



Micro Commercial Components



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# MMBTA05 THRU MMBTA06

## Features

- Halogen free available upon request by adding suffix "-HF"
- Epitaxial Planar Die Construction
- Complementary PNP Types Available (MMBTA55/MMBTA56)
- Ideal for Medium Power Amplification and Switching.
- Lead Free Finish/RoHS Compliant ("P" Suffix designates RoHS Compliant. See ordering information)
- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1
- Marking: MMBTA05:1H/K1H  
MMBTA06:1GM/K1G

## Maximum Ratings

Symbol	Rating	Rating	Unit
$V_{CEO}$	Collector-Emitter Voltage MMBTA05 MMBTA06	60 80	V
$V_{CBO}$	Collector-Base Voltage MMBTA05 MMBTA06	60 80	V
$V_{EBO}$	Emitter-Base Voltage	4.0	V
$I_C$	Collector Current-Continuous	500	mA
$P_D$	Power Dissipation*	300	mW
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	357	K/W
$T_J$	Operating Junction Temperature	-55 to +150	°C
$T_{STG}$	Storage Temperature	-55 to +150	°C

## Electrical Characteristics @ 25°C Unless Otherwise Specified

Symbol	Parameter	Min	Max	Units
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### OFF CHARACTERISTICS

$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage ( $I_C=1.0\text{mA}$ , $I_B=0$ ) MMBTA05 MMBTA06	60 80	---	Vdc
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage ( $I_E=100\mu\text{A}$ , $I_C=0$ )	4.0	---	Vdc
$I_{CBO}$	Collector Cutoff Current ( $V_{CB}=60\text{Vdc}$ , $I_E=0$ ) MMBTA05 ( $V_{CB}=80\text{Vdc}$ , $I_E=0$ ) MMBTA06	---	0.1	$\mu\text{A}$
$I_{CES}$	Emitter Cutoff Current ( $V_{CE}=60\text{Vdc}$ , $I_B=0$ ) MMBTA05 ( $V_{CE}=80\text{Vdc}$ , $I_B=0$ ) MMBTA06	---	0.1	$\mu\text{A}$

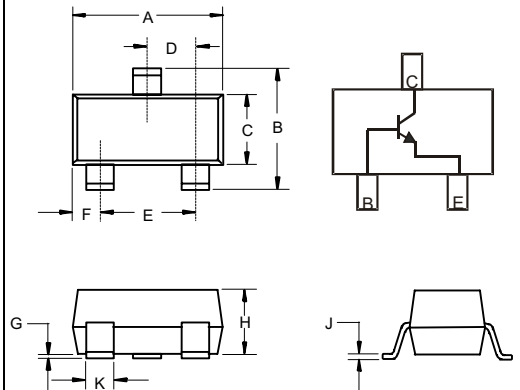
### ON CHARACTERISTICS

$h_{FE}$	DC Current Gain ( $V_{CE}=1.0\text{Vdc}$ , $I_C=10\text{mA}$ ) ( $V_{CE}=1.0\text{Vdc}$ , $I_C=100\text{mA}$ )	100 100	---	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage ( $I_C=100\text{mA}$ , $I_B=10\text{mA}$ )	---	0.25	Vdc
$V_{BE(on)}$	Base-Emitter On Voltage ( $I_C=100\text{mA}$ , $I_B=10\text{mA}$ )	---	1.2	Vdc
$f_T$	Current-Gain—Bandwidth Product ( $I_C=10\text{mA}$ , $V_{CE}=2.0\text{Vdc}$ , $f=100\text{MHz}$ )	100	---	MHz

\* Valid provided that terminals are kept at ambient temperature..

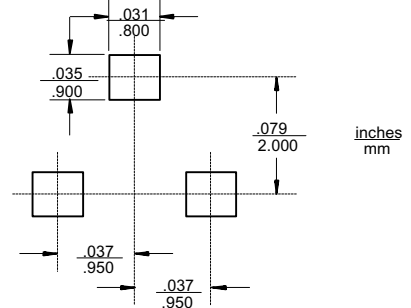
## NPN Small Signal General Purpose Amplifier Transistors

### SOT-23



DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	.110	.120	2.80	3.04	
B	.083	.104	2.10	2.64	
C	.047	.055	1.20	1.40	
D	.035	.041	.89	1.03	
E	.070	.081	1.78	2.05	
F	.018	.024	.45	.60	
G	.0005	.0039	.013	.100	
H	.035	.044	.89	1.12	
J	.003	.007	.085	.180	
K	.015	.020	.37	.51	

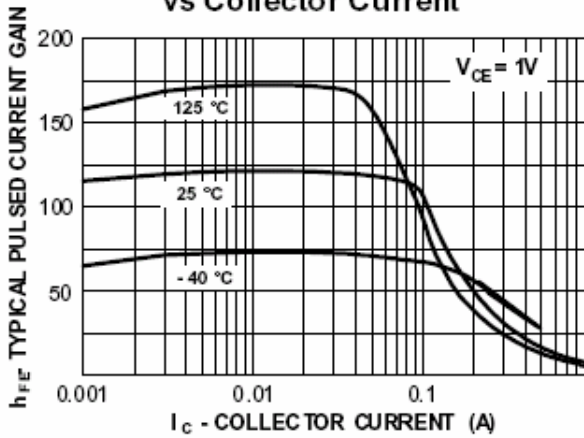
### Suggested Solder Pad Layout



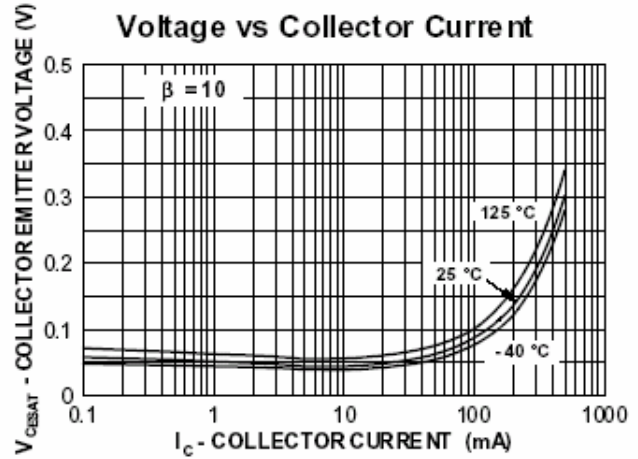
# MMBTA05

## Typical Characteristics

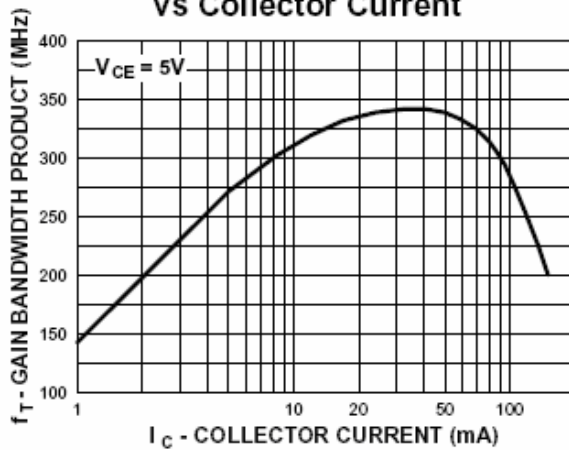
Typical Pulsed Current Gain vs Collector Current



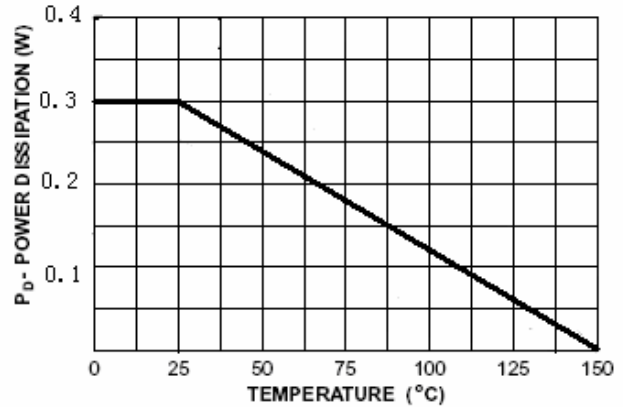
Collector-Emitter Saturation Voltage vs Collector Current



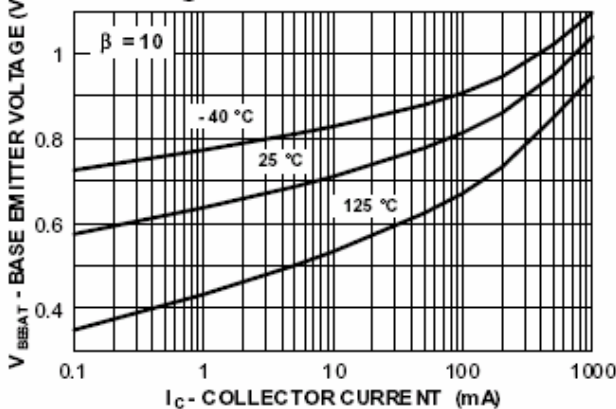
Gain Bandwidth Product vs Collector Current



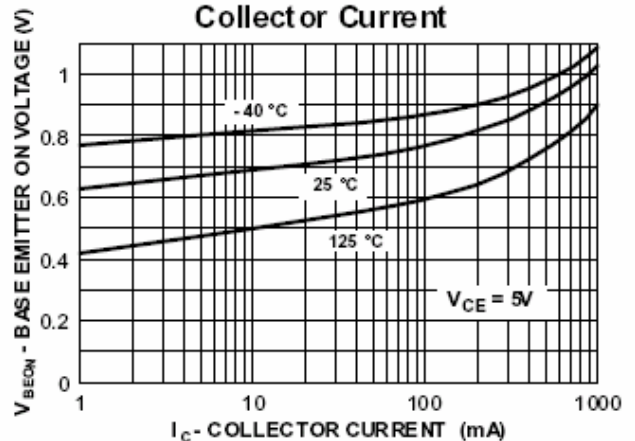
Power Dissipation vs Ambient Temperature



Base-Emitter Saturation Voltage vs Collector Current



Base Emitter ON Voltage vs Collector Current



# MMBTA06

## Typical characteristics

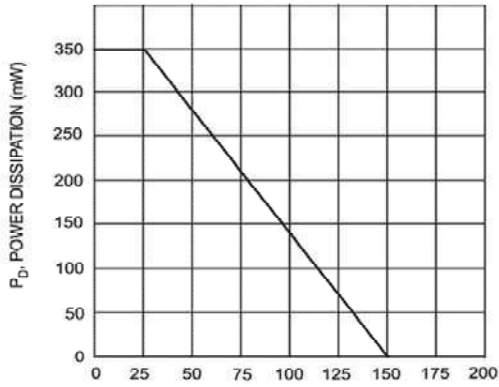


Fig. 1, Max Power Dissipation vs Ambient Temperature

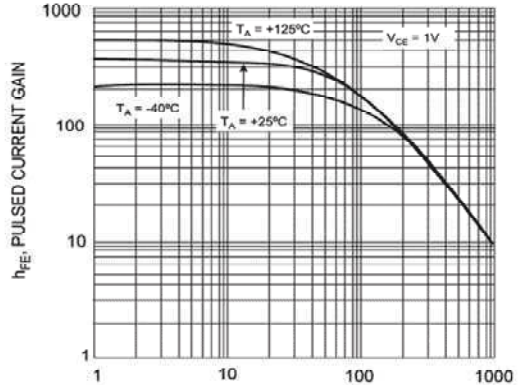


Fig. 2, Typical Pulsed Current Gain vs. Collector Current

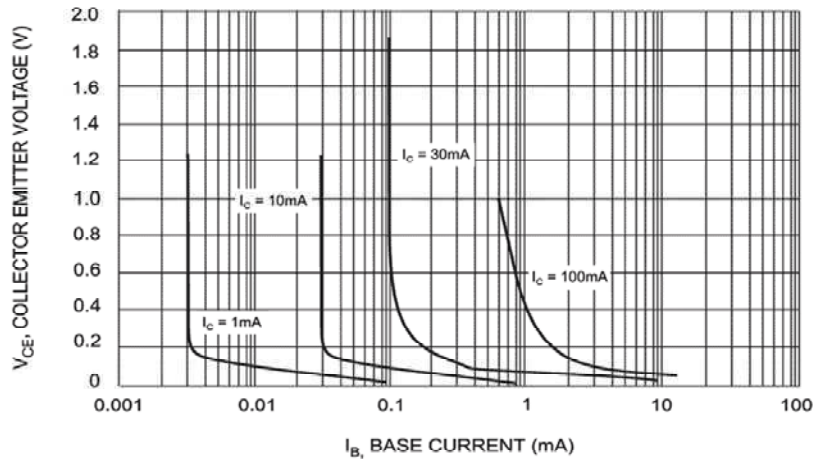


Fig. 3 Typical Collector Saturation Region

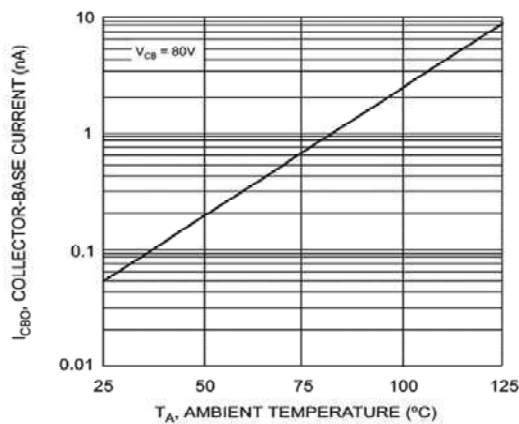


Fig. 4 Typical Collector-Cutoff Current vs. Ambient Temperature



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### Ordering Information :

Device	Packing
Part Number-TP	Tape & Reel; 3 Kpcs/Reel

Note : Adding "-HF" suffix for halogen free, eg. Part Number-TP-HF

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