

NPN General Purpose Transistor

MMBTA05/MMBTA06

FEATURES

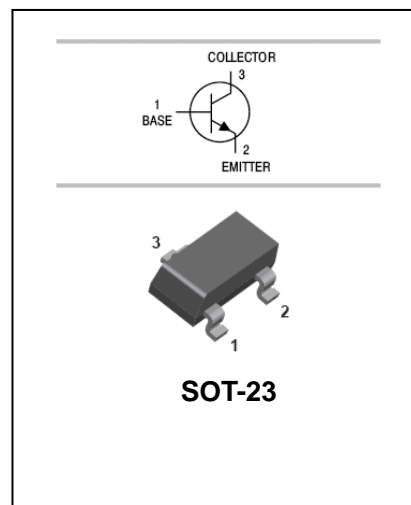
- High breakdown voltage.
- Complementary PNP type available (MMBTA55/MMBTA56).
- Low collector-emitter saturation voltage.



Lead-free

APPLICATIONS

- Ideal for medium power amplification and switching.



ORDERING INFORMATION

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

MAXIMUM RATING @ Ta=25°C unless otherwise specified

Symbol	Parameter	Value	UNIT	
V _{CBO}	collector-base voltage	MMBTA05	60	V
		MMBTA06	80	
V _{CEO}	collector-emitter voltage	MMBTA05	60	V
		MMBTA06	80	
V _{EBO}	emitter-base voltage	4	V	
I _C	collector current (DC)	0.5	A	
P _C	Collector dissipation	350	mW	
R _{θJA}	Thermal Resistance, Junction to Ambient	357	°C/W	
T _j , T _{stg}	junction and storage temperature	-55 to +150	°C	



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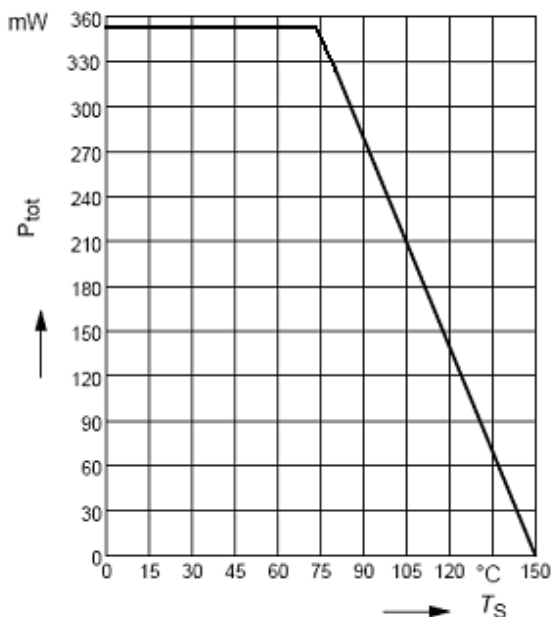
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ELECTRICAL CHARACTERISTICS @ Ta=25°C unless otherwise specified

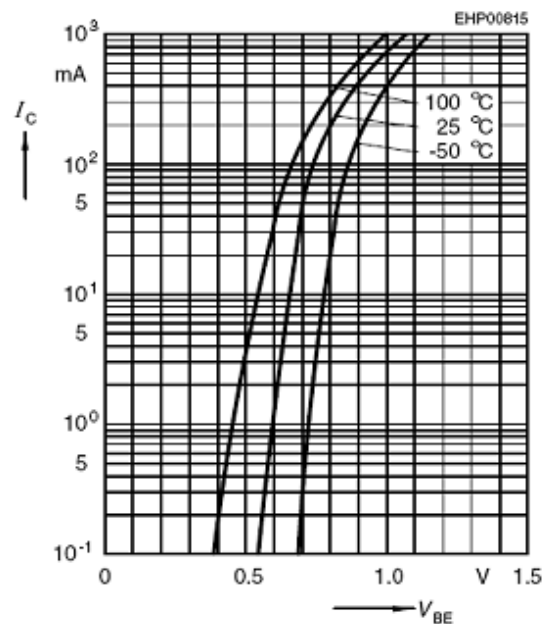
Symbol	Parameter	Test conditions	MIN.	MAX.	UNIT
$V_{(BR)CBO}$	Collector-base breakdown voltage MMBTA05 MMBTA06	$I_C=100\mu A, I_E=0$	60 80		V
$V_{(BR)CEO}$	Collector-emitter breakdown voltage MMBTA05 MMBTA06	$I_C=1.0mA, I_B=0$	60 80		V
$V_{(BR)EBO}$	Emitter-base breakdown voltage	$I_E=10\mu A, I_C=0$	4		V
I_{CBO}	Collector cut-off current MMBTA05 MMBTA06	$I_E = 0; V_{CB} = 60V$ $I_E = 0; V_{CB} = 80V$	-	0.1	μA
I_{CEO}	Collector cut-off current MMBTA05 MMBTA06	$I_B = 0; V_{CE} = 60V$ $I_B = 0; V_{CE} = 60V$	-	0.1	μA
h_{FE}	DC current gain	$V_{CE} = 1V; I_C = 10mA$ $V_{CE} = 1V; I_C = 100mA$	100 100	-	
$V_{CE(sat)}$	Collector-emitter saturation voltage	$I_C = 100mA; I_B = 10mA$	-	0.25	V
$V_{BE(ON)}$	Base-emitter voltage	$I_C=100mA, V_{CE}=1.0V$	-	1.2	V
f_T	Transition frequency	$I_C = 20mA; V_{CE} = 5V;$ $f = 20MHz$	100	-	MHz

TYPICAL CHARACTERISTICS @ Ta=25°C unless otherwise specified

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



**Collector current $I_C = f(V_{BE})$
 $V_{CE} = 1V$**

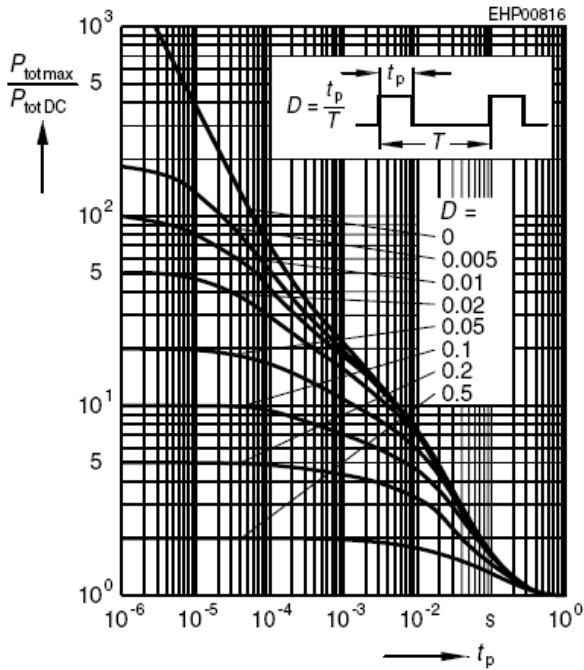


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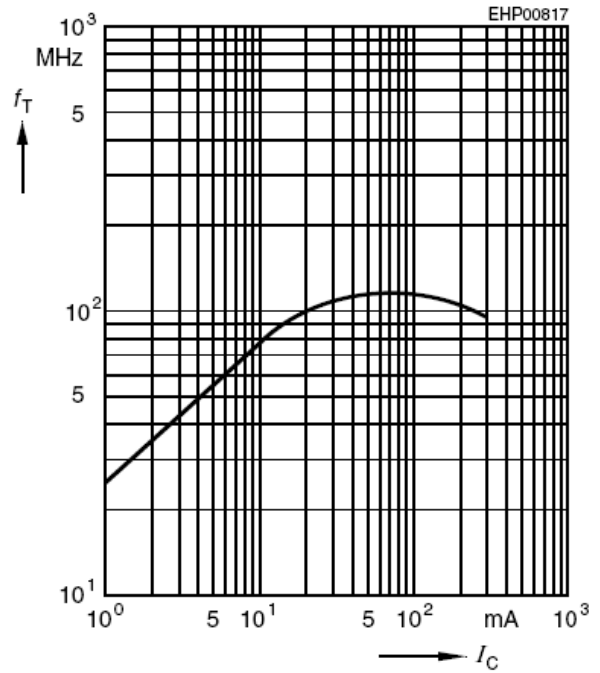
Permissible pulse load

$$P_{totmax} / P_{totDC} = f(t_p)$$



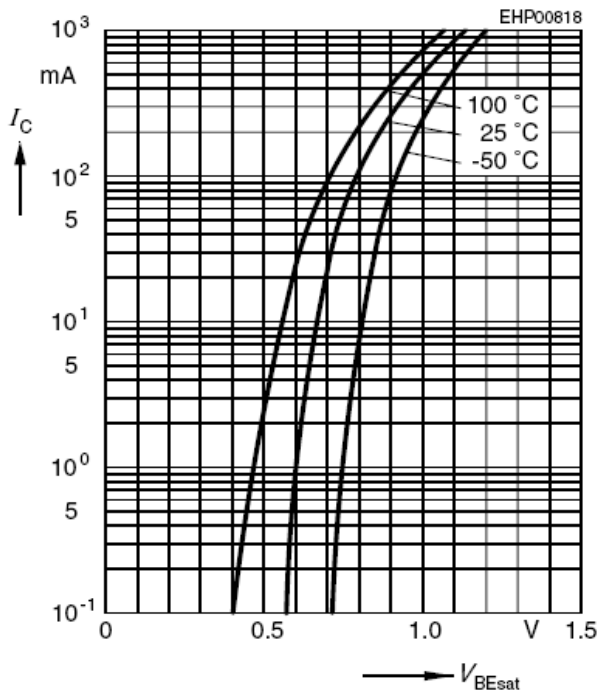
Transition frequency $f_T = f(I_C)$

$$V_{CE} = 5V$$



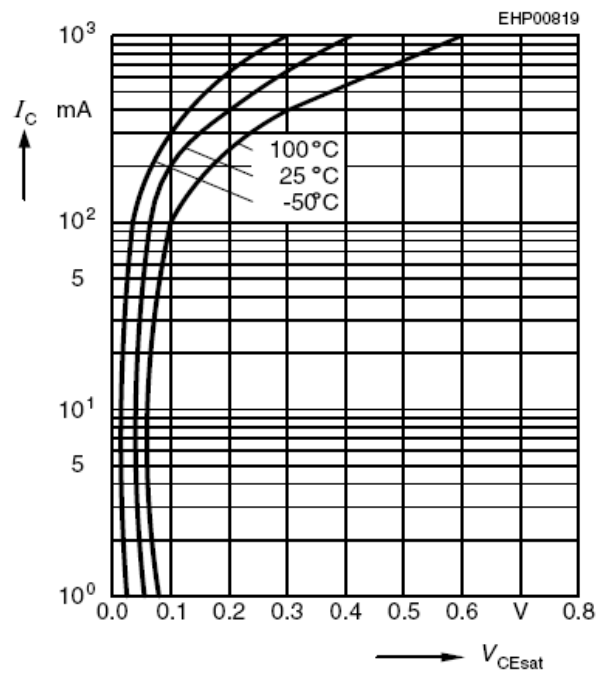
Base-emitter saturation voltage

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



Collector-emitter saturation voltage

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





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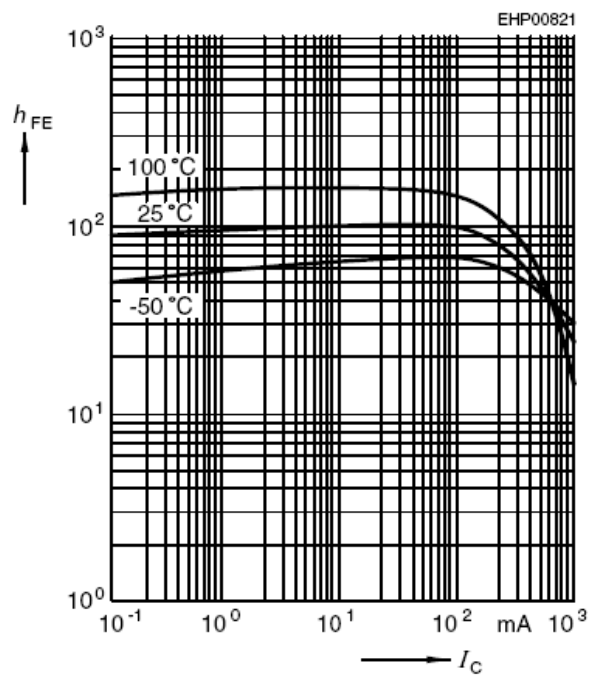
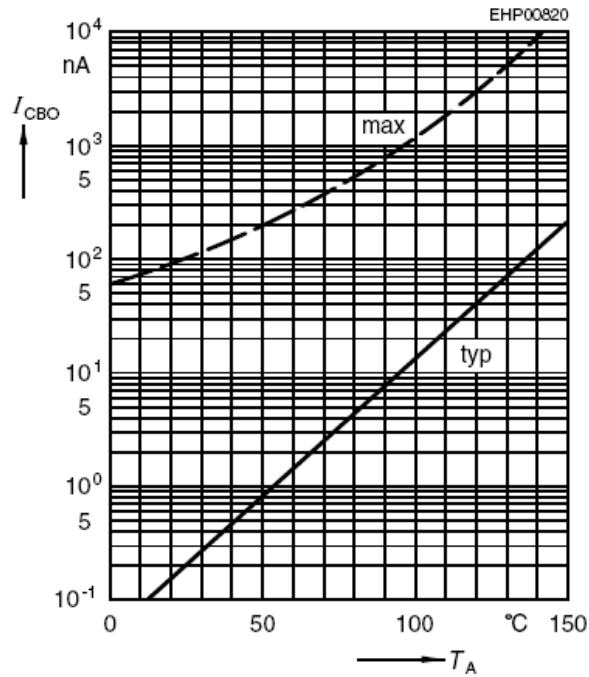
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Collector cutoff current $I_{CBO} = f(T_A)$

$V_{CB} = 80V$

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

$V_{CE} = 1V$



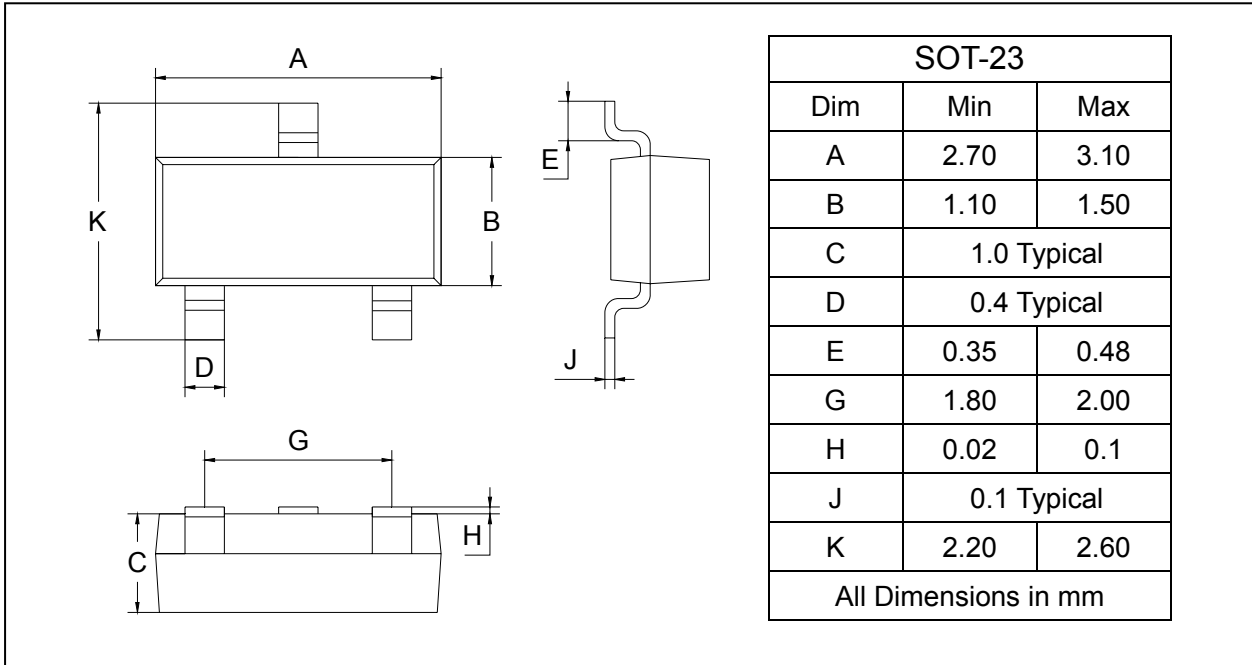
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MMBTA05/MMBTA06

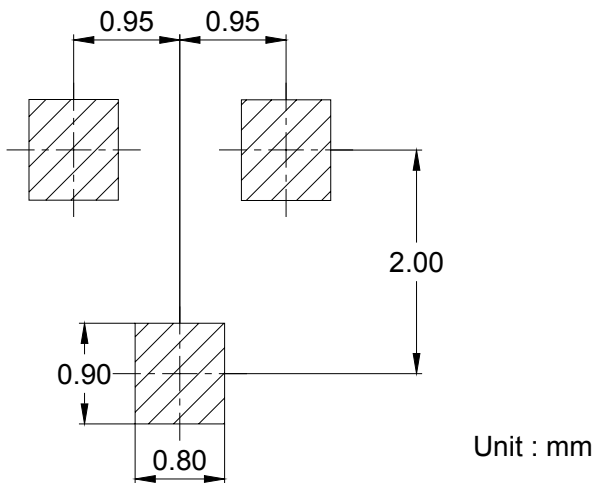
PACKAGE OUTLINE

Plastic surface mounted package

SOT-23



SOLDERING FOOTPRINT



PACKAGE INFORMATION

Device	Package	Shipping
MMBTA05/MMBTA06	SOT-23	3000/Tape&Reel