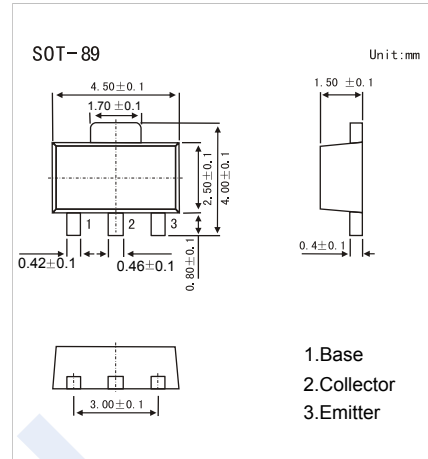


## NPN Transistors

### 2SC3645-HF

#### ■ Features

- High breakdown voltage
- Excellent linearity of hFE and small Cob.
- Fast switching speed.
- Small Package For Mounting
- Complementary to 2SA1415-HF
- Pb-Free Package May be Available. The G-Suffix Denotes a Pb-Free Lead Finish



#### ■ Absolute Maximum Ratings Ta = 25°C

Parameter	Symbol	Rating	Unit
Collector - Base Voltage	V <sub>CB0</sub>	180	V
Collector - Emitter Voltage	V <sub>CEO</sub>	160	
Emitter - Base Voltage	V <sub>EB0</sub>	5	
Collector Current - Continuous	I <sub>C</sub>	140	mA
Peak Collector Current	I <sub>CM</sub>	200	
Collector Power Dissipation	P <sub>C</sub>	500	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	180			V	
Collector- emitter breakdown voltage	V <sub>CEO</sub>	I <sub>C</sub> = 1 mA, I <sub>B</sub> = 0	160				
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> = 80 V, I <sub>E</sub> = 0			0.1	μA	
Emitter cut-off current	I <sub>EB0</sub>	V <sub>EB</sub> = 4V, I <sub>C</sub> =0			0.1		
Collector-emitter saturation voltage	V <sub>CE(sat)</sub>	I <sub>C</sub> =50 mA, I <sub>B</sub> =5mA		0.07	0.3	V	
Base - emitter saturation voltage	V <sub>BE(sat)</sub>	I <sub>C</sub> =50 mA, I <sub>B</sub> =5mA			1.2		
DC current gain	h <sub>FE</sub>	V <sub>CE</sub> = 5V, I <sub>C</sub> = 10mA	100		400		
Turn-ON Time	t <sub>on</sub>	See sepcified Test Circuit.		0.1		us	
Storage Time	t <sub>stg</sub>				1.5		
Fall Time	t <sub>f</sub>				0.1		
Collector output capacitance	C <sub>ob</sub>	V <sub>CB</sub> = 10V, f=1MHz		3		pF	
Transition frequency	f <sub>T</sub>	V <sub>CE</sub> = 10V, I <sub>C</sub> = 10mA		150		MHz	

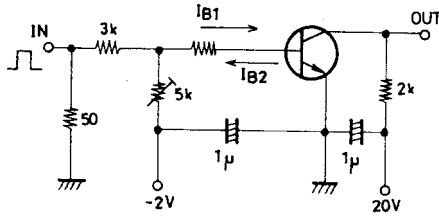
#### ■ Classification of h<sub>FE</sub>

Type	2SC3645-R-HF	2SC3645-S-HF	2SC3645-T-HF
Range	100-200	140-280	200-400
Marking	CAR <sub>F</sub>	CAS <sub>F</sub>	CAT <sub>F</sub>

## NPN Transistors

### 2SC3645-HF

#### Switching Time Test Circuit

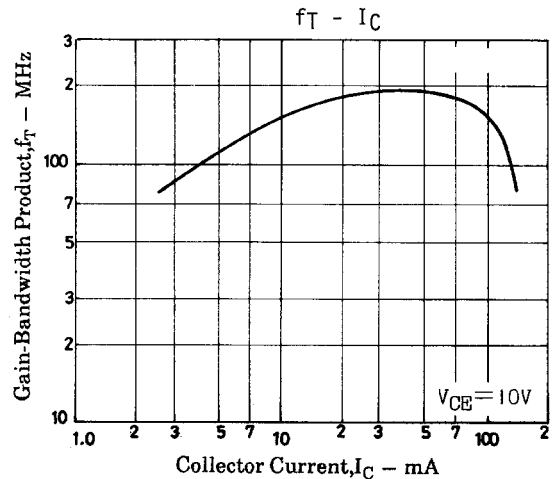
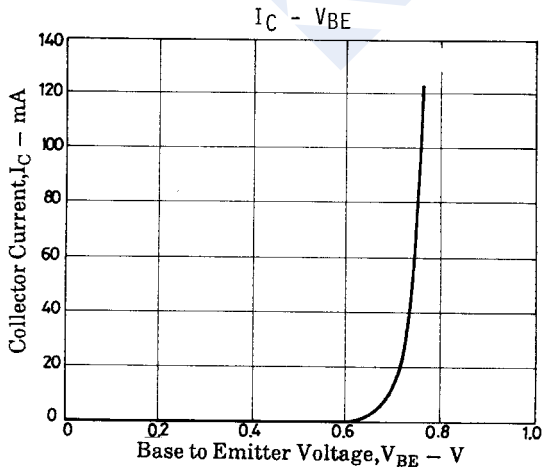
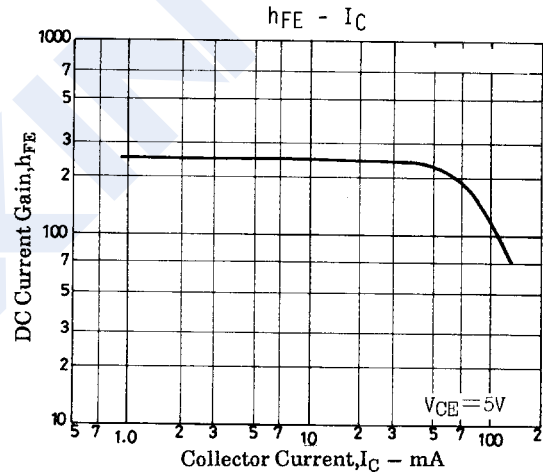
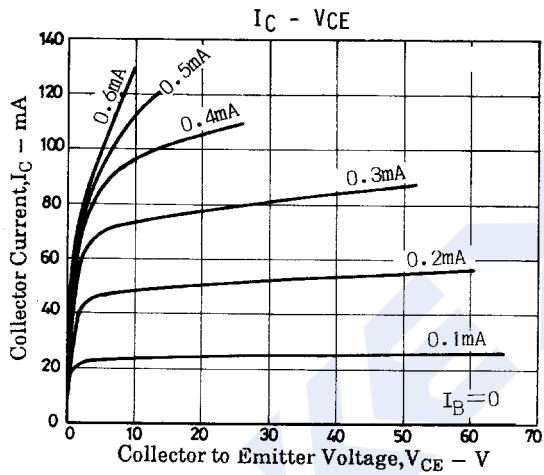


$$I_C = 10I_{B1} = 10I_{B2} = 10\text{mA}$$

(For PNP, the polarity is reversed)

Unit (resistance :  $\Omega$ , capacitance : F)

#### ■ Typical Characteristics



### NPN Transistors

### 2SC3645-HF

■ Typical Characteristics

