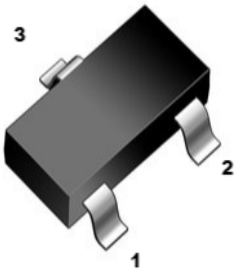
FMMT593

PNP TRANSISTOR

1. Features

SOT-23

- Complementary Type FMMT493



2. Mechanical Data

- Case:Molded Plastic,SOT-23 .
- Epoxy:UL 94V-0 rate flame retardant.
- Terminals:Plated Leads Solderable per MIL-STD-750,Method-2026.
- Marking:593
- Mounting Position : Any.

1 base
2 emitter
3 collector

3. Maximum Ratings

Electrical Characteristics Rating at 25℃ ambient temperature unless otherwise specified.

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	-120	V
Collector-Emitter Voltage	V_{CEO}	-100	V
Emitter-Base Voltage	V_{EBO}	-5	V
Collector Current	I_C	-1	A
Peak Pulse Current	I_{CM}	-2	A
Collector Power Dissipation	P_C	250	mW
Junction Temperature	T_j	-55～+150	℃
Storage Temperature	T_{stg}	-55～+150	℃

4. Electrical Characteristics (T_A=25℃ unless otherwise noted)

Characteristics	Symbol	Condition	Min	TYP	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	I_C=-100μA，I_E=0	-120	-	-	V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	I_C=-10mA，I_B=0*	-100	-	-	V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	I_E=-100μA，I_C =0	-5	-	-	V
Collector cut-off current	I_{CBO}	V_{CB}=-100V，I_E=0	-	-	-100	nA
Emitter cut-off current	I_{EBO}	V_{EB}=-4V，I_C=0	-	-	-100	nA
DC current gain	h_{FE}	V_{CE}=-5V，I_C=-1mA	100	-	-	-
		V_{CE}=-5V，I_C=-250mA*	100	-	-	-
		V_{CE}=-5V，I_C=-500mA*	100	-	300	-
		V_{CE}=-5V，I_C=-1A	50	-	-	-
Collector-emitter saturation voltage	$V_{CE(sat)}$	I_C=-250mA，I_B=-25mA*	-	-	-200	mV
		I_C=-500mA，I_B=-50mA*	-	-	-300	mV
Base -emitter saturation voltage	$V_{BE(sat)}$	I_C=-500mA，I_B=-50mA*	-	-	-1.1	V
Base Emitter Voltage	V_{BE}	I_C=-1mA，V_{CE}=-5V*	-	-	-1	V
Collector output capacitance	C_{ob}	V_{CE}=-10V，f=1MHz	-	5	-	pF
Transition frequency	f_T	V_{CE}=-10 V, I_C=-50mA, f=100MHz	50	-	-	MHz

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

5. Rating And Characteristic Curves

Fig.1 Static Characteristic

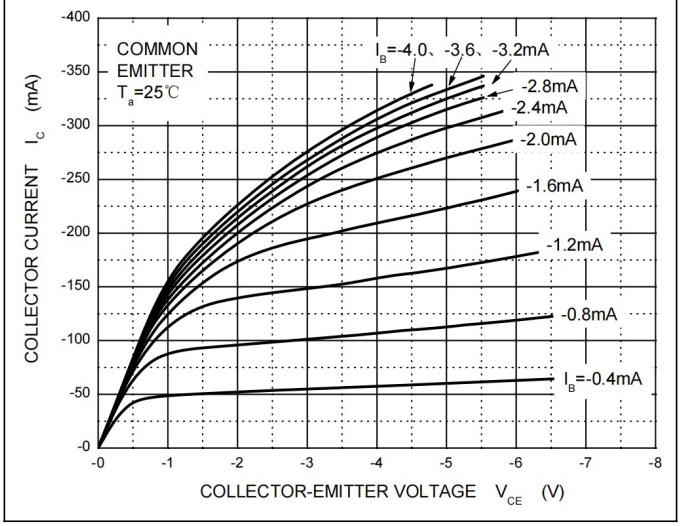


Fig.2 $V_{CE(sat)}$ vs. I_C

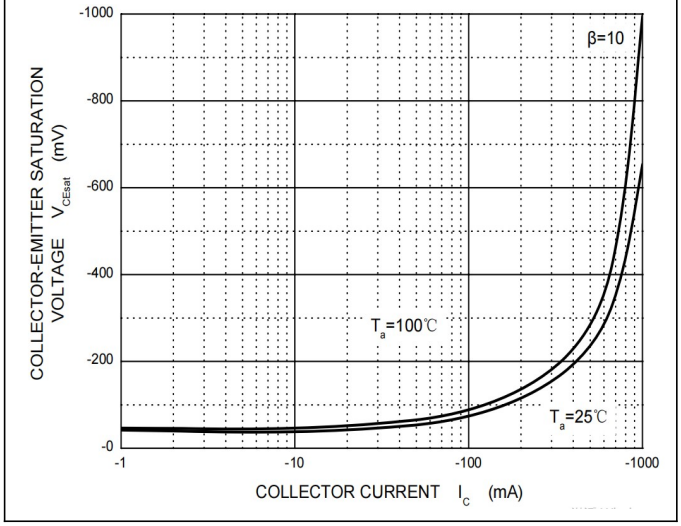


Fig.3 h_{FE} vs. I_C

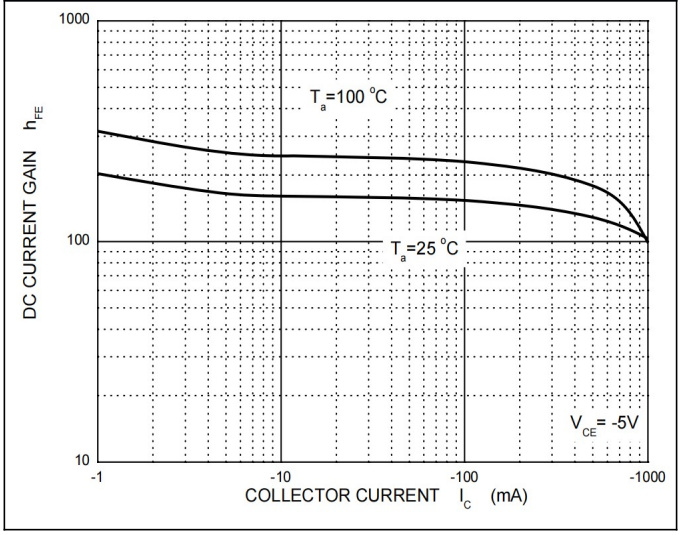


Fig.4 $V_{BE(sat)}$ vs. I_C

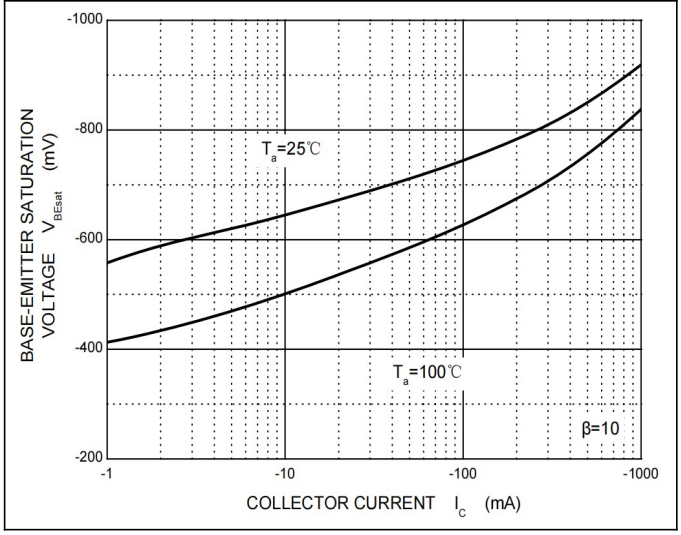


Fig.5 I_C vs. V_{BE}

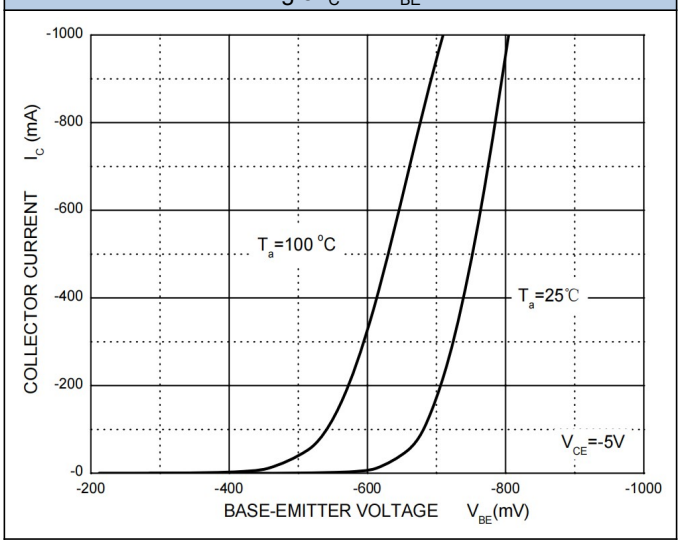


Fig.6 C_{ob} / C_{ib} vs. V_{CB} / V_{EB}

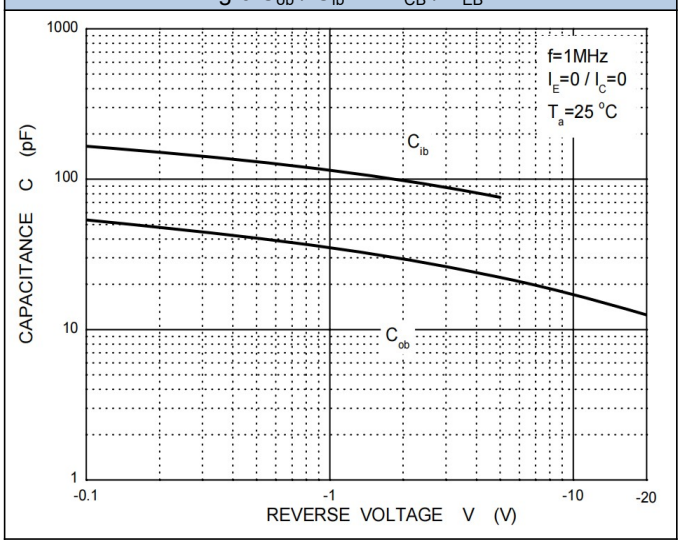


Fig.7 f_T vs. I_C

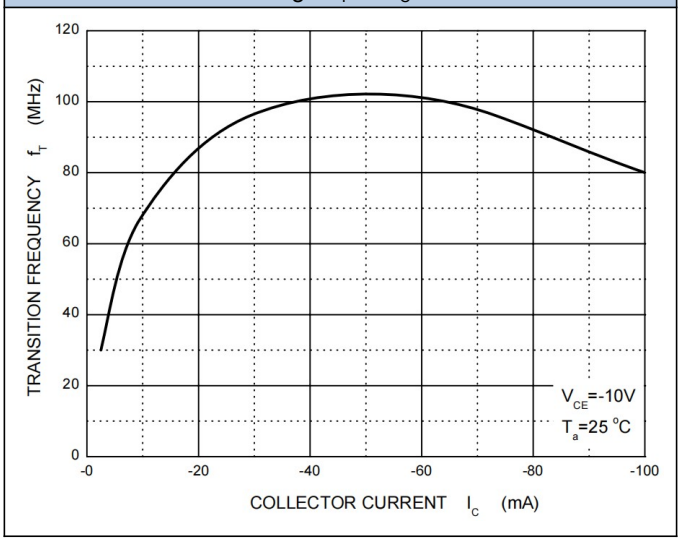
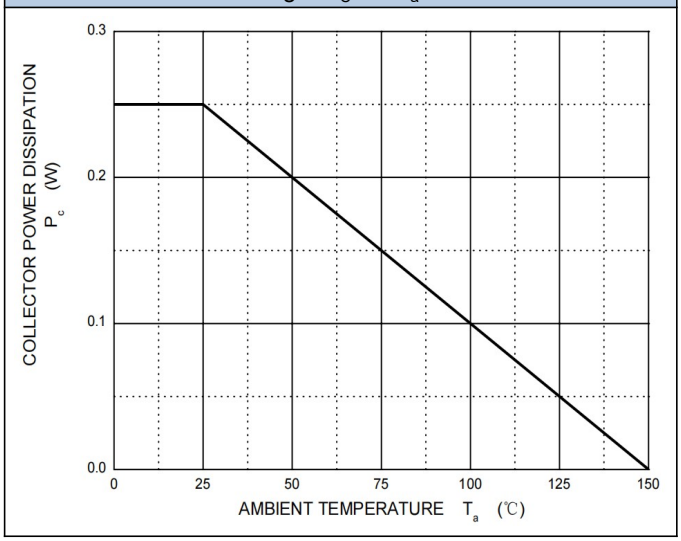
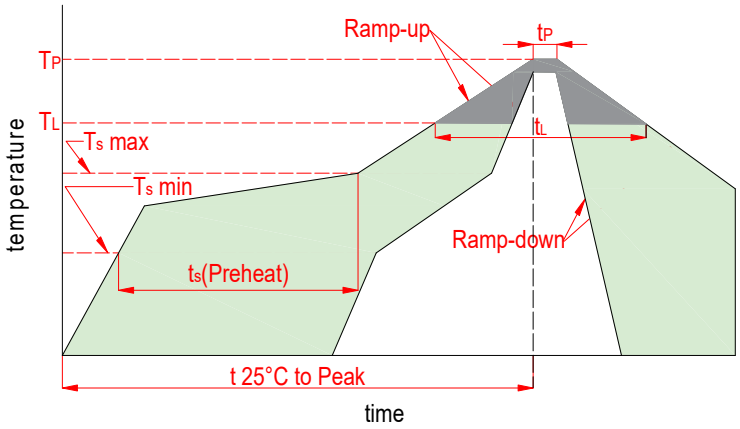


Fig.8 P_C vs. T_a

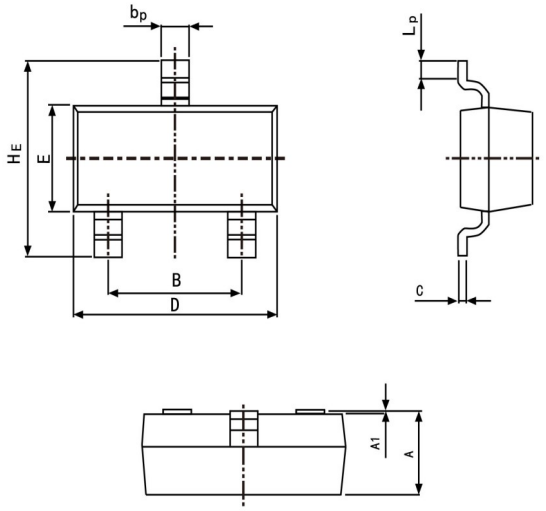


6. Soldering Parameters



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	0.035	0.045	0.90	1.15
B	0.070	0.081	1.78	2.05
bp	0.012	0.020	0.30	0.51
C	0.003	0.007	0.08	0.18
D	0.110	0.118	2.80	3.00
E	0.047	0.055	1.20	1.40
HE	0.087	0.110	2.20	2.80
A1	0.000	0.004	0.00	0.10
LP	0.008	0.020	0.20	0.50

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