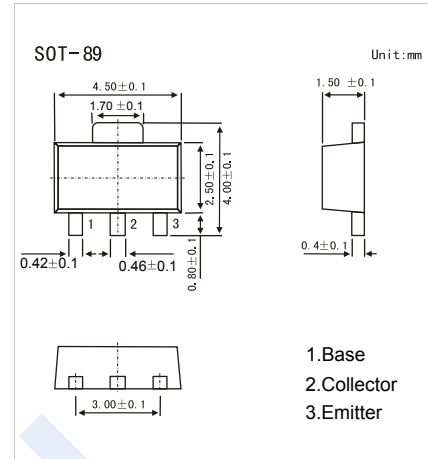


NPN Transistors

2SC3645-HF

■ Features

- High breakdown voltage
- Excellent linearity of h_{FE} and small C_{ob} .
- 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 $T_a = 25^\circ\text{C}$

Parameter	Symbol	Rating	Unit
Collector - Base Voltage	V_{CBO}	180	V
Collector - Emitter Voltage	V_{CEO}	160	
Emitter - Base Voltage	V_{EBO}	5	
Collector Current - Continuous	I_C	140	mA
Peak Collector Current	I_{CM}	200	
Collector Power Dissipation	P_C	500	mW
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_{CBO}	$I_C = 100 \mu\text{A}$, $I_E = 0$	180			V
Collector- emitter breakdown voltage	V_{CEO}	$I_C = 1 \text{ mA}$, $I_B = 0$	160			
Emitter - base breakdown voltage	V_{EBO}	$I_E = 100 \mu\text{A}$, $I_C = 0$	5			
Collector-base cut-off current	I_{CBO}	$V_{CB} = 80 \text{ V}$, $I_E = 0$			0.1	μA
Emitter cut-off current	I_{EBO}	$V_{EB} = 4 \text{ V}$, $I_C = 0$			0.1	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 50 \text{ mA}$, $I_B = 5 \text{ mA}$		0.07	0.3	V
Base - emitter saturation voltage	$V_{BE(sat)}$	$I_C = 50 \text{ mA}$, $I_B = 5 \text{ mA}$			1.2	
DC current gain	h_{FE}	$V_{CE} = 5 \text{ V}$, $I_C = 10 \text{ mA}$	100		400	
Turn-ON Time	t_{on}	See specified Test Circuit.		0.1		μs
Storage Time	t_{stg}			1.5		
Fall Time	t_f			0.1		
Collector output capacitance	C_{ob}	$V_{CB} = 10 \text{ V}$, $f = 1 \text{ MHz}$		3		pF
Transition frequency	f_T	$V_{CE} = 10 \text{ V}$, $I_C = 10 \text{ mA}$		150		MHz

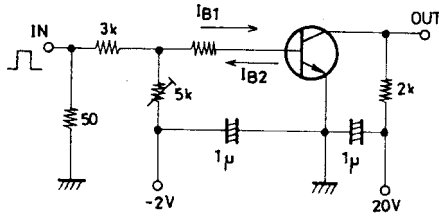
■ Classification of h_{FE}

Type	2SC3645-R-HF	2SC3645-S-HF	2SC3645-T-HF
Range	100-200	140-280	200-400
Marking	CAR _F	CAS _F	CAT _F

NPN Transistors

2SC3645-HF

Switching Time Test Circuit

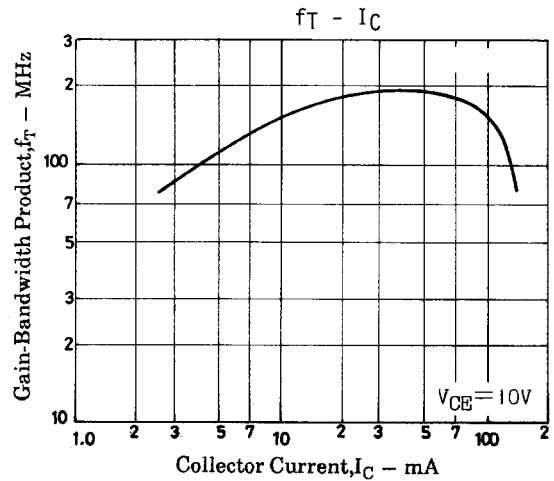
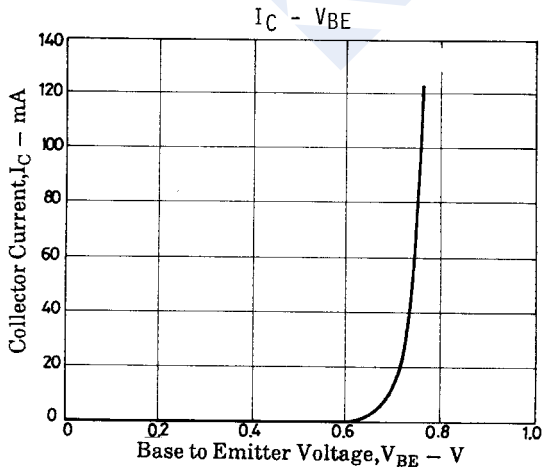
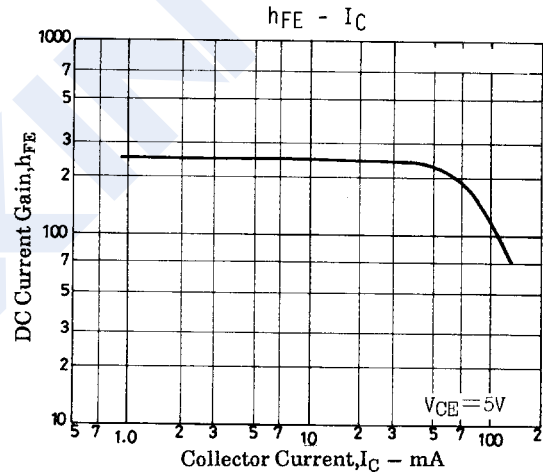
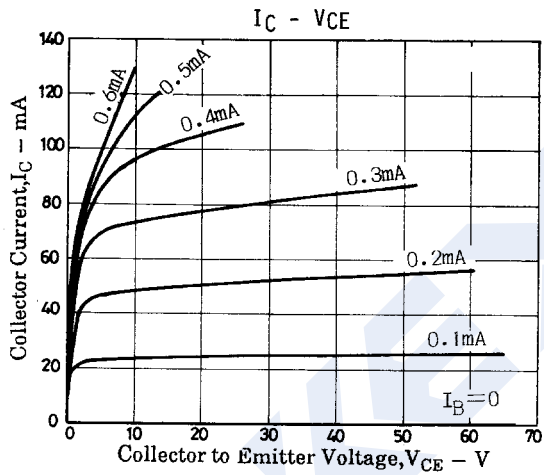


$$I_C = 10I_{B1} = 10I_{B2} = 10\text{mA}$$

(For PNP, the polarity is reversed)

Unit (resistance : Ω , capacitance : F)

■ Typical Characteristics



NPN Transistors

2SC3645-HF

■ Typical Characteristics

