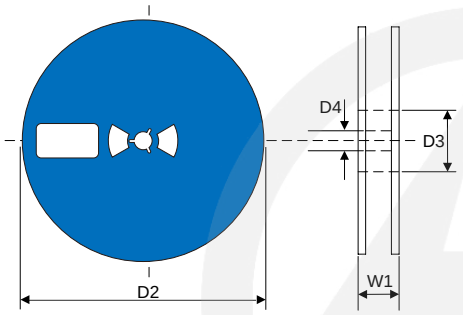


Symbol	Spec	Symbol	Spec
A0	3.15±0.10	P0	4.00±0.05
A1	1.09±0.10	P1	4.00±0.02
B0	2.77±0.10	W	8.00±0.10
B1	2.15±0.10	E	1.75±0.10
K0	1.22±0.10	F	3.50±0.05
D0	1.50±0.10	T	2.00±0.10
D1	1.00±0.10		

Reel Dimensions

Unit：mm

7” Reel

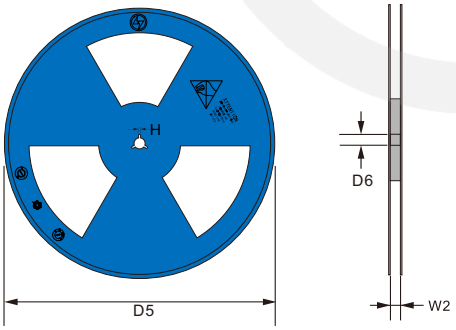


D2	Φ178.0±2.0
D3	Φ50
D4	13.0±0.5
W1	12±0.5
Quantity: 3000PCS	

Reel Dimensions

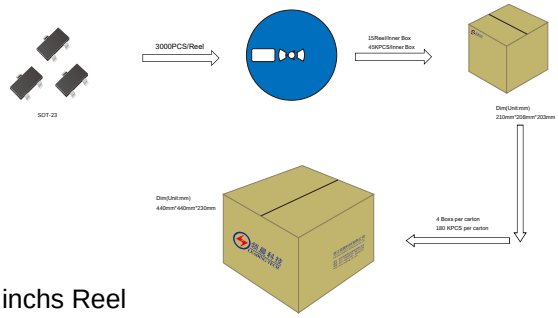
Unit：mm

13” Reel

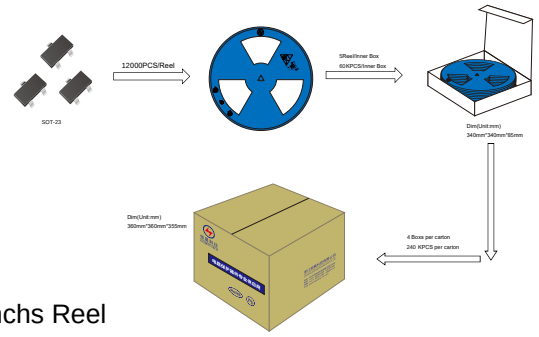


D5	Φ330.0±2.0
D6	Φ13.5±0.5
H	2.5±1.0
W2	12±2.0
Quantity: 12000PCS	

Packaging



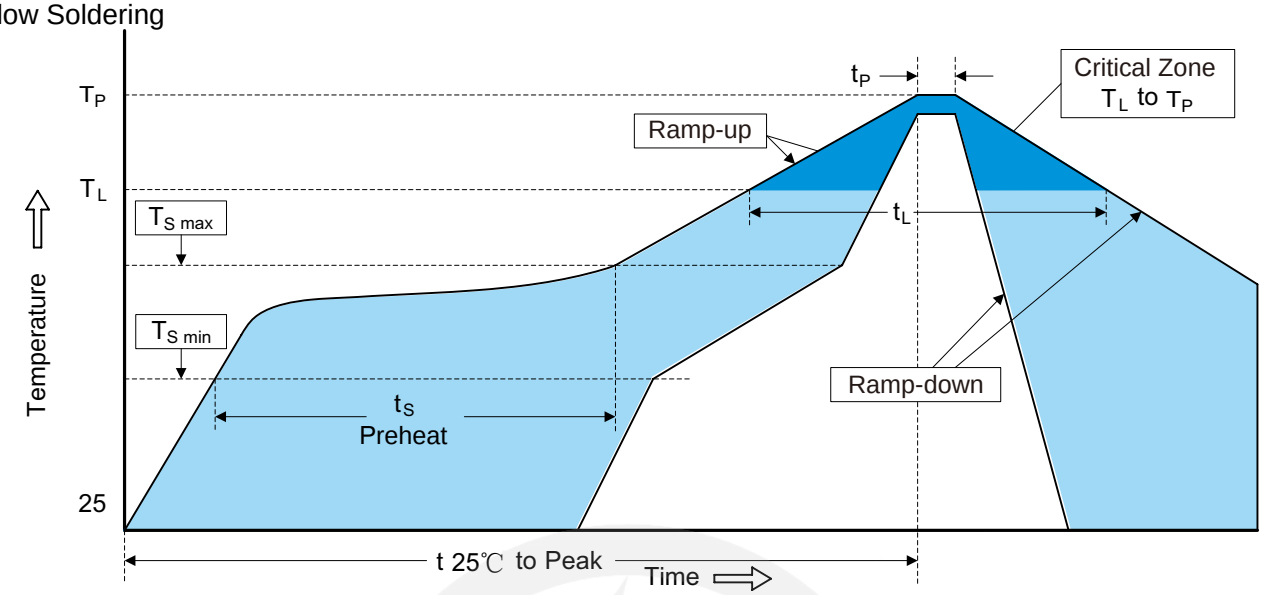
7 inchs Reel



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.

Important Notice and Disclaimer

Leading-Tech reverses the right to make changes to this document and its products and specifications at any time without notice.

Customers should obtain and confirm the latest product information and specifications before final design,purchase or use.

Leading-Tech makes no warranty,representation or guarantee regarding the suitability of its products for any particular purpose,not does Leading-Tech assume any liability for application assistance or customer product design.

Leading-Tech does not warrant or accept any liability with products which are purchase or used for any unintended or unauthorized application.

No license is granted by implication or otherwise under any intellectual property rights of Leading-Tech.

Leading-Tech products are not authorized for use as critical components in life support devices or systems without express written approval of Leading-Tech.

Version Update Information

Series NO.	Enactment/Revision Date	Effective Date	Version	Revision Content	Revision Reason	Revision Person	Note
01	2024.12.19	2024.12.19	3.0	New file	/	Ding	
02	2026.03.06	2026.03.06	3.1	Package outline E1(max)=2.6mm	/	Ding	