

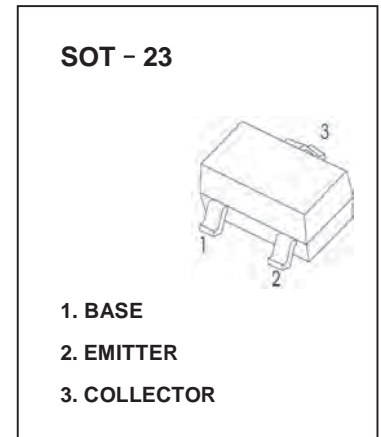
## SOT-23 Plastic-Encapsulate Transistors

### MMBTA44 TRANSISTOR (NPN)

#### FEATURES

- High Collector-Emitter Voltage
- Complement to MMBTA94

#### MARKING: 3D



#### MAXIMUM RATINGS ( $T_a=25^\circ\text{C}$ unless otherwise noted)

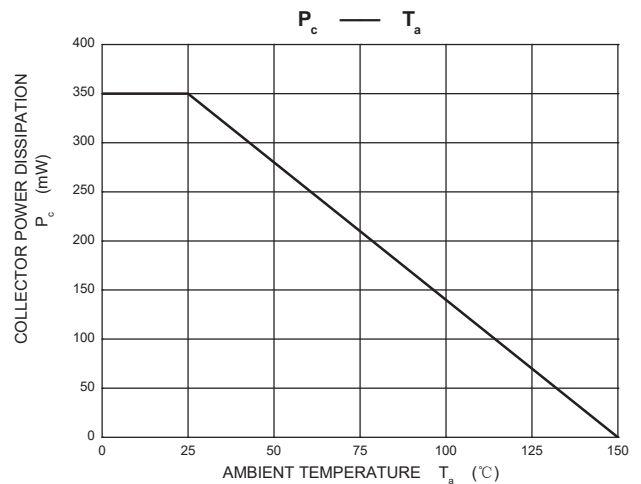
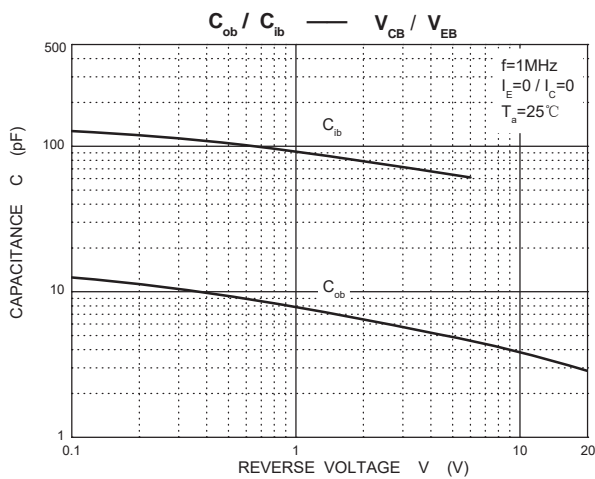
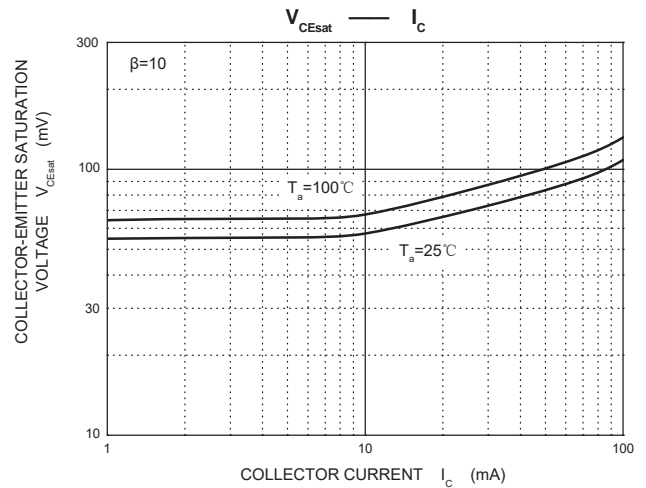
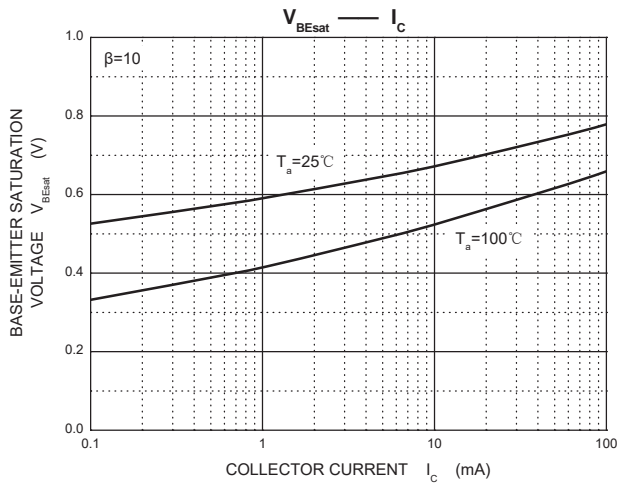
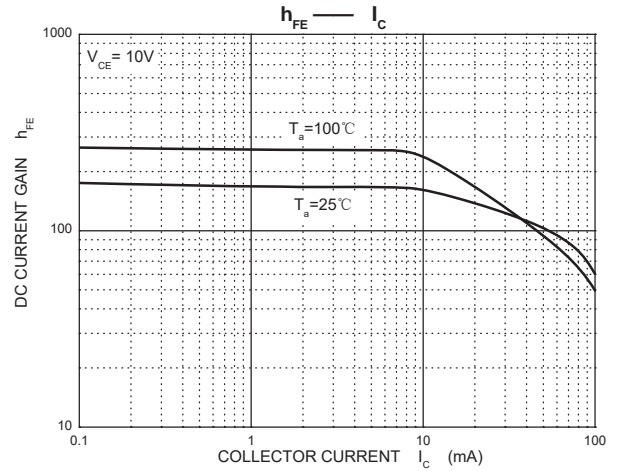
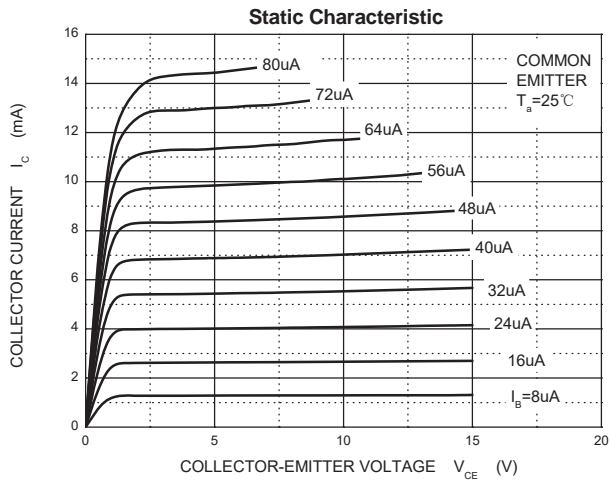
Symbol	Parameter	Value	Unit
$V_{CBO}$	Collector-Base Voltage	400	V
$V_{CEO}$	Collector-Emitter Voltage	400	V
$V_{EBO}$	Emitter-Base Voltage	6	V
$I_C$	Collector Current-Continuous	200	mA
$I_{CM}$	Collector Current -Pulsed	300	mA
$P_C$	Collector Power Dissipation	350	mW
$R_{\theta JA}$	Thermal Resistance From Junction To Ambient	357	$^\circ\text{C}/\text{W}$
$T_j$	Junction Temperature	150	$^\circ\text{C}$
$T_{stg}$	Storage Temperature	-55~+150	$^\circ\text{C}$

#### ELECTRICAL CHARACTERISTICS ( $T_a=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=100\mu\text{A}$ , $I_E=0$	400			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}^*$	$I_C=1\text{mA}$ , $I_B=0$	400			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=10\mu\text{A}$ , $I_C=0$	6			V
Collector cut-off current	$I_{CBO}$	$V_{CB}=400\text{V}$ , $I_E=0$			0.1	$\mu\text{A}$
Emitter cut-off current	$I_{EBO}$	$V_{EB}=4\text{V}$ , $I_C=0$			0.1	$\mu\text{A}$
DC current gain	$h_{FE(1)}^*$	$V_{CE}=10\text{V}$ , $I_C=1\text{mA}$	40			
	$h_{FE(2)}^*$	$V_{CE}=10\text{V}$ , $I_C=10\text{mA}$	100		300	
	$h_{FE(3)}^*$	$V_{CE}=10\text{V}$ , $I_C=50\text{mA}$	45			
	$h_{FE(4)}^*$	$V_{CE}=10\text{V}$ , $I_C=100\text{mA}$	40			
Collector-emitter saturation voltage	$V_{CE(sat)1}^*$	$I_C=1\text{mA}$ , $I_B=0.1\text{mA}$			0.4	V
	$V_{CE(sat)2}^*$	$I_C=10\text{mA}$ , $I_B=1\text{mA}$			0.5	V
	$V_{CE(sat)3}^*$	$I_C=50\text{mA}$ , $I_B=5\text{mA}$			0.75	V
Base-emitter saturation voltage	$V_{BE(sat)}^*$	$I_C=10\text{mA}$ , $I_B=1\text{mA}$			0.75	V
Collector output capacitance	$C_{ob}$	$V_{CB}=20\text{V}$ , $I_E=0$ , $f=1\text{MHz}$			7	pF
Emitter input capacitance	$C_{ib}$	$V_{EB}=0.5\text{V}$ , $I_C=0$ , $f=1\text{MHz}$			130	pF

\*Pulse test: pulse width  $\leq 300\mu\text{s}$ , duty cycle  $\leq 2.0\%$ .

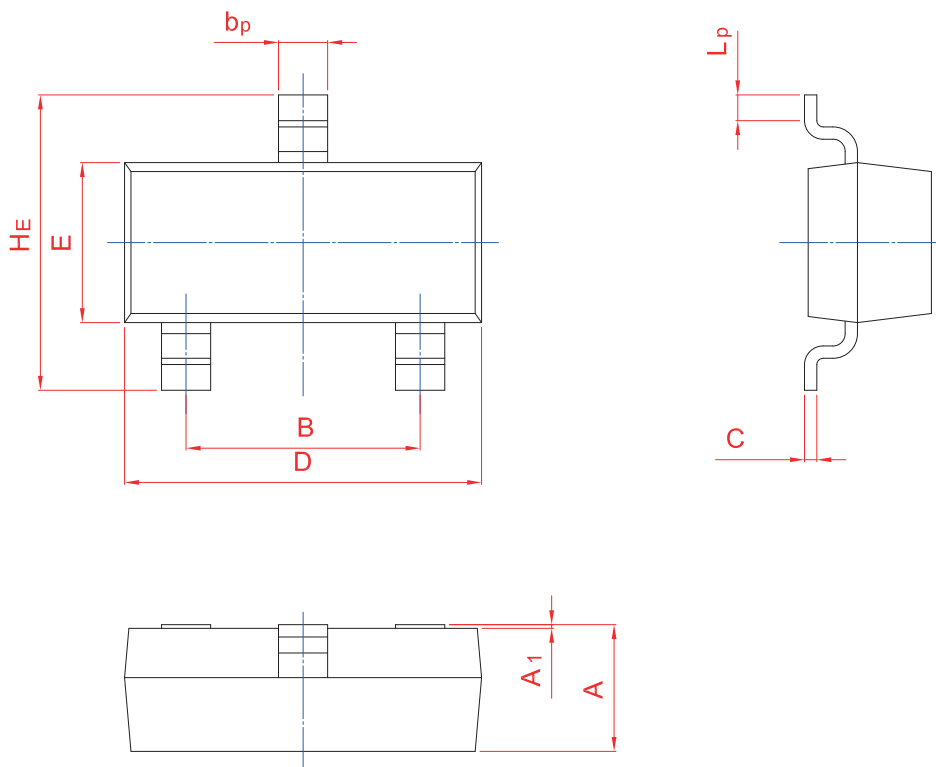
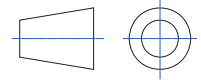
## Typical Characteristics



## PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT-23



UNIT	A	B	$b_p$	C	D	E	$H_E$	$A_1$	$L_p$
mm	1.40	2.04	0.50	0.19	3.10	1.65	3.00	0.100	0.50
	0.95	1.78	0.35	0.08	2.70	1.20	2.20	0.013	0.20