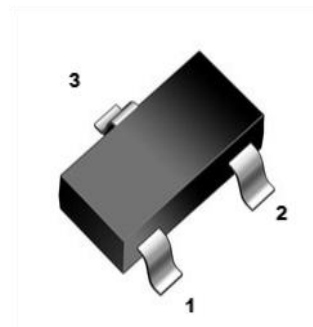




1. Features

- Epitaxial Planar Die Construction
- Complementary NPN Type Available
- Also Available in Lead Free Version

SOT-523



1 base
2 emitter
3 collector

2. Mechanical Data

- Case:Molded Plastic,SOT-523 .
- Epoxy:UL 94V-0 rate flame retardant.
- Terminals:Plated Leads Solderable per MIL-STD-750,Method-2026.
- Marking:3N
- Mounting Position : Any.

3. Maximum Ratings

Electrical Characteristics Rating at 25°C ambient temperature unless otherwise specified.

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	-40	V
Collector-Emitter Voltage	V_{CEO}	-40	V
Emitter-Base Voltage	V_{EBO}	-5	V
Collector Current	I_C	-0.2	A
Collector Power Dissipation	P_C	150	mW
Junction Temperature	T_j	-55~+150	°C
Storage Temperature	T_{stg}	-55~+150	°C

4. Electrical Characteristics ($T_a=25^\circ\text{C}$ unless otherwise noted)

Characteristics	Symbol	Condition	Min	TYP	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=-10\mu\text{A}$, $I_E=0$	-40	-	-	V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=-1\text{mA}$, $I_B=0$	-40	-	-	V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=-10\mu\text{A}$, $I_C=0$	-5	-	-	V
Collector cut-off current	I_{CBO}	$V_{CB}=-30\text{V}$, $I_E=0$	-	-	-100	nA
Emitter cut-off current	I_{EBO}	$V_{EB}=-5\text{V}$, $I_C=0$	-	-	-100	nA
DC current gain	h_{FE}	$V_{CE}=-1\text{V}$, $I_C=-10\text{mA}$	100	-	300	-
		$V_{CE}=-1\text{V}$, $I_C=-50\text{mA}$	60	-	-	-
		$V_{CE}=-1\text{V}$, $I_C=-100\text{mA}$	30	-	-	-
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C=-50\text{mA}$, $I_B=-5\text{mA}$	-	-	-400	mV
Base -emitter saturation voltage	$V_{BE(sat)}$	$I_C=-50\text{mA}$, $I_B=-5\text{mA}$	-	-	-0.95	V
Transition frequency	f_T	$V_{CE}=-20\text{V}$, $I_C=-10\text{mA}$, $f=100\text{MHz}$	250	-	-	MHz



5. Rating And Characteristic Curves

Fig.1 Static Characteristic

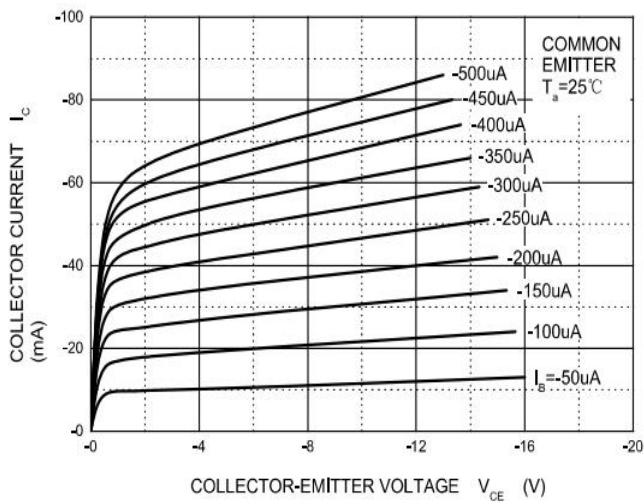


Fig.2 $h_{FE} - I_C$

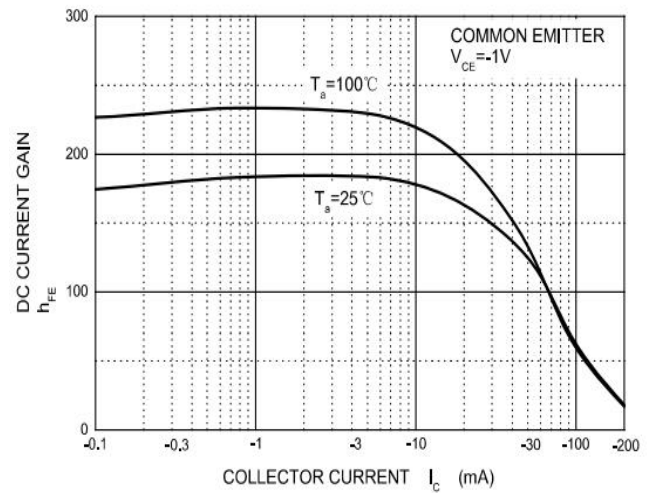


Fig.3 $V_{CEsat} - I_C$

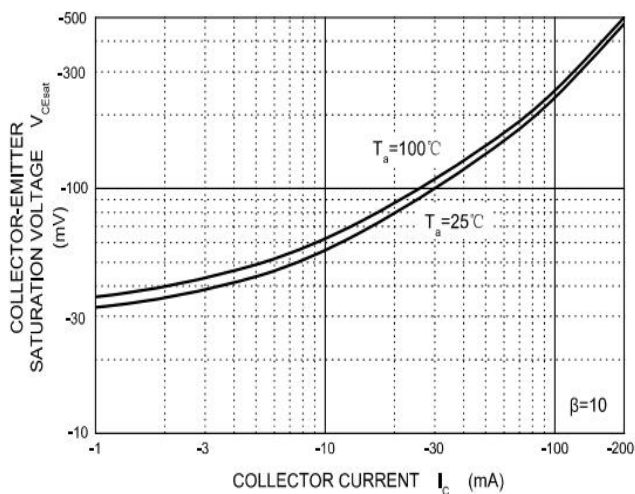


Fig.4 $V_{BEsat} - I_C$

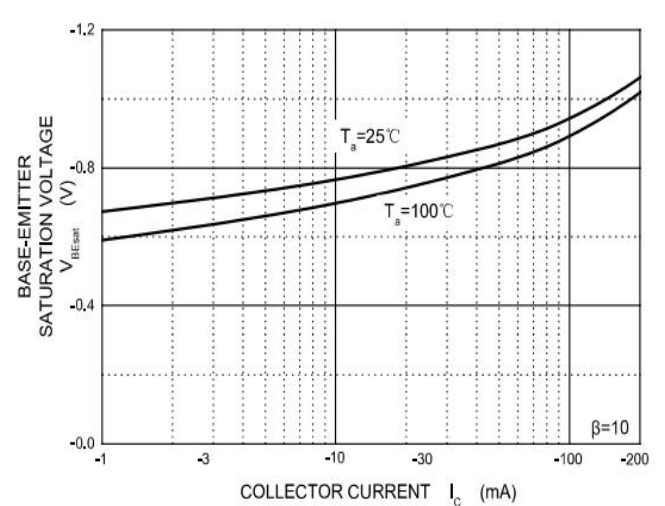


Fig.5 $I_C - V_{BE}$

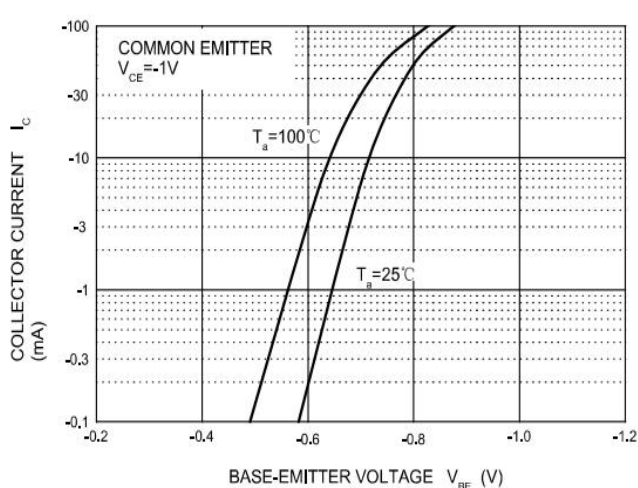
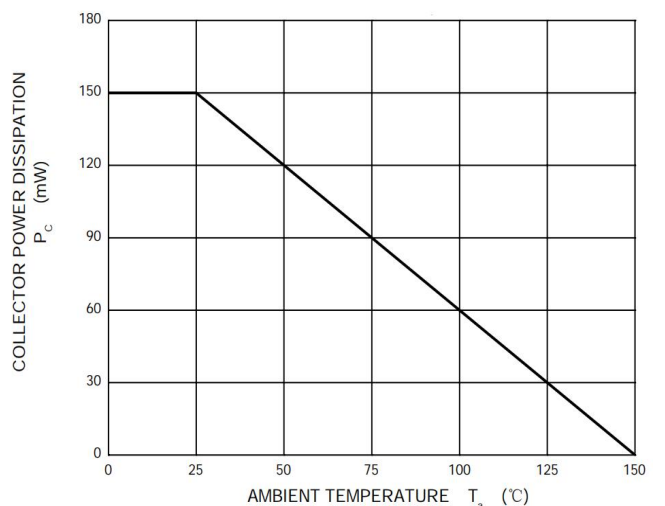
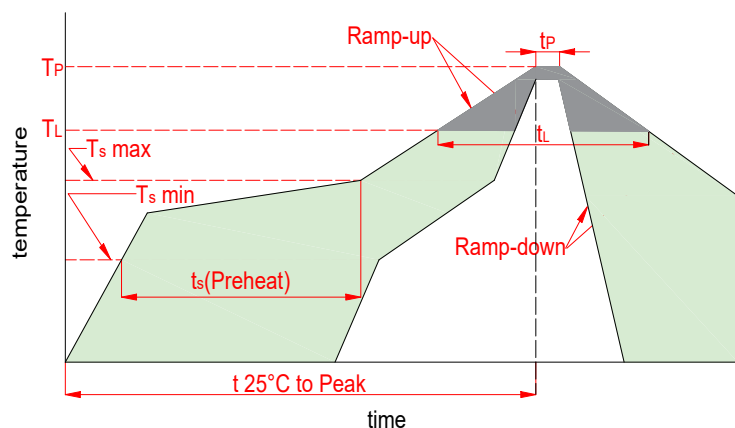


Fig.6 $P_C - T_a$



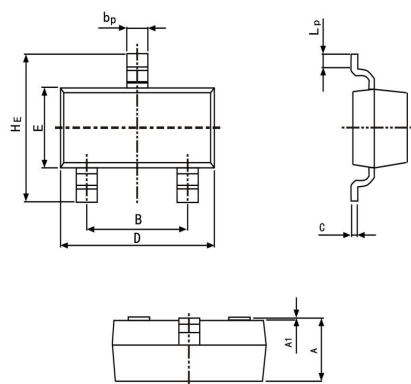


6. Soldering Parameters



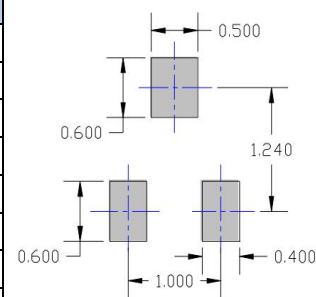
Reflow Condition		Lead-free
Pre Heat	Temp. min(T_s (min))	150℃
	Temp. max(T_s (min))	200℃
	Time(min to max)(t_s)	60~120s
Aver. ramp up rate(Liquidus Temp.)(T_L)to peak		3℃/s max
T_s (max) to T_L -Ramp-up Rate		3℃/s max
Reflow	Temp.(T_L)(Liquidus)	217℃
	Temp.(t_L)(Liquidus)	60~150s
Peak Temp.(T_P)		260 ^{+0/-5} ℃
Time within actual peak Temp.(t_p)		30s max
Ramp-down Rate		6℃/s max
Time 25℃ to peak Tempe.(T_P)		8 minutes max
Do not exceed		260℃

7. Dimensions



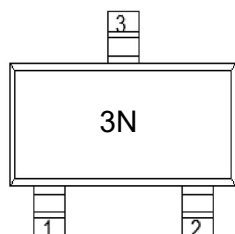
Dimensions	Inches		Millimeters	
	Min	Max	Min	Max
A	0.028	0.035	0.70	0.90
B	0.035	0.043	0.90	1.10
bp	0.006	0.014	0.15	0.35
C	0.004	0.008	0.10	0.20
D	0.059	0.067	1.50	1.70
E	0.028	0.035	0.70	0.90
HE	0.057	0.069	1.45	1.75
A1	0.000	0.004	0.00	0.10
LP	0.010	0.018	0.26	0.46

Mounting PAD Layout



Unit: mm

8. Part Marking System



9. Package Information

Package	Part Number	Tape Width(mm)	Quantity(pcs)
SOT-523	MMBT3906T	8	3000



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