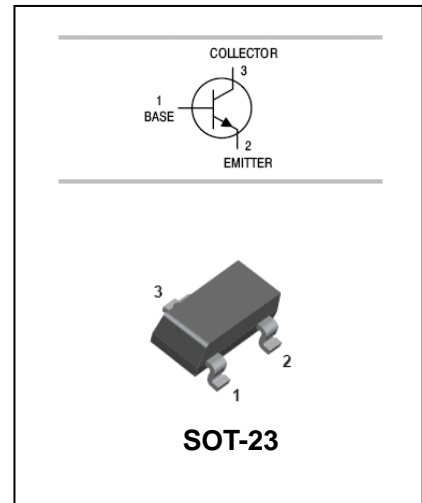


## NPN General Purpose Transistor

## MMBTA05/MMBTA06

### FEATURES

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



### 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 <sub>CBO</sub>	collector-base voltage	MMBTA05	60
		MMBTA06	80
V <sub>CEO</sub>	collector-emitter voltage	MMBTA05	60
		MMBTA06	80
V <sub>EBO</sub>	emitter-base voltage	4	V
I <sub>C</sub>	collector current (DC)	0.5	A
P <sub>C</sub>	Collector dissipation	0.35	W
R <sub>θJA</sub>	Thermal Resistance, Junction to Ambient	357	°C/W
T <sub>j</sub> , T <sub>stg</sub>	junction and storage temperature	-55-150	°C

**NPN General Purpose Transistor**

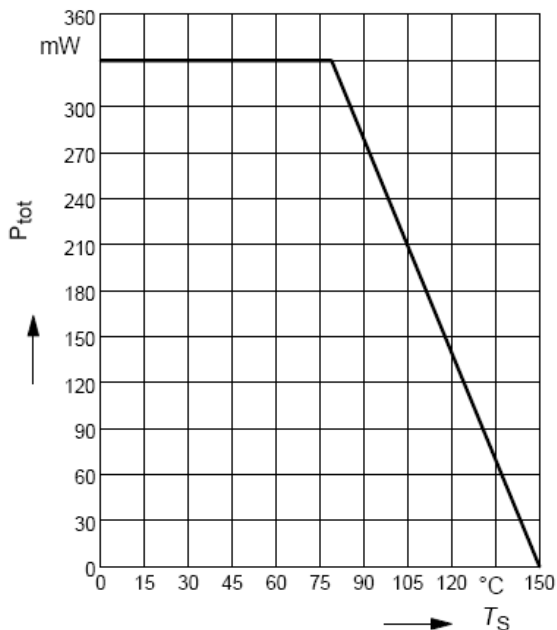
**MMBTA05/MMBTA06**

**ELECTRICAL CHARACTERISTICS @ Ta=25°C unless otherwise specified**

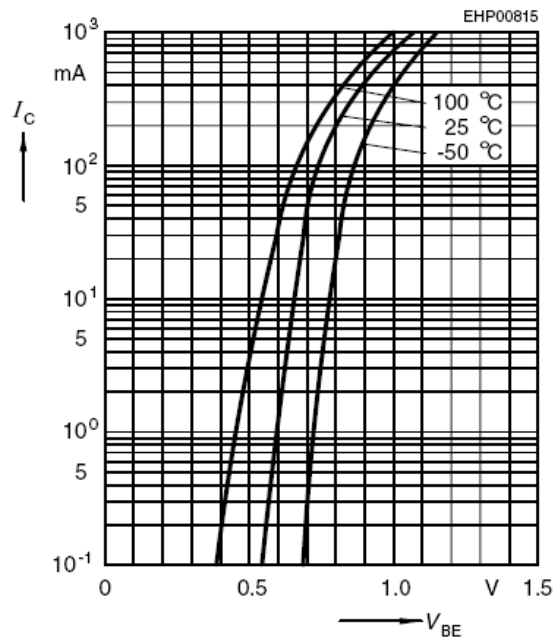
Symbol	Parameter	Test conditions	MIN.	MAX.	UNIT
$V_{(BR)CBO}$	Collector-base breakdown voltage MMBTA05 MMBTA06	$I_C=100\mu A, I_E=0$	60 80		V
$V_{(BR)CEO}$	Collector-emitter breakdown voltage MMBTA05 MMBTA06	$I_C=1.0mA, I_B=0$	60 80		V
$V_{(BR)EBO}$	Emitter-base breakdown voltage	$I_E=10\mu A, I_C=0$	4		V
$I_{CBO}$	Collector cut-off current MMBTA05 MMBTA06	$I_E = 0; V_{CB} = 60V$ $I_E = 0; V_{CB} = 80V$	-	0.1	$\mu A$
$I_{CEO}$	Collector cut-off current MMBTA05 MMBTA06	$I_B = 0; V_{CE} = 60V$ $I_B = 0; V_{CE} = 60V$	-	0.1	$\mu A$
$h_{FE}$	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  $I_C = f(V_{BE})$   
 $V_{CE} = 1V$**

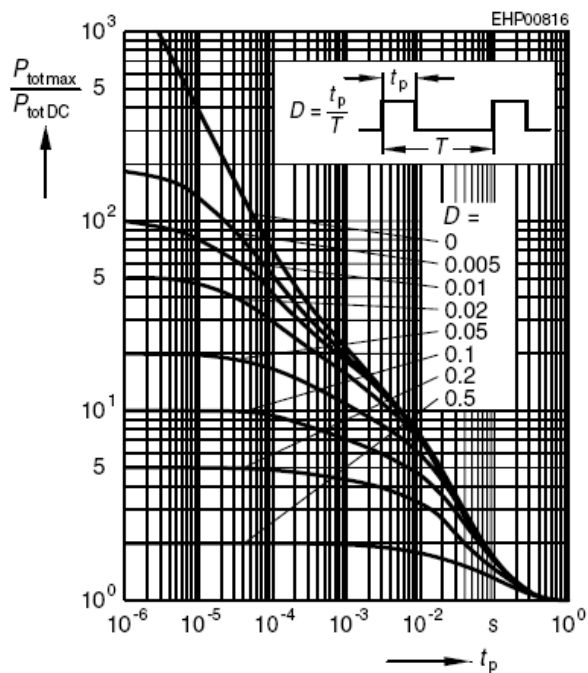


**NPN General Purpose Transistor**

**MMBTA05/MMBTA06**

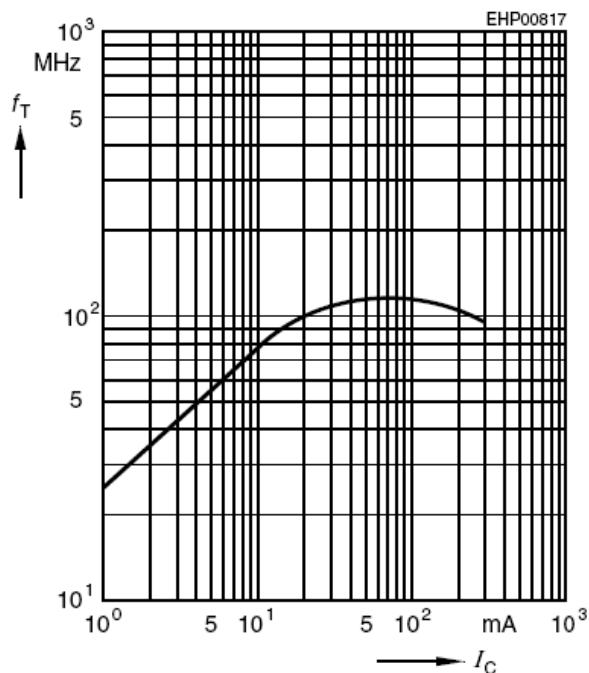
**Permissible pulse load**

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



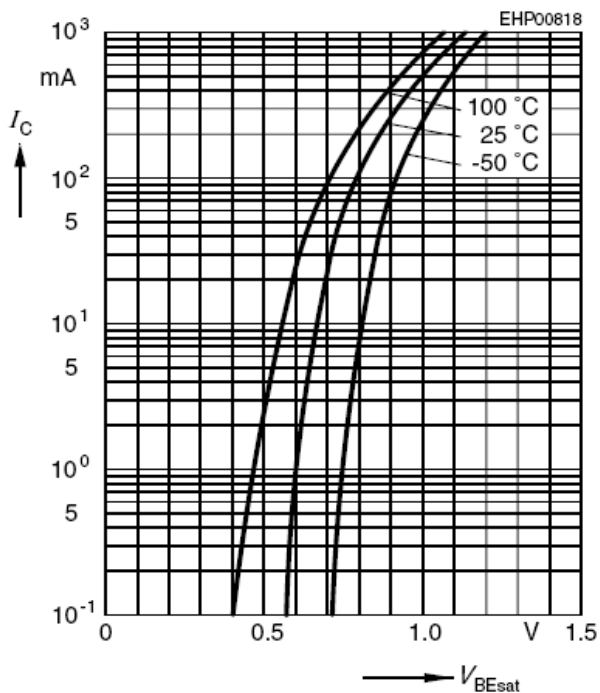
**Transition frequency  $f_T = f(I_C)$**

$$V_{CE} = 5V$$



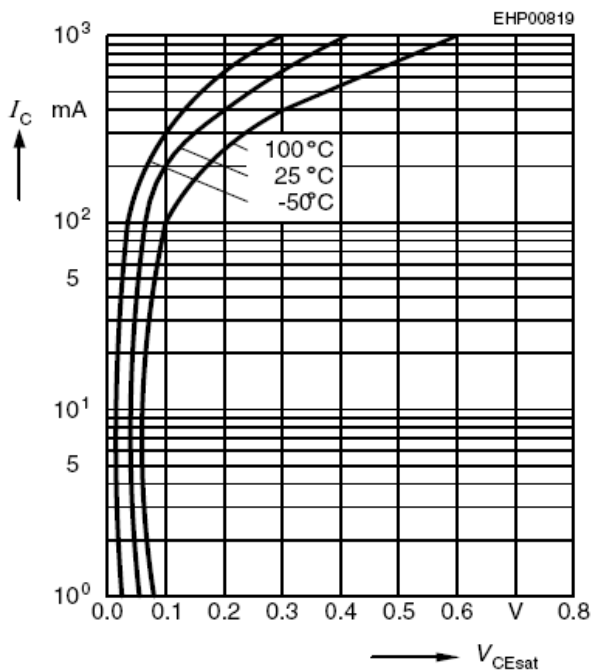
**Base-emitter saturation voltage**

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



**Collector-emitter saturation voltage**

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



**NPN General Purpose Transistor**

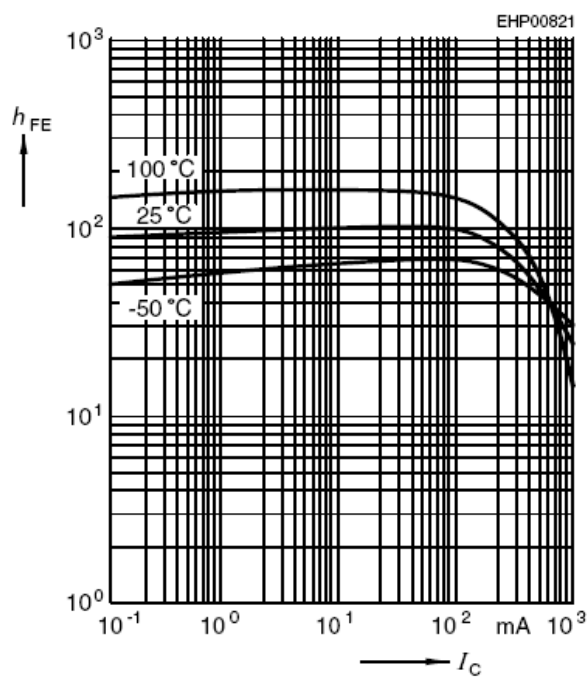
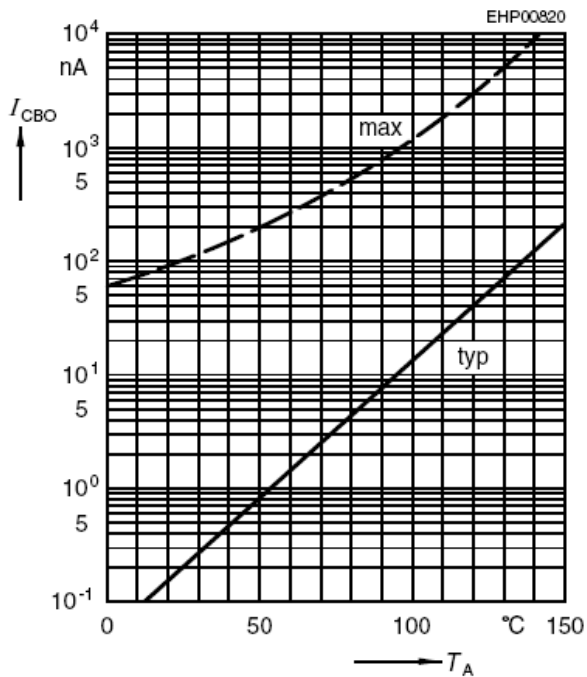
**MMBTA05/MMBTA06**

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

$V_{CB} = 80V$

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

$V_{CE} = 1V$



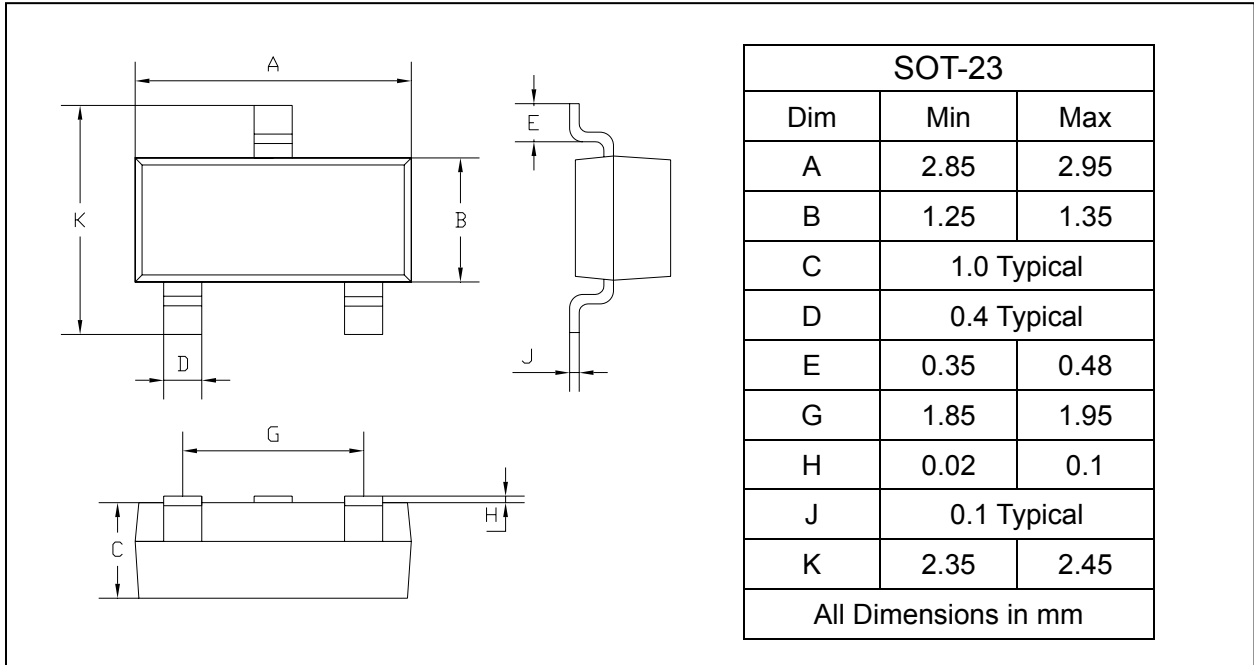
**NPN General Purpose Transistor**

**MMBTA05/MMBTA06**

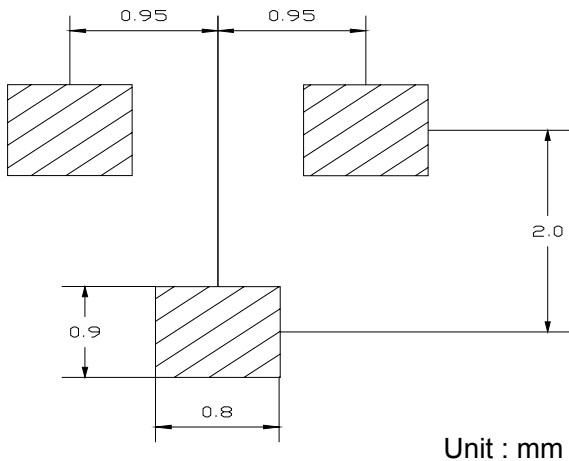
**PACKAGE OUTLINE**

Plastic surface mounted package

SOT-23



**SOLDERING FOOTPRINT**



**PACKAGE INFORMATION**

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