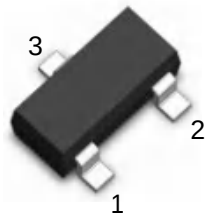
Transistor(NPN)

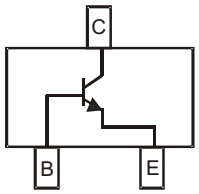
Features

- Ideally suited for automatic insertion
- For Switching and AF Amplifier Applications
- **Marking:** 1G

1. BASE
2. EMITTER
3. COLLECTOR



Functional Diagram



Limiting Values(Absolute Maximum Ratings)

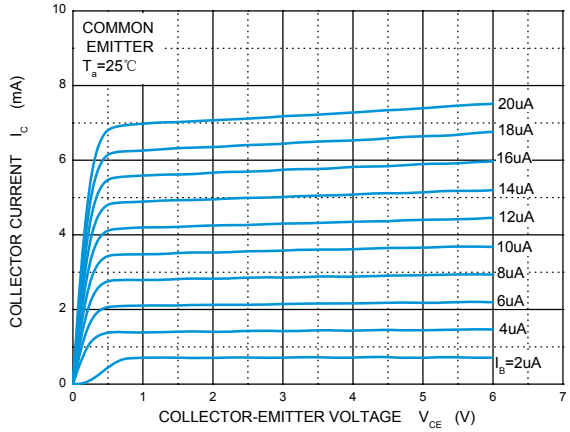
Item	Symbol	Unit	Value
Collector-Base Voltage	VCBO	V	50
Collector-Emitter Voltage	VCEO	V	45
Emitter-Base Voltage	VEBO	V	6
Collector Current	IC	A	0.1
Total Device Dissipation	PC	W	0.2
Thermal Resistance From Junction To Ambient	$R_{\theta JA}$	℃/W	625
Junction Temperature	Tj	℃	150
Storage Temperature	TSTG	℃	-55 to +150

Electrical characteristics (Ta=25℃ unless otherwise specified)

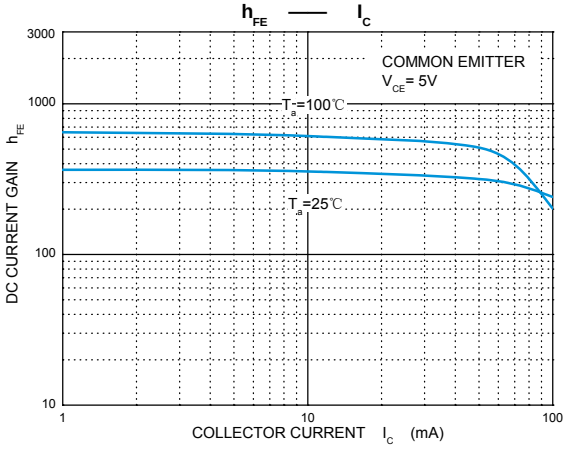
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	V_{CBO}	I_C= 10μA, I_E=0	50			V
Collector-emitter breakdown voltage	V_{CEO}	I_C= 10mA, I_B=0	45			V
Emitter-base breakdown voltage	V_{EBO}	I_E= 10μA, I_C=0	6			V
Collector cut-off current	I_{CBO}	V_{CB}=50 V , I_E=0			0.1	μA
Emitter cut-off current	I_{EBO}	V_{EB}=5 V , I_C=0			0.1	μA
DC current gain	h_{FE}	V_{CE}= 5V, I_C= 2mA	420		800	
Collector-emitter saturation voltage	$V_{CE(sat)}$	I_C=100mA, I_B= 5mA			0.5	V
Base-emitter saturation voltage	$V_{BE(sat)}$	I_C=100mA, I_B= 5mA			1.1	V
Transition frequency	f_T	V_{CE}= 5 V, I_C= 10mA f=100MHz	100			MHz
Collector output capacitance	C_{ob}	V_{CB}=10V,f=1MHz			4.5	pF

Typical Characteristics

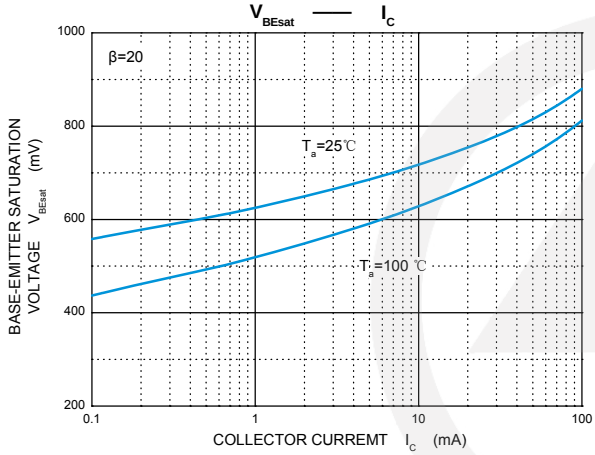
Static Characteristic



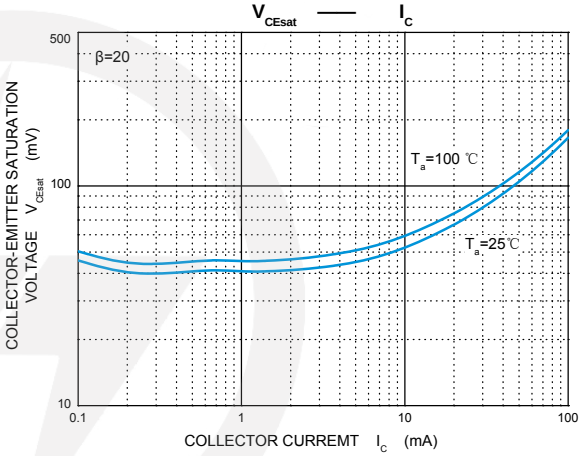
hFE —— IC



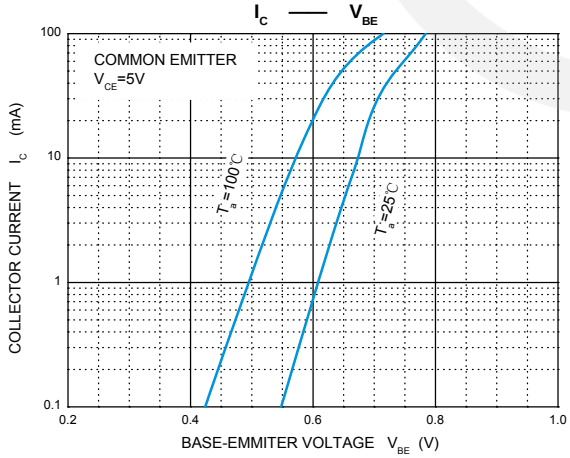
VBEsat —— IC



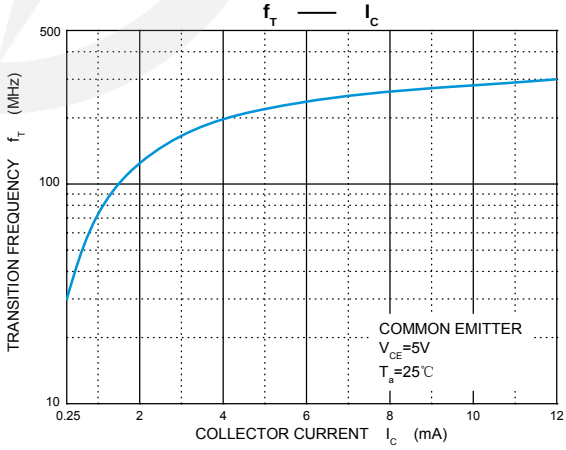
VCEsat —— IC



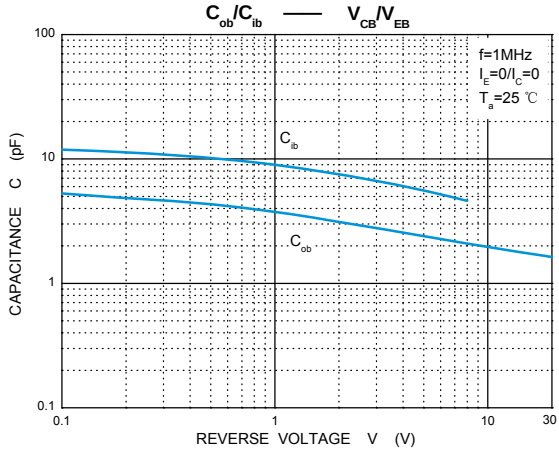
IC —— VBE



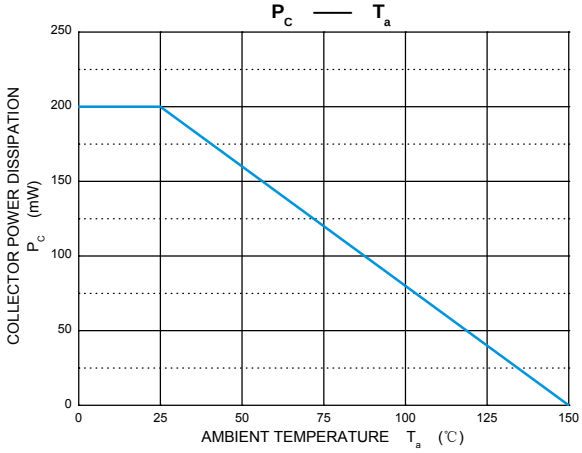
fT —— IC



Cob/Cib —— VCB/VEB

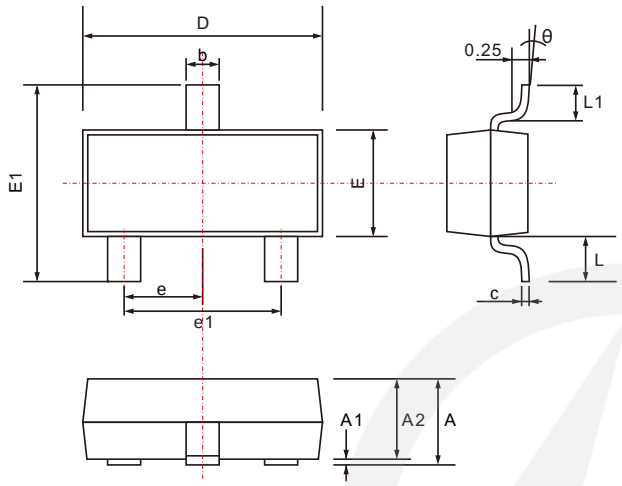


PC —— Ta



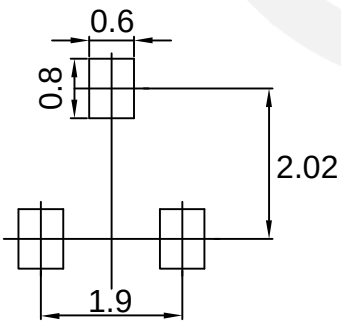
SOT-23 PACKAGE OUTLINE Plastic surface mounted package

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°

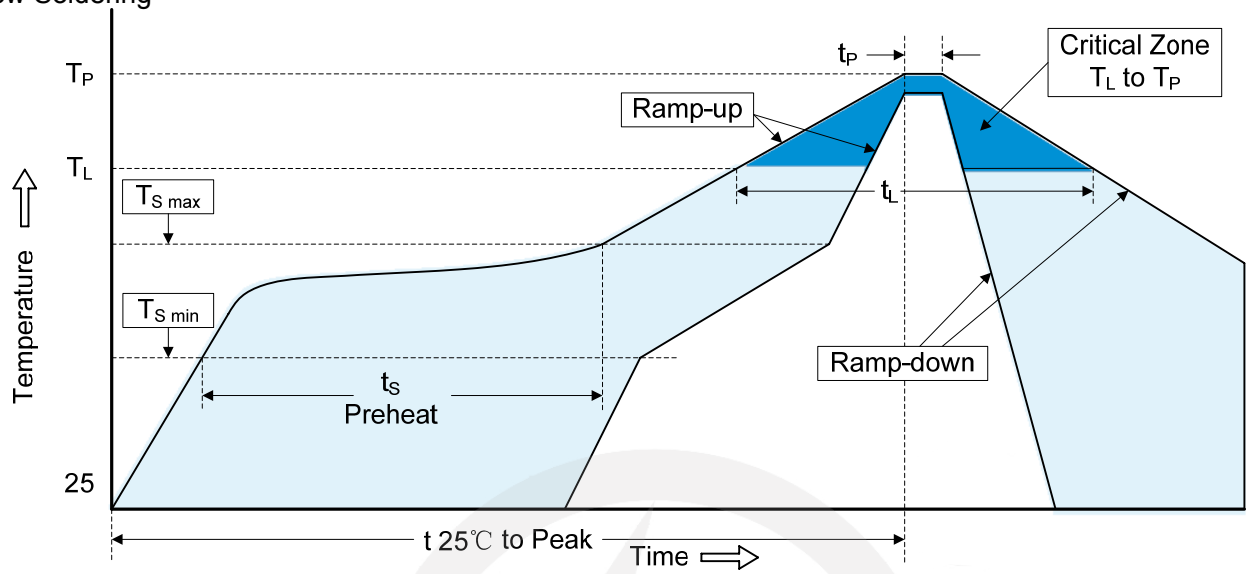
SOT-23 Suggested Pad Layout



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

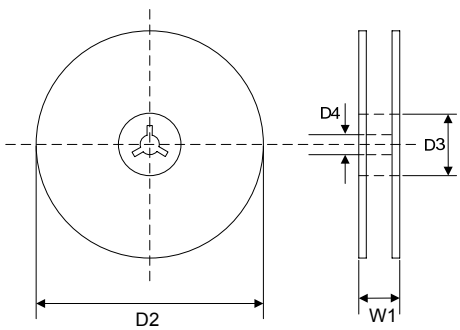


Recommended Conditions

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.

Packaging

7” Reel



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