

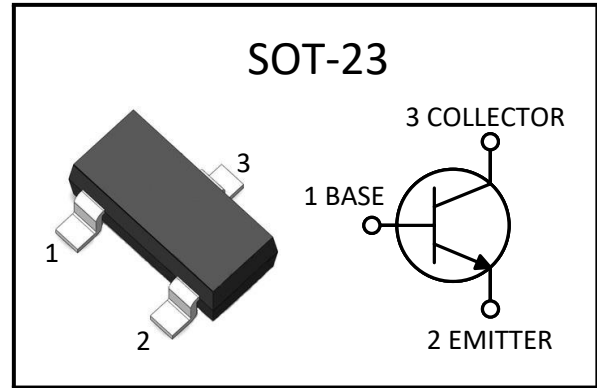
# MMBTA06

NPN Plastic-Encapsulate Transistor

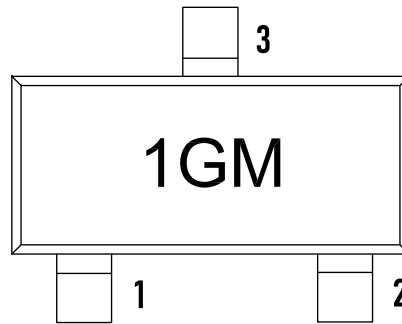
## Features

- For Switching and Amplifier Applications.
- Complementary Type PNP Transistor MMBTA56.

## Package



## Marking



## Ordering information

Order code	Package	Marking	Base qty	Delivery mode
MMBTA06	SOT-23	1GM	3K	Tape and reel

## Absolute Maximum Ratings @ $T_A=25^{\circ}\text{C}$ unless otherwise noted

Symbol	Parameter	Value	Unit
$V_{CBO}$	Collector-Base Voltage	80	V
$V_{CEO}$	Collector-Emitter Voltage	80	V
$V_{EBO}$	Emitter-Base Voltage	4	V
$I_C$	Collector Current	0.5	A
$P_C$	Collector Power Dissipation	300	mW
$R_{\theta JA}$	Thermal Resistance From Junction To Ambient	417	$^{\circ}\text{C}/\text{W}$
$T_J, T_{stg}$	Operation Junction And Storage Temperature Range	-55 to + 150	$^{\circ}\text{C}$



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**Electrical Characteristics** ( $T_A=+25^{\circ}\text{C}$ , unless otherwise specified)

Symbol	Parameter	Test condition	Min.	Typ.	Max.	Unit
$V_{(BR)CBO}$	Collector-base breakdown voltage	$I_C=100\mu\text{A}, I_E=0$	80	–	–	V
$V_{(BR)CEO}$	Collector-emitter breakdown voltage	$I_C=1\text{mA}, I_B=0$	80	–	–	
$V_{(BR)EBO}$	Emitter-base breakdown voltage	$I_E=100\mu\text{A}, I_C=0$	4	–	–	
$I_{CBO}$	Collector cut-off current	$V_{CB}=80\text{V}, I_E=0$	–	–	100	nA
$I_{CEO}$	Collector cut-off current	$V_{CE}=60\text{V}, I_C=0$	–	–	0.1	uA
$I_{EBO}$	Emitter cut-off current	$V_{EB}=4\text{V}, I_C=0$	–	–	100	nA
$h_{FE}$	DC current gain	$V_{CE}=1\text{V}, I_C=10\text{mA}$	100	–	400	
$h_{FE}$		$V_{CE}=1\text{V}, I_C=100\text{mA}$	100	–	–	
$V_{CE(sat)}$	Collector-emitter saturation voltage	$I_C=100\text{mA}, I_B=10\text{mA}$	–	–	0.25	V
$V_{BE(sat)}$	Base-emitter saturation voltage	$I_C=100\text{mA}, I_B=10\text{mA}$	–	–	1.2	
$f_T$	Transition frequency	$V_{CE}=2\text{V}, I_C=10\text{mA}, f=100\text{MHZ}$	100	–	–	MHZ



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Typical Performance Characteristics ( $T_J = 25^\circ\text{C}$ , unless otherwise noted)

Figure 1 :  $I_C - V_{CE}$

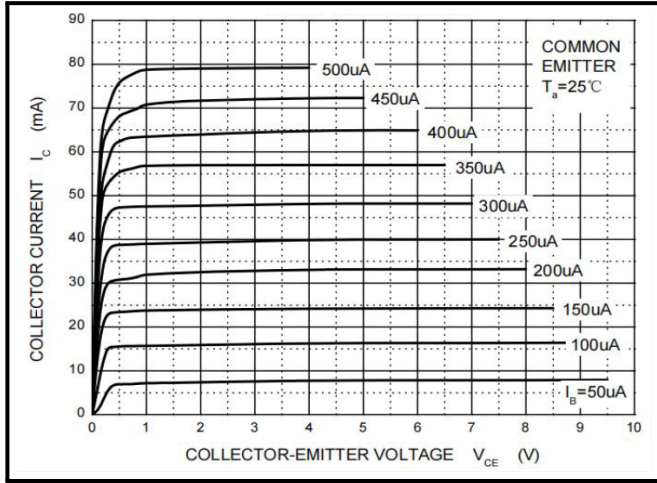


Figure 2 :  $h_{FE} - I_C$

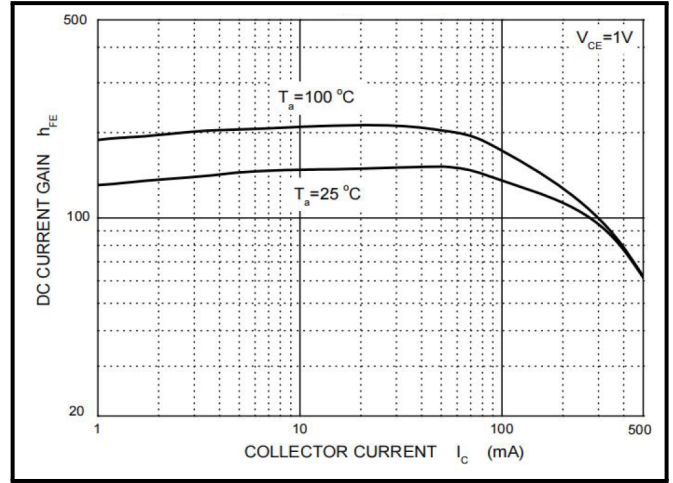


Figure 3 :  $V_{CEsat} - I_C$

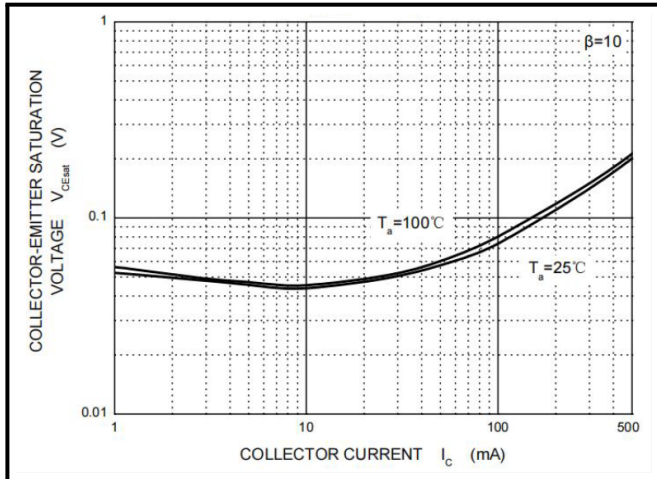
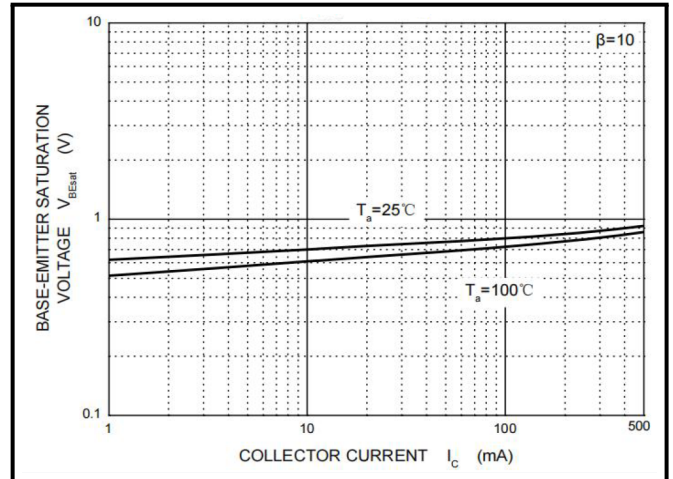


Figure 4 :  $V_{BEsat} - I_C$



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Typical Performance Characteristics ( $T_J = 25^\circ\text{C}$ , unless otherwise noted)

Figure 5 :  $I_C - V_{BE}$

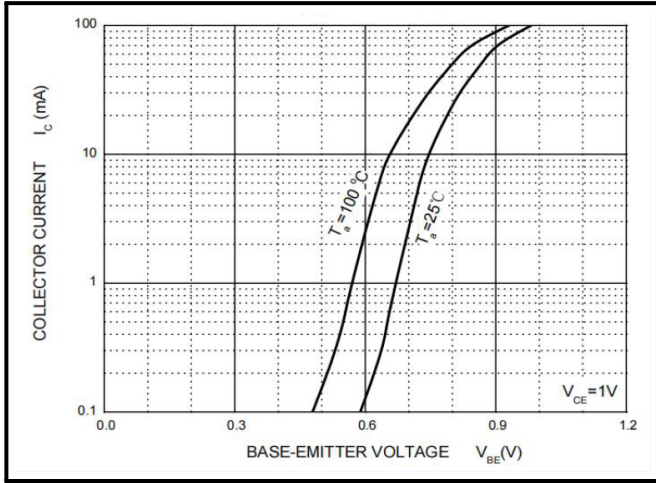


Figure 6 :  $C_{ob}/C_{ib} - V_{CB}/V_{EB}$

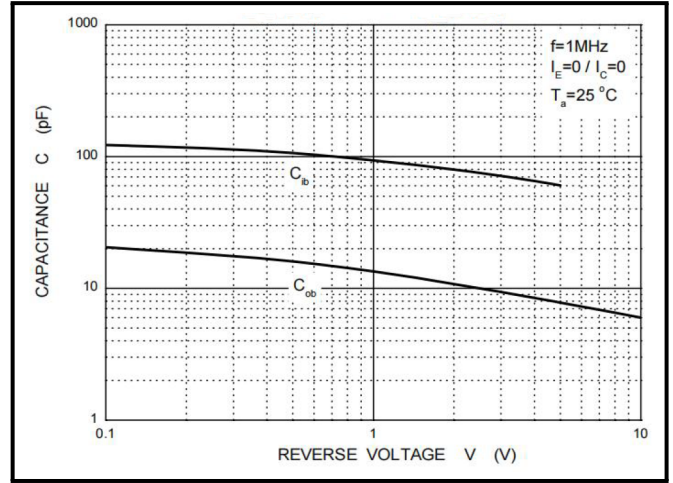


Figure 7 :  $f_T - I_C$

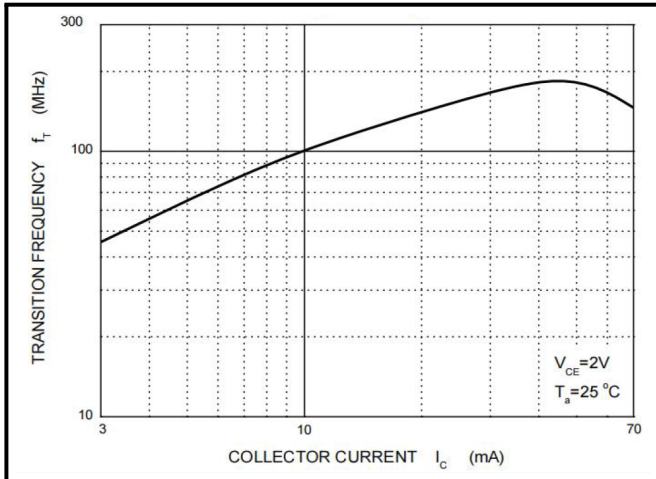
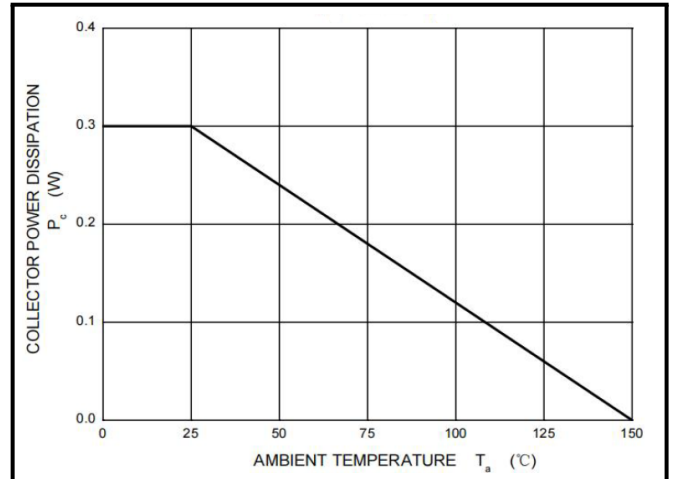


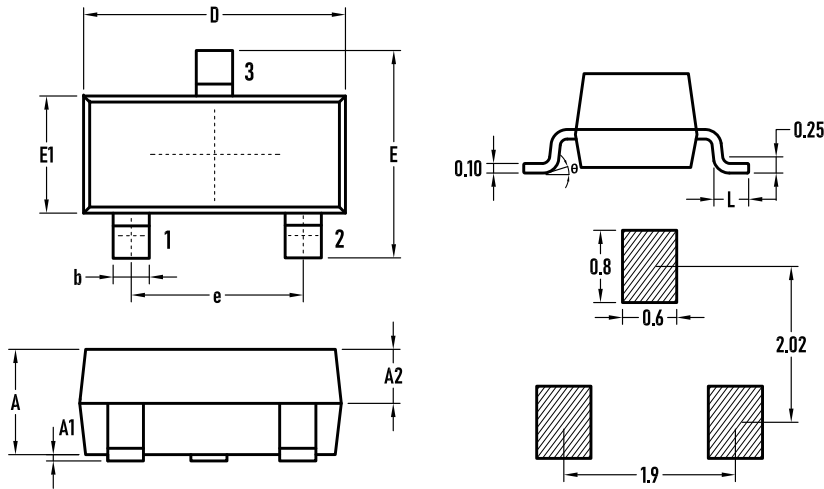
Figure 8 :  $P_C - T_A$



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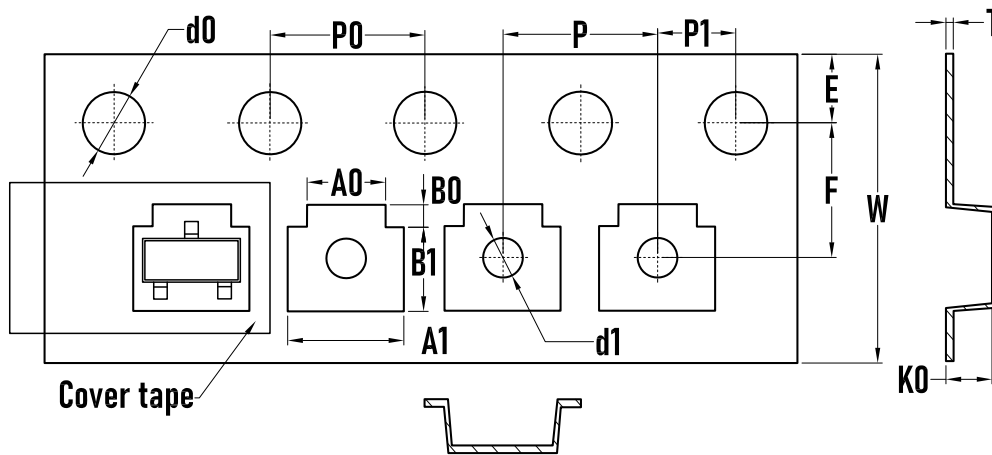
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## Outline Drawing - SOT-23



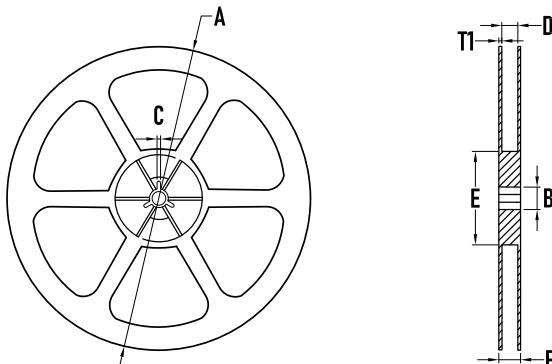
SYMBOL	MILLIMETER		
	MIN.	Typ	MAX
A	0.95	1.00	—
A1	0.02	0.06	0.10
A2	—	0.60	—
D	2.85	2.90	2.95
b	0.37	0.40	0.43
E	2.35	2.40	2.45
E1	1.25	1.30	1.35
e	1.85	1.90	1.95
L	0.35	0.40	0.48
$\theta$	0	—	6°

## Packaging Tape - SOT-23



SYMBOL	MILLIMETER
A0	2.10±0.10
A1	3.10±0.10
B0	0.65±0.10
B1	2.75±0.10
d0	1.55±0.10
d1	1.00±0.05
E	1.75±0.10
F	3.50±0.10
K0	1.10±0.10
P	4.00±0.10
P0	4.00±0.10
P1	2.00±0.10
W	8.00±0.30
T	0.20 ±0.05

## Packaging Reel



SYMBOL	MILLIMETER
A	177.8±0.2
B	3.1
C	13.50
D	9.6±0.3
E	75±0.2
F	12.3±0.3
T1	1.0±0.2
Quantity	3000PCS

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Specifications are subject to change without notice.  
Please refer to <http://www.born-tw.com> for current information.

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