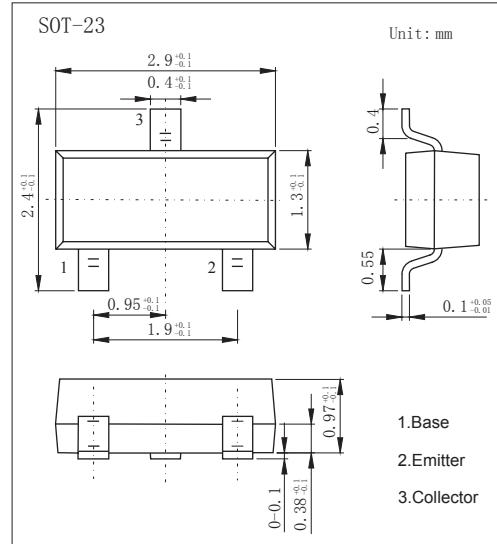


**NPN Transistors**

**MMBTH10**

■ Features

- Collector Current Capability  $I_c=0.05A$
- Collector Emitter Voltage  $V_{CE0}=25V$



■ Absolute Maximum Ratings  $T_a = 25^\circ C$

Parameter	Symbol	Rating	Unit
Collector - Base Voltage	$V_{CBO}$	30	V
Collector - Emitter Voltage	$V_{CEO}$	25	
Emitter - Base Voltage	$V_{EBO}$	3	
Collector Current - Continuous	$I_c$	0.05	A
Collector Power Dissipation	$P_c$	225	mW
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	556	$^\circ C/W$
Junction Temperature	$T_J$	150	$^\circ C$
Storage Temperature Range	$T_{stg}$	-55 to +150	

■ Electrical Characteristics  $T_a = 25^\circ C$

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector- base breakdown voltage	$V_{CBO}$	$I_c = 100 \mu A, I_E = 0$	30			V
Collector- emitter breakdown voltage	$V_{CEO}$	$I_c = 1 mA, I_B = 0$	25			
Emitter - base breakdown voltage	$V_{EBO}$	$I_E = 10 \mu A, I_C = 0$	3			
Collector-base cut-off current	$I_{CBO}$	$V_{CB} = 25 V, I_E = 0$			100	nA
Emitter cut-off current	$I_{EBO}$	$V_{EB} = 2 V, I_C = 0$			100	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_c = 4 mA, I_B = 0.4 mA$			0.5	V
Base - emitter saturation voltage	$V_{BE(sat)}$	$I_c = 4 mA, I_B = 0.4 mA$			1.2	
Base - emitter saturation voltage	$V_{BE}$	$V_{CE} = 10 V, I_c = 4 mA$			0.95	
DC current gain	$h_{FE}$	$V_{CE} = 10 V, I_c = 4 mA$	60			
Collector output capacitance	$C_{ob}$	$V_{CB} = 10 V, I_E = 0, f = 1 MHz$			0.7	pF
Transition frequency	$f_t$	$V_{CE} = 10 V, I_c = 4 mA, f = 100 MHz$	650			MHz

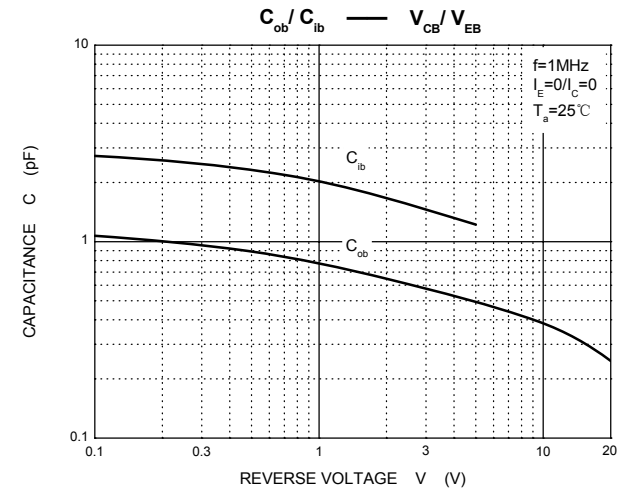
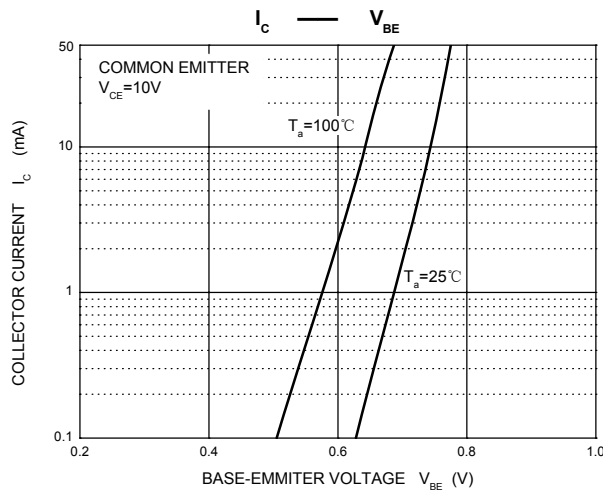
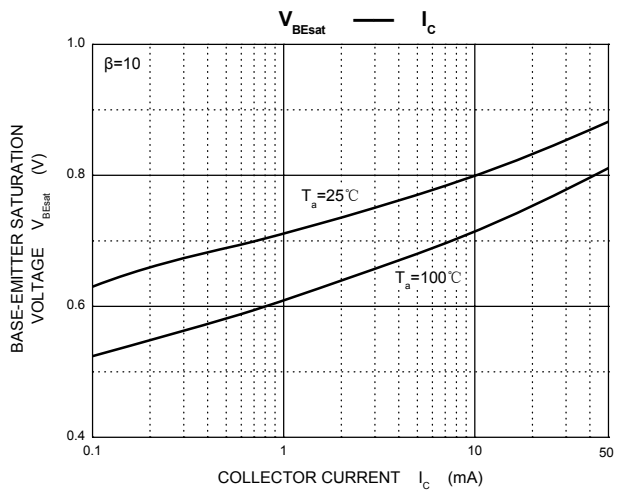
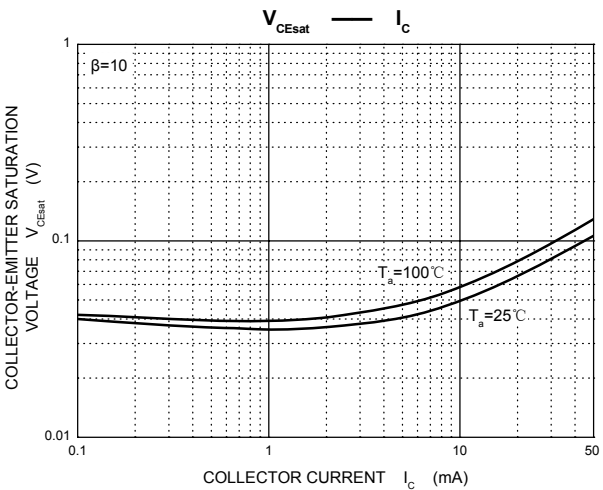
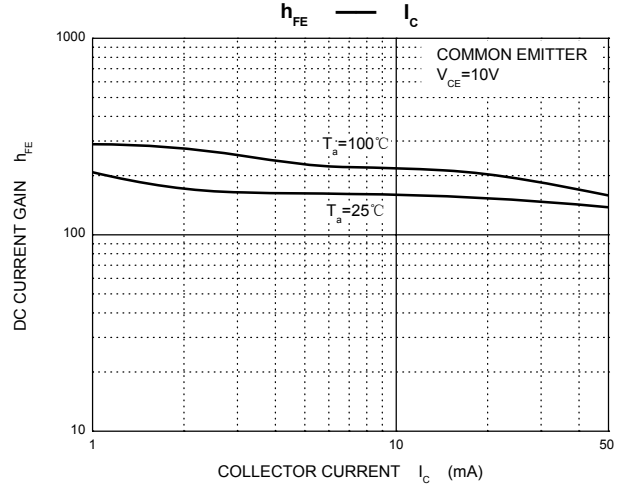
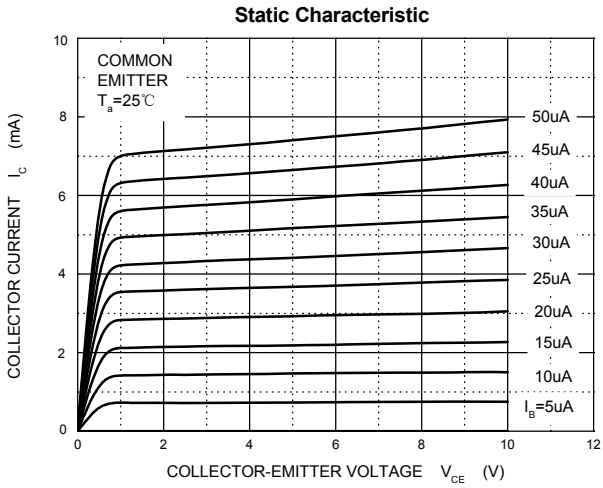
■ Classification of  $h_{fe}$

Marking	3EM
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NPN Transistors

MMBTH10

Typical Characteristics



NPN Transistors

MMBTH10

■ Typical Characteristics

