

MMBT2222A

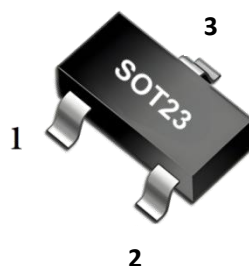
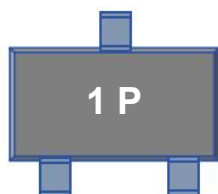
NPN SILICON TRANSISTOR

FEATURES

- * Epitaxial planar die construction
- * Complementary PNP Type available(MMBT2907A)

MARKING

Type Code: Marking: 1P



1. BASE
2. EMITTER
3. COLLECTOR

ABSOLUTE MAXIMUM RATINGS (Tc=25°C, unless otherwise specified)

SYMBOL	PARAMETER	VALUE	UNIT
V _{CBO}	Collector-base voltage	75	V
V _{CEO}	Collector-emitter voltage	40	V
V _{EBO}	Emitter-base voltage	6	V
I _C	Collector current	0.6	A
P _C	Collector Power Dissipation	300	mW
T _j	Junction Temperature	150	°C
T _{stg}	Storage Temperature	-55~150	°C
ROJA	Thermal Resistance From Junction To Ambient	417	°C/W

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged.

Absolute maximum ratings are stress ratings only and functional device operation is not implied.

ELECTRICAL CHARACTERISTICS (Tc=25°C, 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 cutoff current	I _{CBO}	V _{CB} =60V, I _E =0		0.01	μA
Collector cut-off current	I _{CEX}	V _{CE} =30V, V _{EB(off)} =3V		0.01	μA
Emitter cut-off current	I _{EBO}	V _{EB} =3V, I _C =0		0.1	μA
DC Current Gain (CLASSIFICATION OF h _{FE1})	h _{FE1} *	V _{CE} =10V, I _C =150mA	100	200	
			200	300	
	h _{FE2} *	V _{CE} =10V, I _C =0.1mA	40		
	H _{FE3} *	V _{CE} =10V, I _C =500mA	42		



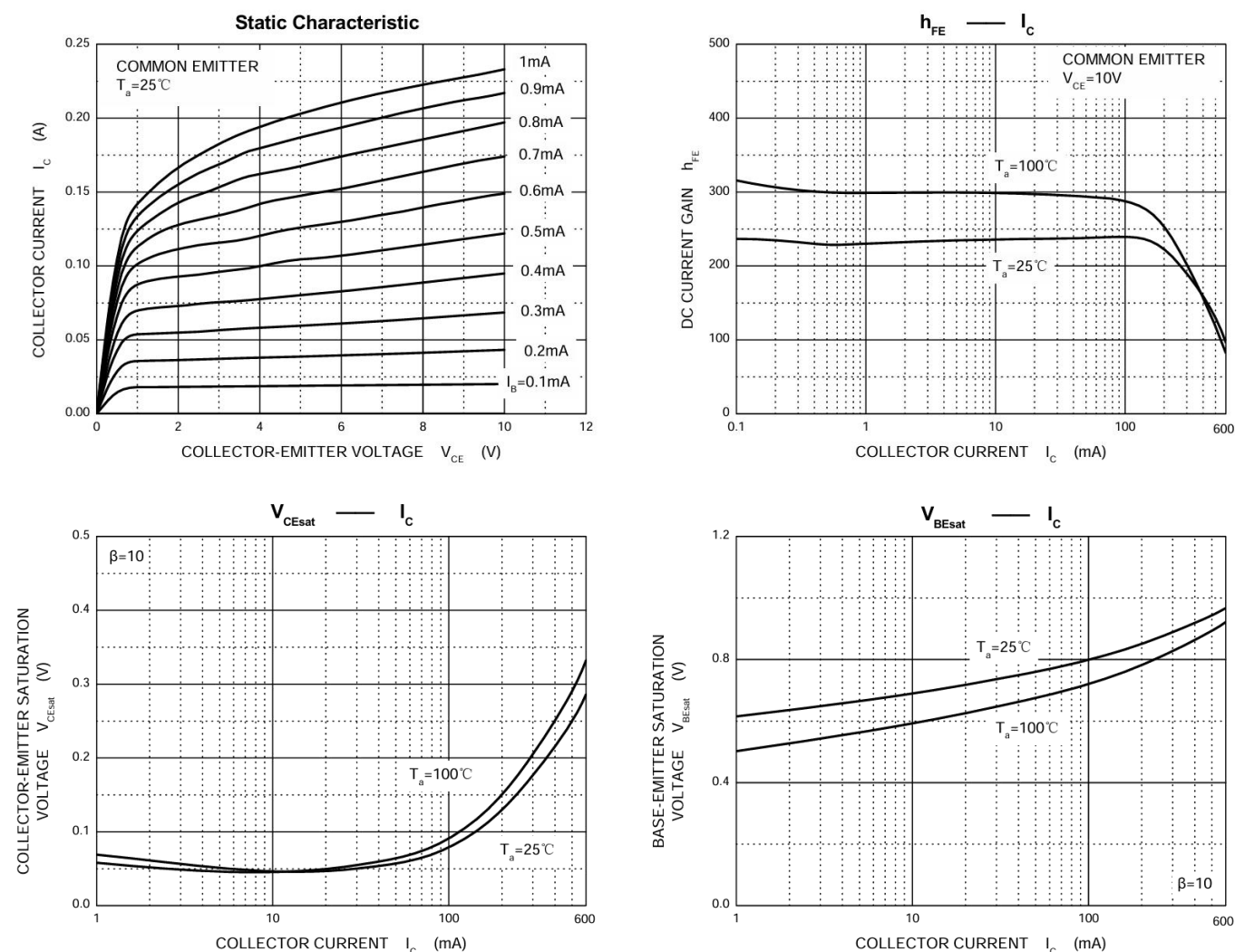
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PARAMETER	SYMBOL	TEST CONDITIONS	MIN	MAX	UNIT
Collector-emitter saturation voltage	$V_{CE(sat)}$ *	$I_C=500\text{ mA}, I_B=50\text{mA}$		1	V
		$I_C=150\text{ mA}, I_B=15\text{mA}$		0.3	V
Base-emitter saturation voltage	$V_{BE(sat)}$ *	$I_C=500\text{ mA}, I_B=50\text{mA}$		2.0	V
		$I_C=150\text{ mA}, I_B=15\text{mA}$		1.2	V
Transition frequency	f_T	$V_{CE}=20\text{V}, I_C=20\text{mA}, f=100\text{MHz}$	300		MHz
Delay time	t_d	$V_{CC}=30\text{V}, V_{BE(off)}=-0.5\text{V}$ $I_C=150\text{mA}, I_{B1}=15\text{mA}$		10	ns
Rise time	t_r			25	ns
Storage time	t_s	$V_{CC}=30\text{V}, I_C=150\text{mA}$ $I_{B1}=-I_{B2}=15\text{mA}$		225	ns
Fall time	t_f			60	ns

*note: pulse test: Pulse Width $\leq 300\mu\text{s}$, Duty Cycles $\leq 2.0\%$.

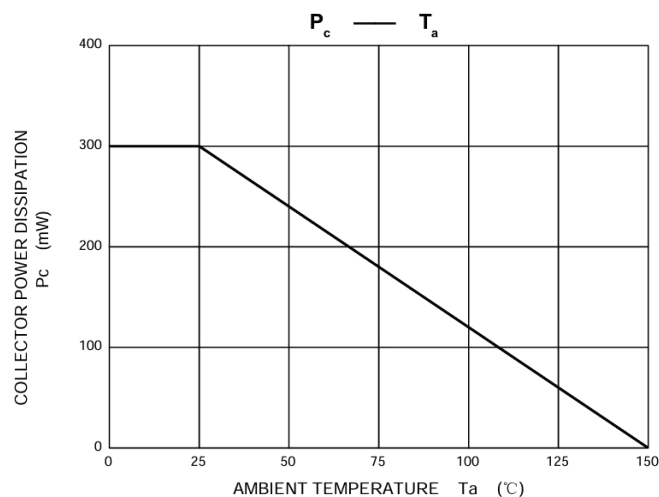
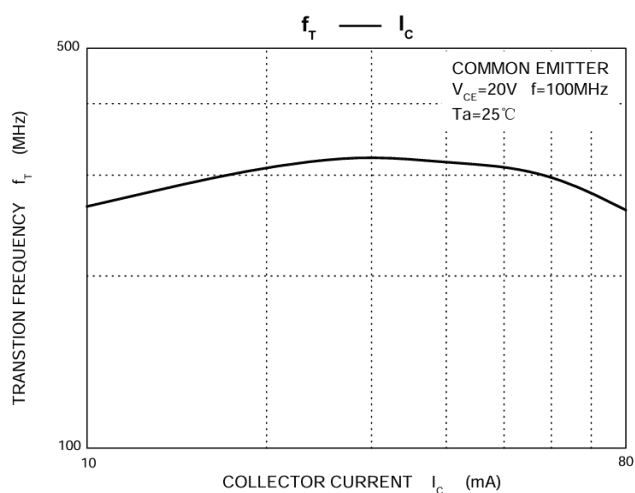
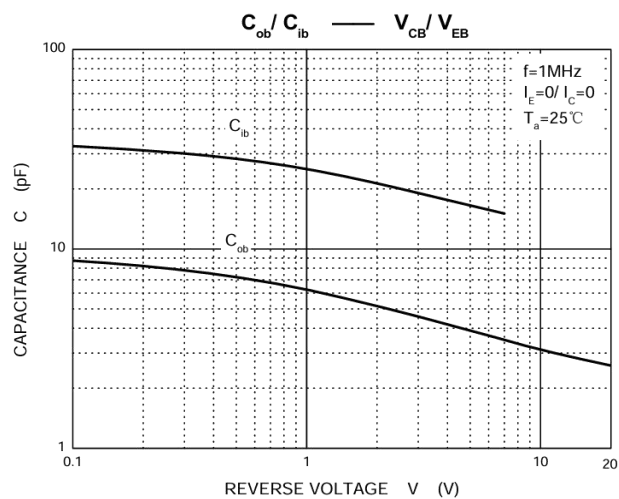
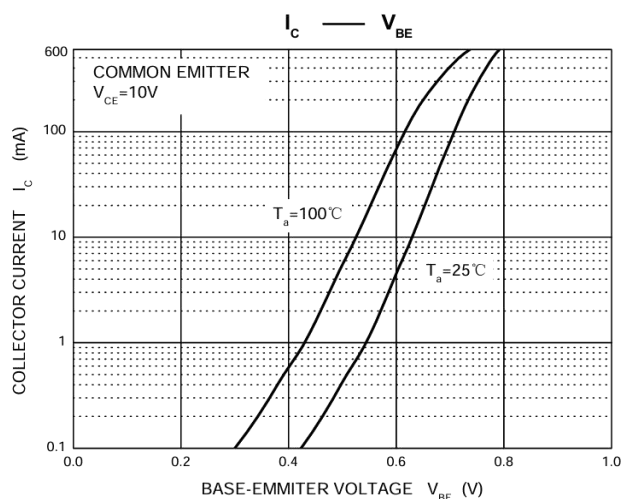
TYPICAL CHARACTERISTICS



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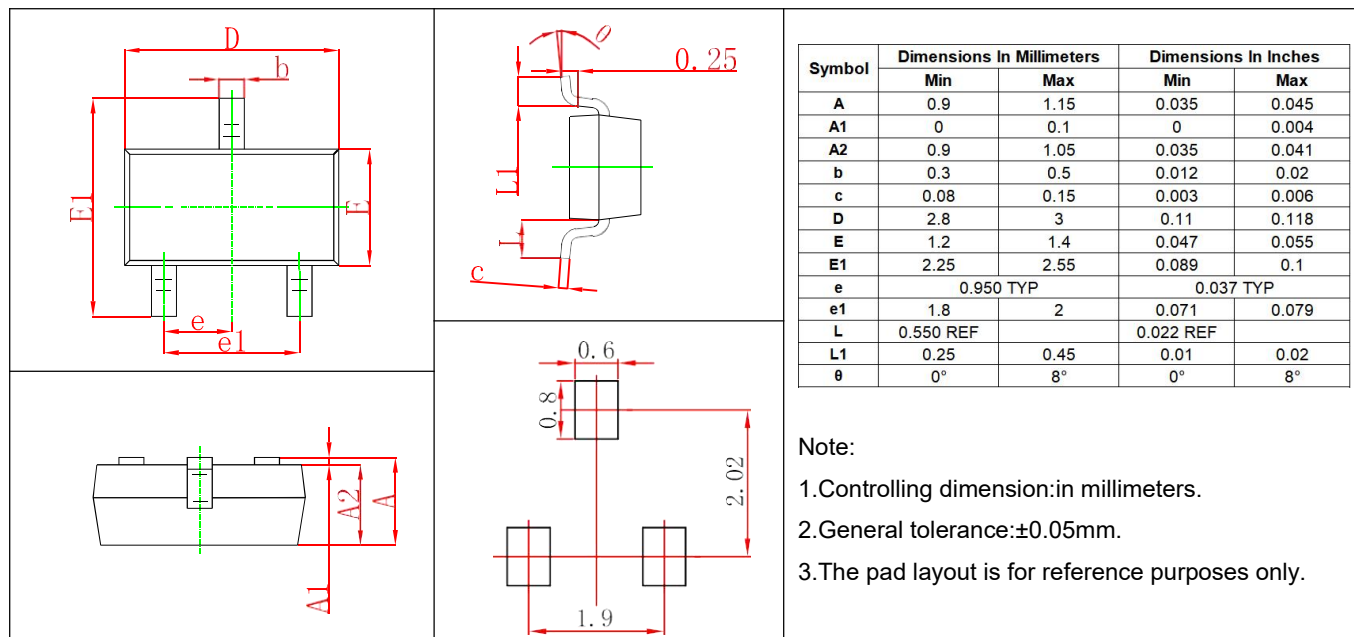
■ TYPICAL CHARACTERISTICS(Con.t)



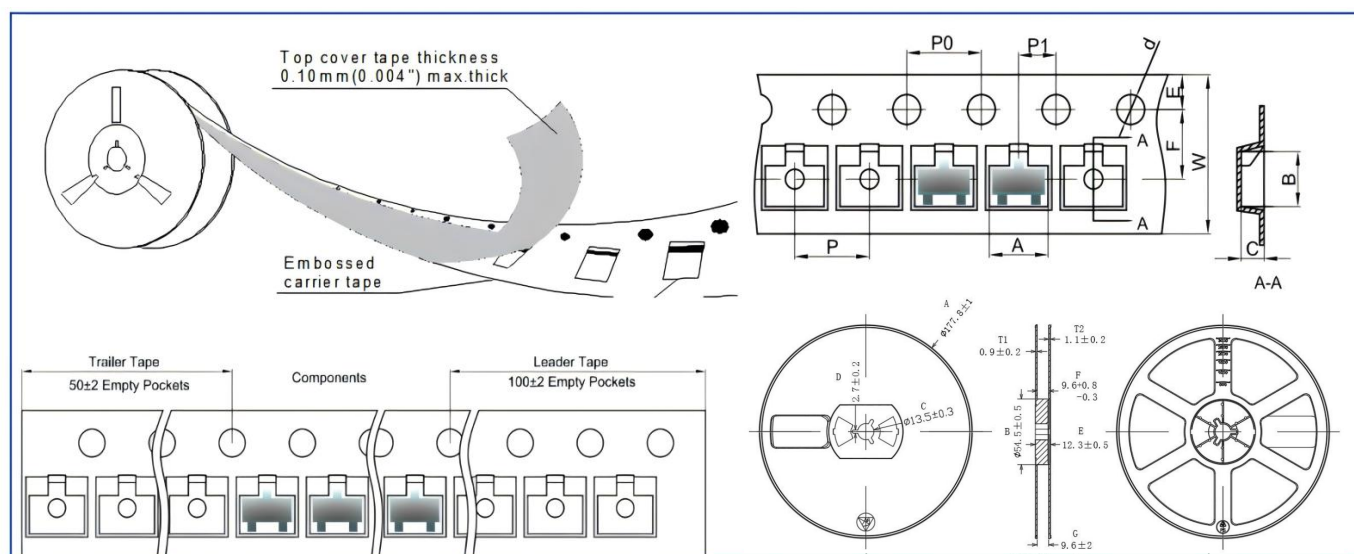
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SOT23 PACKAGE OUTLINE DIMENSIONS



REEL PACKING



Dimensions are in millimeter

PKG TYPE	A	B	C	d	E	F	Po	P	P1	W
SOT-23	3.17	2.77	1.22	Φ1.55	1.75	3.50	4.00	4.00	2.00	8.00
Reel Option	A	B	C	D	E	F	G	T1	T2	Q.TY PER REEL
7" Dia	Φ177.8	Φ54.5	Φ13.5	2.7	12.3	9.6	9.6	0.9	1.1	3000PCS