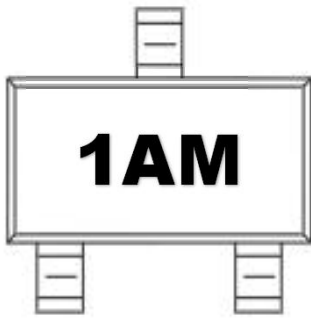
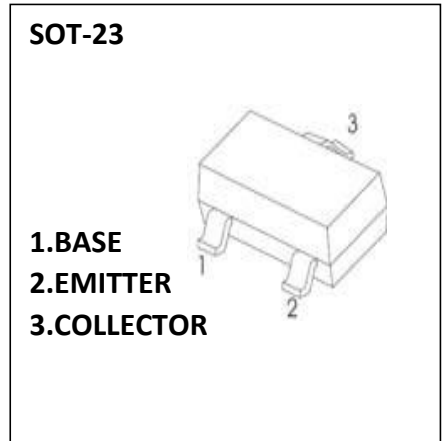
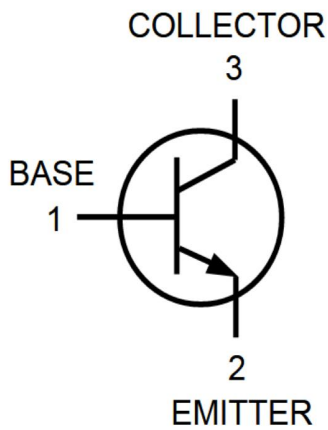


## TRANSISTOR (NPN)

**MARKING:**



**Equivalent Circuit:**



**FEATURES:**

- ※ Complimentary to MMBT3906
- ※ Collector Current:  $I_c=200\text{mA}$

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

Parameter	Symbol	Value	Unit
Collector-Base Voltage	VCBO	60	V
Collector-Emitter Voltage	VCEO	40	V
Emitter-Base Voltage	VEBO	6	V
Collector Current	IC	200	mA
Collector Power Dissipation	PC	200	mW
Thermal Resistance From Junction To Ambient	RθJA	625	°C/W
Junction Temperature	Tj	150	°C
Storage Temperature	Tstg	-55~+150	°C



# MMBT3904

SOT-23 Plastic-Encapsulate Transistors

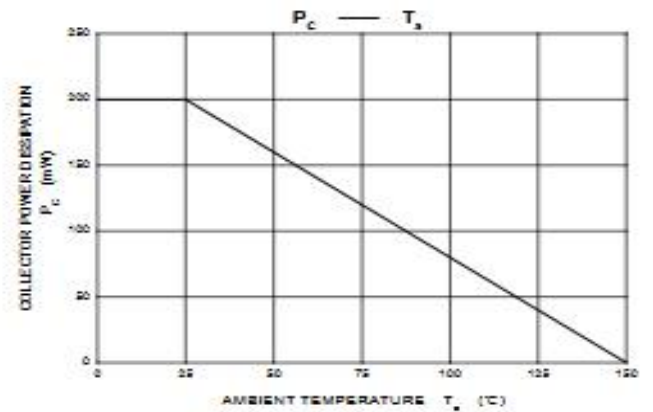
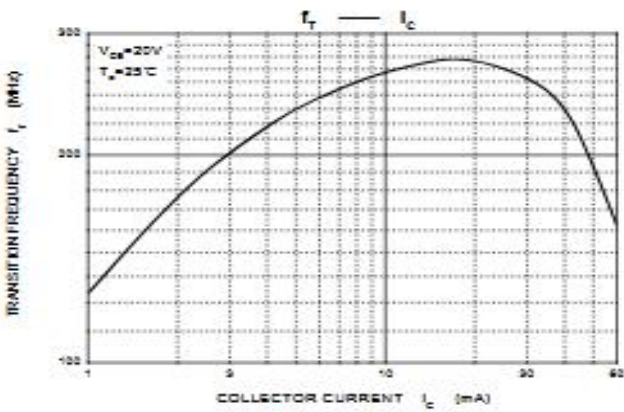
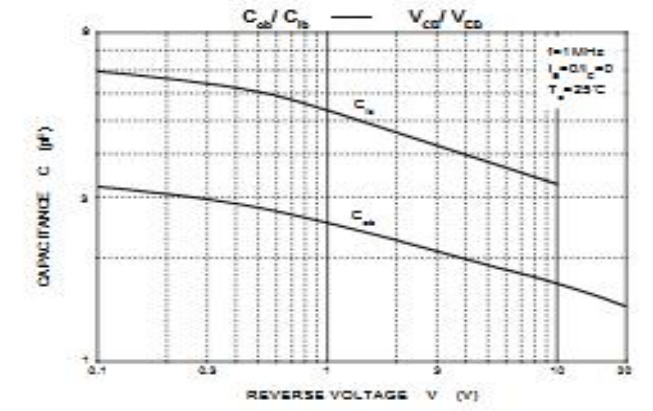
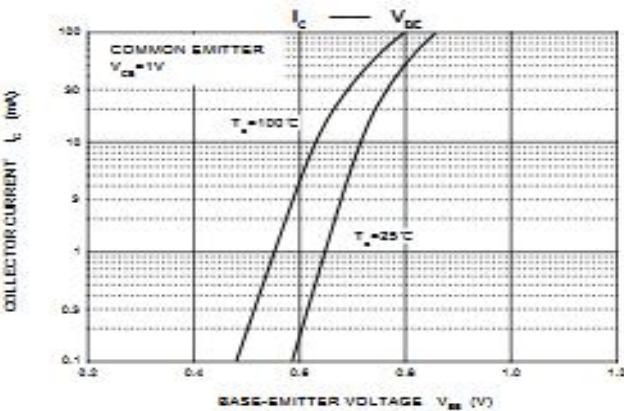
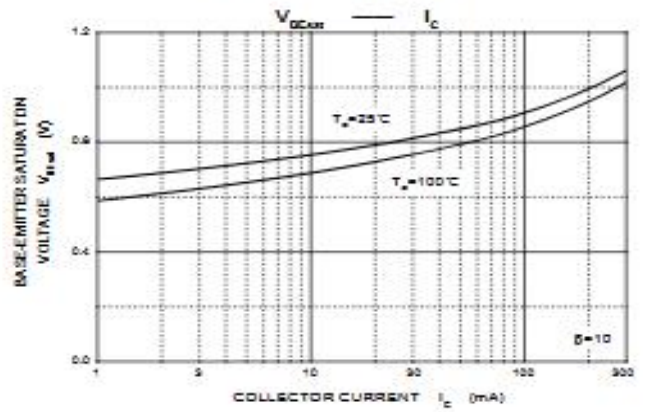
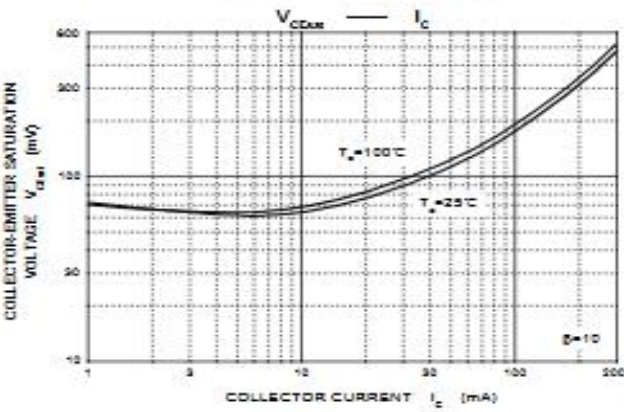
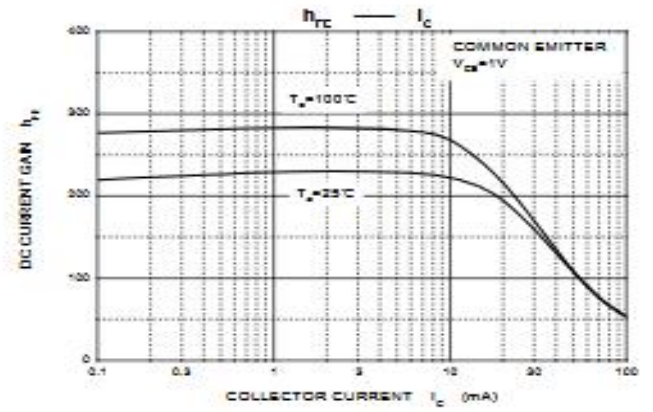
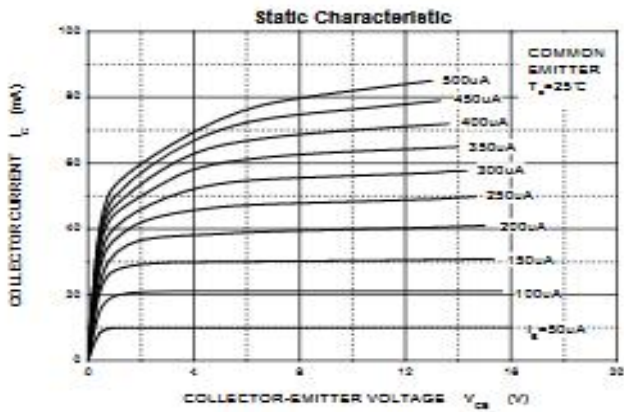
## ELECTRICAL CHARACTERISTICS (Ta=25°C unless otherwise specified)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Collector-base breakdown voltage	V(BR)CBO	IC= 10μA, IE=0	60			V
Collector-emitter breakdown voltage	V(BR)CEO	IC= 1mA, IB=0	40			V
Emitter-base breakdown voltage	V(BR)EBO	IE= 10μA, IC=0	6			V
Collector cut-off current	ICBO	VCB= 60 V , IE=0			0.1	μA
Collector cut-off current	ICEO	VCE=30V, VEB(off)=3V			50	nA
Emitter cut-off current	IEBO	VEB= 6V , IC=0			0.1	μA
DC current gain	hFE	VCE=1V, IC= 10mA	100		300	
	hFE	VCE=1V, IC= 50mA	60			
	hFE	VCE=1V, IC= 100mA	40			
Collector-emitter saturation voltage	VCE(sat)	IC=50 mA, IB= 5mA			0.3	V
Base-emitter saturation voltage	VBE(sat)	IC=50 mA, IB= 5mA			0.95	V
Transition frequency	fT	VCE=20V, IC= 100mA f=100MHz	300			MHz
Delay time	td	VCC=3V, VBE=0.5V, IC=10mA, IB=1mA,			35	ns
Rise time	tr	VCC=3V, VBE=0.5V, IC=10mA, IB=1mA,			35	ns
Storage time	ts	VCC=3V, VBE=0.5V, IC=10mA, IB=1mA,			200	ns
Fall time	tf	VCC=3V, VBE=0.5V, IC=10mA, IB=1mA,			50	ns

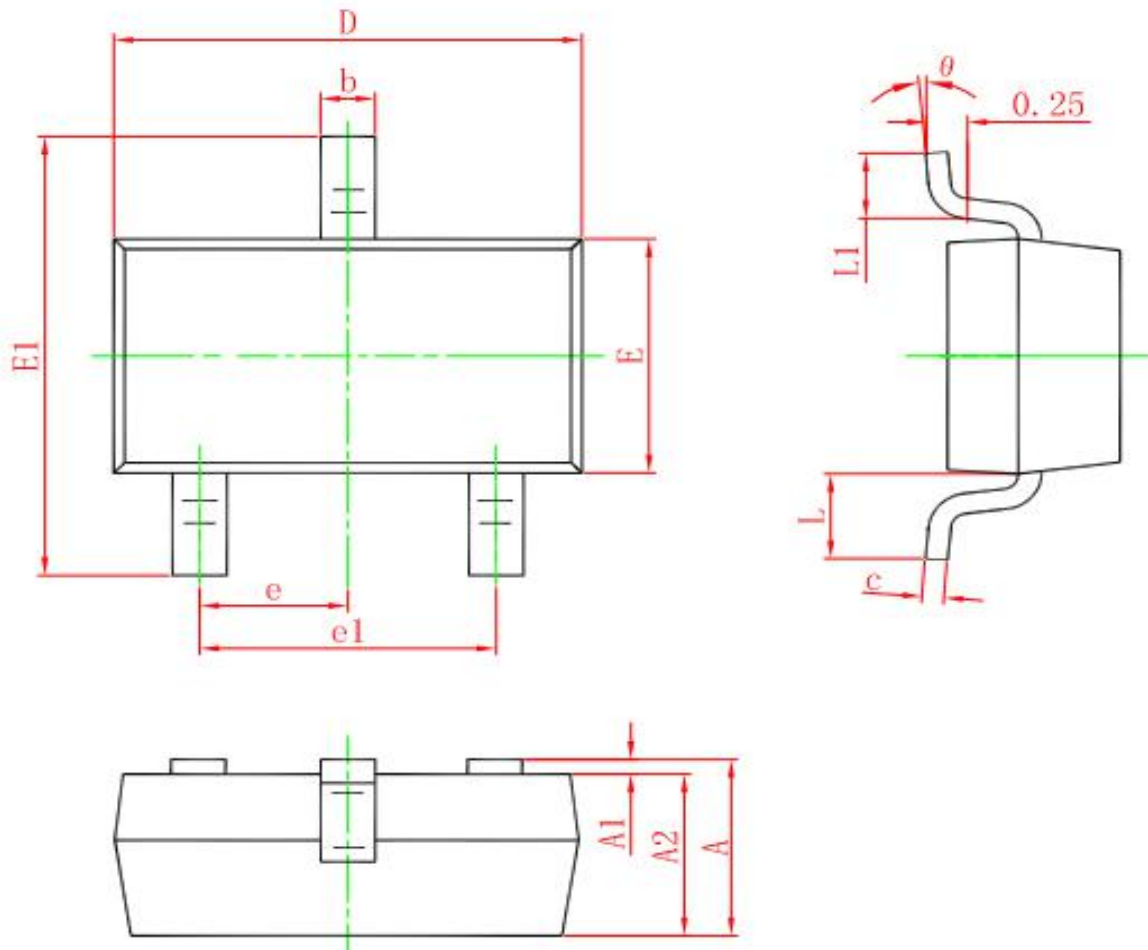
## CLASSIFICATION OF HFE

HFE	100-300	
Rank	L	H
Range	100-200	200-300

## TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS



### SOT-23 PACKAGE OUTLINE DIMENSIONS



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP.		0.037 TYP.	
e1	1.800	2.000	0.071	0.079
L	0.550 REF.		0.022 REF.	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°