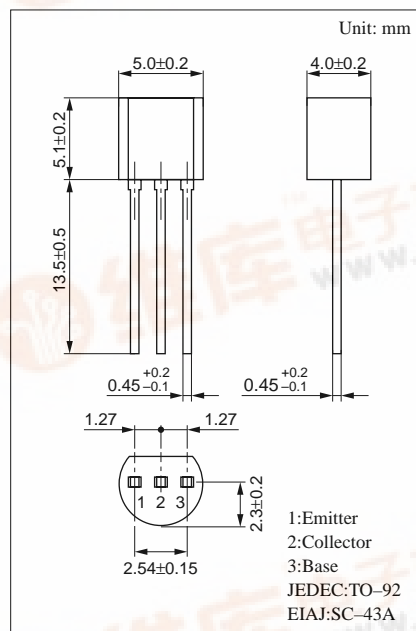


## Silicon NPN epitaxial planer type

For high-frequency (VHF band) amplification and oscillation

- High transition frequency  $f_T$ .

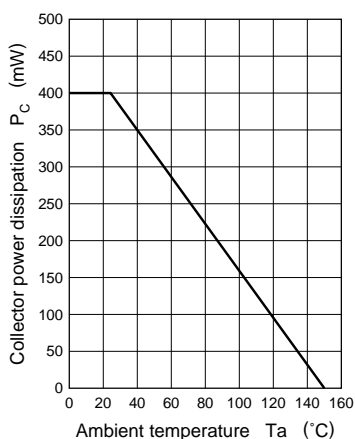
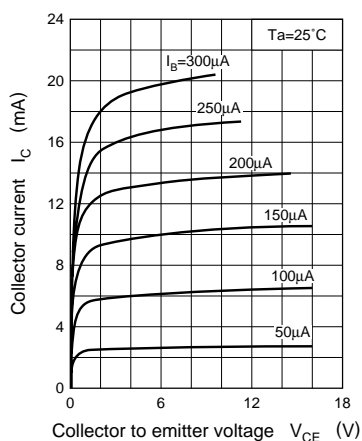
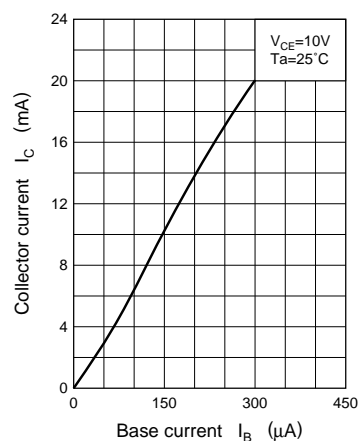
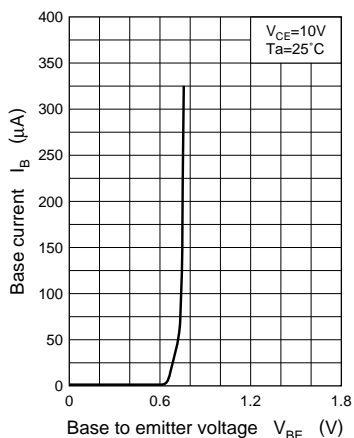
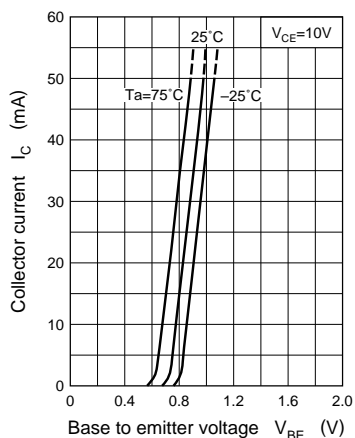
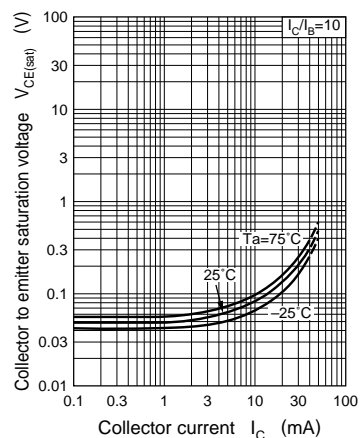
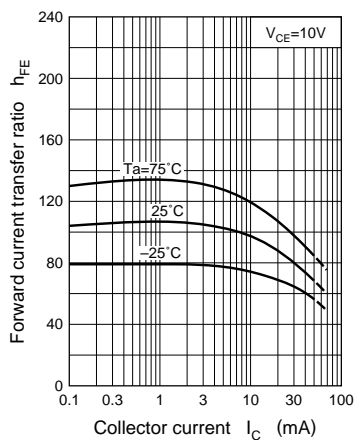
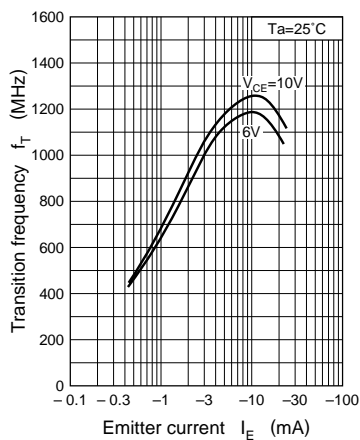
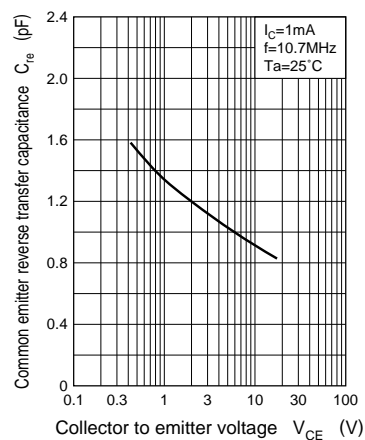
Parameter	Symbol	Ratings	Unit
Collector to base voltage	$V_{CBO}$	30	V
Collector to emitter voltage	$V_{CEO}$	20	V
Emitter to base voltage	$V_{EBO}$	3	V
Collector current	$I_C$	50	mA
Collector power dissipation	$P_C$	400	mW
Junction temperature	$T_j$	150	$^{\circ}\text{C}$
Storage temperature	$T_{stg}$	$-55 \sim +150$	$^{\circ}\text{C}$

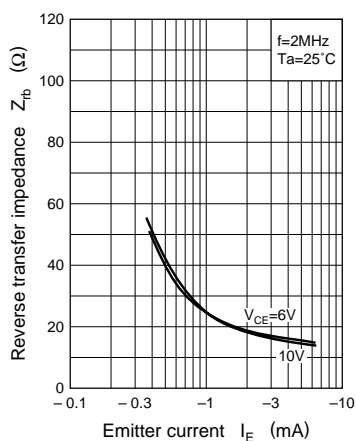
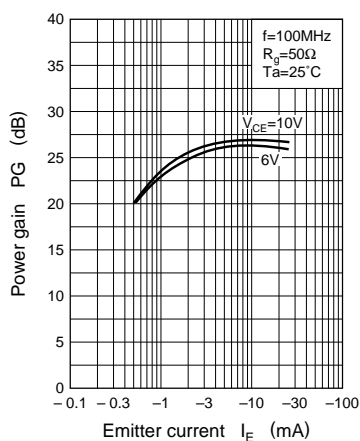
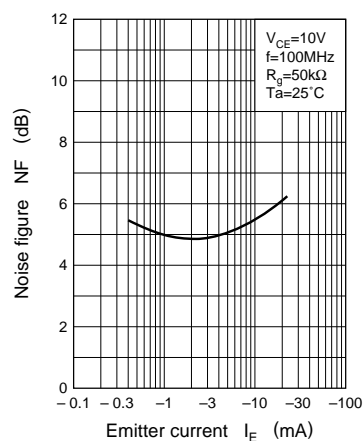
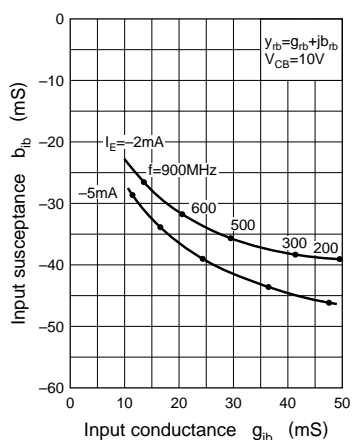
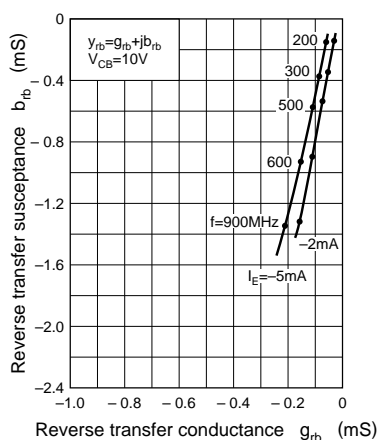
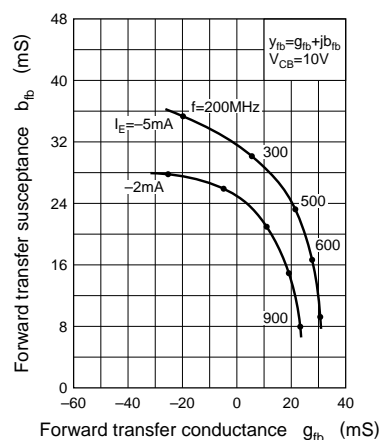


Parameter	Symbol	Conditions	min	typ	max	Unit
Collector to base voltage	$V_{CBO}$	$I_C = 100\mu A, I_E = 0$	30			V
Emitter to base voltage	$V_{EBO}$	$I_E = 10\mu A, I_C = 0$	3			V
Forward current transfer ratio	$h_{FE}$	$V_{CB} = 10V, I_E = -2mA$	25			
Base to emitter voltage	$V_{BE}$	$V_{CB} = 10V, I_E = -2mA$		0.72		V
Collector to emitter saturation voltage	$V_{CE(sat)}$	$I_C = 10mA, I_B = 1mA$		0.1		V
Common emitter reverse transfer capacitance	$C_{re}$	$V_{CE} = 10V, I_C = 1mA, f = 10.7MHz$		1	1.5	pF
Transition frequency	$f_T^*$	$V_{CB} = 10V, I_E = -15mA, f = 100MHz$	600	1200	1600	MHz
Power gain	PG	$V_{CB} = 10V, I_E = -1mA, f = 100MHz$		20		dB
Base time constant	$r_{bb}' \cdot C_C$	$V_{CB} = 10V, I_E = -10mA, f = 450kHz$			25	ps

Rank	T	S
f <sub>T</sub> (MHz)	600 ~ 1300	900 ~ 1600



$P_C - T_a$  $I_C - V_{CE}$  $I_C - I_B$  $I_B - V_{BE}$  $I_C - V_{BE}$  $V_{CE(sat)} - I_C$  $h_{FE} - I_C$  $f_T - I_E$  $C_{re} - V_{CE}$ 

$Z_{rb} - I_E$  $PG - I_E$  $NF - I_E$  $b_{ib} - g_{ib}$  $b_{rb} - g_{rb}$  $b_{fb} - g_{fb}$  $b_{ob} - g_{ob}$ 