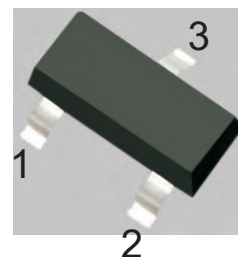


SOT-23



1.BASE
2.EMITTER
3.COLLECTOR

FEATURES

- As complementary type, the NPN transistor MMBT3904 is Recommended
- Epitaxial planar die construction

MAXIMUM RATINGS (Ta=25°C unless otherwise noted)

Parameter	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 — Continuous	I_C	-0.2	A
Collector Dissipation	P_C	0.2	W
Thermal Resistance From Junction To Ambient	R_{thJA}	625	°C/W
Operation Junction and Storage Temperature Range	T_J, T_{stg}	-55~+150	°C

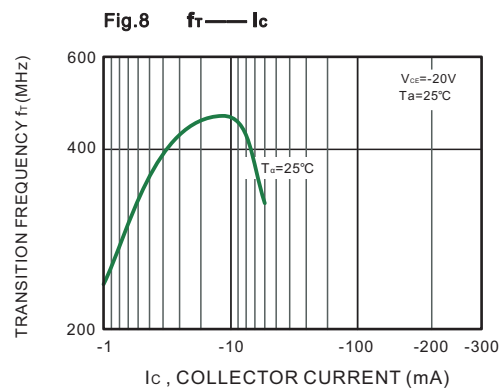
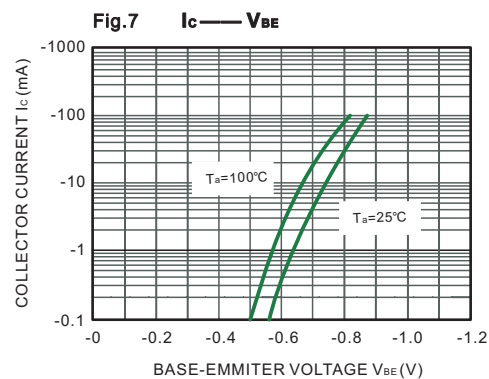
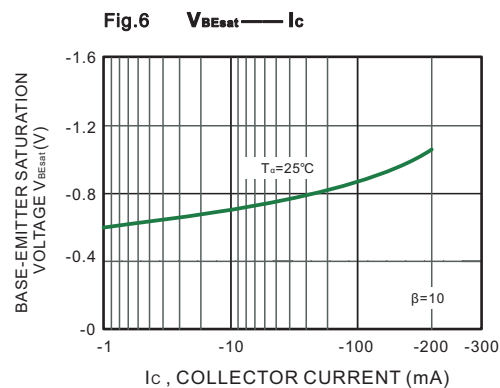
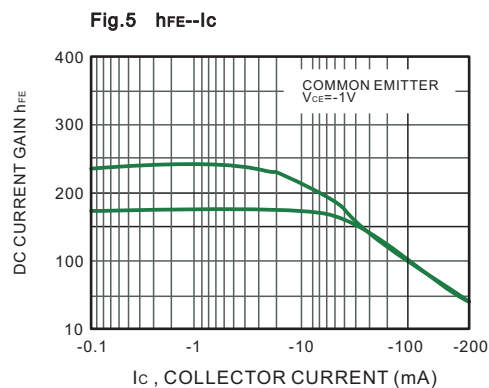
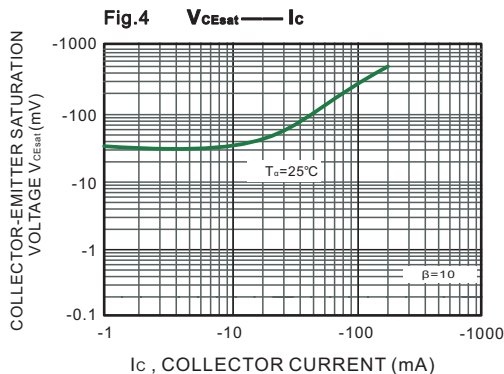
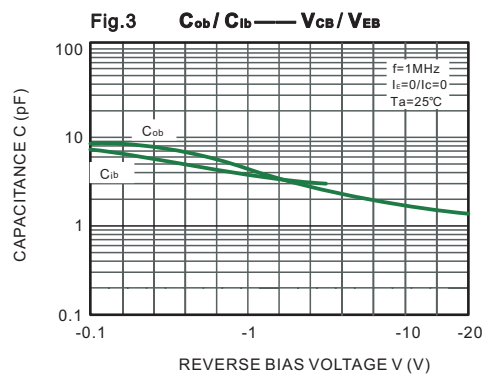
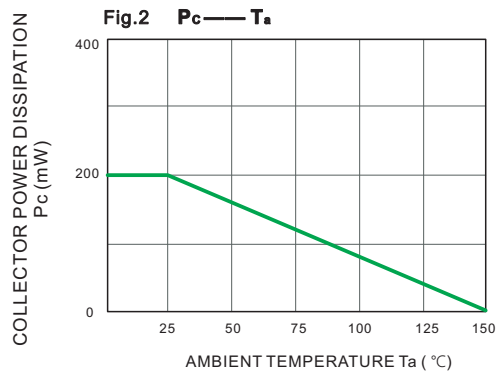
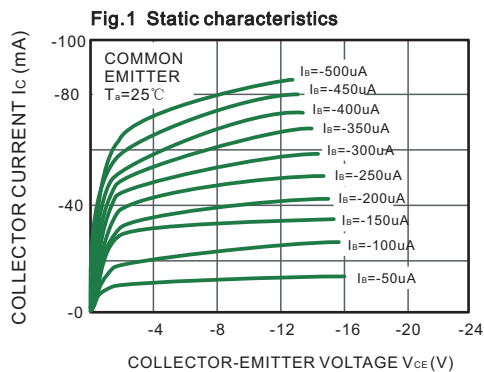
ELECTRICAL CHARACTERISTICS (TA = 25°C unless otherwise noted.)

Parameter	Symbol	Test conditions	Min	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C = -10\mu A, I_E = 0$	-40		V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C = -1\text{ mA}, I_B = 0$	-40		V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E = -10\mu A, I_C = 0$	-5		V
Collector cut-off current	I_{CBO}	$V_{CB} = -40V, I_E = 0$		-100	nA
Collector cut-off current	I_{CEX}	$V_{CE} = -30V, V_{CE} = -3V$		-50	nA
Emitter cut-off current	I_{EBO}	$V_{EB} = -5V, I_C = 0$		-100	nA
DC current gain	h_{FE1}	$V_{CE} = -1V, I_C = -10\text{mA}$	100	300	
	h_{FE2}	$V_{CE} = -1V, I_C = -50\text{mA}$	60		
	h_{FE3}	$V_{CE} = -2V, I_C = -100\text{mA}$	30		
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = -50\text{mA}, I_B = -5\text{mA}$		-0.3	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C = -50\text{mA}, I_B = -5\text{mA}$		-0.95	V
Transition frequency	f_T	$V_{CE} = -20V, I_C = -10\text{mA}, f = 100\text{MHz}$	300		MHZ
Delay time	t_d	$V_{CC} = -3V, V_{BE} = -0.5V$ $I_C = -10\text{mA}, I_{B1} = I_{B2} = -1\text{mA}$		35	ns
Rise time	t_r			35	ns
Storage time	t_s	$V_{CC} = -3V, I_C = -10\text{mA}$ $I_{B1} = I_{B2} = -1\text{mA}$		225	ns
Fall time	t_f			75	ns

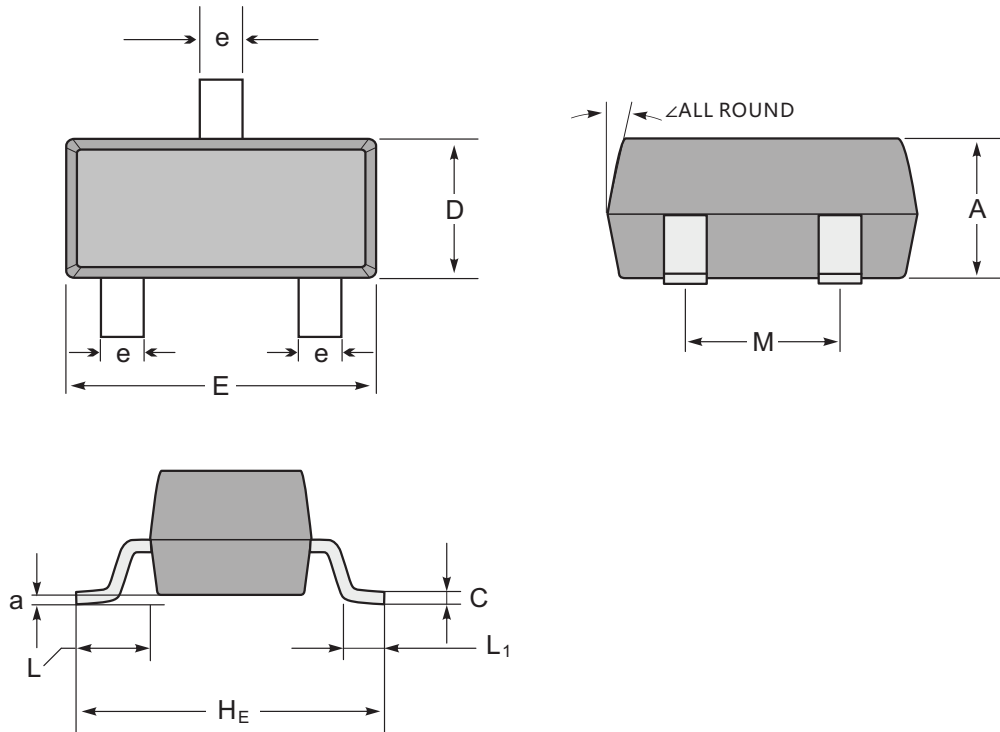
CLASSIFICATION OF $h_{FE(1)}$

HFE	100-300	
RANK	L	H
RANGE	100-200	200-300

TYPICAL CHARACTERISTICS



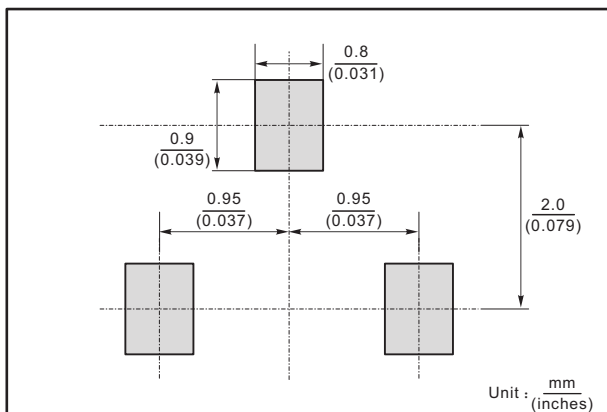
SOT-23 Package Outline Dimensions



SOT-23 mechanical data

UNIT		A	C	D	E	HE	e	M	L	L1	a	∠
mm	max	1.1	0.15	1.4	3.0	2.6	0.5	1.95	0.55 (ref)	0.36 (ref)	0.0	12°
	min	0.9	0.08	1.2	2.8	2.2	0.3	1.7			0.15	
mil	max	43	6	55	118	102	20	77	22 (ref)	14 (ref)	0.0	
	min	35	3	47	110	87	12	67			6	

The recommended mounting pad size

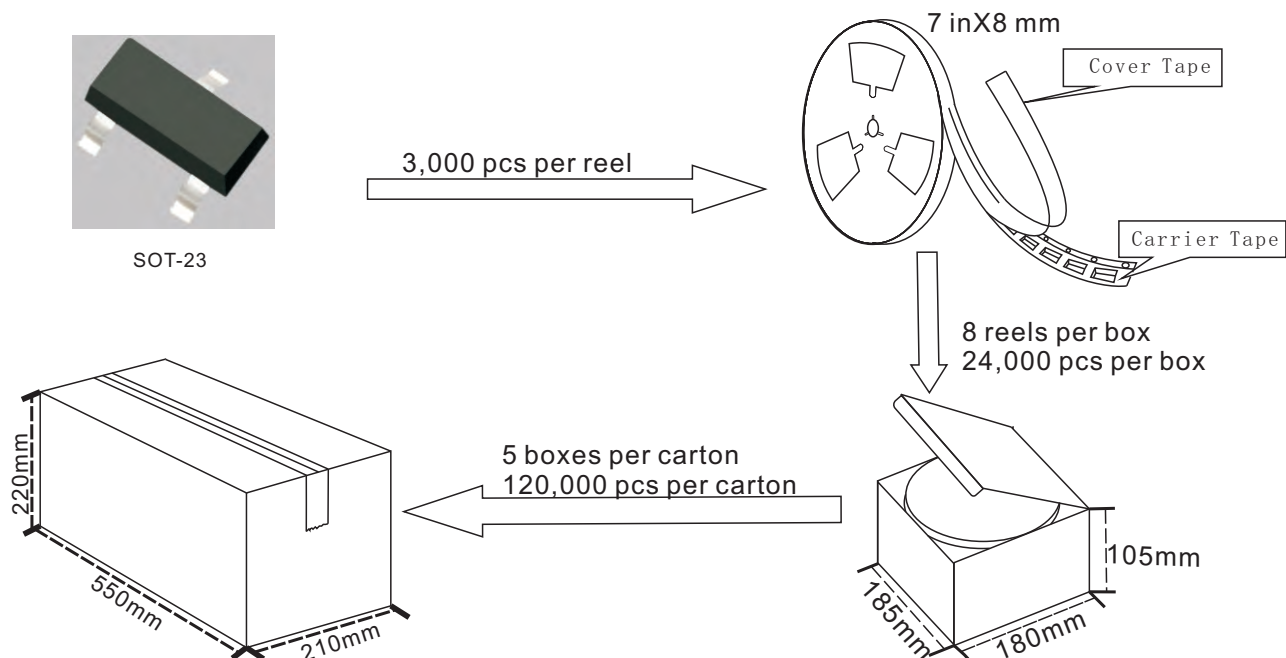


Marking

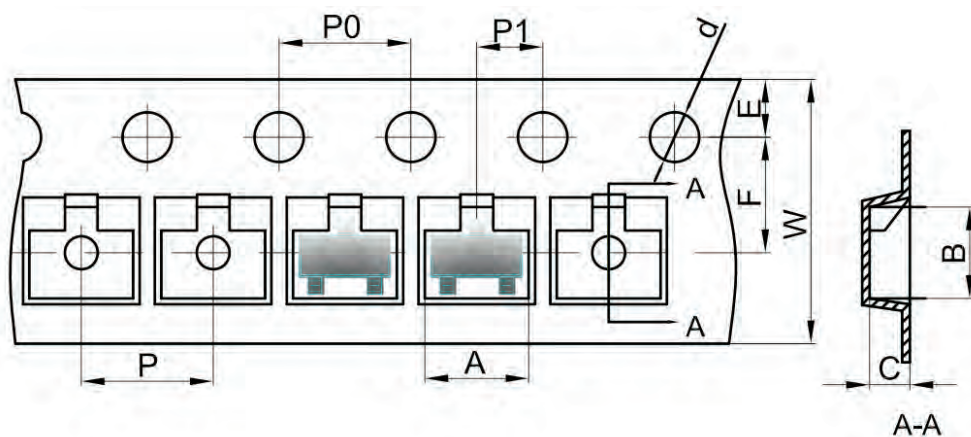
Type number	Marking code
MMBT3906	2A

SOT-23 Packing

1.The method of packaging and dimension are shown as below figure. (Dimension in mm)



SOT-23 Embossed Carrier Tape



MMBT3906

Dimensions are in millimeter										
Pkg type	A	B	C	d	E	F	P0	P	P1	W
SOT-23	3.15	2.77	1.22	Ø1.50	1.75	3.50	4.00	4.00	2.00	8.00

SOT-23 Tape Leader and Trailer

