

# 2SC1047

## Silicon NPN epitaxial planer type

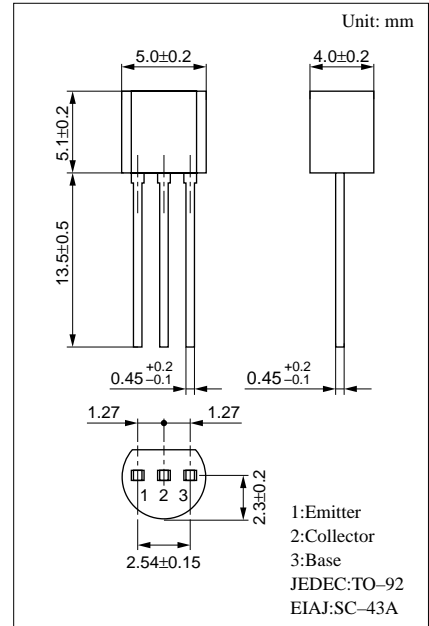
For high-frequency amplification

### Features

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

### Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Rated	Unit
Collector to base voltage	$V_{CBO}$	30	V
Collector to emitter voltage	$V_{CEO}$	20	V
Emitter to base voltage	$V_{EBO}$	3	V
Collector current	$I_C$	20	mA
Collector power dissipation	$P_C$	400	mW
Junction temperature	$T_j$	150	°C
Storage temperature	$T_{stg}$	-55 ~ +150	°C



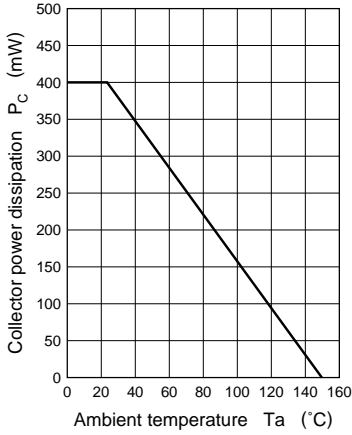
### Electrical Characteristics (Ta=25°C)

Parameter	Symbol	Conditions	min	typ	max	Unit
Collector to base voltage	$V_{CBO}$	$I_C = 10\mu A, I_E = 0$	30			V
Emitter to base voltage	$V_{EBO}$	$I_E = 10\mu A, I_C = 0$	3			V
Forward current transfer ratio	$h_{FE}^*$	$V_{CB} = 6V, I_E = -1mA$	40		260	
Base to emitter voltage	$V_{BE}$	$V_{CB} = 6V, I_E = -1mA$		0.72		V
Common emitter reverse transfer capacitance	$C_{re}$	$V_{CE} = 6V, I_C = 1mA, f = 10.7MHz$		0.8	1	pF
Transition frequency	$f_T$	$V_{CB} = 6V, I_E = -1mA, f = 200MHz$	450	650		MHz
Power gain	PG	$V_{CB} = 6V, I_E = -1mA, f = 100MHz$	20			dB
Noise figure	NF	$V_{CB} = 6V, I_E = -1mA, f = 100MHz$		3.3	5	dB

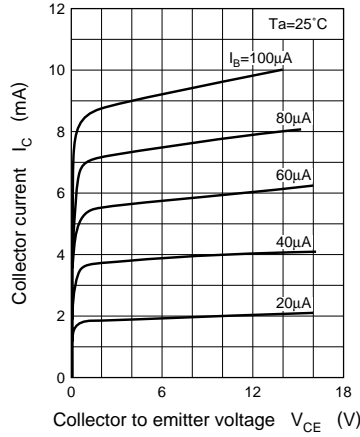
\* $h_{FE}$  Rank classification

Rank	B	C	D
$h_{FE}$	40 ~ 110	65 ~ 160	100 ~ 260

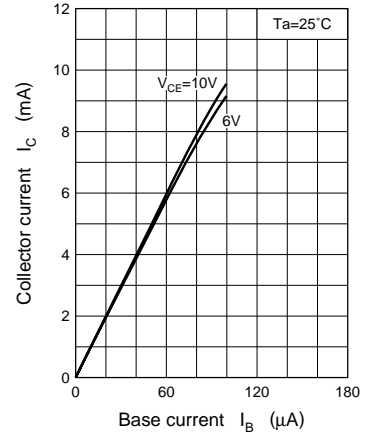
$P_C - T_a$



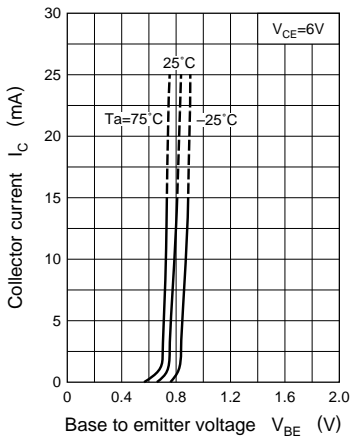
$I_C - V_{CE}$



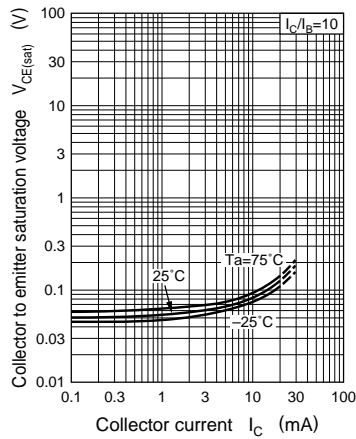
$I_C - I_B$



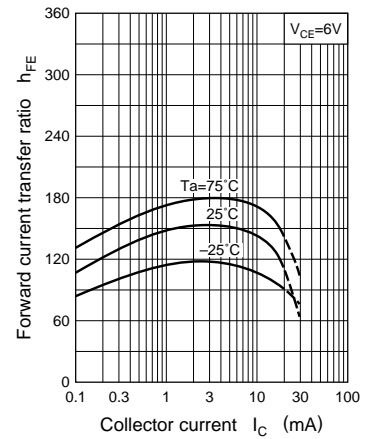
$I_C - V_{BE}$



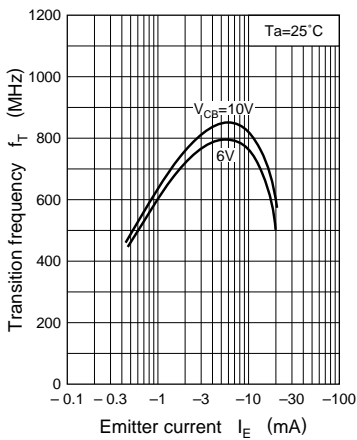
$V_{CE(sat)} - I_C$



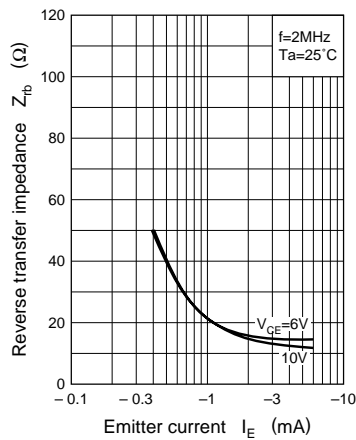
$h_{FE} - I_C$



$f_T - I_E$



$Z_{rb} - I_E$



$C_{re} - V_{CE}$

