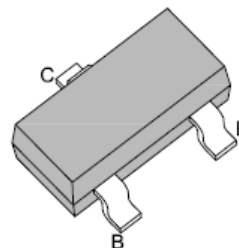
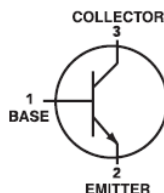


SMD General Purpose Transistor (NPN)

Features

- NPN Silicon Epitaxial Planar Transistor for Switching and Amplifier Applications



Mechanical Data

Case:	SOT-23, Plastic Package
Terminals:	Solderable per MIL-STD-202G, Method 208
Weight:	0.008 gram

SOT-23



Maximum Ratings ($T_{Ambient}=25^{\circ}\text{C}$ unless noted otherwise)

Symbol	Description	MMBT8050	Unit	Conditions
V_{CEO}	Collector-Emitter Voltage	25	V	
V_{CBO}	Collector-Base Voltage	40	V	
V_{EBO}	Emitter-Base Voltage	5.0	V	
I_C	Collector Current	1.5	A	
P_D	Total Device Power Dissipation (Note 1)	225	mW	T _A =25 °C
		1.8	mW/°C	Derate above 25 °C
R_{θJA}	Thermal Resistance, Junction to Ambient	556	°C /W	
P_D	Total Device Power Dissipation, Alumina Substrate (Note 2)	300	mW	T _A =25 °C
		2.4	mW/°C	Derate above 25 °C
R_{θJA}	Thermal Resistance, Junction to Ambient	417	°C /W	
T_J	Junction Temperature	-55 to +150	°C	
T_{STG}	Storage Temperature Range	-55 to +150	°C	

Note: 1. FR-5 Board=25.4 x 19.05 x 1.58 mm (1.0 x 0.75 x 0.062 inches.)

2. Alumina Substrate=10.16 x 7.62 x 0.61 mm (0.4 x 0.3 x 0.024 inches.) 99.5% alumina.

SMD General Purpose Transistor (NPN)

MMBT8050

Electrical Characteristics ($T_{Ambient}=25^{\circ}\text{C}$ unless noted otherwise)

Off Characteristics

Symbol	Description	Min.	Max.	Unit	Conditions
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	25	-	V	$I_C=0.1\text{mA}$, $I_B=0$
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	40	-	V	$I_C=0.1\text{mA}$, $I_E=0$
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	5.0	-	V	$I_E=0.1\text{mA}$, $I_C=0$
I_{CBO}	Base Cut-off Current	-	0.15	μA	$V_{CB}=35\text{V}$, $I_E=0$
I_{EBO}	Emitter Cut-off Current	-	0.15	μA	$V_{EB}=4.0\text{V}$, $I_C=0$

On Characteristics

Symbol	Description	Min.	Max.	Unit	Conditions
h_{FE}	D.C. Current Gain	100	600		$V_{CE}=1\text{V}$, $I_C=100\text{mA}$
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	-	0.5	V	$I_C=800\text{mA}$, $I_B=80\text{mA}$

Classification Of h_{FE}

Rank	P	Q	R	S
Range	100-200	150-300	200-400	300-600
Marking	1HA	1HC	1HE	1HG

SMD General Purpose Transistor (NPN)

MMBT8050

Typical Characteristics Curves

Fig.1- Static Characteristic

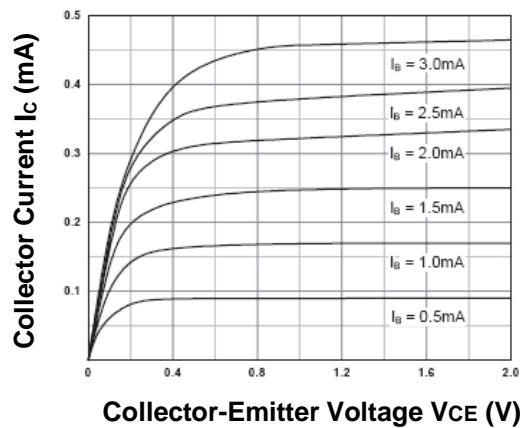


Fig.2- DC Current Gain

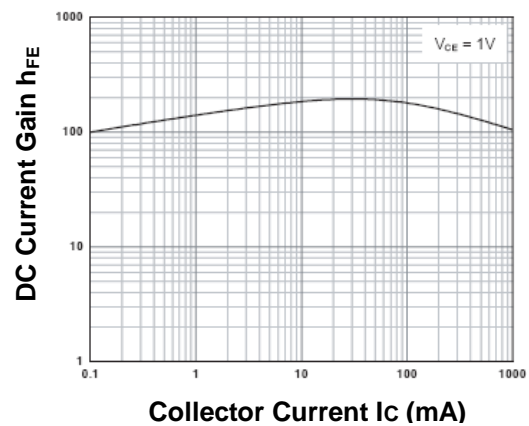


Fig.3- Collector-Emitter Saturation Voltage
Base-Emitter Saturation Voltage

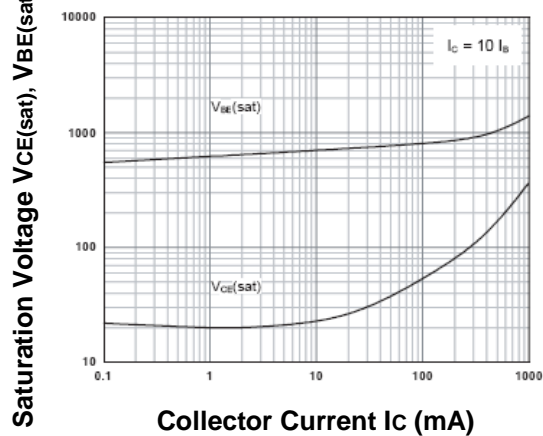


Fig.4- Base-Emitter On Voltage

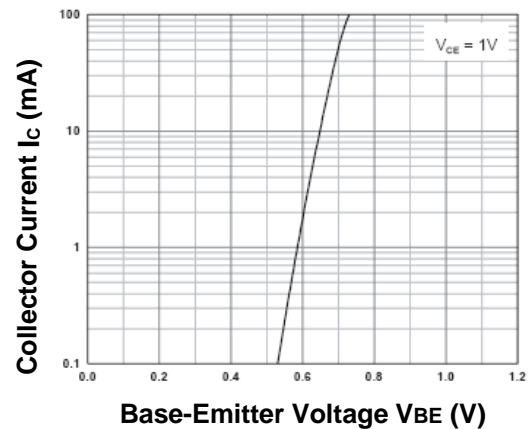
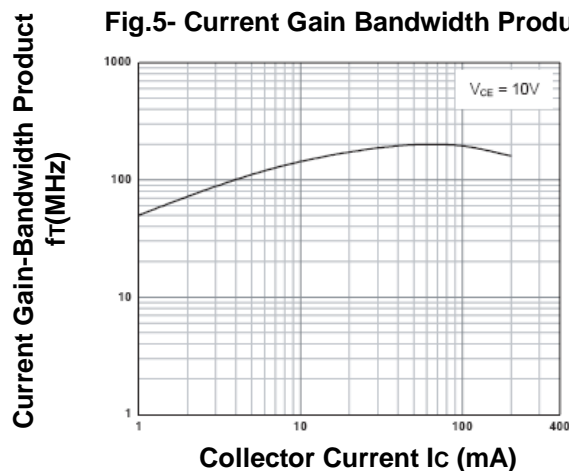


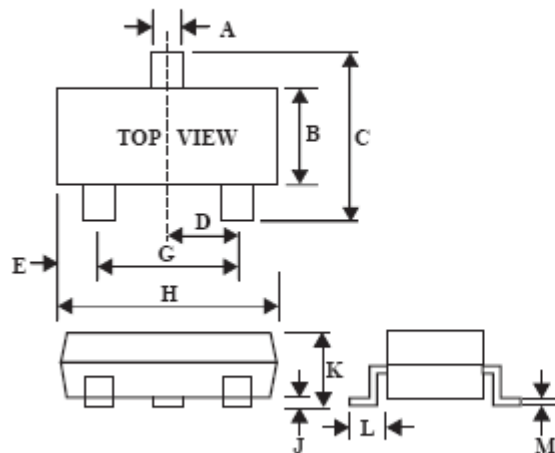
Fig.5- Current Gain Bandwidth Product



SMD General Purpose Transistor (NPN)

MMBT8050

Dimensions in mm



SOT-23		
Dim	Min	Max
A	0.35	0.51
B	1.19	1.40
C	2.10	3.00
D	0.85	1.05
E	0.46	1.00
G	1.70	2.10
H	2.70	3.10
J	0.01	0.13
K	0.89	1.10
L	0.30	0.61
M	0.076	0.25

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