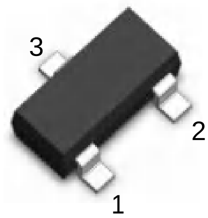
领晨科技
LEADING-TECH

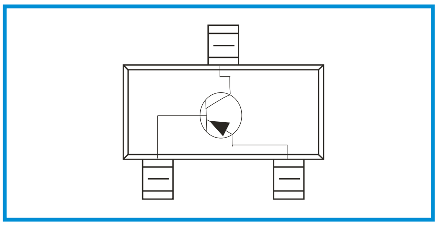
LT591

Transistor(PNP)

1. BASE
2. EMITTER
3. COLLECTOR



Functional Diagram



Features

- Low equivalent on-resistance
- Marking: 591

Maximum Ratings (Ta=25℃ unless otherwise noted)

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	-80	V
V_{CEO}	Collector-Emitter Voltage	-60	V
V_{EBO}	Emitter-Base Voltage	-5	V
I_C	Collector Current	-1	A
I_{CM}	Peak Pulse Current	-2	A
P_C	Collector Power Dissipation	250	mW
$R_{\Theta JA}$	Thermal Resistance From Junction To Ambient	500	℃/W
T_J,T_{stg}	Operation Junction and Storage Temperature Range	-55～+150	℃

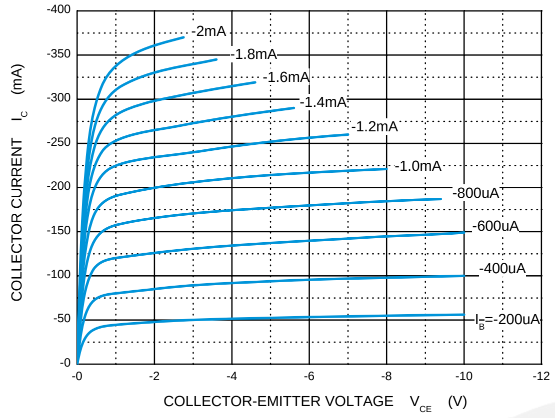
Electrical characteristics (Ta=25℃ unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	I_C=-100μA, I_E=0	-80			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$[1]	I_C=-10mA, I_B=0	-60			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	I_E=-100μA, I_C=0	-5			V
Collector cut-off current	I_{CBO}	V_{CB}=-60V, I_E=0			-0.1	μA
Emitter cut-off current	I_{EBO}	V_{EB}=-4V, I_C=0			-0.1	μA
DC current gain	$h_{FE(1)}$	V_{CE}=-5V, I_C=-1mA	100			
	$h_{FE(2)}$[1]	V_{CE}=-5V, I_C=-500mA	100		300	
	$h_{FE(3)}$[1]	V_{CE}=-5V, I_C=-1A	80			
	$h_{FE(4)}$[1]	V_{CE}=-5V, I_C=-2A	15			
Collector-emitter saturation voltage	$V_{CE(sat)1}$[1]	I_C=-500mA, I_B=-50mA			-0.25	V
	$V_{CE(sat)2}$[1]	I_C=-1A, I_B=-100mA			-0.5	V
Base-emitter saturation voltage	$V_{BE(sat)}$[1]	I_C=-1A, I_B=-100mA			-1.1	V
Base-emitter voltage	V_{BE}[1]	V_{CE}=-5V, I_C=-1A			-1	V
Transition frequency	f_T	V_{CE}=-10V,I_C=-50mA,,f=100MHz	150			MHz
Collector output capacitance	C_{ob}	V_{CB}=-10V,f=1MHz			10	pF

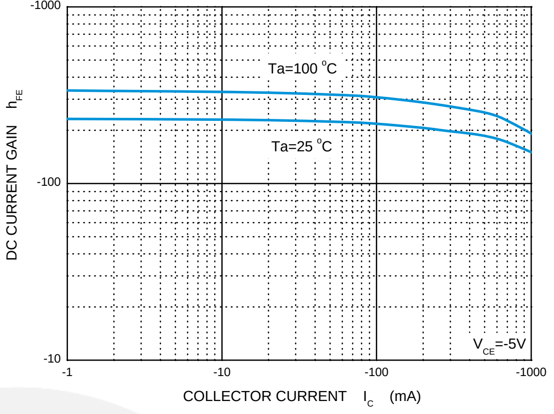
[1] **Measured under pulsed conditions, Pulse width=300μs, Duty cycle≤2%.**

Typical Characteristics

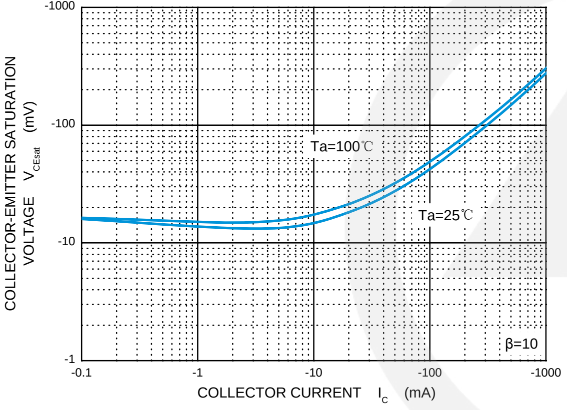
Static Characteristic



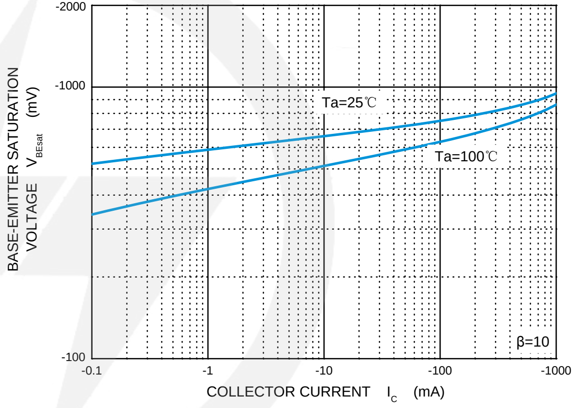
h_{FE} —— I_C



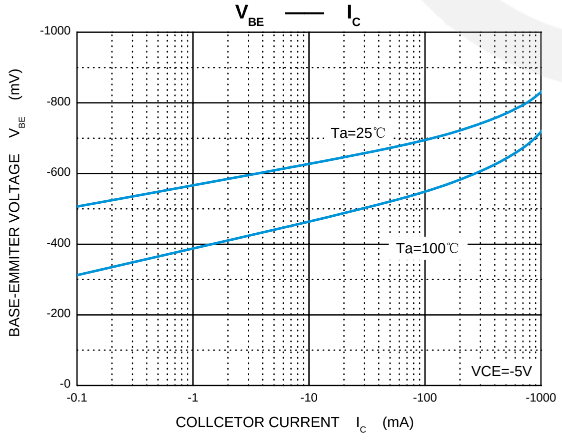
V_{CEsat} —— I_C



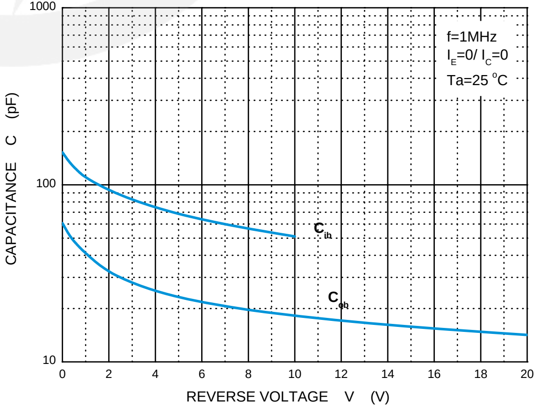
V_{BEsat} —— I_C



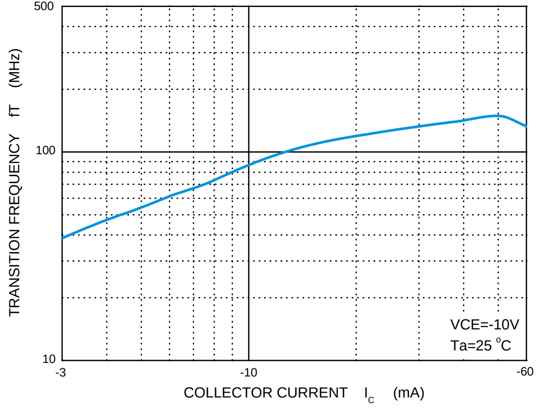
V_{BE} —— I_C



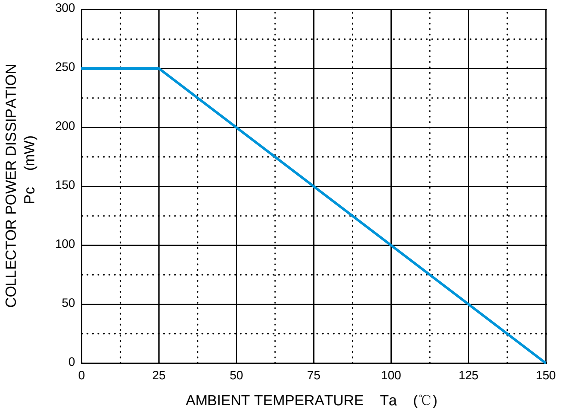
C_{ob}/ C_{ib} —— V_{CB}/ V_{EB}



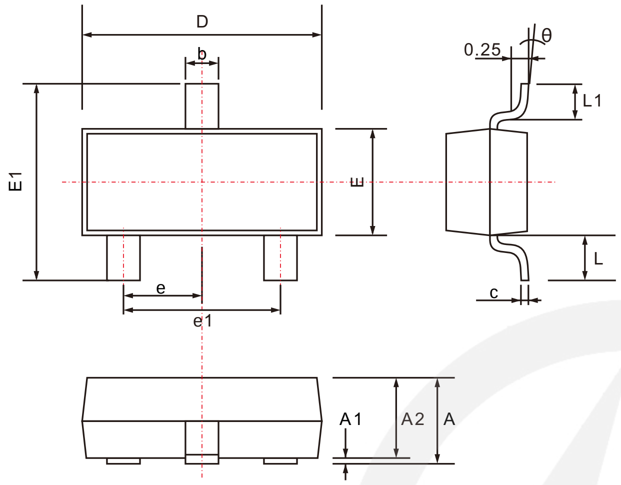
fT —— I_C



Pc —— Ta



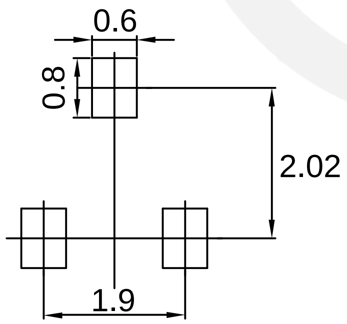
SOT-23 Package Outline



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°

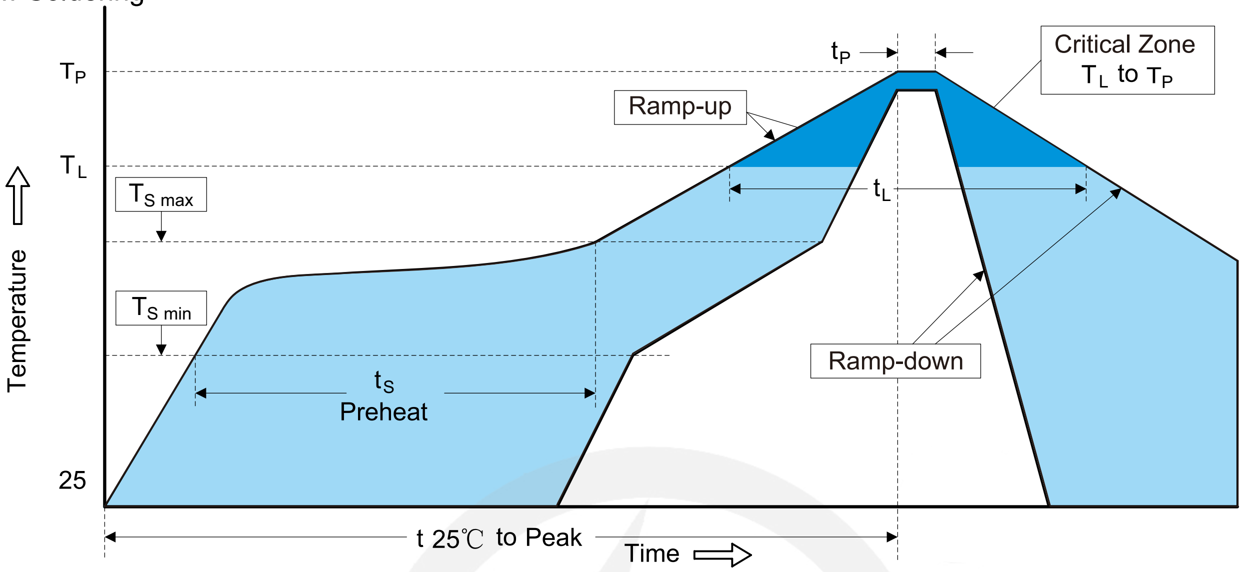
SOT-23 Suggested Pad Layout



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

Recommended Soldering Conditions

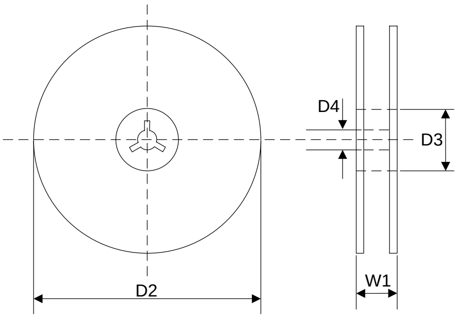
Reflow Soldering



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	