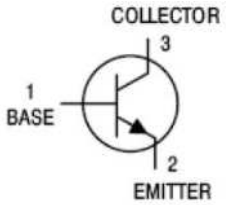
GOOD-ARK
SEMICONDUCTOR

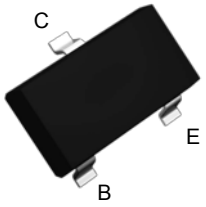
MMBTA05 / MMBTA06
NPN Transistor

Features

- High breakdown voltage.
- Complementary PNP type available (MMBTA55/MMBTA56)
- Low collector - emitter saturation voltage



Schematic Diagram



SOT-23

Applications

- Ideal for medium power amplification and switching.

Absolute Maximum Ratings

(T_A=25°C unless otherwise noted)

Parameter	Symbol	Max.		Unit
Collector-Base Voltage	V_{CBO}	MMBTA05	60	V
		MMBTA06	80	V
Collector-Emitter Voltage	V_{CEO}	MMBTA05	60	V
		MMBTA06	80	V
Emitter-Base Voltage	V_{EBO}	4		V
Collector Current-Continuous	I_C	0.5		A
Base Current	I_B	0.2		A
Collector Power Dissipation	P_C	350		mW
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	357		°C/W
Thermal Resistance, Junction to Case	$R_{\theta JC}$	142		°C/W
Operation Junction Temperature Range	T_J	-55 To +150		°C
Storage Temperature Range	T_{STG}	-55 To +150		°C

Electrical Characteristics (T_A=25°C unless otherwise noted)

Parameter	Symbol	Conditions		Min.	Max.	Unit
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	I_C=100μA, I_E=0	MMBTA05	60	-	V
			MMBTA06	80	-	V
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C=1mA, I_B=0	MMBTA05	60	-	V
			MMBTA06	80	-	V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	I_E=10μA, I_C=0		4	-	V
Collector Cut-Off Current	I_{CBO}	V_{CB}=60V, I_E=0	MMBTA05	-	0.1	μA
		V_{CB}=80V, I_E=0	MMBTA06	-	0.1	μA
Collector Cut-Off Current	I_{CEO}	V_{CE}=60V, I_B=0	MMBTA05	-	0.1	μA
		V_{CE}=60V, I_B=0	MMBTA06	-	0.1	μA
DC Current Gain	h_{FE}	V_{CE}=1V, I_C=10mA		100	-	-
		V_{CE}=1V, I_C=100mA		100	-	-
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	I_C=100mA, I_B=10mA		-	0.25	V
Base-Emitter Voltage	$V_{BE(ON)}$	I_C=100mA, V_{CE}=1.0V		-	1.2	V
Transition Frequency	f_T	V_{CE}=5V, I_C=20mA, f=20MHz		100	-	MHz

Typical Characteristic Curves

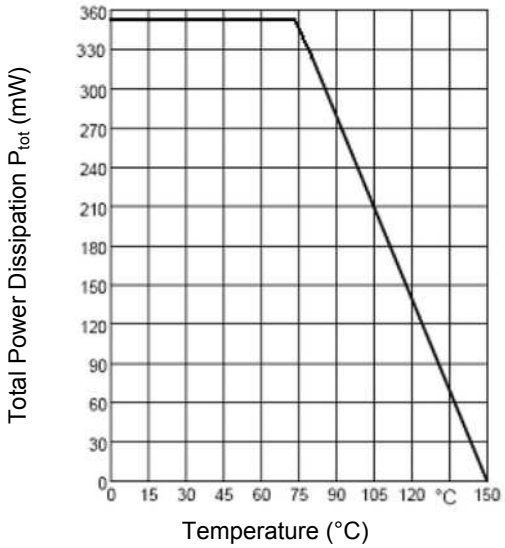


Figure 1. Derating Curve

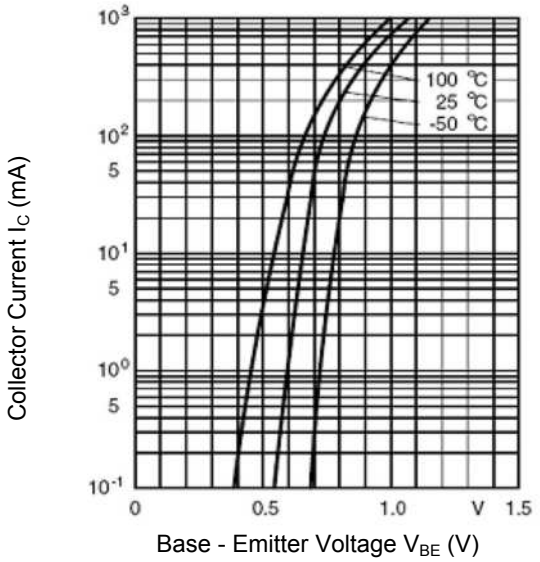


Figure 2. Collector Current vs. Base-Emitter Voltage (V_{CE}=1V)

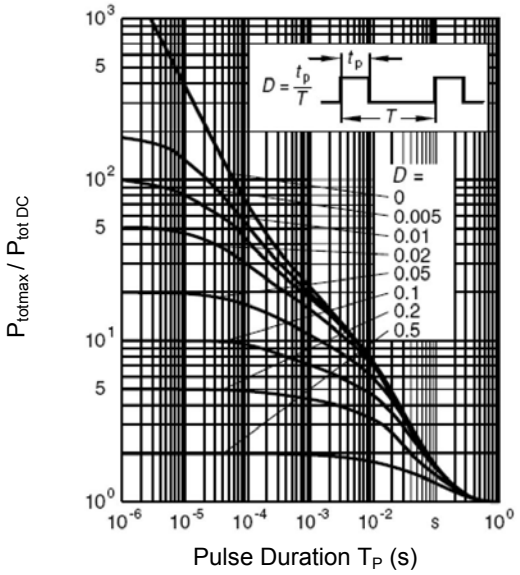


Figure 3. Permissible Pulse Load

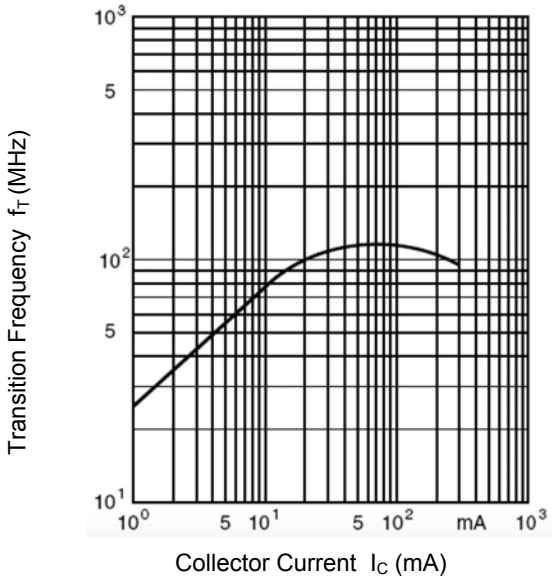


Figure 4. Transition Frequency (V_{CE}=5V)

Typical Characteristic Curves

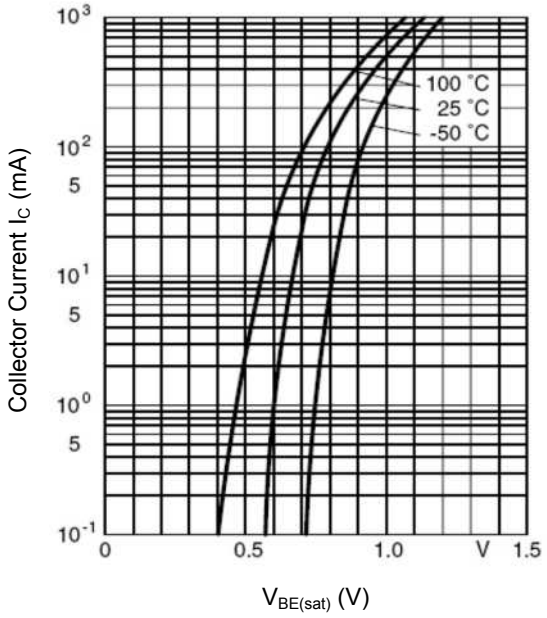


Figure 5. Base-Emitter Saturation Voltage

I_C= f(V_{BEsat}), h_{FE}= 10

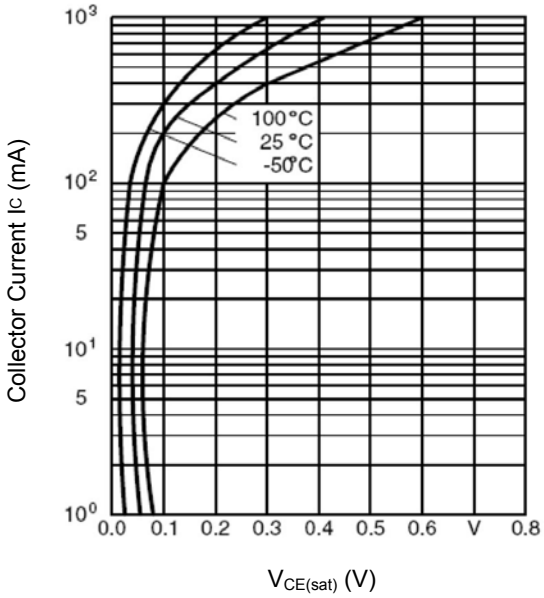


Figure 6. Collector-Emitter Saturation Voltage

I_C= f(V_{CEsat}), h_{FE}= 10

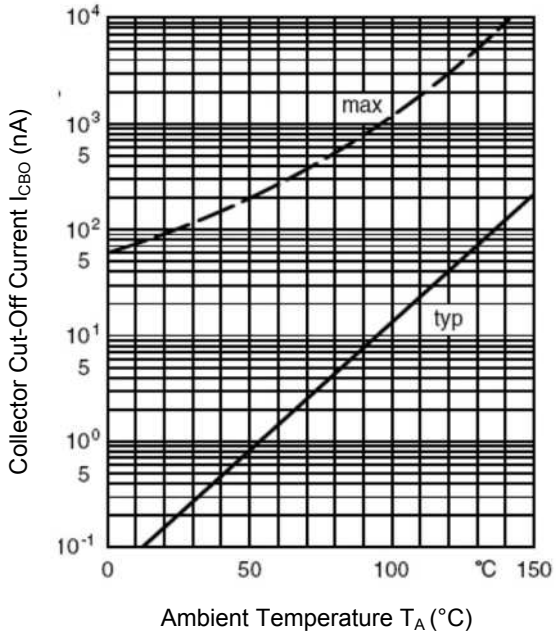


Figure 7. Collector Cutoff Current

I_{CBO}= f(T_A), V_{CB}= 80V

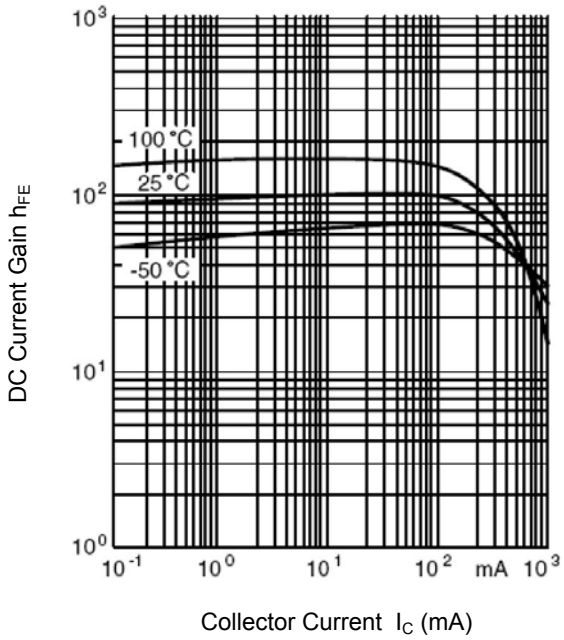
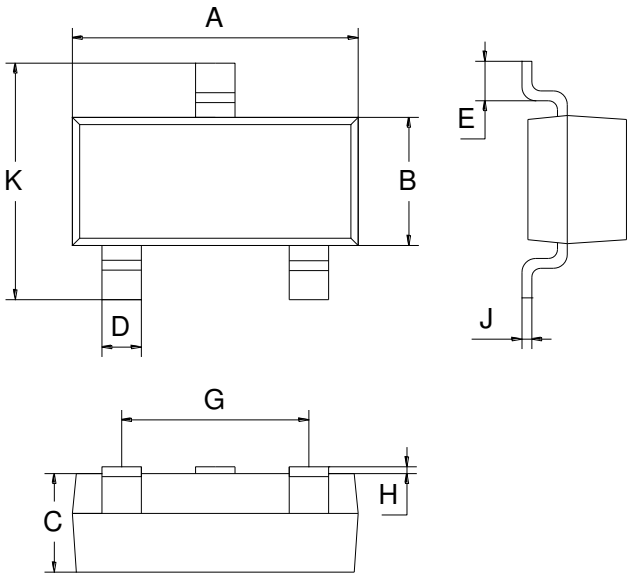


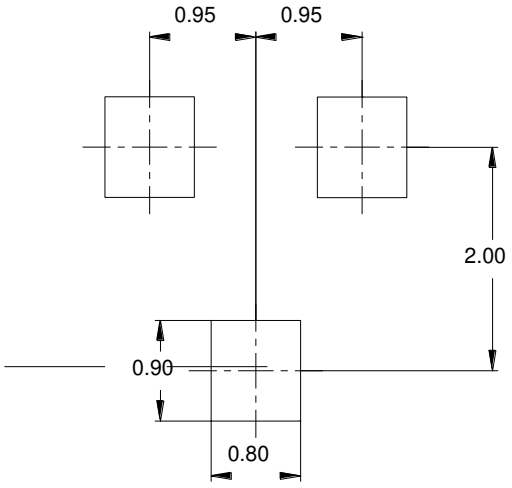
Figure 8. DC Current Gain h_{FE}= f(I_C), V_{CE}= 1V

Package Outline Dimensions (SOT-23)



Symbol	Dimensions in Milimeters	
	Min	Max
A	2.70	3.10
B	1.10	1.50
C	0.90	1.10
D	0.30	0.50
E	0.35	0.48
G	1.80	2.00
H	0.02	0.10
J	0.05	0.15
K	2.20	2.60

Suggested Pad Layout



Unit: mm