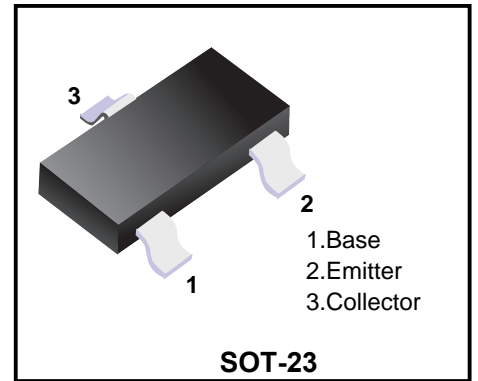


**NPN Transistors**

**Features**

- Complementary to MMBT3906

Marking Code	
MMBT3904	1AM



**Absolute Maximum Ratings (Ta=25°C)**

Parameter	Symbol	Rating	Unit
Collector - Base Voltage	V <sub>CB0</sub>	60	V
Collector - Emitter Voltage	V <sub>CEO</sub>	40	V
Emitter - Base Voltage	V <sub>EBO</sub>	6	V
Collector Current - Continuous	I <sub>c</sub>	0.2	A
Collector Power Dissipation	P <sub>c</sub>	0.2	W
Junction Temperature	T <sub>J</sub>	150	°C
Storage Temperature	T <sub>stg</sub>	-55 to 150	°C

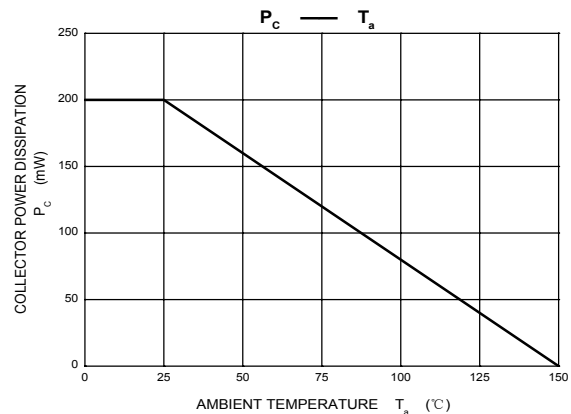
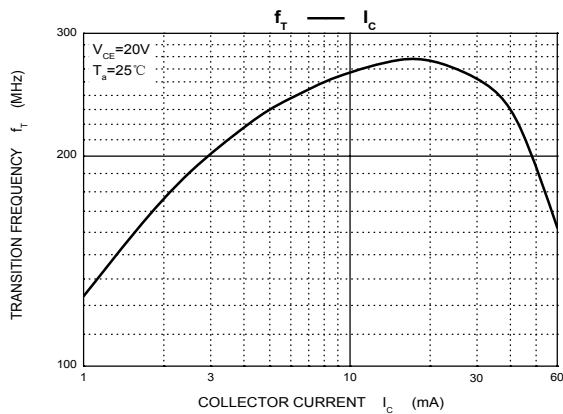
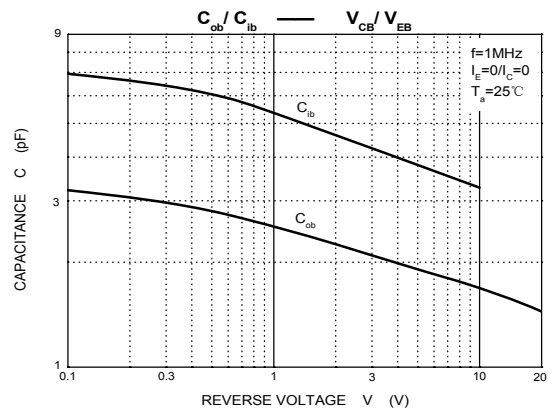
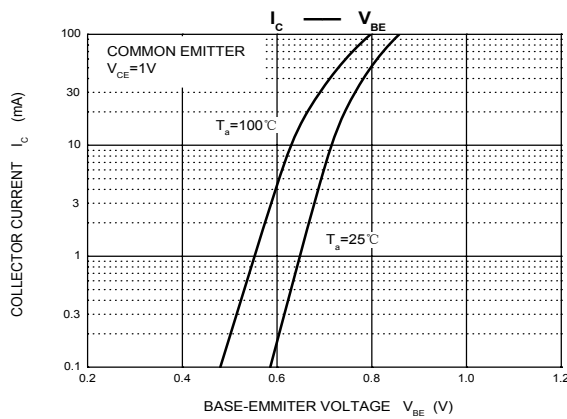
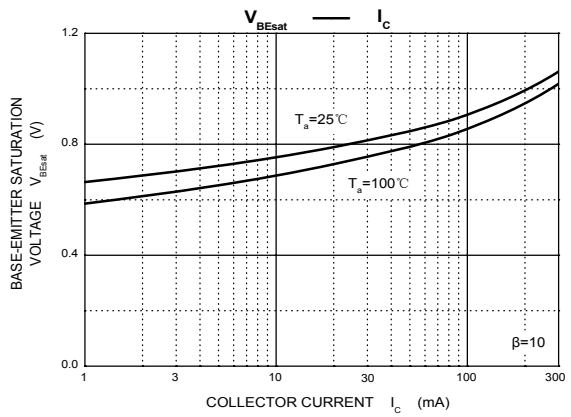
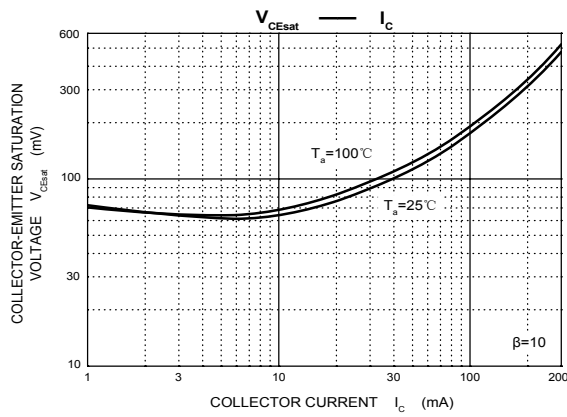
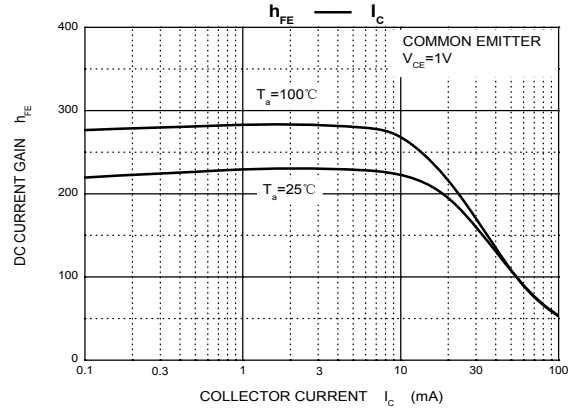
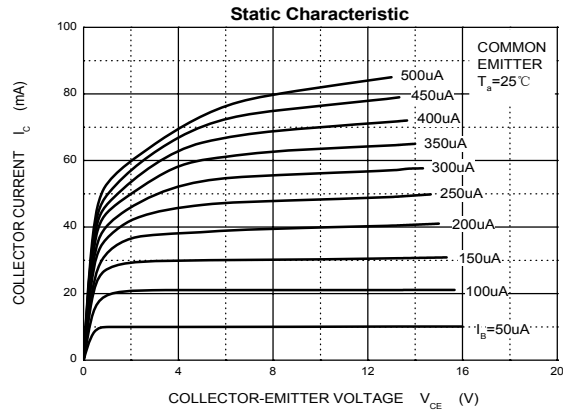
**Electrical Characteristics (Ta=25°C unless otherwise specified.)**

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	V <sub>CB0</sub>	I <sub>c</sub> = 100 μA, I <sub>E</sub> = 0	60			V
Collector- emitter breakdown voltage	V <sub>CEO</sub>	I <sub>c</sub> = 1 mA, I <sub>B</sub> = 0	40			
Emitter - base breakdown voltage	V <sub>EBO</sub>	I <sub>E</sub> = 100 μA, I <sub>c</sub> = 0	6			
Collector-base cut-off current	I <sub>CB0</sub>	V <sub>CB</sub> = 60 V, I <sub>E</sub> = 0			100	nA
Collector- emitter cut-off current	I <sub>CEX</sub>	V <sub>CE</sub> = 30 V, V <sub>EB(off)</sub> = -3V			50	
Emitter cut-off current	I <sub>EBO</sub>	V <sub>EB</sub> = 5V, I <sub>c</sub> =0			100	
Collector-emitter saturation voltage	V <sub>CE(sat)</sub>	I <sub>c</sub> = 10 mA, I <sub>B</sub> = 1mA			0.2	V
		I <sub>c</sub> = 50 mA, I <sub>B</sub> = 5mA			0.3	
Base - emitter saturation voltage	V <sub>BE(sat)</sub>	I <sub>c</sub> = 10 mA, I <sub>B</sub> = 1mA	0.65		0.85	V
		I <sub>c</sub> = 50 mA, I <sub>B</sub> = 5mA			0.95	
DC current gain	h <sub>fe</sub> (1)	V <sub>CE</sub> = 1V, I <sub>c</sub> = 10mA	100		400	
	h <sub>fe</sub> (2)	V <sub>CE</sub> = 1V, I <sub>c</sub> = 50mA	60			
	h <sub>fe</sub> (3)	V <sub>CE</sub> = 1V, I <sub>c</sub> = 100mA	30			
Delay time	t <sub>d</sub>	V <sub>CC</sub> = 3V, V <sub>BE(off)</sub> =- 0.5V			35	ns
Rise time	t <sub>r</sub>	I <sub>c</sub> = 10mA, I <sub>B1</sub> = 1mA			35	
Storage time	t <sub>s</sub>	V <sub>CC</sub> = 3V, I <sub>c</sub> = 10mA			200	
Fall time	t <sub>f</sub>	I <sub>B1</sub> =I <sub>B2</sub> = 1mA			50	
Collector input capacitance	C <sub>ib</sub>	V <sub>EB</sub> = 0.5V, I <sub>E</sub> = 0, f=1MHz			8	pF
Collector output capacitance	C <sub>ob</sub>	V <sub>CB</sub> = 5V, I <sub>E</sub> = 0, f=1MHz			4	
Transition frequency	f <sub>r</sub>	V <sub>CE</sub> = 20V, I <sub>c</sub> = 10mA, f=100MHz	300			MHz

**hFE Classification**

Type	MMBT3904	MMBT3904-L	MMBT3904-H	MMBT3904-J
Range	100-300	100-200	200-300	300-400

**Typical Characteristics**



**Ordering information**

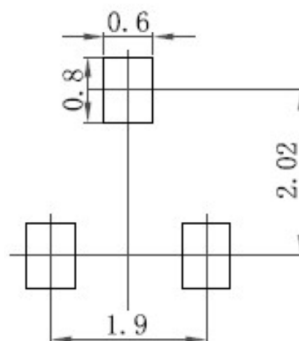
Package	Packing Description	Base Quantity	Packing Quantity
SOT-23	Tape/Reel,7"reel	3000pcs/Reel	24000PCS/Box 120000PCS/Carton

**Package Dimensions**

**SOT-23**

Dim.	Millimeter (mm)		mil	
	Min.	Max.	Min.	Max.
A	0.9	1.15	35	45
A1	0.1		3.9	
bp	0.38	0.48	15	19
C	0.09	0.15	3.54	5.9
D	2.8	3.0	110	118
E	1.2	1.4	47	55
E	1.9		75	
E1	0.95		37	
HE	2.1	2.55	83	100
Lp	0.15	0.45	5.9	18
Q	0.45	0.55	18	22
v	0.2		7.9	
W	0.1		4	

**The recommended mounting pad size**



## Disclaimer

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