

## Silicon NPN transistor epitaxial type PR105

### [ Applications ]

TV tuner  
 Cellular phone system  
 High frequency amplifier

### [ Feature ]

High transition frequency  $f_T = 8\text{GHz}$  (typ.)  
 Low output capacitance  $C_{ob} = 1\text{pF}$  (typ.)  
 High gain  
 Low noise

### [ Absolute maximum ratings ( $T_a = 25\text{C}$ ) ]

Characteristic	Symbol	Maximum ratings	Unit
Collector-base voltage	VCBO	15	V
Collector-emitter voltage	VCEO	6	V
Emitter-base voltage	VEBO	1.5	V
Collector current	IC	50	mA
Junction temperature	Tj	125	C
Storage temperature	Tstg	-55 to 125	C

### [ Electrical characteristics ( $T_a = 25\text{C}$ ) ]

Characteristic	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector cut-off current	ICBO	-	-	1	uA	VCB= 10V, IE= 0A
Emitter cut-off current	IEBO	-	-	1	uA	VEB= 1V, IC= 0A
DC current gain	hFE	50	-	250	-	VCE= 5V, IC= 10mA
Transition frequency	fT	5	8	-	GHz	VCE= 5V, IE= -10mA
Collector output capacitance	Cob	-	1	-	pF	VCB= 5V, f = 1MHz, IE= 0A
Insertion power gain	$ S_{21} ^2$	9	12	-	dB	VCE= 5V, IC= 10mA, f= 1GHz
Noise figure	NF	-	1.4	-	dB	VCE= 5V, IC= 5mA, f= 1GHz

Notice 1) These are measured data of transistors assembled by PHENITEC SEMICONDUCTOR Corp. and are for reference only.

Notice 2) The contents described herein are subject to change without notice.

No. PR105-20080902

Fig.1 hFE - IC  
at VCE= 5V, Ta= 25C

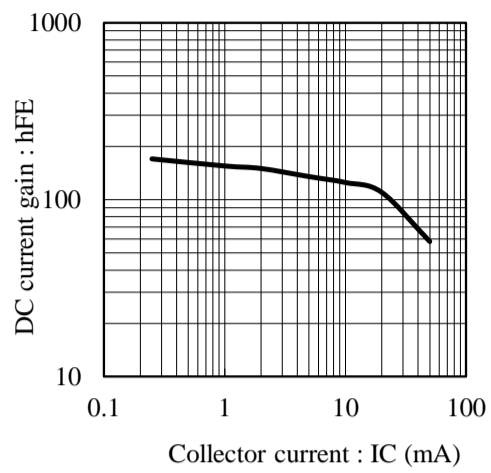


Fig.2 fT - IE  
at VCE= 3V, Ta= 25C

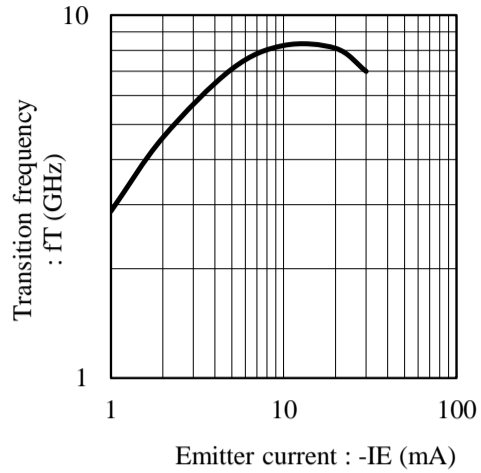


Fig.3 |S21|^2 - IC  
at VCE= 3V, f= 1GHz, Ta= 25C

