

Transistor(NPN)

Features

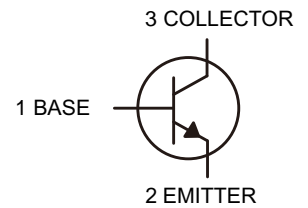
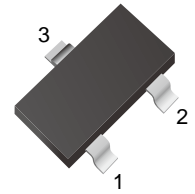
- Ideal for Medium Power Amplification and Switching
- Lead free in comply with EU RoHS 2011/65/EU directives

Mechanical Data

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

Ordering Information

Part Number	Marking	Shipping	Reel
LT5551-TR3	G1	3000PCS Tape&Reel	7 inchs
LT5551-TR12	G1	12000PCS Tape&Reel	13 inchs



Maximum Ratings ($T_a=25$ unless otherwise noted)

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	180	V
V_{CEO}	Collector-Emitter Voltage	160	V
V_{EBO}	Emitter-Base Voltage	6	V
I_C	Collector Current	600	mA
P_C	Collector Power Dissipation	300	mW
$R_{\theta JA}$	Thermal Resistance From Junction To Ambient	416	$^{\circ}C/W$
T_j	Junction Temperature	150	$^{\circ}C$
T_{stg}	Storage Temperature	-55~+150	$^{\circ}C$

Electrical characteristics ($T_a=25$ unless otherwise specified)

Parameter	Symbol	Test condition	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=100\mu A, I_E=0$	180			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}^*$	$I_C=1mA, I_B=0$	160			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=10\mu A, I_C=0$	6			V
Collector cut-off current	I_{CBO}	$V_{CB}=120V, I_E=0$			50	nA
Emitter cut-off current	I_{EBO}	$V_{EB}=4V, I_C=0$			50	nA
DC current gain	$h_{FE(1)}^*$	$V_{CE}=5V, I_C=1mA$	80			
	$h_{FE(2)}^*$	$V_{CE}=5V, I_C=10mA$	100		300	
	$h_{FE(3)}^*$	$V_{CE}=5V, I_C=50mA$	50			
Collector-emitter saturation voltage	$V_{CE(sat)1}^*$	$I_C=10mA, I_B=1mA$			0.15	V
	$V_{CE(sat)2}^*$	$I_C=50mA, I_B=5mA$			0.2	V
Base-emitter saturation voltage	$V_{BE(sat)1}^*$	$I_C=10mA, I_B=1mA$			1	V
	$V_{BE(sat)2}^*$	$I_C=50mA, I_B=5mA$			1	V
Transition frequency	f_T	$V_{CE}=10V, I_C=10mA, f=100MHz$	100		300	MHz

*Pulse test: pulse width $\leq 300\mu s$, duty cycles $\leq 2.0\%$.



Characteristics Curves

Fig.1 Static Characteristic

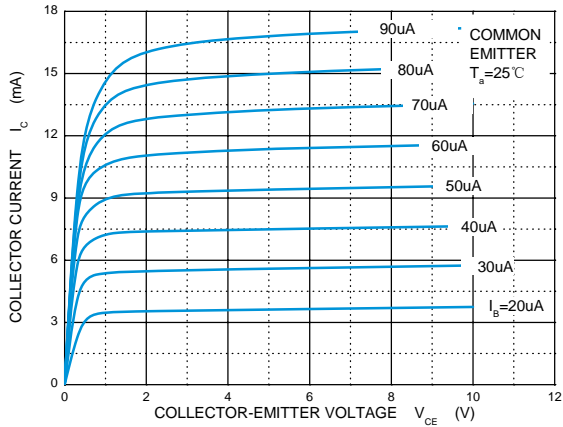


Fig.2 h_{FE} vs I_c

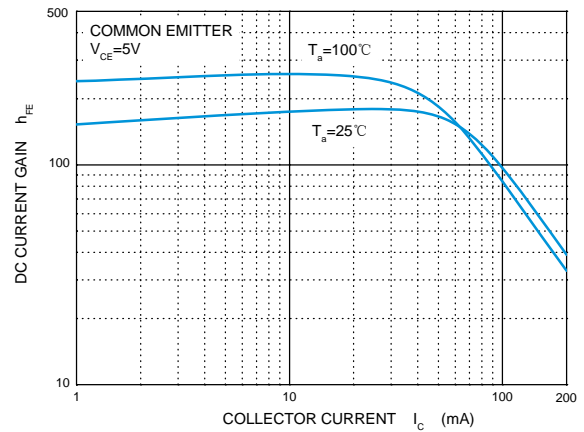


Fig.3 V_{BEsat} vs I_c

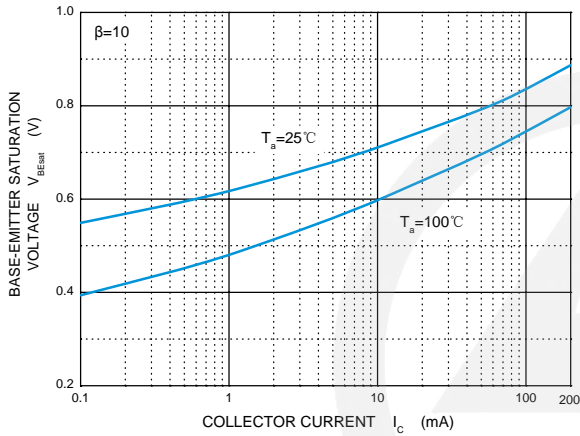


Fig.4 V_{CEsat} vs I_c

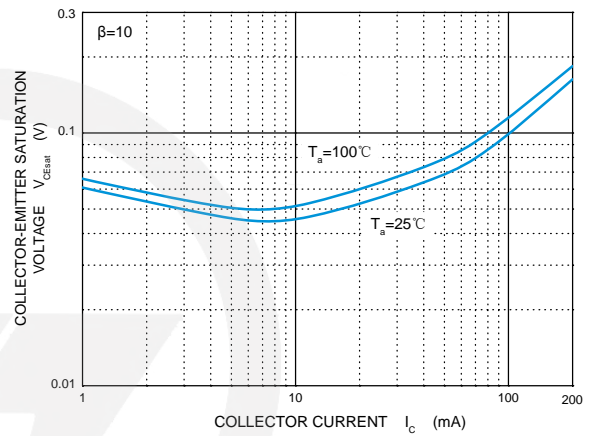


Fig.5 I_c vs V_{BE}

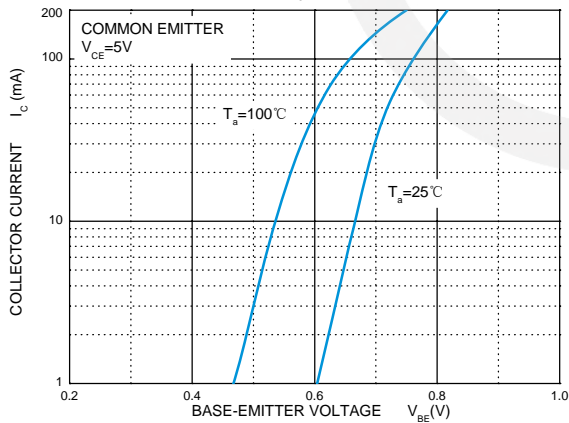


Fig.6 C_{ob}/C_{ib} vs V_{CB}/V_{EB}

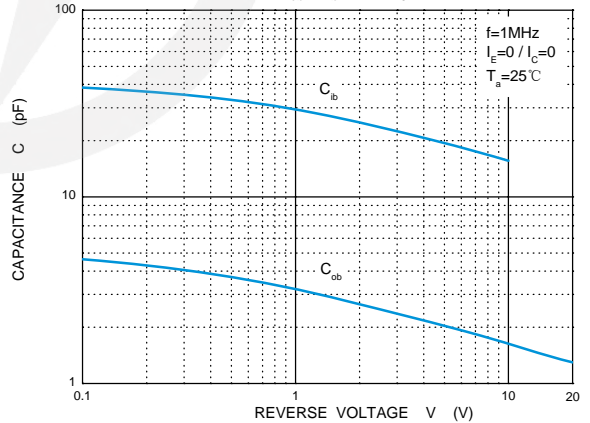


Fig.7 f_T vs I_c

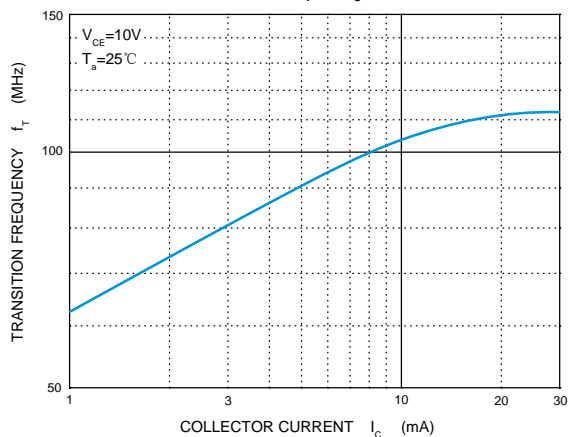
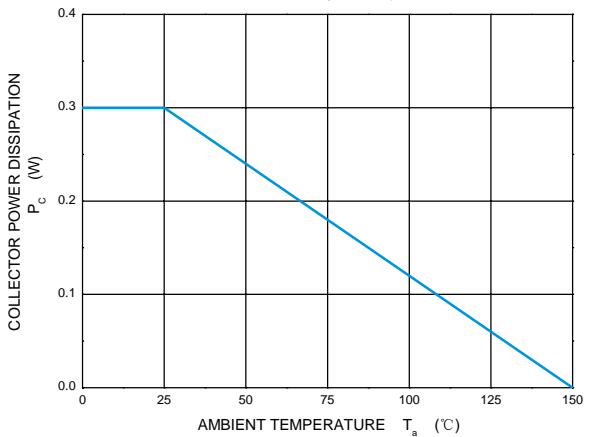
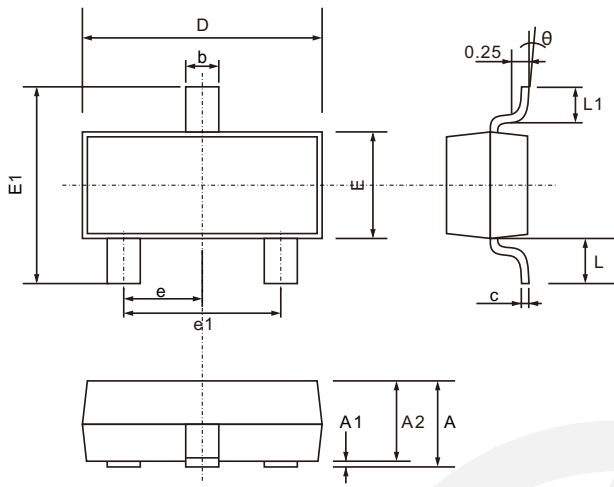


Fig.8 P_C vs T_a

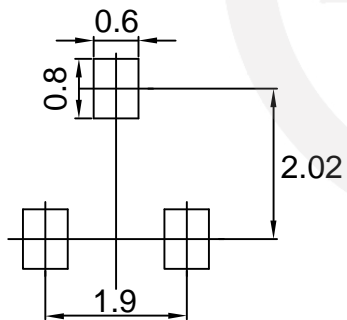


SOT-23 Package Outline

Unit: mm



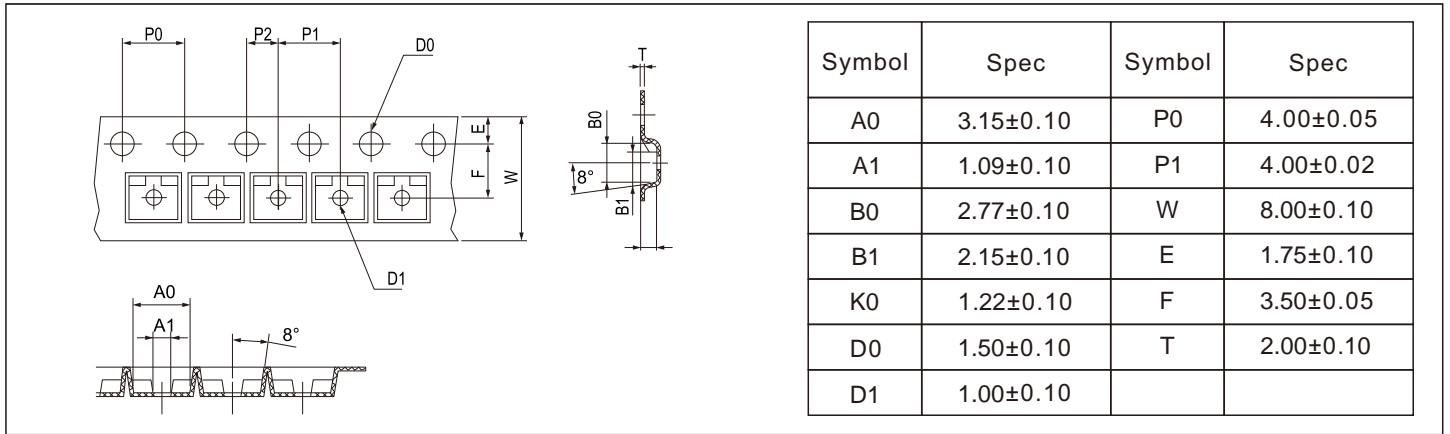
SYMBOL	DIMENSIONS	
	MIN.	MAX.
A	0.900	1.200
A1	0.000	0.100
A2	0.900	1.050
b	0.300	0.500
c	0.080	0.200
D	2.700	3.100
E	1.200	1.400
E1	2.200	2.600
e	0.950 TYP.	
e1	1.750	2.050
L	0.550 TYP.	
L1	0.300	0.500
θ	0°	8°

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.

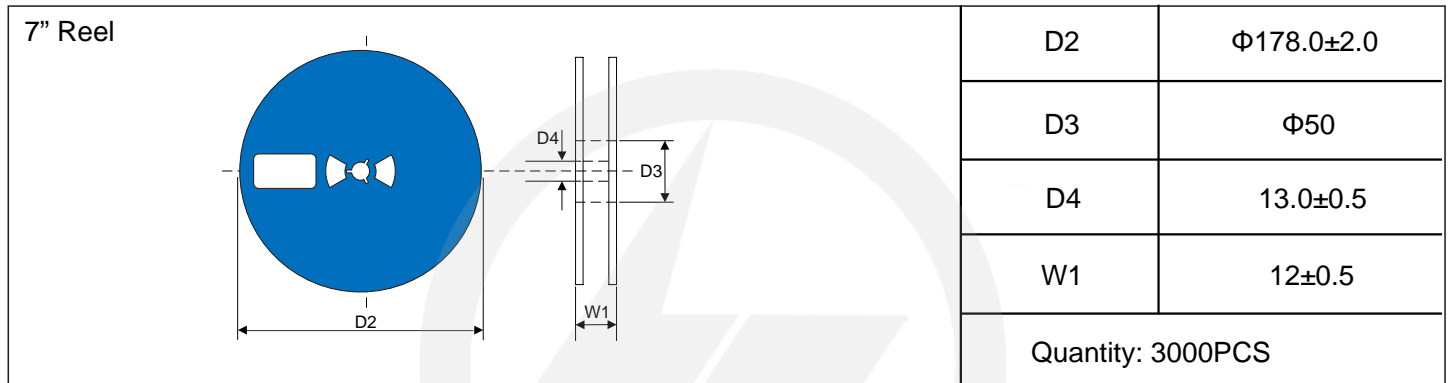
Carrier Tape Dimensions

Unit : mm



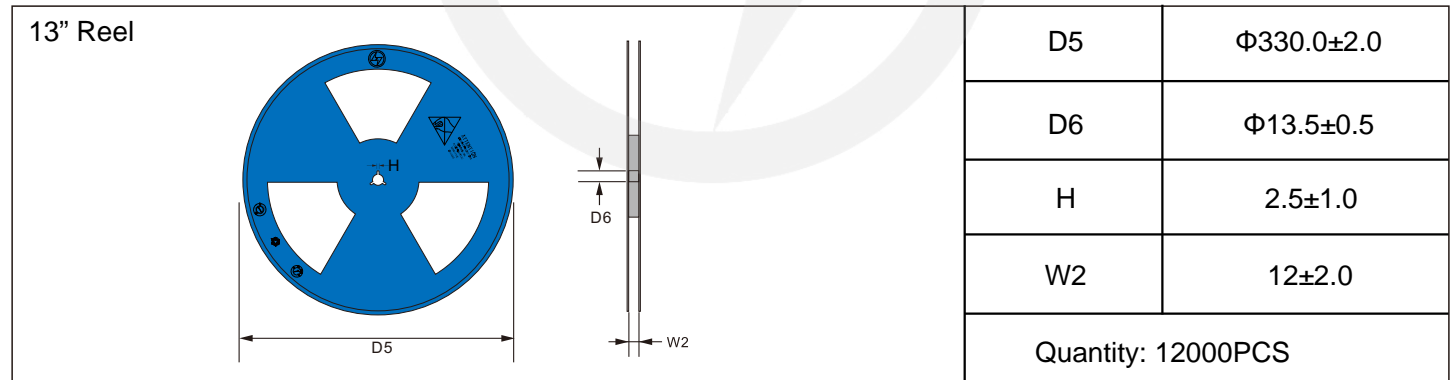
Reel Dimensions

Unit : mm

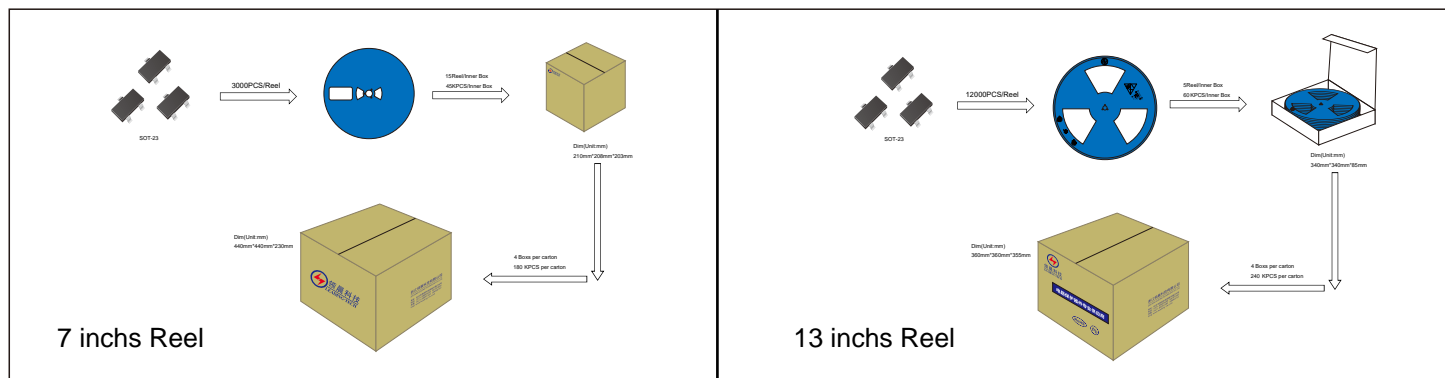


Reel Dimensions

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	2024.03.12	2024.03.12	3.0	New file	/	Ding	
02	2025.06.12	2025.06.12	3.1	Update packaging information	/	Ding	
03	2026.03.06	2026.03.06	3.2	Package outline E1(max)=2.6mm	/	Ding	