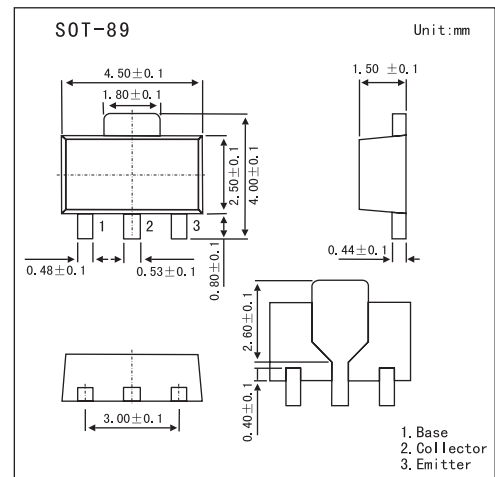


## High-Voltage Switching Applications

## 2SC3645

## ■ Features

- Adoption of FBET Process
- High Breakdown Voltage ( $V_{CE0} = 160V$ )
- Excellent Linearity of  $h_{FE}$  and Small  $C_{ob}$
- Fast Switching Speed

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

Parameter	Symbol	Rating	Unit
Collector-Base Voltage	$V_{CBO}$	180	V
Collector-Emitter Voltage	$V_{CEO}$	160	V
Emitter-Base Voltage	$V_{EBO}$	5	V
Collector Current	$I_C$	140	mA
Collector Current (Pulse)	$I_{CP}$	200	mA
Collector Power Dissipation	$P_C$	500	mW
	$P_C^*$	1.3	W
Junction temperature	$T_j$	150	$^\circ C$
Storage temperature Range	$T_{stg}$	-55 to +150	$^\circ C$

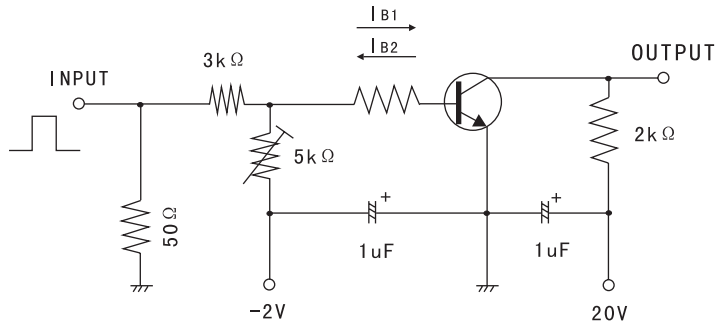
\* Mounted on ceramic board (250 mm<sup>2</sup> x 0.8 mm)

■ Electrical Characteristics  $T_a = 25^\circ C$ 

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit
Collector Cut-off Current	$I_{CBO}$	$V_{CB} = 80V, I_E = 0$			100	nA
Emitter Cut-off Current	$I_{EBO}$	$V_{EB} = 4V, I_C = 0$			100	nA
DC Current Gain	$h_{FE}$	$V_{CE} = 5V, I_C = 10mA$	100		400	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 50mA, I_B = 5mA$		0.14	0.4	V
Gain-Bandwidth Product	$f_T$	$V_{CE} = 10V, I_C = 10mA$		150		MHz
Collector Output Capacitance	$C_{ob}$	$V_{CB} = 10V, I_E = 0, f = 1MHz$		4		pF
Turn-On Time	$t_{on}$	See Test Circuit.		0.1		$\mu s$
Storage Time	$t_{stg}$			1.5		
Fall Time	$t_f$			0.1		

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■ Test Circuit

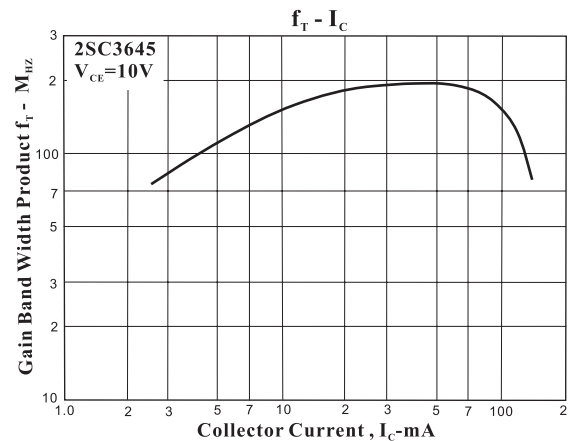
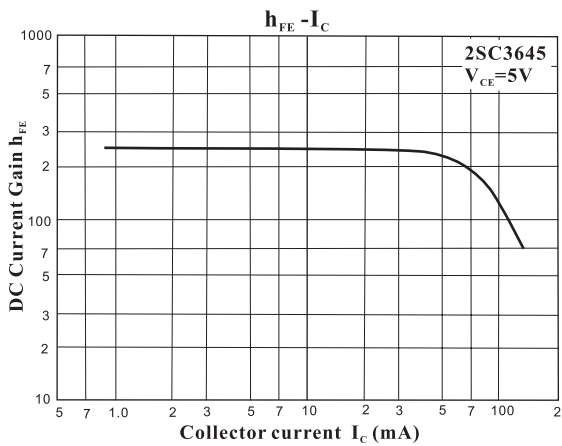
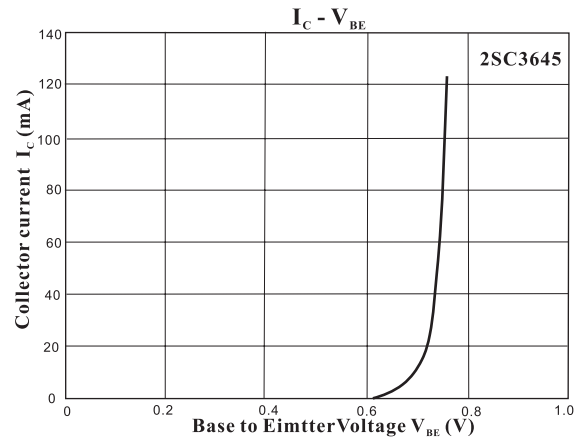
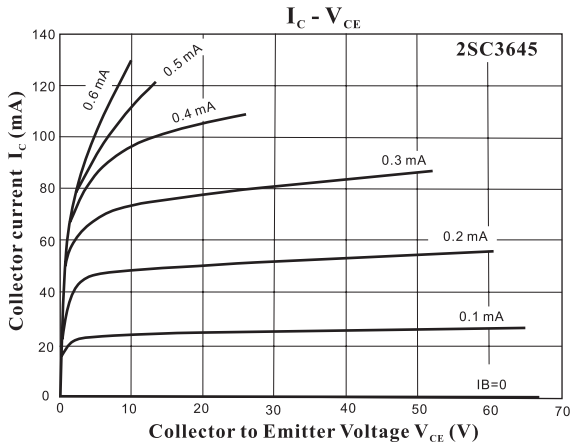


$I_C = 10 I_{B1} = -10 I_{B2} = 10 \text{mA}$   
 (For PNP, the polarity is reversed.)

■ hFE Classification

Marking	CA		
Rank	R	S	T
hFE	100 ~ 200	140 ~ 280	200 ~ 400

■ Electrical Characteristics Curves



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