



MMBTSC2712

NPN TRANSISTOR

1. Features

- High voltage and high current: $V_{CEO}=50V$, $I_C=150mA(max)$
- High hFE : $hFE=70\sim700$
- Low noise: $NF=1dB(typ.)$, $10dB(max)$
- Small package

SOT-23



1 base
2 emitter
3 collector

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.
- Mounting Position : Any.

3. Maximum Ratings

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

Characteristic	Symbol	Value	Unit
CollectorBase Voltage	V_{CBO}	60	V
CollectorEmitter Voltage	V_{CEO}	50	V
EmitterBase Voltage	V_{EBO}	5	V
Collector Current	I_C	150	mA
Collector Power Dissipation	P_C	200	mW
Junction Temperature	T_j	-55~+125	℃
Storage Temperature	T_{stg}	-55~+125	℃



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

Characteristics	Symbol	Condition	Min	TYP	Max	Unit
Collector cutoff current	I_{CBO}	$V_{CB}=60\text{V}, I_E=0$			100	nA
Emitter cutoff current	I_{EBO}	$V_{EB}=5\text{V}, I_E=0$			100	nA
DC current gain	O Y G L h_{FE}	$V_{CE}=6\text{V}, I_C=2\text{mA}$	70		140	
			120		240	
			200		400	
			350		700	
Collectoremitter saturation voltage	$V_{CE(sat)}$	$I_C=100\text{mA}, I_B=10\text{mA}$			0.25	V
Transition frequency	f_T	$V_{CE}=10\text{V}, I_C=1\text{mA}$	80			MHz
Collector capacitance	C_{ob}	$V_{CB}=10\text{V}, f=1\text{MHz}$			3.5	pF

CLASSIFICATION of h_{FE}

Rank	O	Y	G	L
Range	70-140	120-240	200-400	350-700
Marking	LO	LY	LG	LL



5. Rating And Characteristic Curves

Fig.1 Static Characteristic

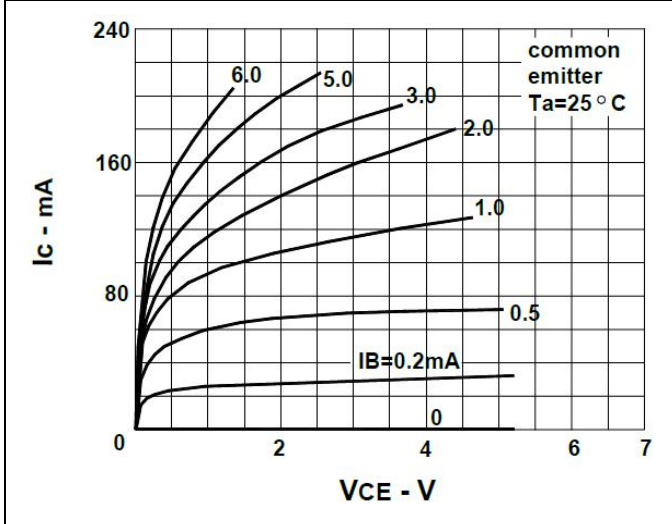


Fig.2 h_{FE} - I_C

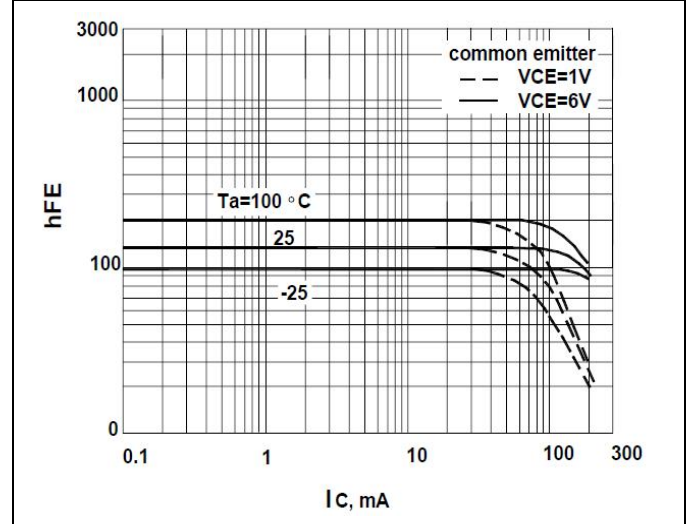


Fig.3 $V_{BE(sat)}$ - I_C

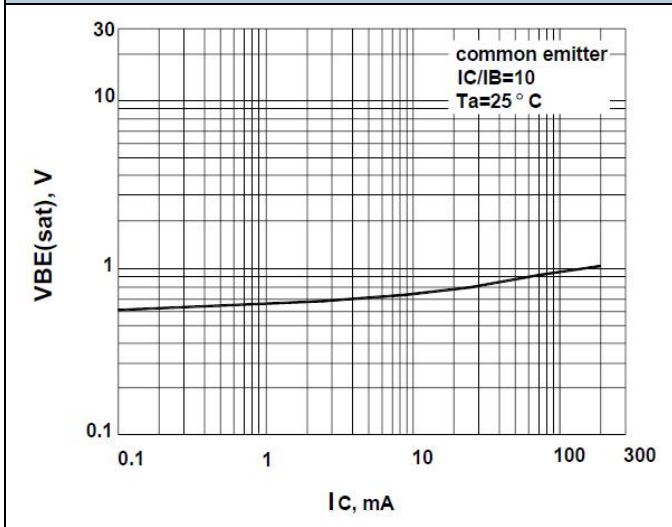


Fig.4 $V_{CE(sat)}$ - I_C

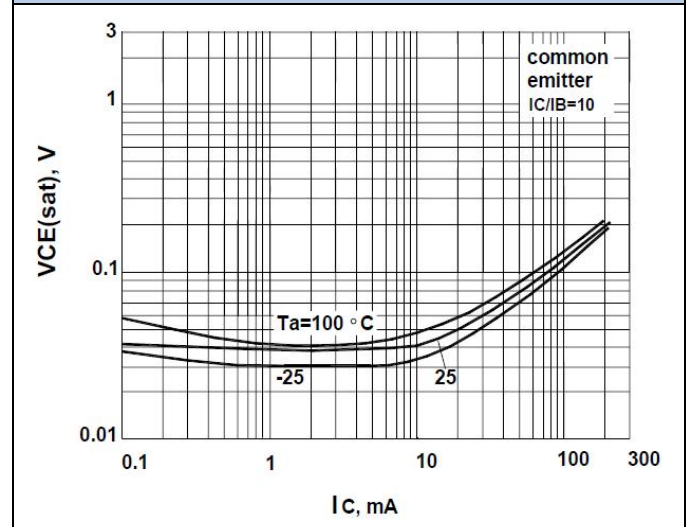


Fig.5 Gain-Bandwidth Product vs Collector Current

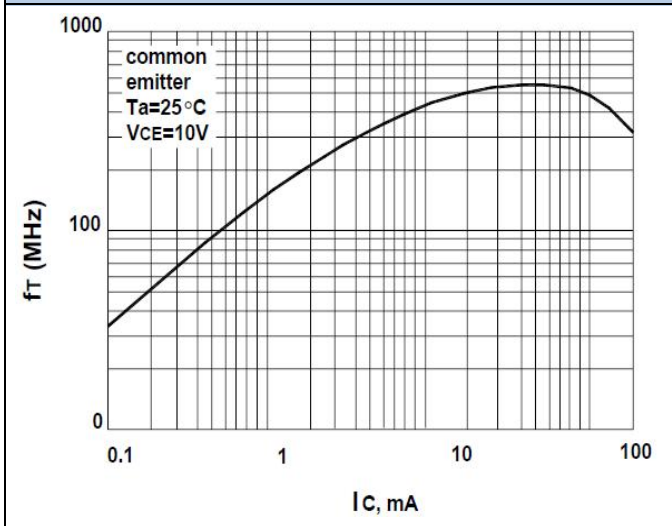
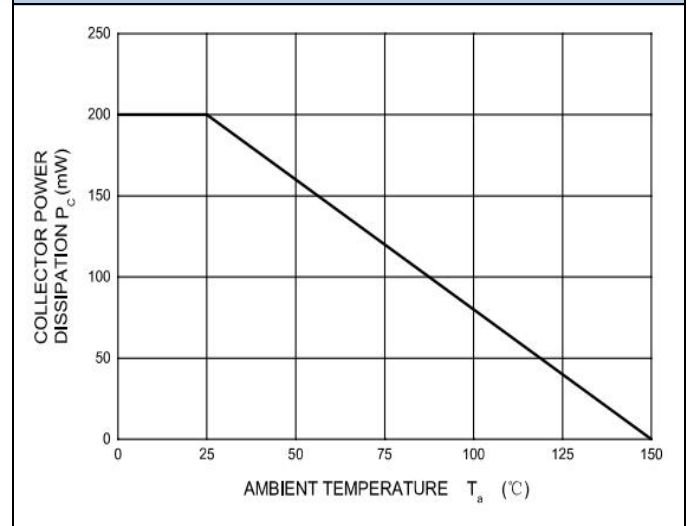
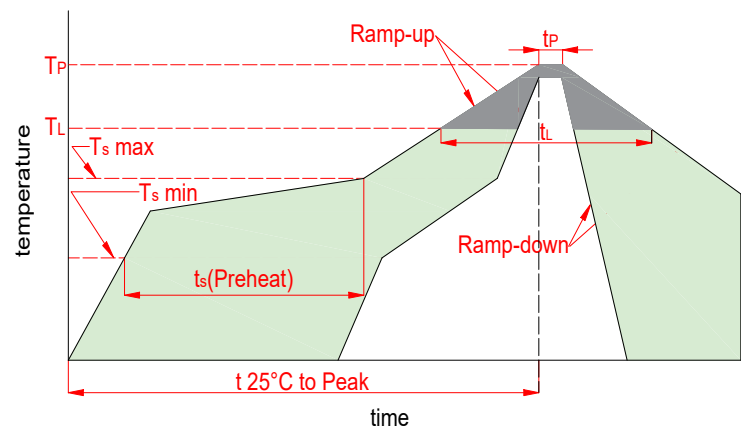


Fig.6 Power Derating Curve



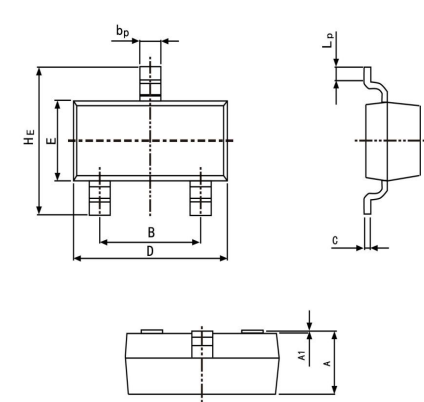


6. Soldering Parameters



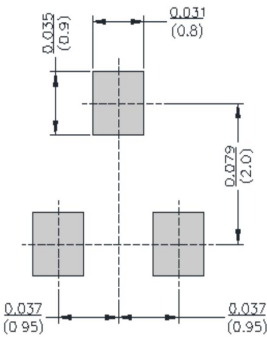
Reflow Condition		Lead-free
Pre Heat	Temp. min(T _s (min))	150℃
	Temp. max(T _s (min))	200℃
	Time(min to max)(t _s)	60~120s
Aver. ramp up rate(Liquidus Temp.)(T _L)to peak		3℃/s max
T _s (max) to T _L -Ramp-up Rate		3℃/s max
Reflow	Temp.(T _L)(Liquidus)	217℃
	Temp.(t _L)(Liquidus)	60~150s
Peak Temp.(T _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

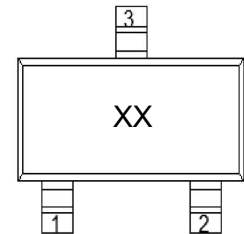


Dimensions	Inches		Millimeters	
	Min	Max	Min	Max
A	0.035	0.045	0.90	1.15
B	0.070	0.081	1.78	2.05
bp	0.012	0.020	0.30	0.51
C	0.003	0.007	0.08	0.18
D	0.110	0.118	2.80	3.00
E	0.047	0.055	1.20	1.40
HE	0.087	0.110	2.20	2.80
A1	0.000	0.004	0.00	0.10
LP	0.008	0.020	0.20	0.50

Mounting PAD Layout



8. Part Marking System



9. Package Information

Package	Part Number	Tape Width(mm)	Quantity(pcs)
SOT-23	MMBTSC2712	8	3000



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