

## FEATURES

As complementary type the PNP transistor MMBT3904 is recommended  
 Epitaxial planar die construction

## MARKING: 2A

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

Parameter	Symbol	Value	Unit
Collector-Base Voltage	V <sub>CBO</sub>	-40	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>	-200	mA
Collector Power Dissipation	P <sub>C</sub>	200	mW
Thermal Resistance Junction to Ambient	R <sub>JA</sub>	625	°C/W
Junction Temperature	T <sub>j</sub>	150	°C
Storage Temperature	T <sub>stg</sub>	-55 to +150	°C

## MMBT3906 (NPN)

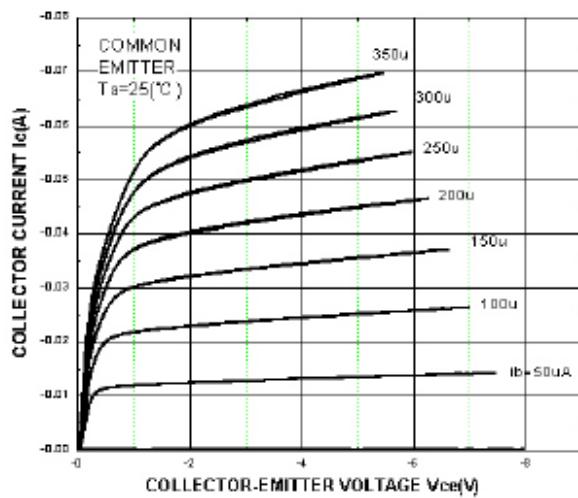
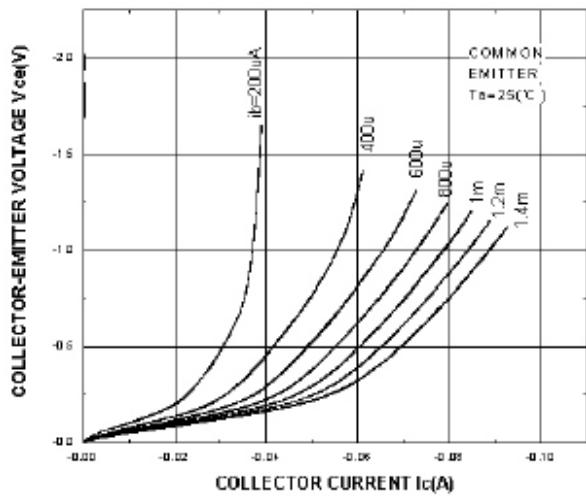
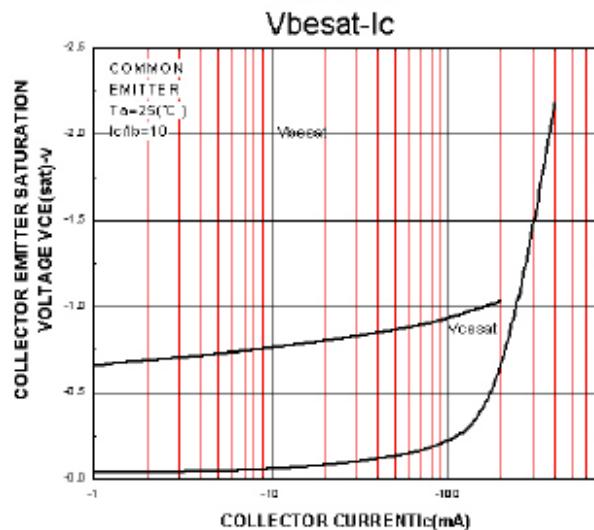


ELECTRICAL CHARACTERISTICS (Tamb=25°C unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Max	Unit
Collector-base breakdown voltage	V <sub>CBO</sub>	I <sub>C</sub> = 10µA, I <sub>E</sub> =0	-40		v
Collector-emitter breakdown voltage	V <sub>CEO</sub>	I <sub>C</sub> = 1mA, I <sub>B</sub> =0	-40		v
Emitter-base breakdown voltage	V <sub>EBO</sub>	I <sub>E</sub> =10µA, I <sub>C</sub> =0	-5		v
Collector cut-off current	I <sub>CBO</sub>	V <sub>CB</sub> =60V, I <sub>E</sub> =0		-0.1	uA
Collector cut-off current	I <sub>CEO</sub>	V <sub>CE</sub> =30V, V <sub>BE(off)</sub> =3V		50	uA
Emitter cut-off current	I <sub>EBO</sub>	V <sub>EB</sub> =5V, I <sub>C</sub> =0		-0.1	uA
DC current gain	h <sub>FE(1)</sub>	V <sub>CE</sub> =1V, I <sub>C</sub> =10mA	100	300	
DC current gain	h <sub>FE(2)</sub>	V <sub>CE</sub> =1V, I <sub>C</sub> = 100mA	30		
Collector-emitter saturation voltage	V <sub>CE(sat)</sub>	I <sub>C</sub> =50mA, I <sub>B</sub> = 5mA		-0.4	v
Base-emitter saturation voltage	V <sub>BE(sat)</sub>	I <sub>C</sub> = 50mA, I <sub>B</sub> = 5mA		-0.95	v
Transition frequency	f <sub>T</sub>	V <sub>CE</sub> =20V, I <sub>C</sub> =10mA, f=100MHz	300		MHz
Delay Time	t <sub>d</sub>	V <sub>CC</sub> =3V, V <sub>BE</sub> =-0.5V I <sub>C</sub> =10mA, I <sub>B1</sub> =-IB2=1.0mA		35	nS
Rise Time	t <sub>r</sub>			35	nS
Storage Time	t <sub>s</sub>	V <sub>CC</sub> =3V, I <sub>C</sub> =10mA, I <sub>B1</sub> =-IB2=1mA		225	nS
Fall Time	t <sub>f</sub>			75	nS

## CLASSIFICATION OF

Rank	O	Y	
Range	120-200	200-300	

**MMBT3906 Typical Characteristics**
**I<sub>c</sub>-V<sub>ce</sub>**

**V<sub>ce</sub>-I<sub>c</sub>**

**V<sub>cesat</sub>-I<sub>c</sub>**

**hFE-I<sub>c</sub>**
