

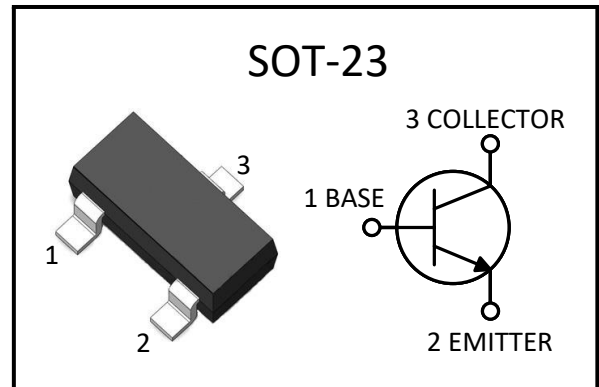
MMBTA42

NPN Plastic-Encapsulate Transistor

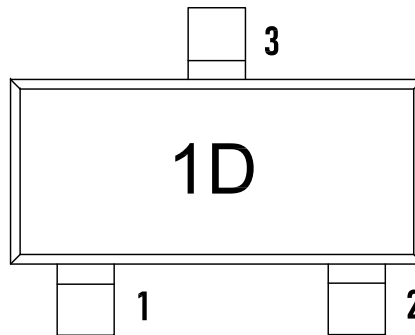
Features

- $V_{CE}=300V$
- $I_C=0.2A$
- $f_T=50MHz$ @ $V_{CE}=20V$, $I_C=10mA$, $f=30MHz$
- High Breakdown Voltage.
- Low saturation voltage.
- Complementary to MMBTA92.

Package



Marking



Ordering information

Order code	Package	Marking	Base qty	Delivery mode
MMBTA42	SOT-23	1D	3K	Tape and reel

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

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	300	V
V_{CEO}	Collector-Emitter Voltage	300	V
V_{EBO}	Emitter-Base Voltage	5	V
I_C	Collector Current	0.2	A
I_{CM}	Collector Current -Pulsed	0.5	A
P_C	Collector Power Dissipation	350	mW
$R_{\theta JA}$	Thermal Resistance From Junction To Ambient	357	$^{\circ}C/W$
T_J, T_{stg}	Operation Junction And Storage Temperature Range	-55 to + 150	$^{\circ}C$



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Electrical Characteristics (T_A=+25°C, unless otherwise specified)

Symbol	Parameter	Test condition	Min.	Typ.	Max.	Unit
V _{(BR)CBO}	Collector-base breakdown voltage	I _C = 100μA, I _E = 0	300	—	—	V
V _{(BR)CEO}	Collector-emitter breakdown voltage	I _C = 1mA, I _B = 0	300	—	—	
V _{(BR)EBO}	Emitter-base breakdown voltage	I _E = 10μA, I _C = 0	5	—	—	
I _{CBO}	Collector cut-off current	V _{CB} = 200V, I _E = 0	—	—	250	nA
I _{EBO}	Emitter cut-off current	V _{EB} = 5V, I _C = 0	—	—	100	nA
h _{FE}	DC current gain	V _{CE} = 10V, I _C = 1mA	60	—	—	
		V _{CE} = 10V, I _C = 10mA	100	—	200	
		V _{CE} = 10V, I _C = 30mA	60	—	—	
V _{CE(sat)}	Collector-emitter saturation voltage	I _C = 20mA, I _B = 2mA	—	—	0.2	V
V _{BE(sat)}	Base-emitter saturation voltage	I _C = 20mA, I _B = 2mA	—	—	0.9	
f _T	Transition frequency	V _{CE} = 20V, I _C = 10mA, f = 30MHZ	50	—	—	MHZ



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

Figure 1 : $I_C - V_{CE}$

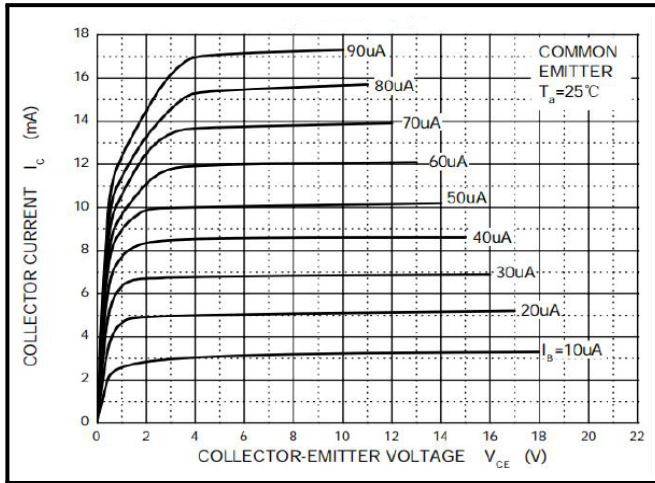


Figure 2 : $h_{FE} - I_C$

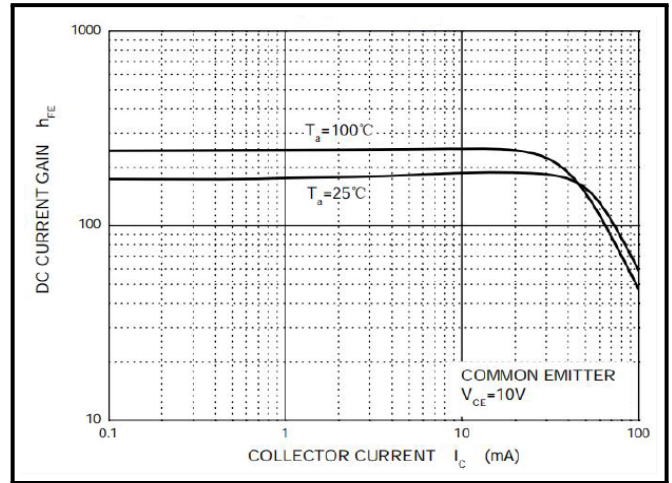


Figure 3 : $V_{CEsat} - I_C$

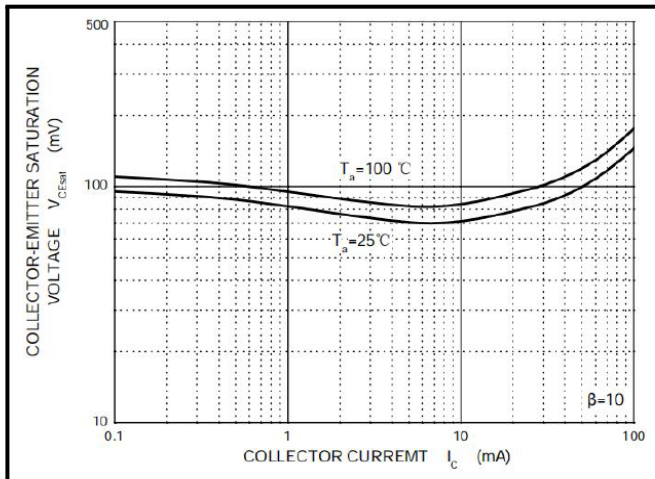
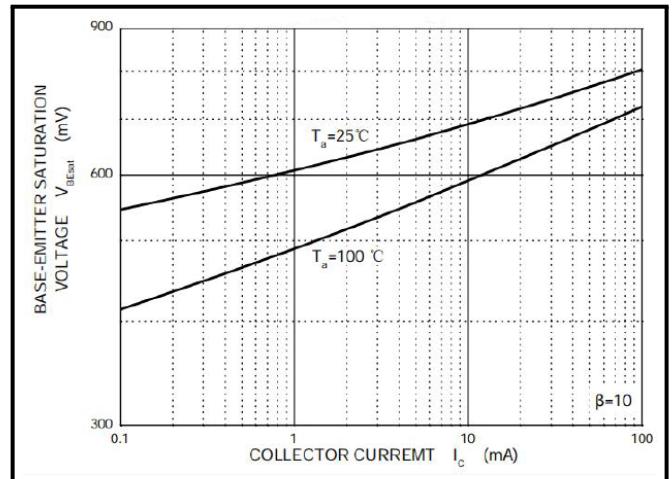


Figure 4 : $V_{BEsat} - I_C$



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

Figure 5 : $I_C - V_{BE}$

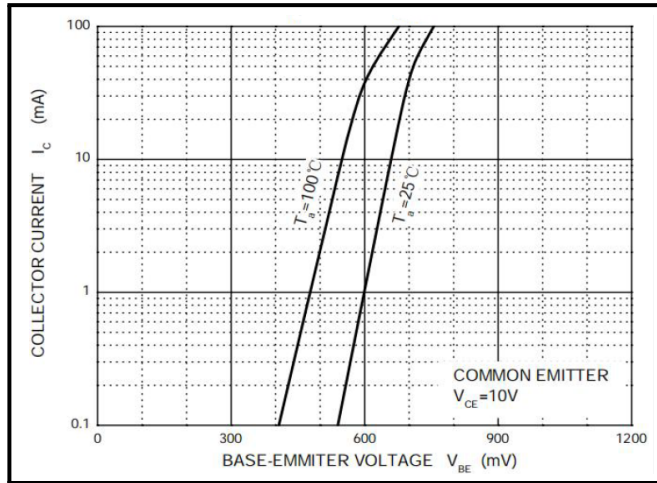


Figure 6 : $f_T - I_C$

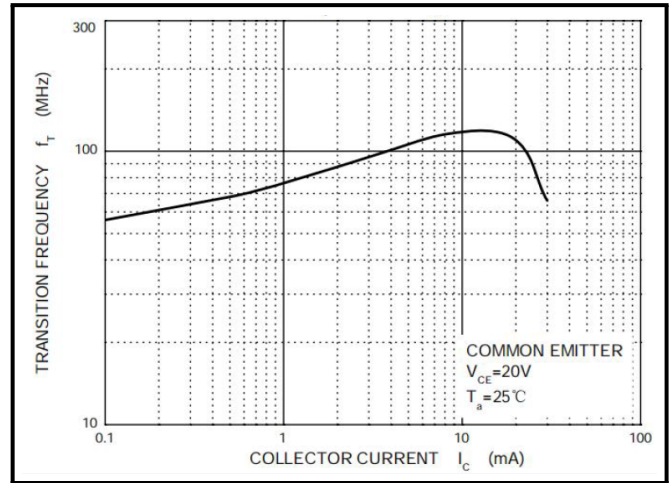


Figure 7 : $C_{ob}/C_{ib} - V_{CB}/V_{EB}$

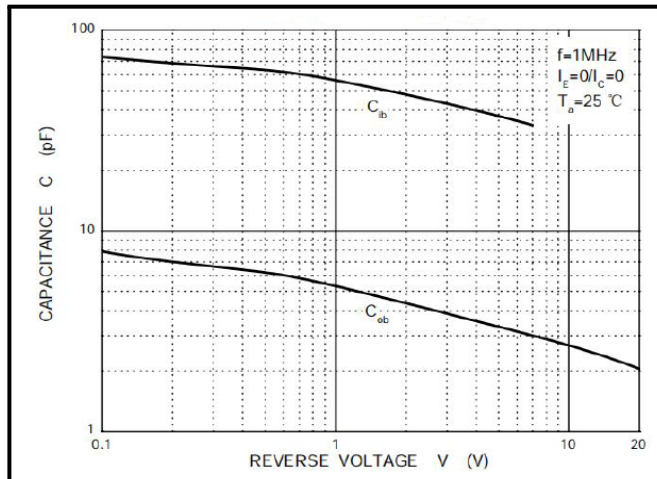
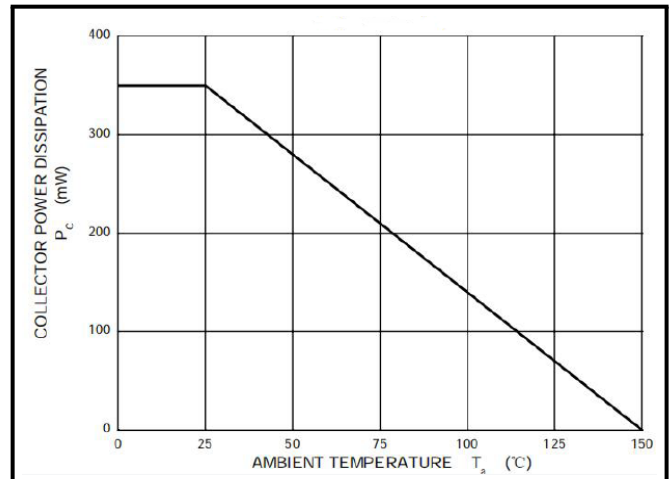


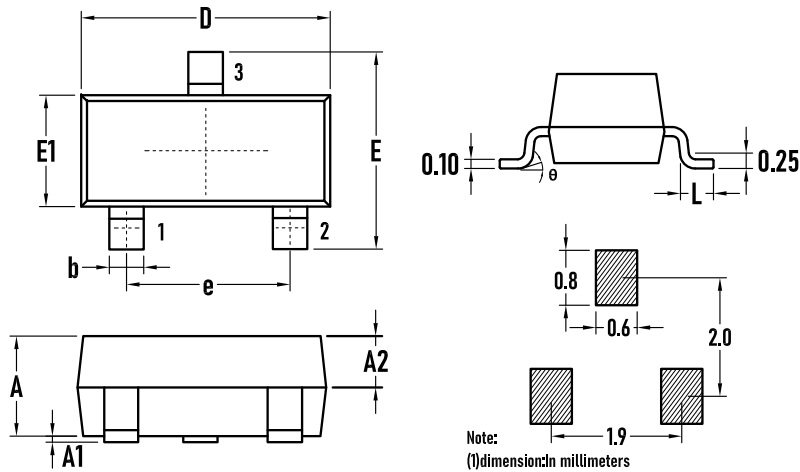
Figure 8 : $P_C - T_A$



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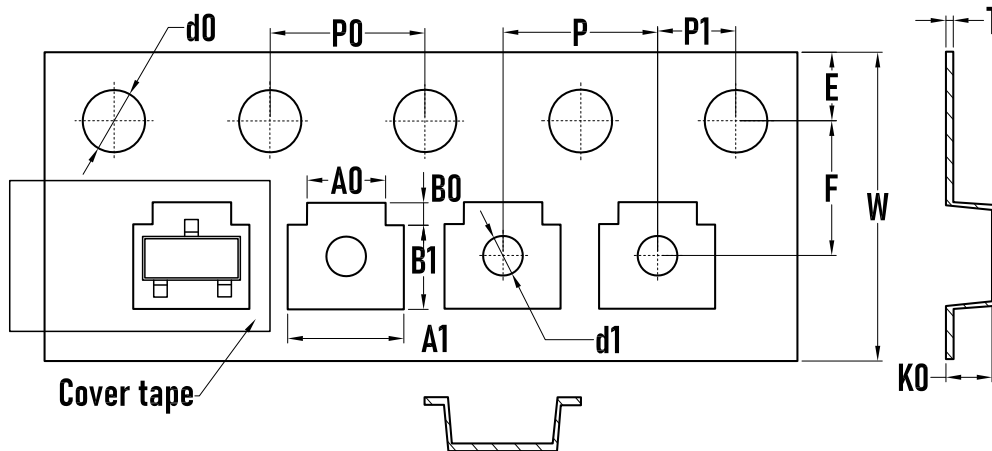
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Outline Drawing - SOT-23



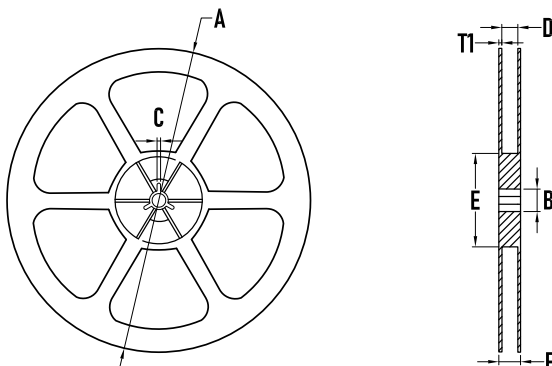
SYMBOL	MILLIMETER		
	MIN.	Typ	MAX
A	0.90	1.00	1.10
A1	0.01	—	0.10
A2	0.50	0.60	0.70
D	2.80	2.90	3.00
b	0.25	0.35	0.45
E	2.10	2.30	2.50
E1	1.20	1.30	1.40
e	1.80	1.90	2.00
L	0.25	0.35	0.45
θ	0	—	8°

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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