

MMBTA05-A06

NPN General Purpose Transistor

Features

- Epitaxial planar die construction.
- Complementary NPN type available (MMBTA05/MMBTA06).
- Low collector-emitter saturation voltage.
- RoHS compliant package

Application

- Ideal for medium NPN amplification and switching.
- Case : SOT-23

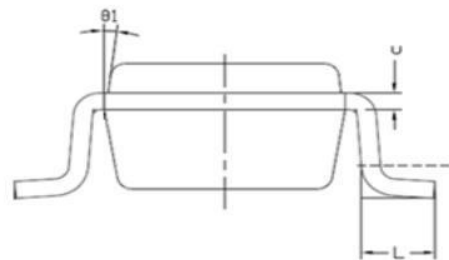
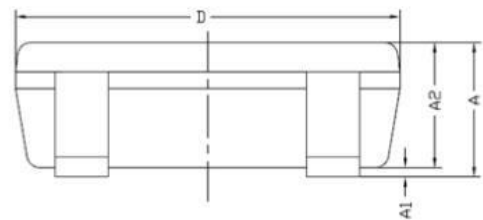
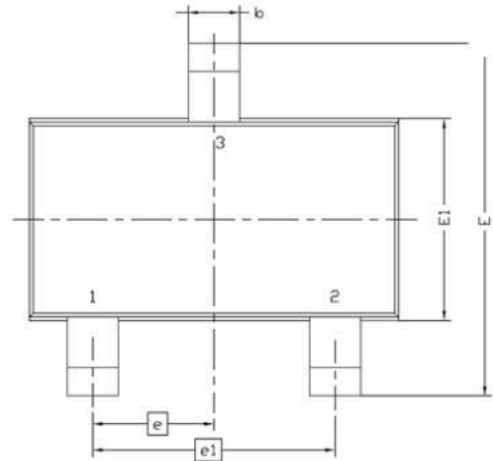
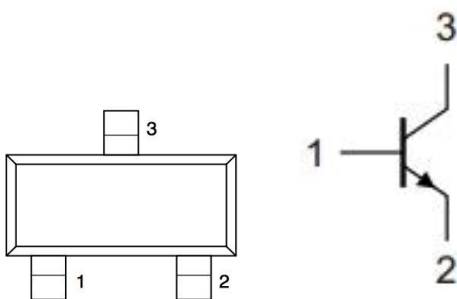
Packing & Order Information

3,000/Reel



**RoHS
COMPLIANT**

Graphic symbol



Symbol	MILLIMETERS	
	MIN	MAX
A	0.8	1.2
A1	0	0.1
A2	0.7	1.1
b	0.3	0.5
c	0.1	0.2
D	2.7	3.1
E	2.6	3
E1	1.4	1.8
e	0.95 BSC	
e1	1.9 BSC	
L	0.3	0.6
θ1	7° NOM	

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MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

MAXIMUM RATING @ Ta=25°C unless otherwise specified

Symbol	Parameter	Value	Unit
V _{CBO}	Collector-Base Voltage (MMBTA05)	-60	V
V _{CBO}	Collector-Base Voltage (MMBTA06)	-80	V
V _{CEO}	Collector-Emitter Voltage (MMBTA05)	-60	V
V _{CEO}	Collector-Emitter Voltage (MMBTA06)	-80	V
V _{EBO}	Emitter-Base Voltage	-4	V
I _C	collector current (DC)	-0.5	A
P _C	Collector Dissipation	-0.35	W
R _{θJA}	Thermal resistance junction to ambient	417	°C/W
T _j , T _{stg}	Junction and Storage Temperature	-55 to +150	°C

Ordering Information

Type No.	Marking	Package Code
MMBTA05	1H	SOT-23
MMBTA06	1GM	SOT-23

ELECTRICAL CHARACTERISTICS @ Ta=25°C unless otherwise specified

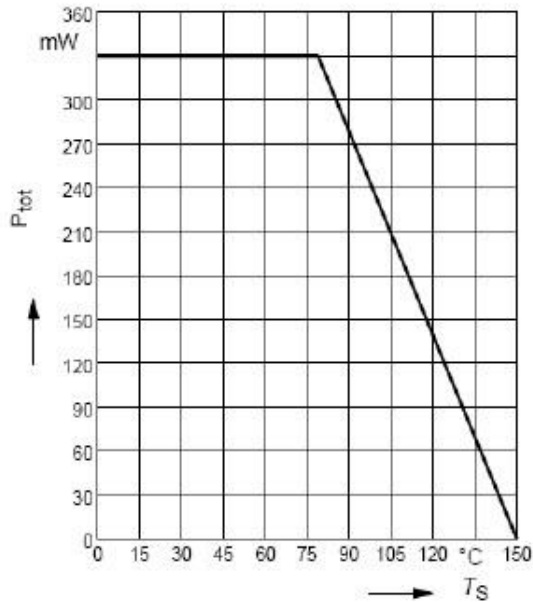
Symbol	Parameter	Test Conditions	MIN	MAX	UNIT
V _{(BR)CBO}	Collector-base breakdown voltage (MMBTA05)	I _C = 100μA , I _E = 0	60		V
	Collector-base breakdown voltage (MMBTA06)		80		
V _{(BR)CEO}	Collector-emitter breakdown voltage (MMBTA05)	I _C = 1.0mA , I _B = 0	60		V
	Collector-emitter breakdown voltage (MMBTA06)		80		
V _{(BR)EBO}	Emitter-base breakdown voltage	I _E = 10μA , I _C = 0	4		V
I _{CBO}	Collector cut-off current (MMBTA05)	V _{CB} = 60 V , I _E = 0		0.1	μA
	Collector cut-off current (MMBTA06)	V _{CB} = 80 V , I _E = 0			
I _{CEO}	Collector cut-off current (MMBTA05)	V _{CB} = 60 V , I _B = 0		0.1	μA
	Collector cut-off current (MMBTA06)	V _{CB} = 60 V , I _B = 0			
h _{FE}	DC current gain	V _{CE} = 1 V , I _C = 10mA	100		-
		V _{CE} = 1 V , I _C = 100mA	100		
V _{CE(sat)}	Collector-emitter saturation voltage	I _C = 100mA , I _B = 10mA		0.25	V
V _{BE(ON)}	Base-emitter voltage	I _C = 100mA , I _{CE} = 1.0 V		-1.0	V
f _T	Transition frequency	V _{CE} = 1 V , I _C = 100mA f = 100MHz	50		MHz

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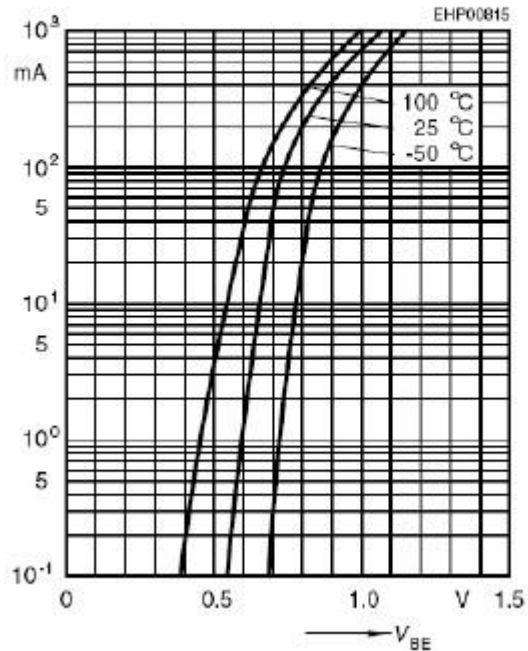
■ ELECTRICAL CHARACTERISTICS @ $T_a=25^\circ\text{C}$ unless otherwise specified

Total power dissipation $P_{\text{tot}} = f(T_S)$



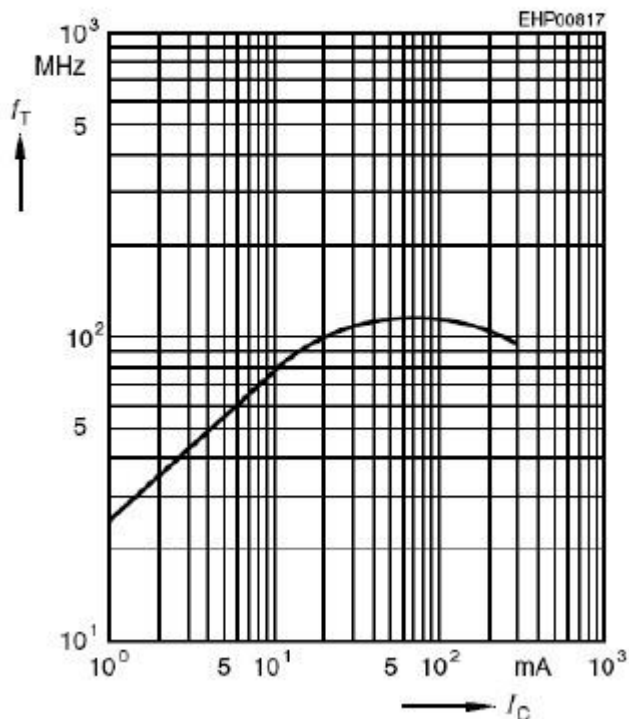
Collector current $I_C = f(V_{\text{BE}})$

$V_{\text{CE}} = 1\text{V}$



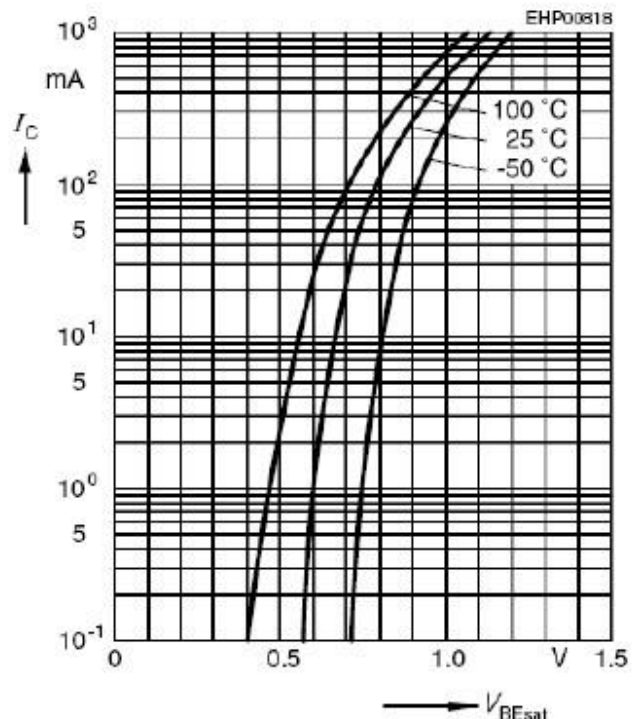
Transition frequency $f_T = f(I_C)$

$V_{\text{CE}} = 5\text{V}$



Base-emitter saturation voltage

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



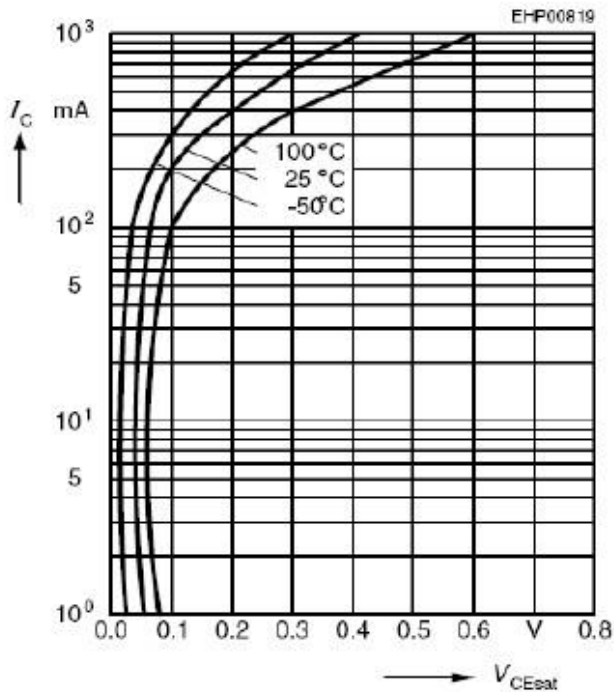
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■ ELECTRICAL CHARACTERISTICS @ $T_a=25^\circ\text{C}$ unless otherwise specified

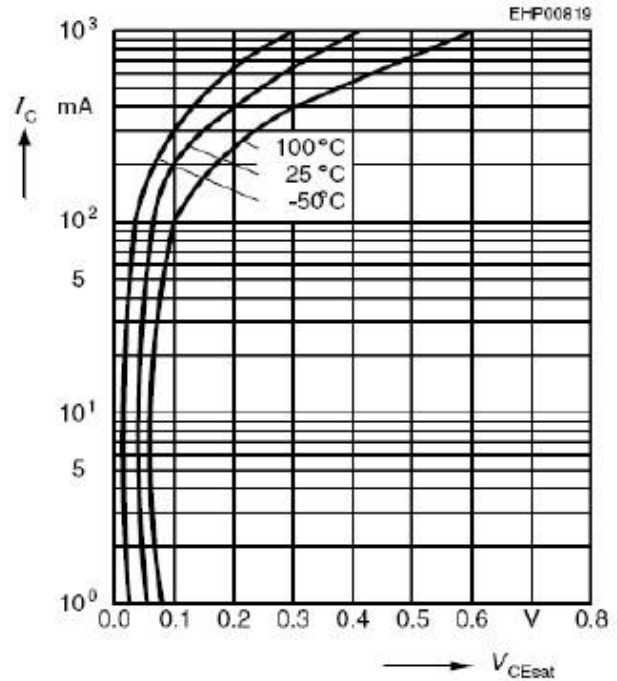
Collector-emitter saturation voltage

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



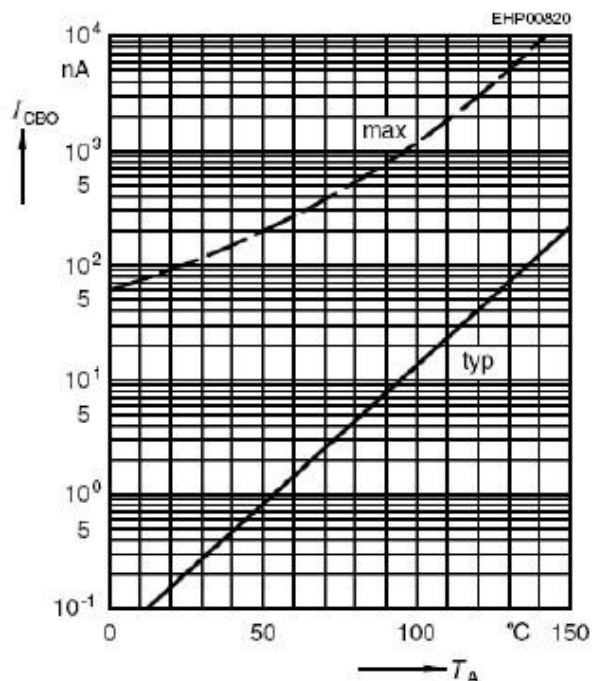
Collector-emitter saturation voltage

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



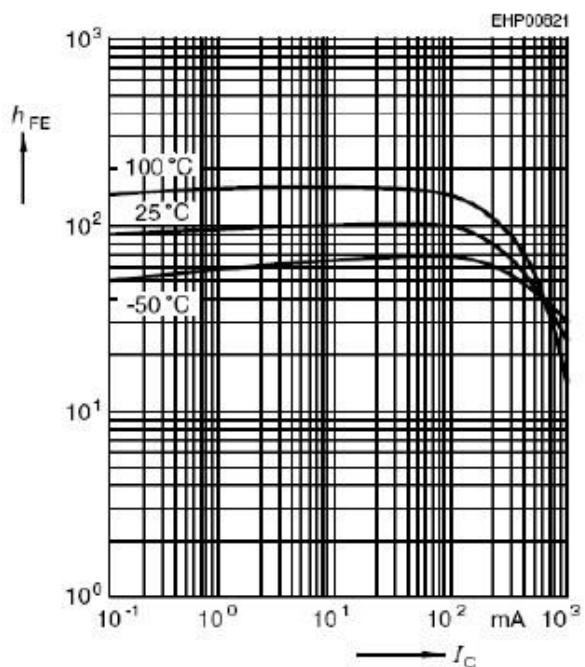
Collector cutoff current $I_{CBO} = f(T_A)$

$$V_{CB} = 80\text{V}$$



DC current gain $h_{FE} = f(I_C)$

$$V_{CE} = 1\text{V}$$



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Disclaimer

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