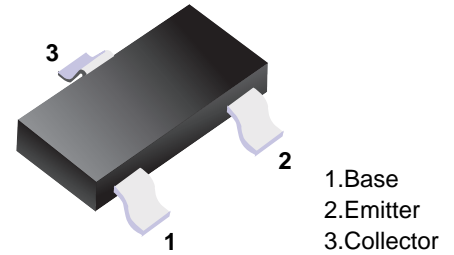


■ NPN Transistors



■ Simplified outline(SOT-23)

■ Features

- High breakdown voltage
- Low collector-emitter saturation voltage
- Complementary to MMBTA92 (PNP)

■ Absolute Maximum Ratings Ta = 25°C

Parameter	Symbol	Rating	Unit
Collector - Base Voltage	V <sub>CB0</sub>	300	V
Collector - Emitter Voltage	V <sub>CEO</sub>	300	
Emitter - Base Voltage	V <sub>EB0</sub>	5	
Collector Current - Continuous	I <sub>c</sub>	500	mA
Collector Power Dissipation	P <sub>c</sub>	350	mW
Thermal Resistance Junction to Ambient	R <sub>θJA</sub>	357	°C/W
Junction Temperature	T <sub>J</sub>	150	°C
Storage Temperature Range	T <sub>stg</sub>	-55 to 150	

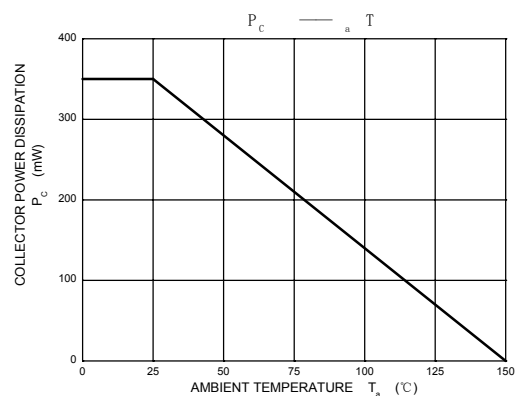
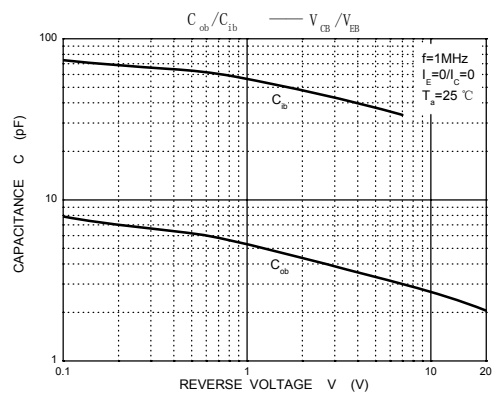
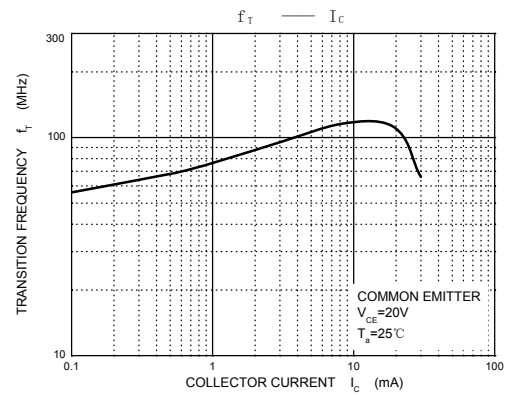
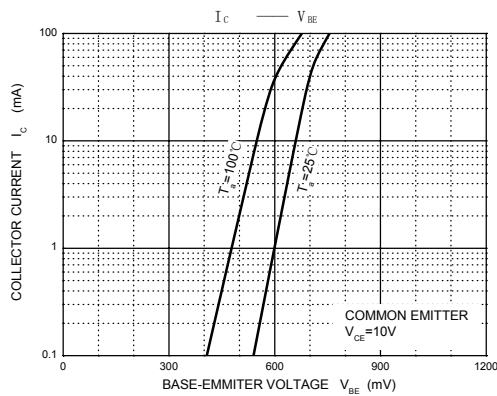
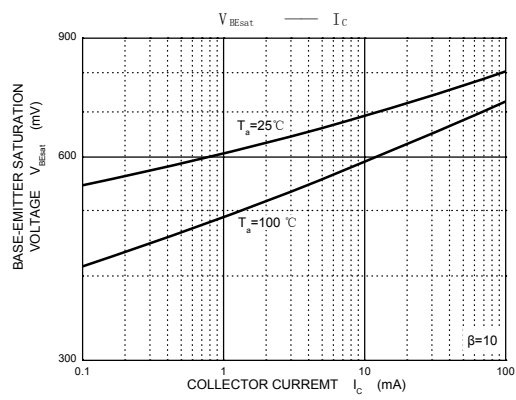
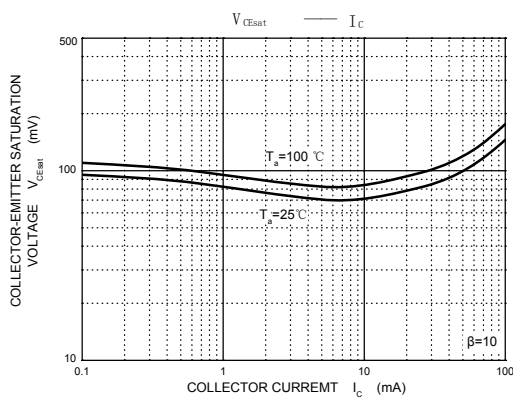
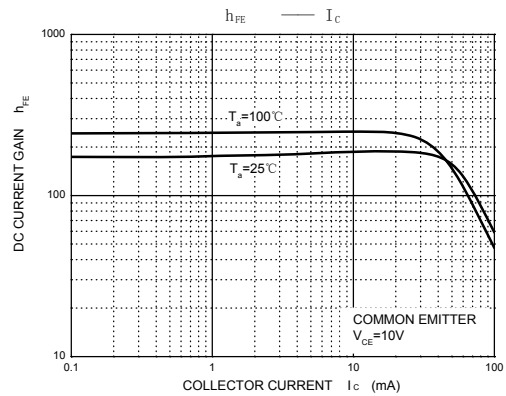
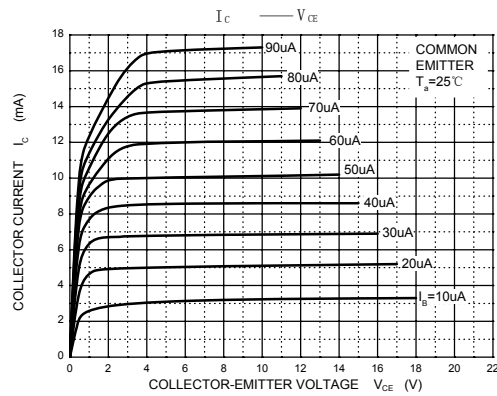
■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	V <sub>CB0</sub>	I <sub>c</sub> = 100 μA, I <sub>E</sub> = 0	300			V
Collector- emitter breakdown voltage	V <sub>CEO</sub>	I <sub>c</sub> = 1 mA, I <sub>B</sub> = 0	300			
Emitter - base breakdown voltage	V <sub>EB0</sub>	I <sub>E</sub> = 100 μA, I <sub>c</sub> = 0	5			
Collector-base cut-off current	I <sub>CB0</sub>	V <sub>CB</sub> = 200 V, I <sub>E</sub> = 0			0.1	μA
Emitter cut-off current	I <sub>EB0</sub>	V <sub>EB</sub> = 5V, I <sub>c</sub> =0			0.1	
Collector-emitter saturation voltage	V <sub>CE(sat)</sub>	I <sub>c</sub> = 20 mA, I <sub>B</sub> = 2mA			0.2	V
Base - emitter saturation voltage	V <sub>BE(sat)</sub>	I <sub>c</sub> = 20mA, I <sub>B</sub> = 2mA			0.9	
DC current gain	h <sub>fe</sub> (1)	V <sub>CE</sub> = 10V, I <sub>c</sub> = 1mA	60			
	h <sub>fe</sub> (2)	V <sub>CE</sub> = 10V, I <sub>c</sub> = 10mA	100		300	
	h <sub>fe</sub> (3)	V <sub>CE</sub> = 10V, I <sub>c</sub> = 30mA	60			
Transition frequency	f <sub>T</sub>	V <sub>CE</sub> = 20V, I <sub>c</sub> = 10mA, f=30MHz	50			MHz

■ Classification of h<sub>fe</sub>(2)

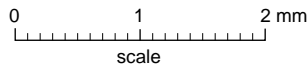
Type	MMBTA42	MMBTA42-L
Range	100-300	100-200
Marking	1D	

■ Typical Characteristics



**Package Outline**

**SOT-23**



**DIMENSIONS (mm are the original dimensions)**

UNIT	A	A <sub>1</sub> max.	b <sub>p</sub>	c	D	E	e	e <sub>1</sub>	H <sub>E</sub>	L <sub>p</sub>	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