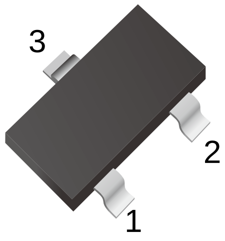
Transistor(NPN)

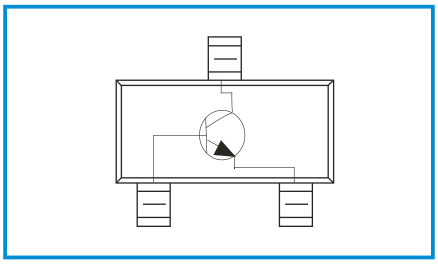
Features

- Complement to LTBTA94
- Power Dissipation of 350mW
- High Stability and High Reliability

1. BASE
2. EMITTER
3. COLLECTOR



Functional Diagram



Mechanical Data

- SOT-23 Small Outline Plastic Package
- Epoxy UL: 94V-0
- Mounting Position: Any
- Marking:3D

Maximum Ratings (Ta=25℃ unless otherwise noted)

Parameters	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	400	V
Collector-Emitter Voltage	V_{CEO}	400	V
Emitter -Base Voltage	V_{EBO}	6	V
Collector Current-Continuous	I_C	200	mA
Collector Power Dissipation	P_C	350	mW
Junction Temperature	T_j	150	℃
Storage Temperature	Tstg	-55-+150	℃
Thermal resistance From junction to ambient	$R_{\theta JA}$	357	℃/W

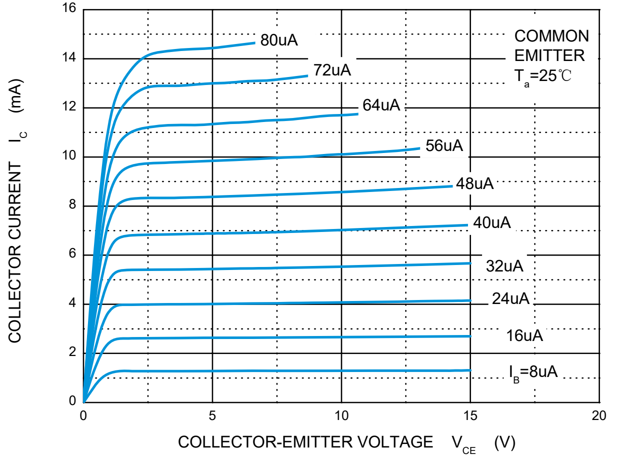
Electrical characteristics (Ta=25℃ unless otherwise specified)

Parameter	Symbols	Test Condition	Limits		Unit
			Min	Max	
Collector-base breakdown voltage	$V_{(BR)CBO}$	I_C=100uA, I_E=0	400		V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	I_C=1mA, I_B=0	400		V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	I_E=10uA, I_C=0	6		V
Collector cut-off current	I_{CBO}	V_{CB}=400V, I_E=0		100	nA
Emitter cut-off current	I_{EBO}	V_{EB}=4V, I_C=0		100	nA
DC current gain	$h_{FE(1)}$*	V_{CE}=10V, I_C=1mA	40		
	$h_{FE(2)}$*	V_{CE}=10V, I_C=10mA	50		200
	$h_{FE(3)}$*	V_{CE}=10V, I_C=50mA	45		
	$h_{FE(4)}$*	V_{CE}=10V, I_C=100mA	40		
Collector-emitter saturation voltage	$V_{CE(sat)1}$*	I_C=1mA, I_B=0.1mA		0.40	V
Collector-emitter saturation voltage	$V_{CE(sat)2}$*	I_C=10mA, I_B=1mA		0.50	V
Collector-emitter saturation voltage	$V_{CE(sat)3}$*	I_C=50mA, I_B=5mA		0.75	V
Base -emitter saturation voltage	$V_{BE(sat)}$*	I_C=10mA, I_B=1mA		0.75	V
Collector output capacitance	Cob	V_{CB}=20V, I_E=0; f=1MHz		7	pF
Emitter input capacitance	Cib	V_{eB}=0.5V, I_C=0; f=1MHz		130	pF

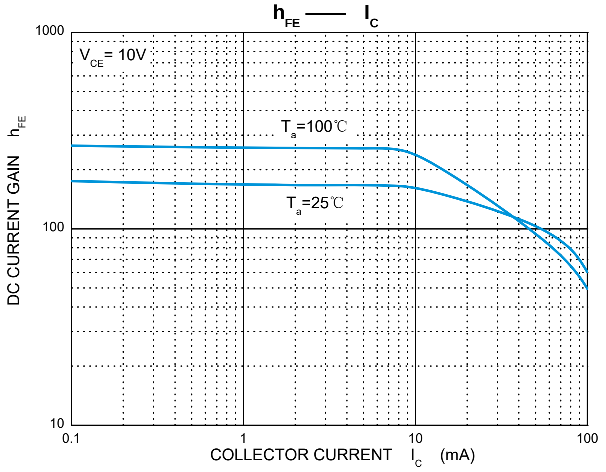
*Pulse test: pulse width≦300us, duty cycle≦2. 0%.

Typical Characteristics

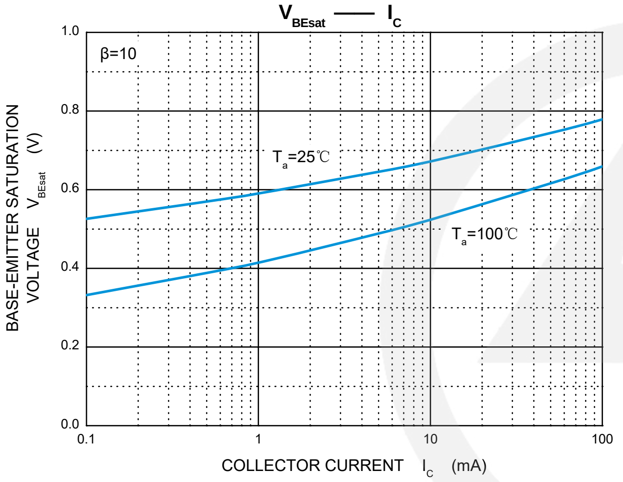
Static Characteristic



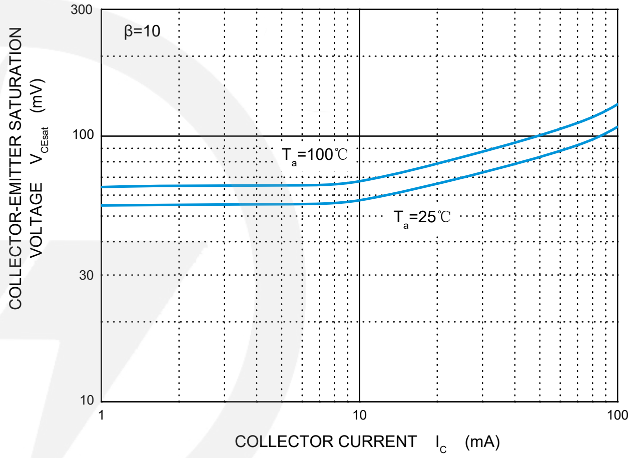
h_{FE} —— I_C



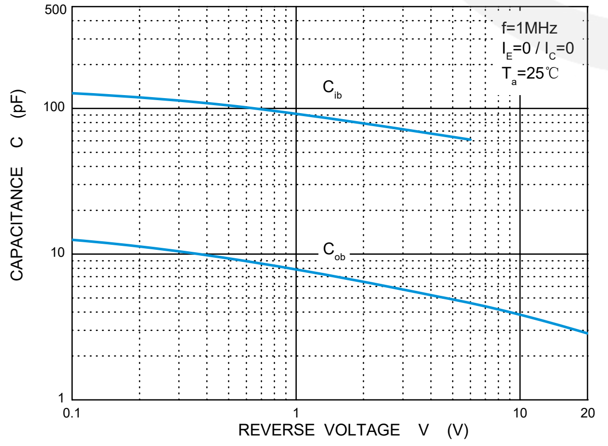
V_{BEsat} —— I_C



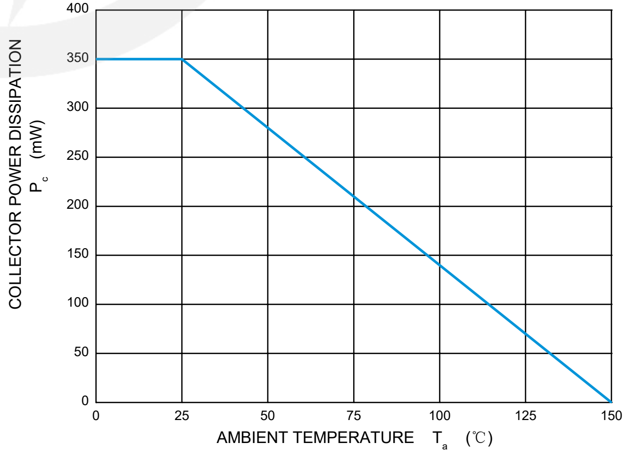
V_{CEsat} —— I_C



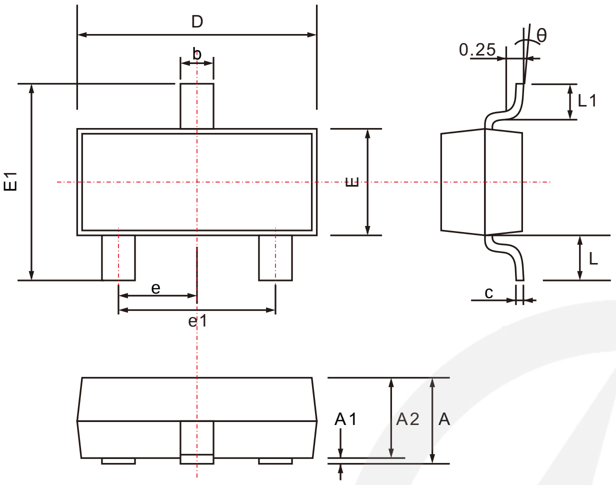
C_{ob} / C_{ib} —— V_{CB} / V_{EB}



P_c —— T_a



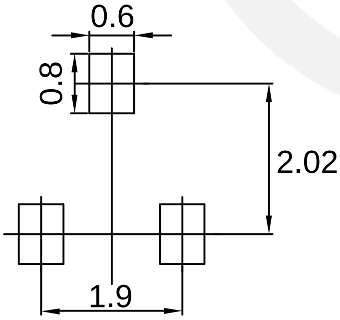
SOT-23 Package Outline



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	3.000
e	0.950 TYP.	
e1	1.750	2.050
L	0.550 TYP.	
L1	0.300	0.500
θ	0°	8°

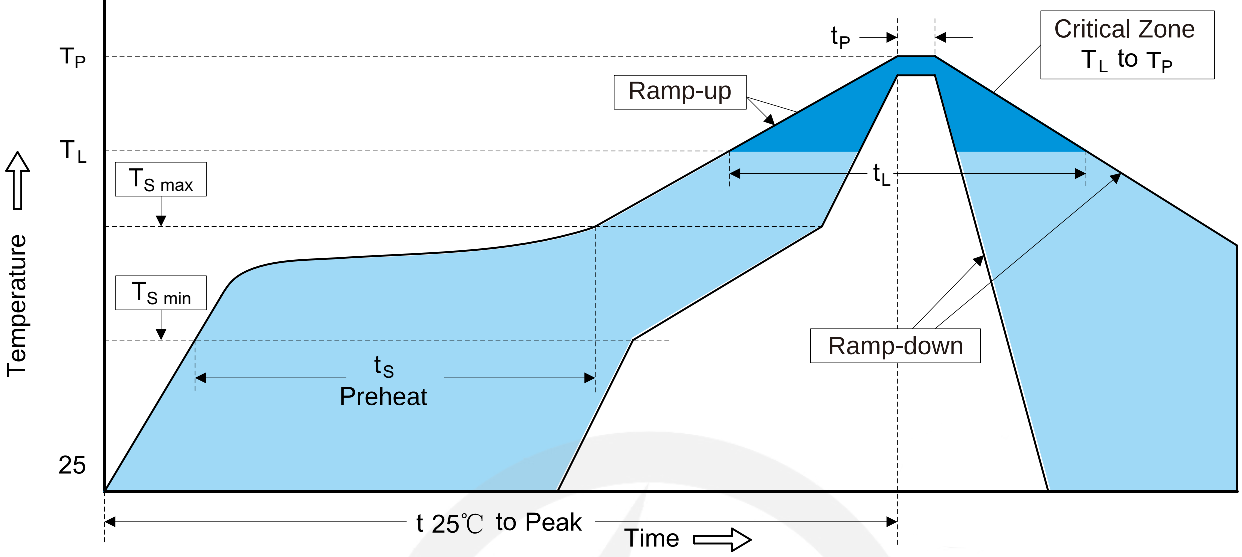
SOT-23 Suggested Pad Layout



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

Recommended Soldering Conditions

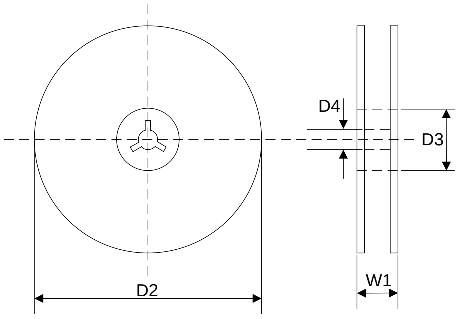
Reflow Soldering



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.

7” Reel



D2	Φ178.0±2.0
D3	Φ50.0Min.
D4	Φ13.0±0.5
W1	16.0±2.0
Quantity: 3000PCS	