MMBT2222A

NPN GENERAL PURPOSE TRANSISTOR

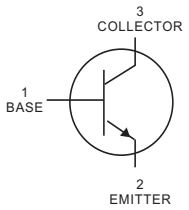
VOLTAGE	40 Volt	POWER	300 mWatt

FEATURES

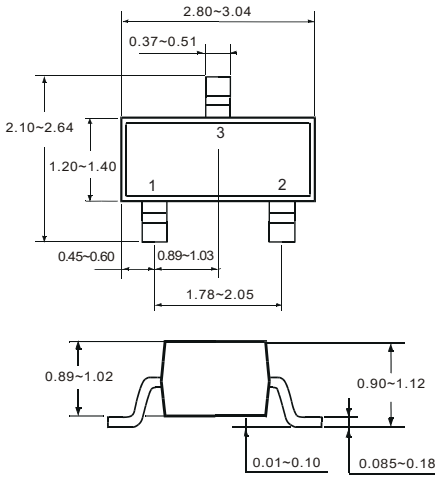
- NPN epitaxial silicon, planar design
- Epitaxial planar die construction
- Complementary PNP Type available(MMBT2907A)
- Lead free in compliance with EU RoHS
- Marking: 1P

MECHANICAL DATA

- Case Material: Molded Plastic.
- UL Flammability Classification Rating 94V-0



SOT-23 Unit:mm



MAXIMUM RATINGS (T_A=25℃ unless otherwise noted)

Parameter	Symbol	Value	Units
Collector - Emitter Voltage	V_{CEO}	40	V
Collector - Base Voltage	V_{CBO}	75	V
Emitter - Base Voltage	V_{EBO}	6	V
Collector Current - Continuous	I_C	600	mA
Collector Dissipation	P_C	300	mW
Thermal resistance junction to ambient	$R_{\theta JA}$	417	°C/W
Junction Temperature	T_J	150	°C
Storage Temperature	T_{STG}	-55~+150	°C

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ELECTRICAL CHARACTERISTICS (T_A=25℃ unless otherwise specified)

Parameter	Symbol	Test conditions	MIN	MAX	UNIT
Collector-base breakdown voltage	$V_{(BR)CBO}$	I_C=10μA, I_E=0	75		V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	I_C= 10mA, I_B=0	40		V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	I_E= 10μA, I_C=0	6		V
Collector cut-off current	I_{CBO}	V_{CB}=60V, I_E=0		10	nA
Collector cut-off current	I_{CEX}	V_{CE}=30V, $V_{BE(off)}$=3V		10	nA
Emitter cut-off current	I_{EBO}	V_{EB}= 3V, I_C=0		100	nA
DC current gain	h_{FE1}	V_{CE}=10V, I_C= 150mA	100	300	
	h_{FE2}	V_{CE}=10V, I_C= 0.1mA	40		
	h_{FE3}	V_{CE}=10V, I_C= 500mA	42		
Collector-emitter saturation voltage	$V_{CE(sat)}$	I_C =500mA, I_B=50mA I_C =150mA, I_B=15mA		1.0 0.3	V
Base-emitter saturation voltage	$V_{BE(sat)}$	I_C=500mA, I_B=50mA I_C=150mA, I_B=15mA		2.0 1.2	V
Transition frequency	f_T	V_{CE}=20V, I_C=20mA,f=100MHz	300		MHz
Delay Time	td	V_{CC}=30V,V_{BE}=0.5V I_C=150mA, I_{B1}=15mA		10	nS
Rise Time	tr			25	nS
Storage Time	ts	V_{CC}=30V,I_C=150mA I_{B1}=I_{B2}=15mA		225	nS
Fall Time	tf			60	nS

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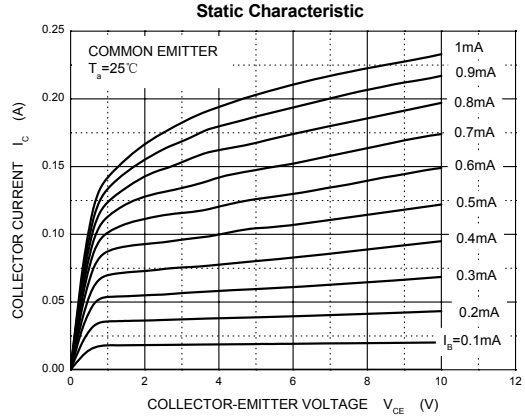
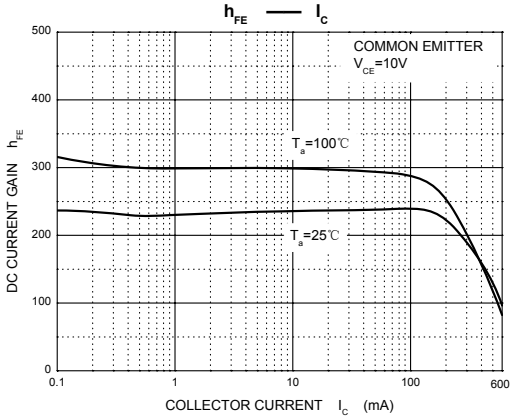
Typical Characteristics

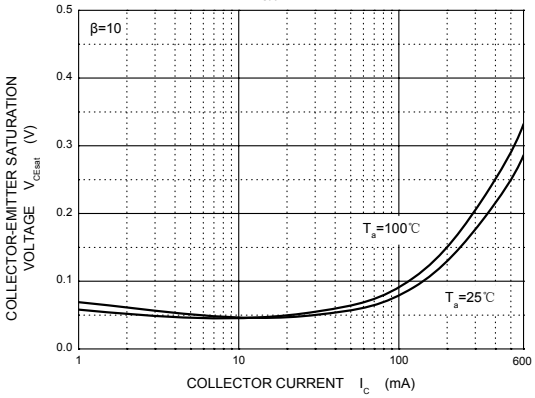
Static Characteristic



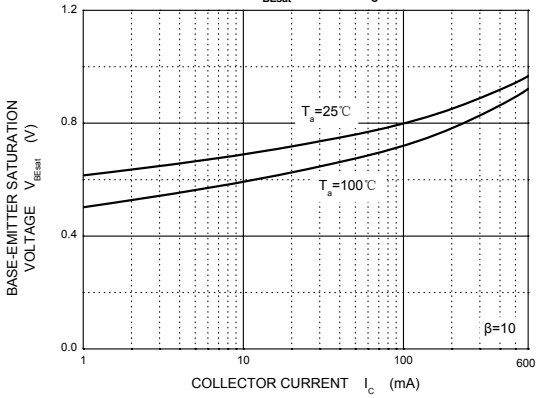
h_{FE} — I_C



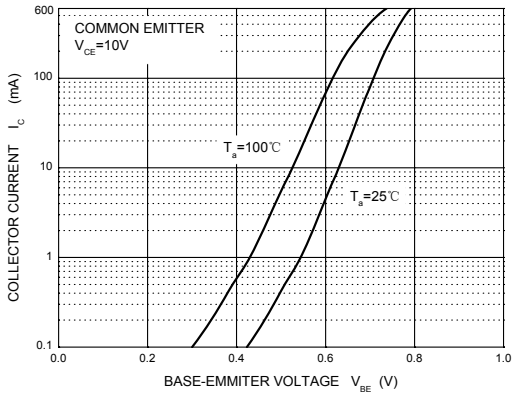
V_{CEsat} — I_C



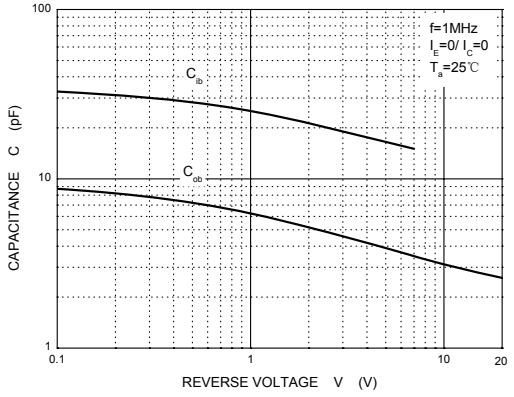
V_{BEsat} — I_C



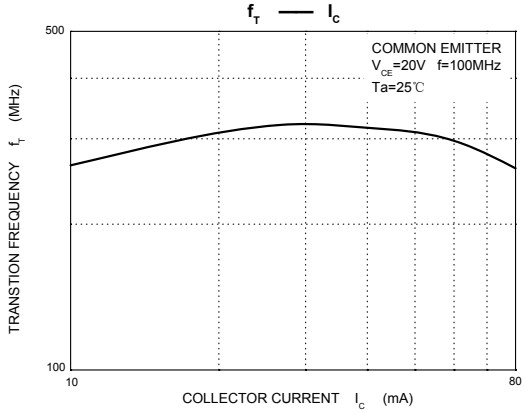
I_C — V_{BE}



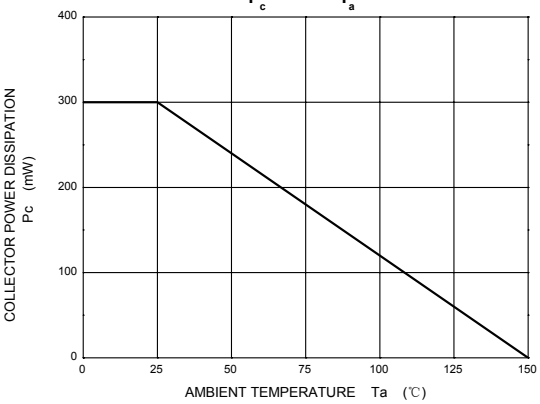
C_{ob} / C_{ib} — V_{CB} / V_{EB}



f_T — I_C

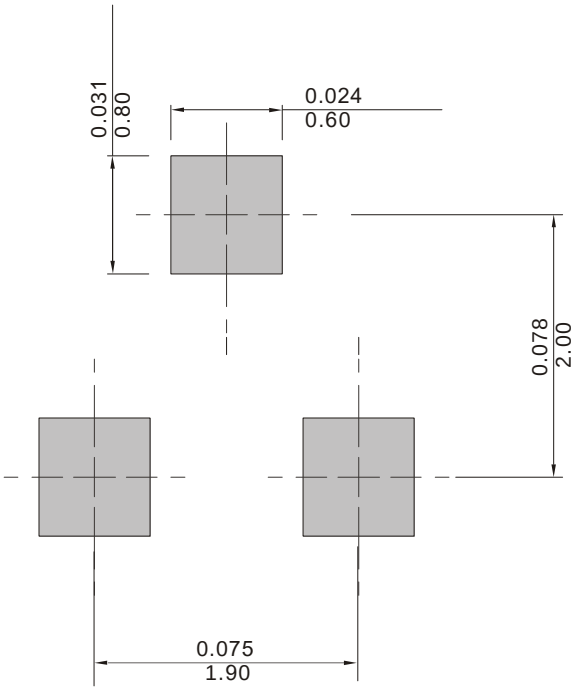


P_c — T_a



MOUNTING PAD LAYOUT

SOT-23 Unit:Inch(mm)



ORDER INFORMATION

• Packing information

Part Number	Case	Reel Size	QUANTITY
MMBT3904	SOT-23	7 Inch	3000