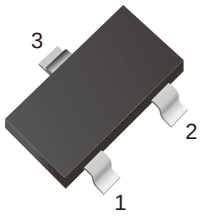
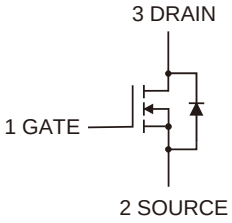
N-Channel Mosfet

Features



- Epoxy meets UL 94 V-0 flammability rating
- High power and current handing capability
- Surface mount package
- Lead free in comply with EU RoHS 2011/65/EU directives

Mechanical Data



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

Ordering Information

Part Number	Marking	Shipping	Reel
LTM2310N-TR3	S10	3000PCS Tape&Reel	7 inchs
LTM2310N-TR12	S10	12000PCS Tape&Reel	13 inchs

Maximum Ratings (Ta = 25 ℃)

Symbol	Parameter	Value	Unit
V_{DS}	Drain-Source Voltage	60	V
V_{GS}	Gate-Source Voltage	±20	V
I_D	Drain Current-Continuous	3	A
I_{DM}	Pulsed Drain Current[*1]	10	A
P_D	Power Dissipation	1.2	W
$R_{\Theta JA}$	Thermal Resistance From Junction To Ambient[*2]	207	°C/W
$R_{\Theta JC}$	Thermal Resistance From Junction To Case	40	°C/W
Tj	Junction Temperature	150	°C
Tstg	Storage Temperature	-55～+150	°C

Electrical Characteristics (Ta = 25℃)

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=250μA	60			V
$V_{GS(th)}$	Gate-Threshold Voltage*3	V_{DS}=V_{GS}, I_D=250μA	0.5		2	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=60V, V_{GS}=0V			1.0	uA
I_{GSS}	Gate-Body Leakage Current	V_{GS} =±20V, V_{DS}=0V			±100	nA
$R_{DS(on)}$	Drain-Source On-Resistance*3	V_{GS}=10V, I_D=3A		82	105	mΩ
		V_{GS}=4.5V, I_D=3A		91	125	mΩ
g_{FS}	Forward transconductance*3	V_{DS} =15V, I_D =2A	1.4			S
V_{SD}	Diode forward voltage*3	I_S =3A, V_{GS} =0V			1.2	V
Dynamic Characteristics*4						
Ciss	Input Capacitance	V_{DS}=30V,V_{GS}=0V, f=1MHz		247		pF
Coss	Output Capacitance			34		
Crss	Reverse Transfer Capacitance			19.5		
Switching Characteristics*4						
td(on)	Turn-on Delay Time	V_{DD}=30V,V_{GS}=10V, I_D=1.5A,R_{GEN}=1Ω		6		nS
tr	Turn-on rise Time			15		
td(off)	Turn-off Delay Time			15		
tr	Turn-off Fall Time			10		
Qg	Total Gate Charge	V_{DS}=30V I_D=3A V_{GS}=4.5V		6		nC
QgS	Gate-Source Charge			1		
Qgd	Gate-Drain(“Miller”) Charge			1.3		

*1：Repetitive rating : Pulse width limited by junction temperature.

*2：Measured with the device mounted on 1 $inch^2$ FR-4 board with 2oz. copper, in a still air environment with Ta = 25°C.

*3：Pulse Test : Pulse width≤300μs, duty cycle ≤2%.

*4：Guaranteed by design, not subject to production testing.

Characteristics Curves

Fig1.Output Characteristics

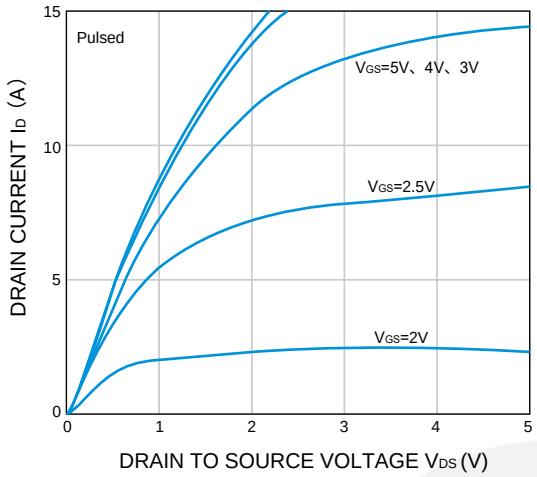


Fig2.Transfer Characteristics

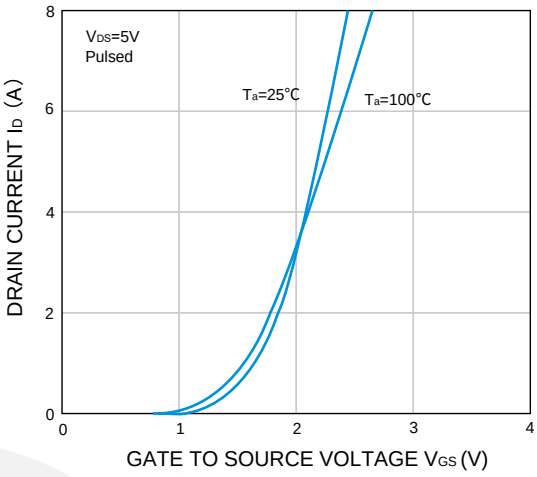


Fig3.$R_{DS(ON)}$ VS I_D

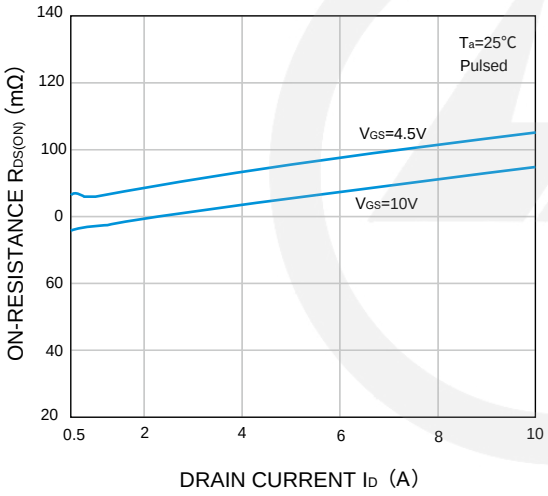


Fig4.$R_{DS(ON)}$ VS V_{GS}

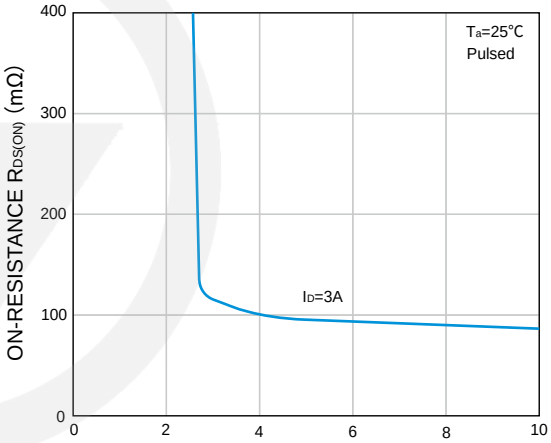


Fig5.I_S VS V_{SD}

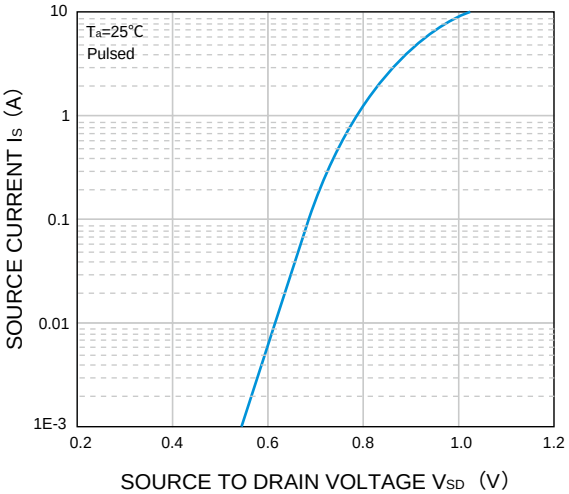
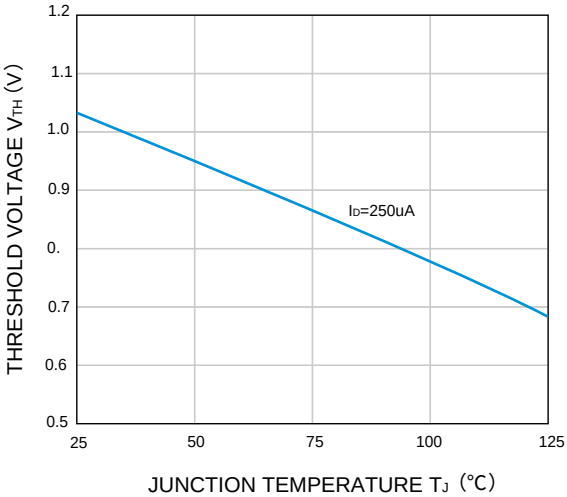
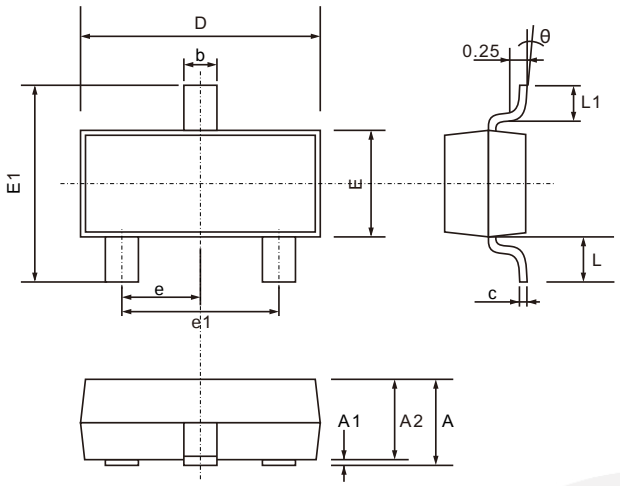


Fig6.Threshold Voltage



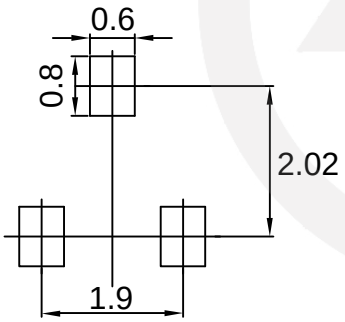
SOT-23 Package Outline



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°

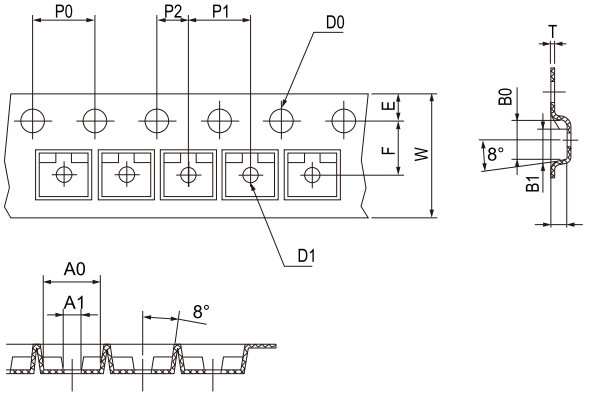
SOT-23 Suggested Pad Layout



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

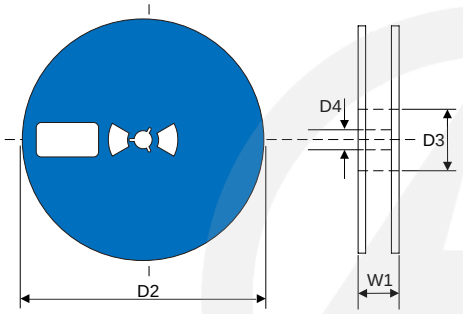


Symbol	Spec	Symbol	Spec
A0	3.15±0.10	P0	4.00±0.05
A1	1.09±0.10	P1	4.00±0.02
B0	2.77±0.10	W	8.00±0.10
B1	2.15±0.10	E	1.75±0.10
K0	1.22±0.10	F	3.50±0.05
D0	1.50±0.10	T	2.00±0.10
D1	1.00±0.10		

Reel Dimensions

Unit：mm

7” Reel

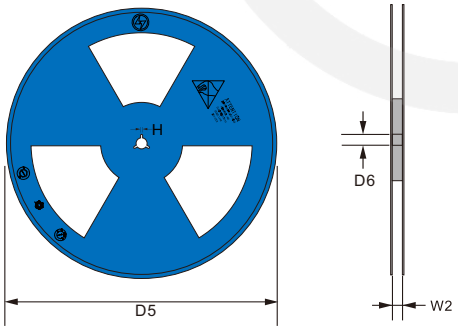


D2	Φ178.0±2.0
D3	Φ50
D4	13.0±0.5
W1	12±0.5
Quantity: 3000PCS	

Reel Dimensions

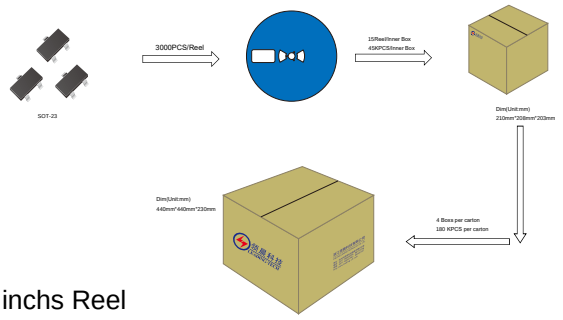
Unit：mm

13” Reel

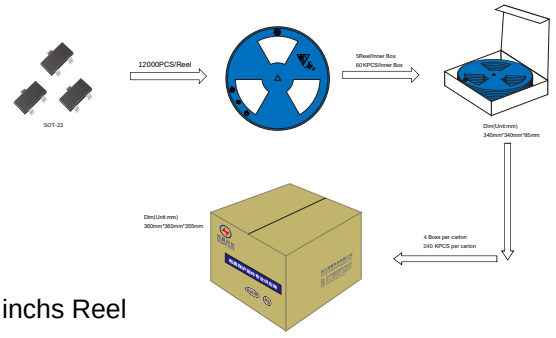


D5	Φ330.0±2.0
D6	Φ13.5±0.5
H	2.5±1.0
W2	12±2.0
Quantity: 12000PCS	

Packaging



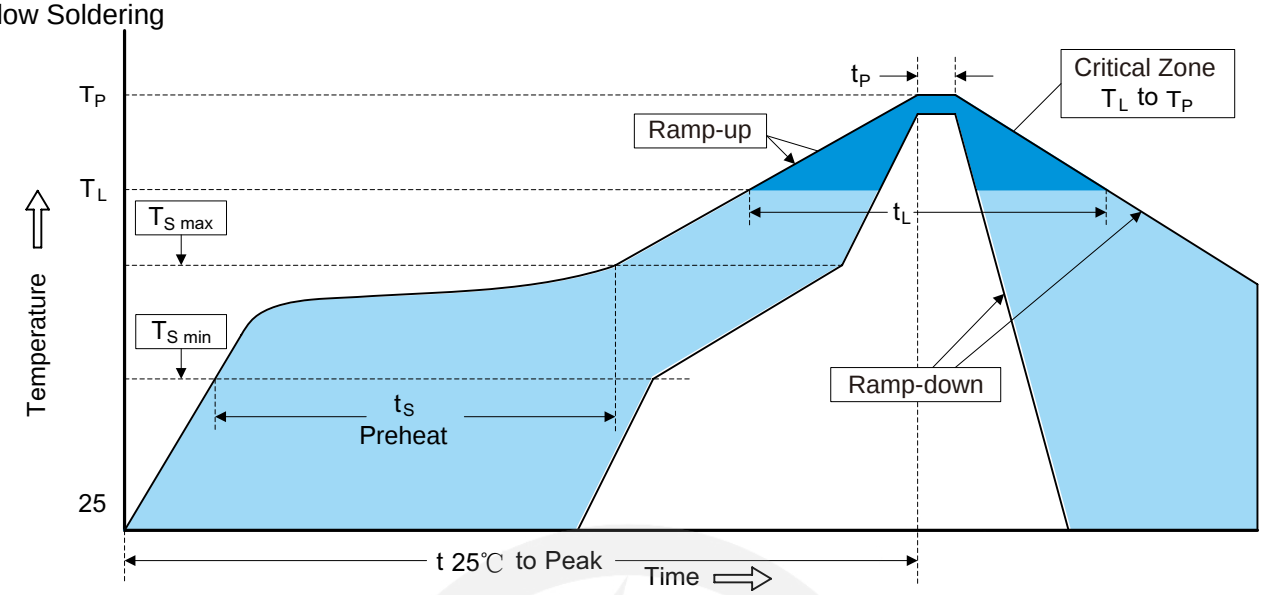
7 inchs Reel



13 inchs Reel

Recommended Soldering Conditons

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	2024.05.18	2024.05.18	3.0	New file	/	Ding	
02	2025.06.17	2025.06.17	3.1	Update packaging information	/	Ding	
03	2025.07.02	2025.07.02	3.2	P_D=1.2W	/	Ding	
04	2026.03.05	2026.03.05	3.3	Package outline E1(max)=2.6mm	/	Ding	