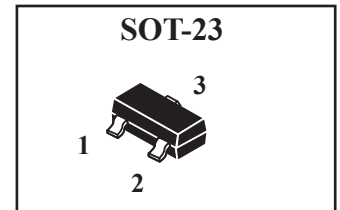
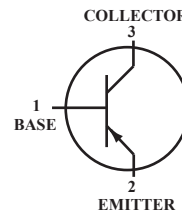


### High-Voltage PNP Transistor Surface Mount

**(Pb)** Lead(Pb)-Free



### Maximum Ratings

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	V <sub>CEO</sub>	-400	Vdc
Collector-Base Voltage	V <sub>CBO</sub>	-400	Vdc
Emitter-Base Voltage	V <sub>EBO</sub>	-6.0	Vdc
Collector Current-Continuous	I <sub>C</sub>	-150	mAdc

### Thermal Characteristics

Characteristics	Symbol	Max	Unit
Maximum Power Dissipation Total Power Dissipation (T <sub>a</sub> =25°C)	P <sub>D</sub>	350	mW
Junction Temperature	T <sub>J</sub>	+150	°C
Storage Temperature	T <sub>stg</sub>	-55 to +150	°C

### Device Marking

MMBTA94=4Z

### Electrical Characteristics (T<sub>A</sub>=25°C Unless Otherwise noted)

Characteristics	Symbol	Min	Max	Unit
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### Off Characteristics

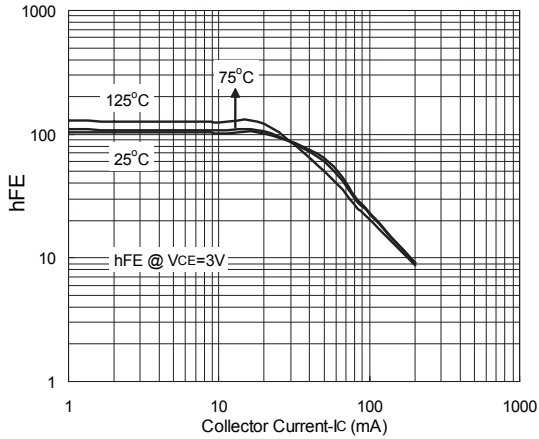
Collector-Emitter Breakdown Voltage (I <sub>C</sub> =-1.0mAdc, I <sub>B</sub> =0)	V(BR)CEO	-400	-	Vdc
Collector-Base Breakdown Voltage (I <sub>C</sub> =-100μAdc, I <sub>E</sub> =0)	V(BR)CBO	-400	-	Vdc
Emitter-Base Breakdown Voltage (I <sub>E</sub> =-10 uAdc, I <sub>C</sub> =0)	V(BR)EBO	-6.0	-	Vdc
Collect Cutoff Current (V <sub>CB</sub> = -400Vdc, I <sub>E</sub> =0)	I <sub>CBO</sub>	-	-100	nAdc
Emitte Cutoff Current (V <sub>EB</sub> =-6V, I <sub>C</sub> =0)	I <sub>EBO</sub>	-	-100	nAdc
Emitte Cutoff Current (V <sub>CE</sub> =-400V, V <sub>EB</sub> =0V)	I <sub>CES</sub>	-	-500	nAdc

**Electrical Characteristics** ( $T_A=25^\circ\text{C}$  unless otherwise noted) (Continued)

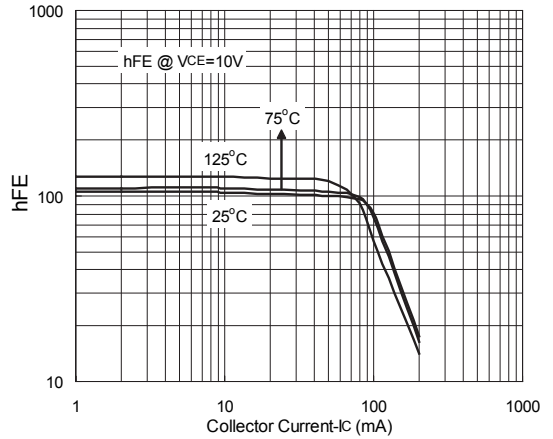
Characteristics	Symbol	Min		Max	Unit
<b>On Characteristics</b>					
DC Current Gain* ( $V_{CE}=-10\text{Vdc}$ , $I_C=-1.0\text{mA}$ ) ( $V_{CE}=-10\text{Vdc}$ , $I_C=-10\text{mA}$ ) ( $V_{CE}=-10\text{Vdc}$ , $I_C=-50\text{mA}$ ) ( $V_{CE}=-10\text{Vdc}$ , $I_C=-100\text{mA}$ )	$H_{FE(1)}$ $H_{FE(2)}$ $H_{FE(3)}$ $H_{FE(4)}$	50 75 60 20	-	- 200 - .	-
Collector-Emitter Saturation Voltage* ( $I_C=-1.0\text{mA}$ , $I_B=-0.1\text{mA}$ ) ( $I_C=-10\text{mA}$ , $I_B=-1\text{mA}$ ) ( $I_C=-50\text{mA}$ , $I_B=-5\text{mA}$ )	$V_{CE(sat)}$	-	-	0.20 0.30 0.60	Vdc
Base-Emitter Saturation Voltage* ( $I_C=-10\text{mA}$ , $I_B=-1.0\text{mA}$ )	$V_{BE(sat)}$	-	-	0.90	Vdc
Output Capacitance ( $V_{CE}=-10\text{Vdc}$ , $f=1.0\text{MHz}$ )	$C_{ob}$	-	4	6	pF

\*Pulse Test : Pulse Width  $\leq 380\mu\text{s}$ , Duty Cycle  $\leq 2.0\%$ .

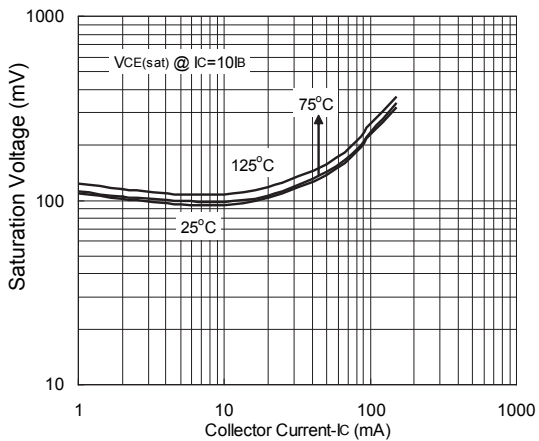
# Characteristics Curve



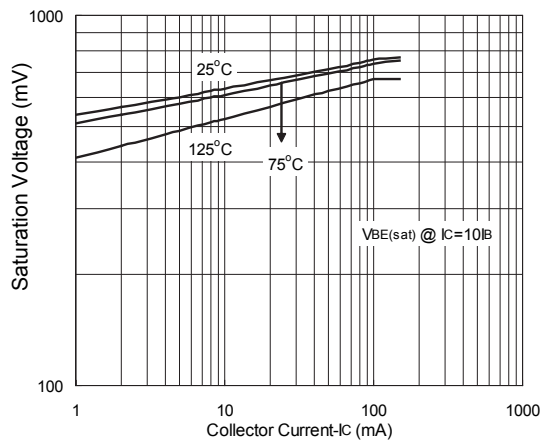
Current Gain & Collector Current



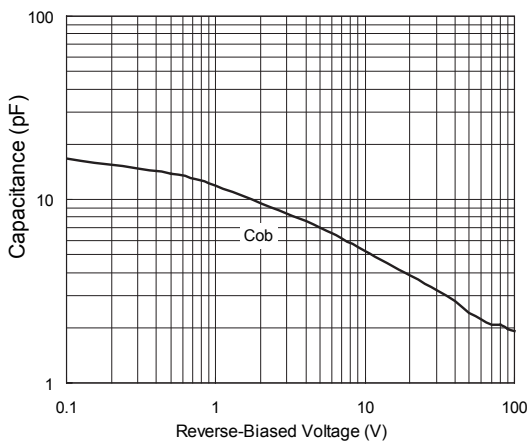
Current Gain & Collector Current



Saturation Voltage & Collector Current

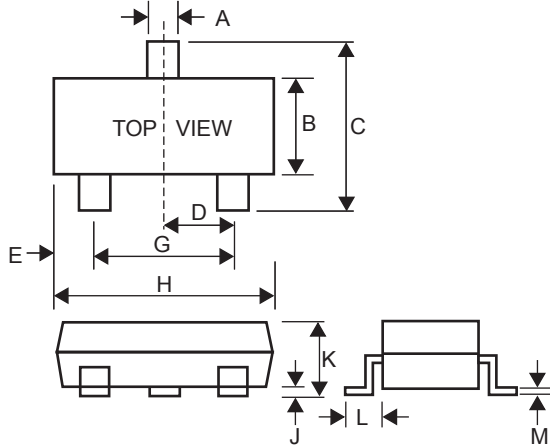


Saturation Voltage & Collector Current



Capacitance & Reverse-Biased Voltage

## SOT-23 Package Outline Dimension



SOT-23		
Dim	Min	Max
A	0.35	0.51
B	1.19	1.40
C	2.10	3.00
D	0.85	1.05
E	0.46	1.00
G	1.70	2.10
H	2.70	3.10
J	0.01	0.13
K	0.89	1.10
L	0.30	0.61
M	0.076	0.25