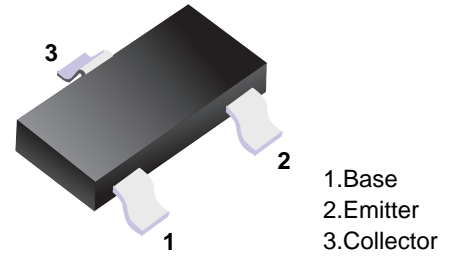


■ NPN Transistors



■ Features

- High Collector-Emitter Voltage
- Complement to MMBTA94

■ Simplified outline(SOT-23)

■ Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

Parameter	Symbol	Rating	Unit
Collector - Base Voltage	V_{CB0}	400	V
Collector - Emitter Voltage	V_{CE0}	400	
Emitter - Base Voltage	V_{EB0}	6	
Collector Current - Continuous	I_c	200	mA
Collector Current -Pulsed	I_{CM}	300	
Collector Power Dissipation	P_c	350	mW
Thermal Resistance From Junction To Ambient	$R_{\theta JA}$	357	$^\circ\text{C}/\text{W}$
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-55 to 150	

■ Electrical Characteristics $T_a = 25^\circ\text{C}$

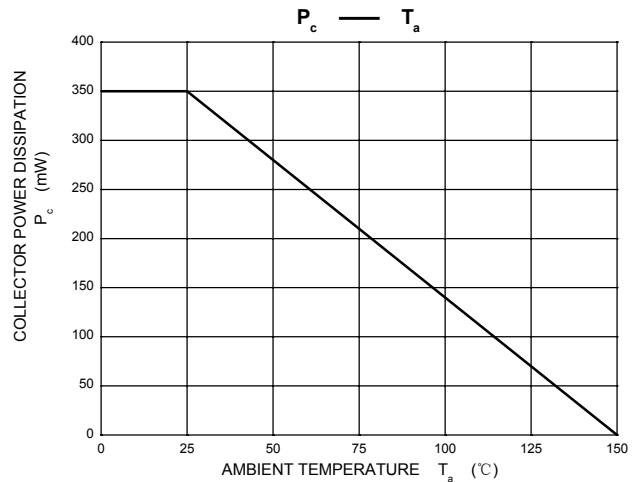
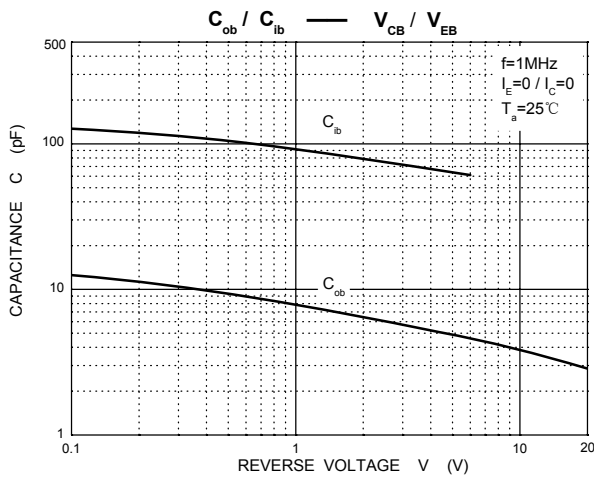
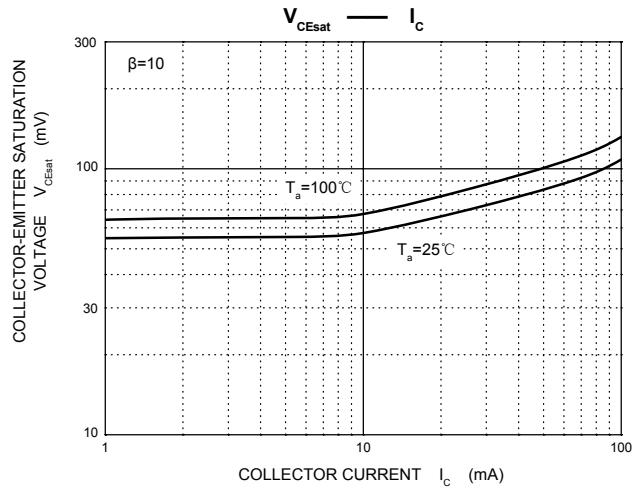
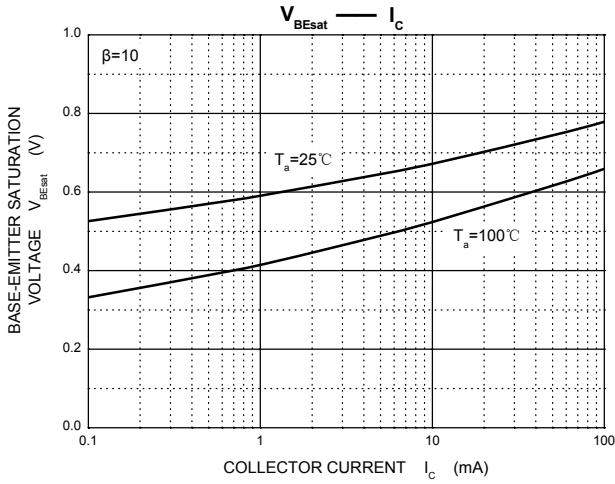
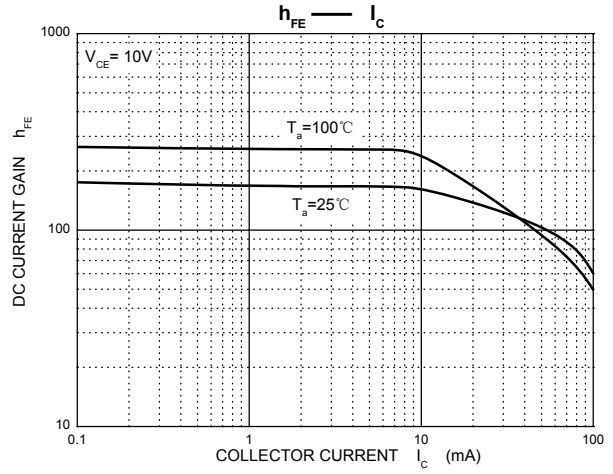
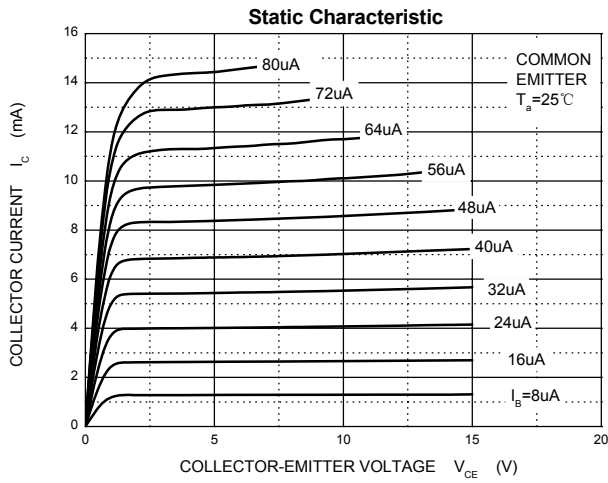
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector- base breakdown voltage	V_{CB0}	$I_c = 100 \mu\text{A}, I_E = 0$	400			V
Collector- emitter breakdown voltage *1	V_{CE0}	$I_c = 1 \text{ mA}, I_B = 0$	400			
Emitter - base breakdown voltage	V_{EB0}	$I_E = 100 \mu\text{A}, I_c = 0$	6			
Collector-base cut-off current	I_{CB0}	$V_{CB} = 400 \text{ V}, I_E = 0$			100	nA
Emitter cut-off current	I_{EB0}	$V_{EB} = 4 \text{ V}, I_c = 0$			100	
Collector-emitter saturation voltage *1	$V_{CE(sat)1}$	$I_c = 10 \text{ mA}, I_B = 1 \text{ mA}$			0.2	V
	$V_{CE(sat)2}$	$I_c = 50 \text{ mA}, I_B = 5 \text{ mA}$			0.3	
Base - emitter saturation voltage *1	$V_{BE(sat)}$	$I_c = 10 \text{ mA}, I_B = 1 \text{ mA}$			0.75	
DC current gain *1	$h_{FE(1)}$	$V_{CE} = 10 \text{ V}, I_c = 1 \text{ mA}$	50			
	$h_{FE(2)}$	$V_{CE} = 10 \text{ V}, I_c = 10 \text{ mA}$	80		300	
	$h_{FE(3)}$	$V_{CE} = 10 \text{ V}, I_c = 50 \text{ mA}$	40			
	$h_{FE(4)}$	$V_{CE} = 10 \text{ V}, I_c = 100 \text{ mA}$	40			
Collector output capacitance	C_{ob}	$V_{CB} = 20 \text{ V}, I_E = 0, f = 1 \text{ MHz}$			7	pF
Transition frequency	f_t	$V_{CE} = 20, I_c = 10 \text{ mA}, f = 30 \text{ MHz}$	50			MHz

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

■ Classification of $h_{fe(2)}$

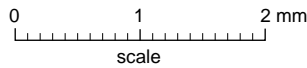
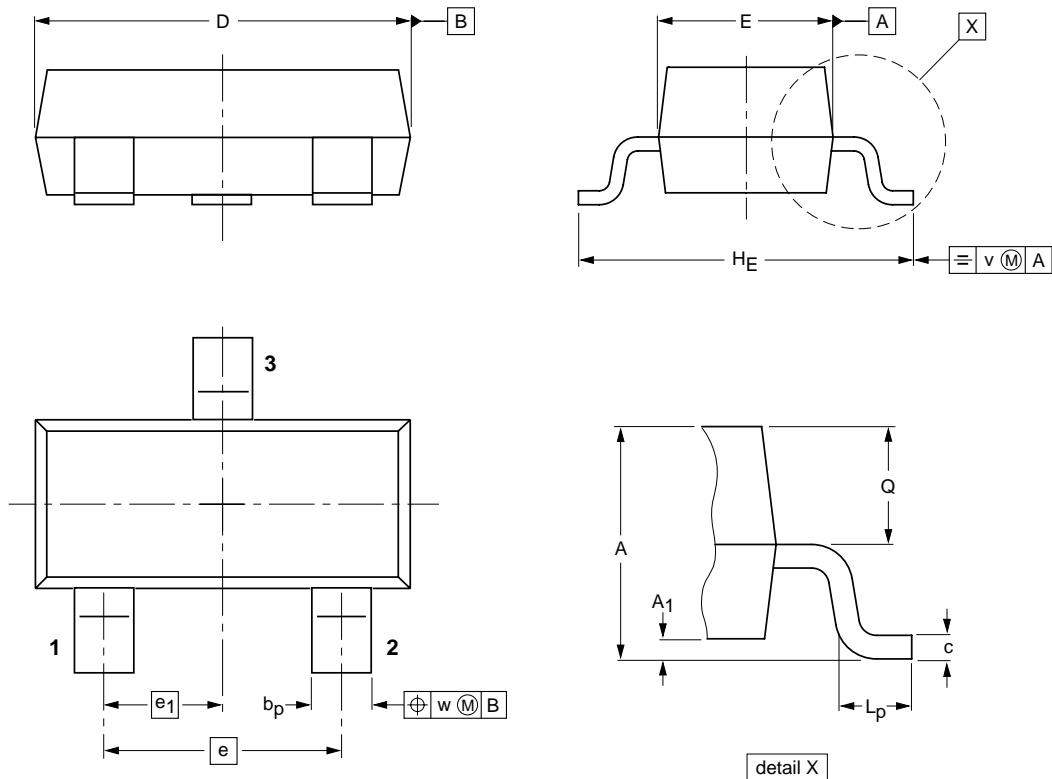
Type	MMBTA44	MMBTA44-L
Range	80-300	100-200
Marking	3D	

■ Typical Characteristics



Package Outline

SOT-23



DIMENSIONS (mm are the original dimensions)

UNIT	A	A ₁ max.	b _p	c	D	E	e	e ₁	H _E	L _p	Q	v	w
mm	1.1 0.9	0.1	0.48 0.38	0.15 0.09	3.0 2.8	1.4 1.2	1.9	0.95	2.5 2.1	0.45 0.15	0.55 0.45	0.2	0.1

Summary of Packing Options

Package	Packing Description	Packing Quantity	Industry Standard
SOT-23	Tape/Reel, 7" reel	3000	EIA-481-1