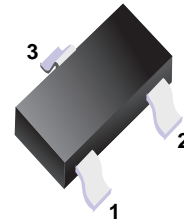


■ NPN Transistors

■ Features

- Ideally suited for automatic insertion
- For Switching and AF Amplifier Applications



- 1.Base
- 2.Emitter
- 3.Collector

■ Simplified outline(SOT-523)

■ Absolute Maximum Ratings Ta = 25°C

Parameter	Symbol	Rating	Unit
Collector - Base Voltage	V <sub>CB0</sub>	50	V
Collector - Emitter Voltage	V <sub>CE0</sub>	45	
Emitter - Base Voltage	V <sub>EB0</sub>	6	
Collector Current - Continuous	I <sub>c</sub>	0.1	A
Collector Power Dissipation	P <sub>c</sub>	150	mW
Junction Temperature	T <sub>J</sub>	150	°C
Storage Temperature range	T <sub>stg</sub>	-55 to 150	

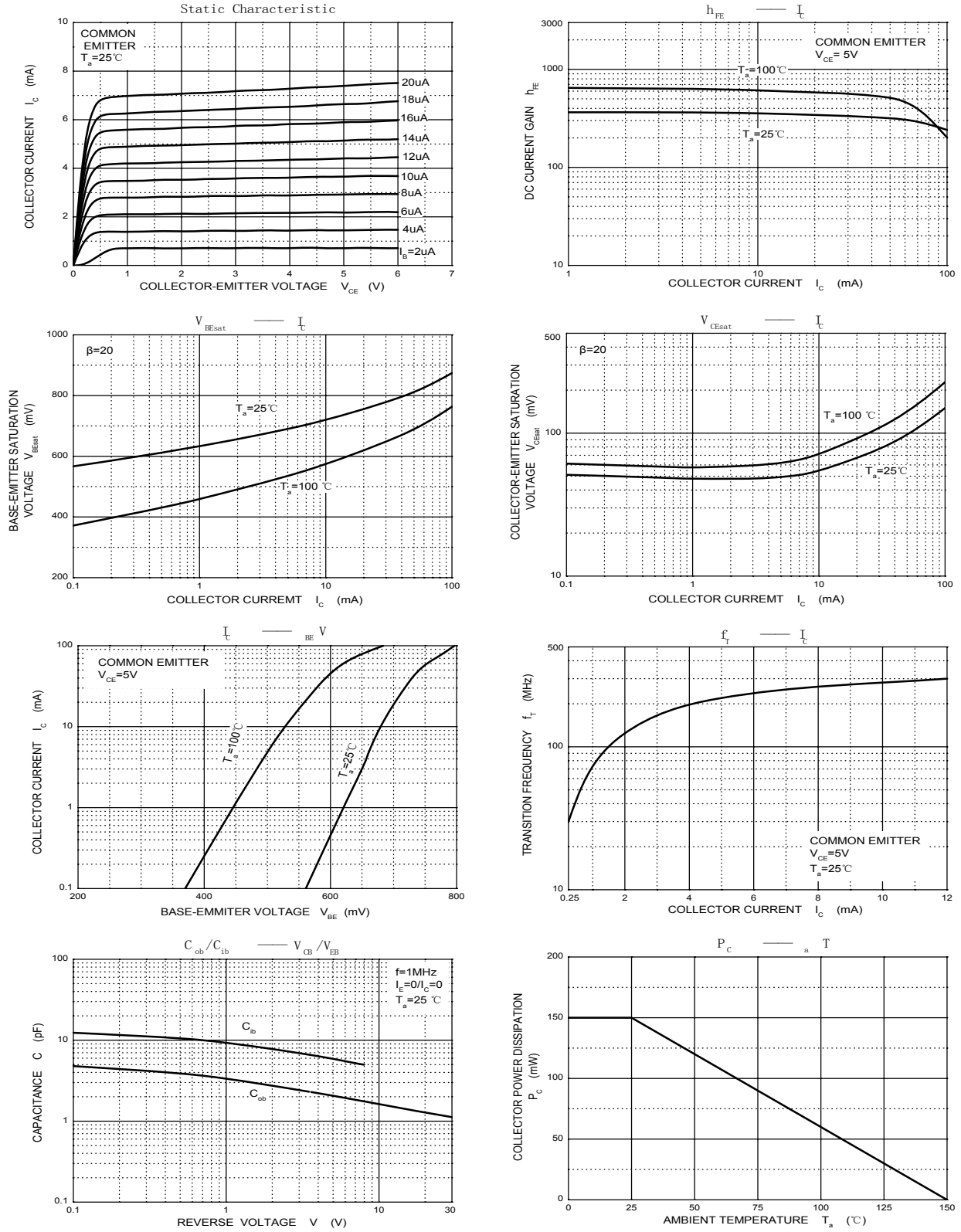
■ Electrical Characteristics Ta = 25°C

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	50			V
Collector- emitter breakdown voltage	V <sub>CE0</sub>	I <sub>c</sub> = 10 mA, I <sub>B</sub> =0	45			
Emitter - base breakdown voltage	V <sub>EB0</sub>	I <sub>E</sub> = 100 μA, I <sub>c</sub> =0	6			
Collector-base cut-off current	I <sub>CB0</sub>	V <sub>CB</sub> = 30 V, I <sub>E</sub> =0			15	nA
Emitter cut-off current	I <sub>EB0</sub>	V <sub>EB</sub> = 6V, I <sub>c</sub> =0			0.1	uA
Collector-emitter saturation voltage	V <sub>CE(sat)</sub>	I <sub>c</sub> =10 mA, I <sub>B</sub> =0.5mA			0.25	V
		I <sub>c</sub> =100 mA, I <sub>B</sub> =5mA			0.6	
Base - emitter saturation voltage	V <sub>BE(sat)</sub>	I <sub>c</sub> =10 mA, I <sub>B</sub> =0.5mA		0.7		
		I <sub>c</sub> =100 mA, I <sub>B</sub> =5mA		0.9		
Base-emitter voltage	V <sub>BE(on)</sub>	V <sub>CE</sub> = 5V, I <sub>c</sub> = 2mA	0.58		0.7	
		V <sub>CE</sub> = 5V, I <sub>c</sub> = 10mA			0.77	
DC current gain	h <sub>FE</sub>	V <sub>CE</sub> = 5V, I <sub>c</sub> = 2mA	200		450	
Noise figure	NF	V <sub>CE</sub> =5V, f=1MHz, I <sub>c</sub> =0.2mA R <sub>s</sub> =2KΩ, BW=200HZ			10	dB
Collector output capacitance	C <sub>ob</sub>	V <sub>CB</sub> = 10V, f=1MHz			4.5	pF
Transition frequency	f <sub>T</sub>	V <sub>CE</sub> = 5 V, I <sub>c</sub> =10mA, f=100MHz	100			MHz

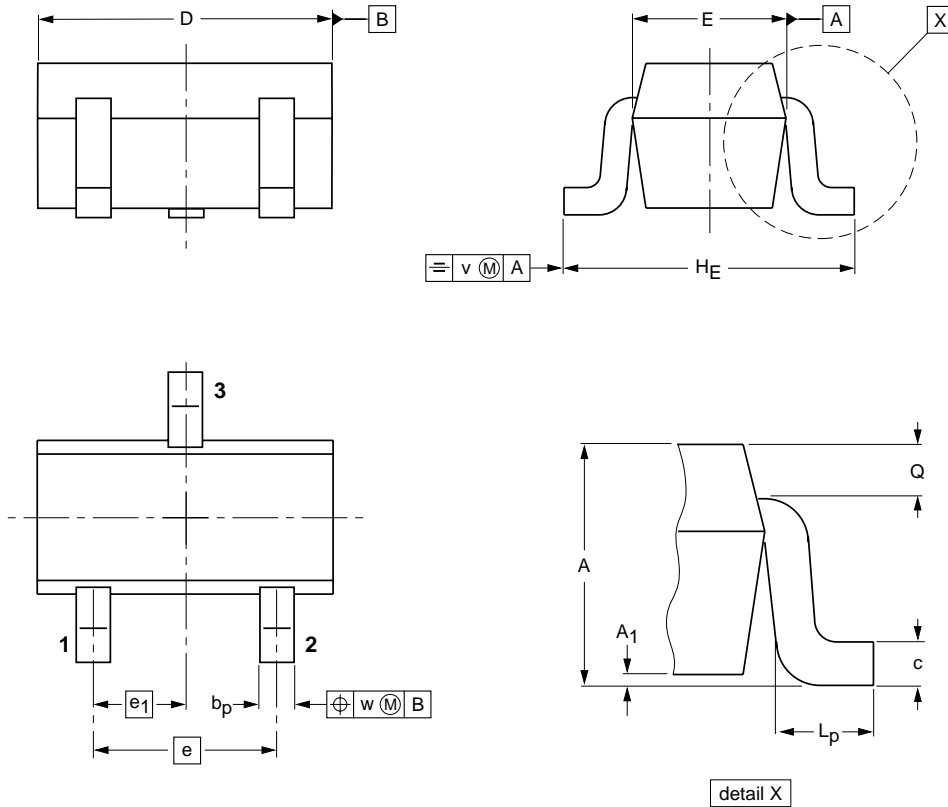
■ Classification of h<sub>FE</sub>

Type	S9014T
Range	200-450
Marking	1F

■ Typical Characteristics



**Package Outline**



**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	0.95 0.60	0.1	0.30 0.15	0.25 0.10	1.8 1.4	0.9 0.7	1	0.5	1.75 1.45	0.45 0.15	0.23 0.13	0.2	0.2

**Summary of Packing Options**

Package	Packing Description	Packing Quantity	Industry Standard
SOT-523	Tape/Reel, 7" reel	3000	EIA-481-1