

# 2SC1047

## Silicon NPN epitaxial planar type

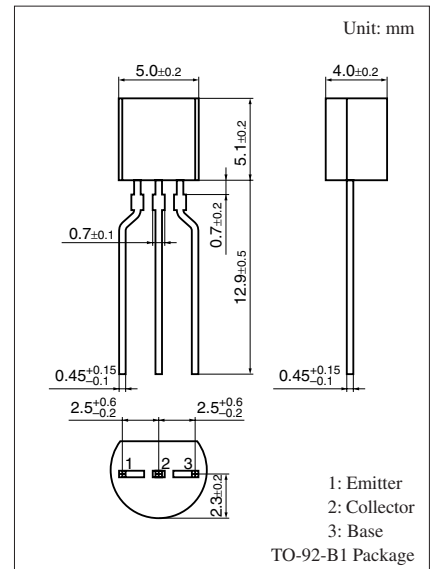
For high-frequency amplification

### ■ Features

- Optimum for RF amplification of FM/AM radios
- High transition frequency  $f_T$

### ■ Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

Parameter	Symbol	Rating	Unit
Collector-base voltage (Emitter open)	$V_{CBO}$	30	V
Collector-emitter voltage (Base open)	$V_{CEO}$	20	V
Emitter-base voltage (Collector open)	$V_{EBO}$	3	V
Collector current	$I_C$	20	mA
Collector power dissipation	$P_C$	400	mW
Junction temperature	$T_j$	150	$^\circ\text{C}$
Storage temperature	$T_{stg}$	-55 to +150	$^\circ\text{C}$



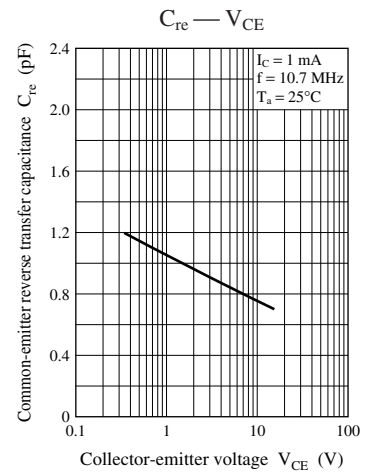
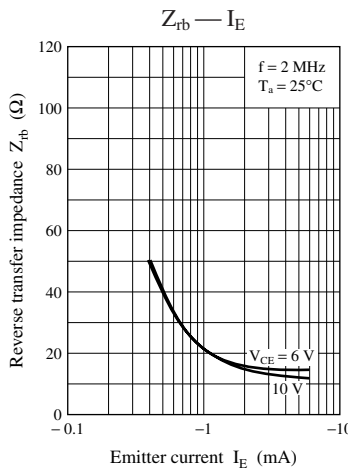
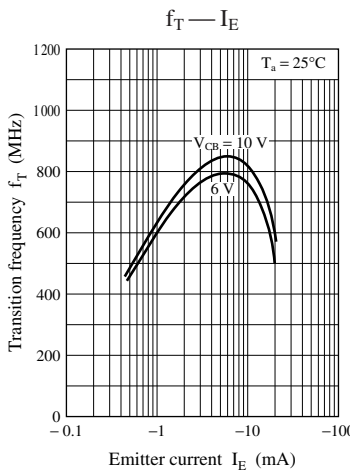
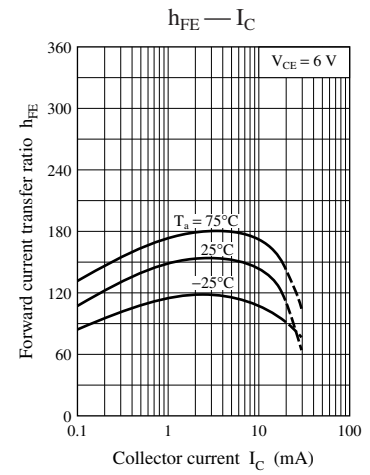
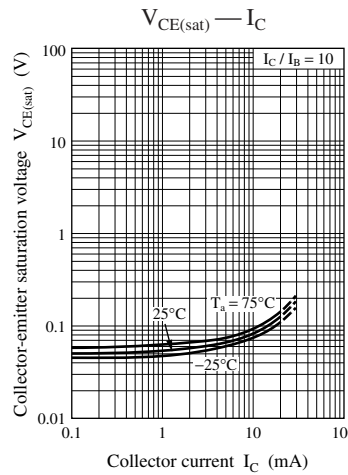
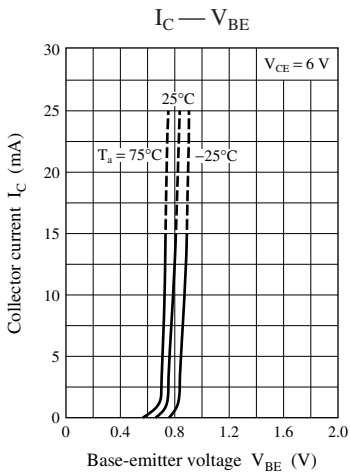
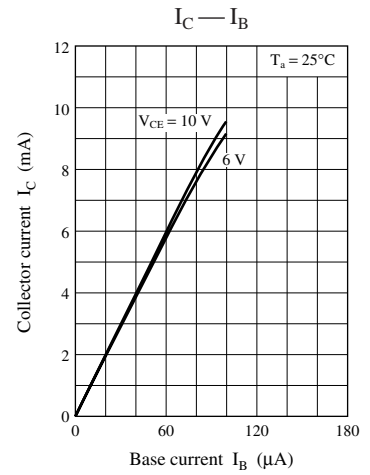
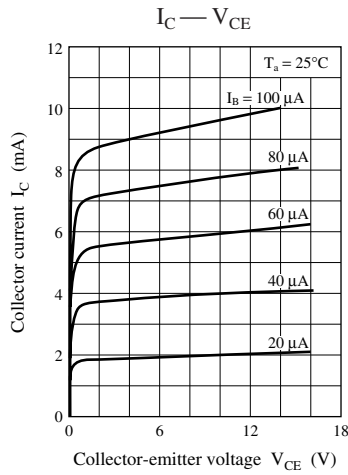
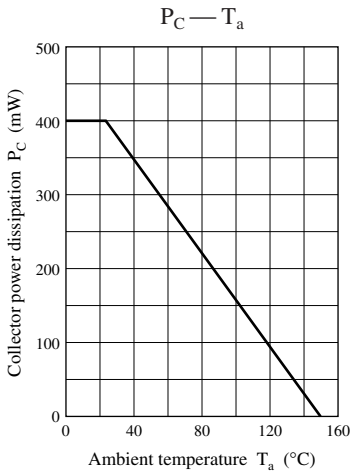
### ■ Electrical Characteristics $T_a = 25^\circ\text{C} \pm 3^\circ\text{C}$

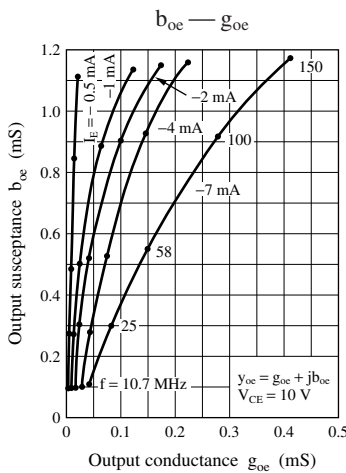
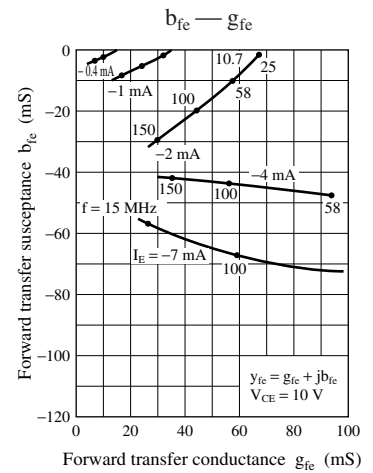
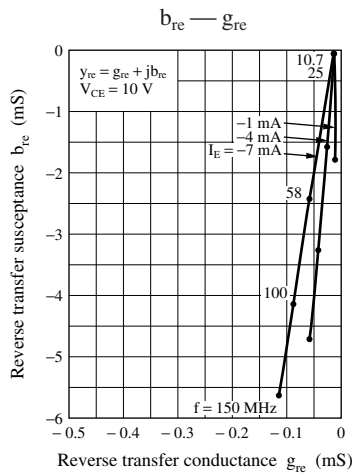
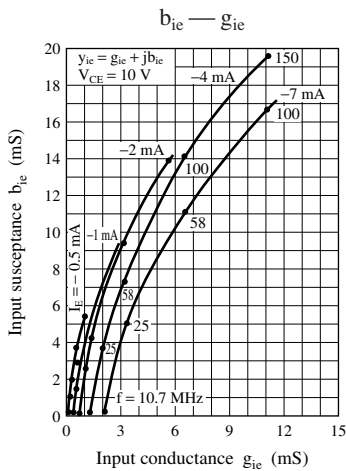
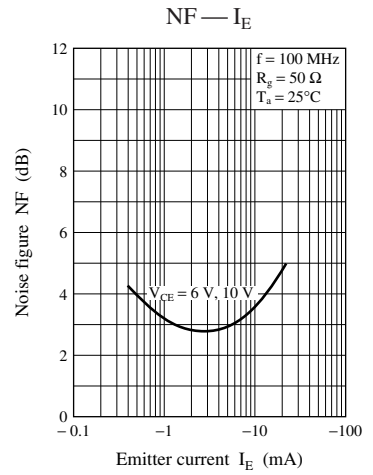
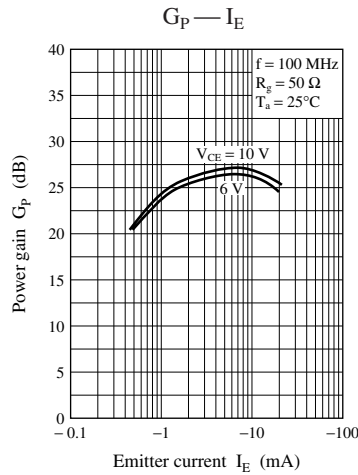
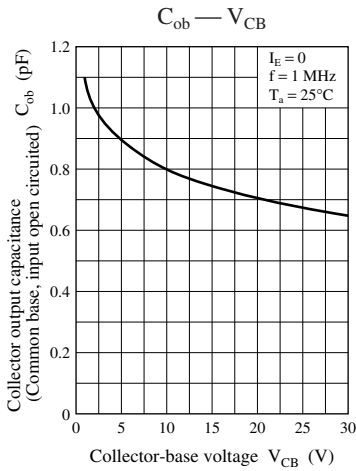
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector-base voltage (Emitter open)	$V_{CBO}$	$I_C = 10 \mu\text{A}, I_E = 0$	30			V
Emitter-base voltage (Collector open)	$V_{EBO}$	$I_E = 10 \mu\text{A}, I_C = 0$	3			V
Base-emitter voltage	$V_{BE}$	$V_{CE} = 6 \text{ V}, I_C = 1 \text{ mA}$		0.72		V
Forward current transfer ratio *	$h_{FE}$	$V_{CE} = 6 \text{ V}, I_C = 1 \text{ mA}$	65		260	—
Common-emitter reverse transfer capacitance	$C_{re}$	$V_{CB} = 6 \text{ V}, I_E = -1 \text{ mA}, f = 10.7 \text{ MHz}$		0.8	1	pF
Transition frequency	$f_T$	$V_{CB} = 6 \text{ V}, I_E = -1 \text{ mA}, f = 200 \text{ MHz}$	450	650		MHz
Power gain	$G_P$	$V_{CB} = 6 \text{ V}, I_E = -1 \text{ mA}, f = 100 \text{ MHz}$	20			dB
Noise figure	NF	$V_{CB} = 6 \text{ V}, I_E = -1 \text{ mA}, f = 100 \text{ MHz}$		3.3	5	dB

Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.

2. \*: Rank classification

Rank	C	D
$h_{FE}$	65 to 160	100 to 260





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