

## Silicon PNP transistor epitaxial type A5871

### [ Applications ]

High current amplifier  
Wireless telecommunication devices

### [ Feature ]

Collector current  $I_C = -4A$   
Very low collector saturation voltage  $V_{CE(sat)} = -360mV$  (Max.) at  $I_C = -3A, I_B = -0.3A$   
Excellent gain characteristics specified up to -10 amperes

### [ Absolute maximum ratings (Ta=25C) ]

Characteristic	Symbol	Maximum ratings	Unit
Collector-base voltage	VCBO	-180	V
Collector-emitter voltage	VCEO	-140	V
Emitter-base voltage	VEBO	-7	V
Collector current (DC)	IC	-4	A
Collector current (Pulse)	IC	-10	A
Junction temperature	Tj	150	C
Storage temperature	Tstg	-55 to 150	C

### [ Electrical characteristics (Ta=25C) ]

Characteristic	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BVCBO	-180	-200	-	V	$I_C = -100\mu A$
Collector-emitter breakdown voltage	BVCER	-180	-200	-	V	$I_C = -1\mu A, R_B \leq 1k\Omega$
Collector-emitter breakdown voltage	BVCEO	-140	-160	-	V	$I_C = -10mA$
Emitter-base breakdown voltage	BVEBO	-7	-8	-	V	$I_E = -100\mu A$
Collector cut-off current	ICBO	-	-	-20	nA	$V_{CB} = -150V$
Collector cut-off current	ICER	-	-	-20	nA	$V_{CB} = -150V, R_B \leq 1k\Omega$
Emitter cut-off current	IEBO	-	-	-10	nA	$V_{EB} = -6V$
DC current gain 1	hFE 1	100	225	-	-	$V_{CE} = -5V, I_C = -10mA$
DC current gain 2	hFE 2	100	200	300	-	$V_{CE} = -5V, I_C = -1A$
DC current gain 3	hFE 3	35	-	-	-	$V_{CE} = -5V, I_C = -3A$
DC current gain 4	hFE 4	-	5	-	-	$V_{CE} = -5V, I_C = -10A$
Collector-emitter saturation voltage 1	$V_{CE(sat)1}$	-	-40	-60	mV	$I_C = -0.1A, I_B = -5mA$
Collector-emitter saturation voltage 2	$V_{CE(sat)2}$	-	-55	-80	mV	$I_C = -0.5A, I_B = -50mA$
Collector-emitter saturation voltage 3	$V_{CE(sat)3}$	-	-85	-120	mV	$I_C = -1A, I_B = -0.1A$
Collector-emitter saturation voltage 4	$V_{CE(sat)4}$	-	-275	-360	mV	$I_C = -3A, I_B = -0.3A$
Base-emitter saturation voltage	$V_{BE(sat)}$	-	-0.94	-1.04	V	$I_C = -3A, I_B = -0.3A$
Base-emitter on voltage	$V_{BE(on)}$	-	-0.83	-0.93	V	$V_{CE} = -5V, I_C = -3A$
Transition frequency	fT	-	120	-	MHz	$V_{CE} = -10V, I_E = 0.1A$
Collector output capacitance	Cob	-	33	-	pF	$V_{CB} = -10V, f = 1MHz, I_E = 0A$
Turn on time	ton	-	42	-	ns	$V_{CC} = -50V, I_C = -1A$
Turn off time	toff	-	636	-	ns	$-I_{B1} = I_{B2} = 0.1A$

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.

Fig.1  $I_C - V_{BE(on)}$   
at  $V_{CE} = -5V, T_a = 25C$

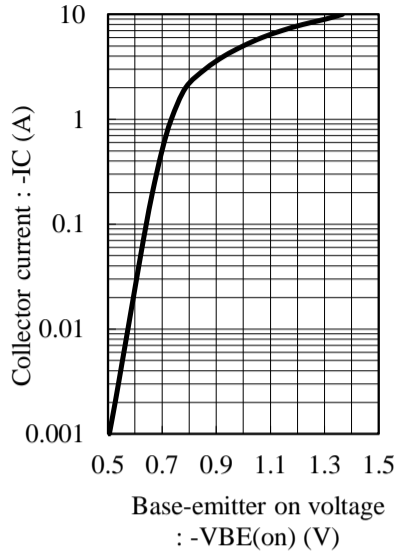


Fig.2  $h_{FE} - I_C$   
at  $V_{CE} = -5V, T_a = 25C$

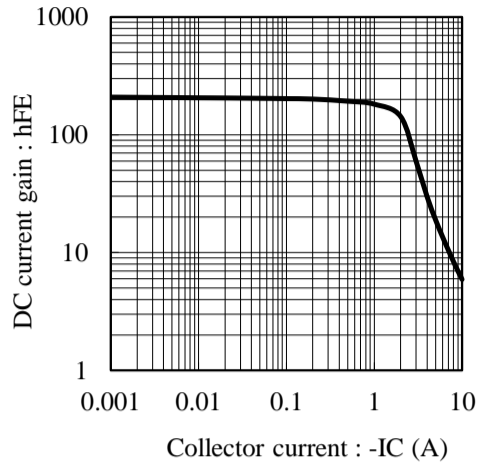


Fig.3  $V_{CE(sat)} - I_C$   
at  $I_C/I_B = 10, T_a = 25C$

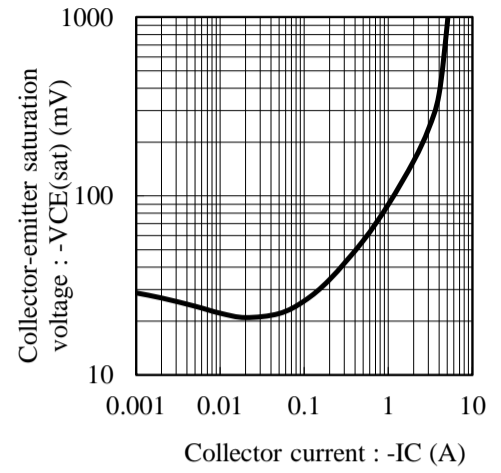


Fig.4  $V_{CE(sat)} - I_C$   
at  $I_C/I_B = 20, T_a = 25C$

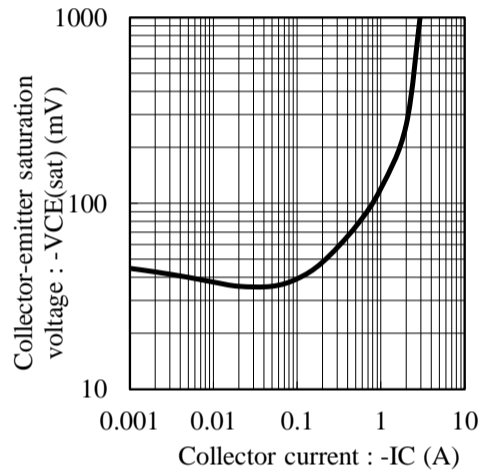


Fig.5  $V_{BE(sat)} - I_C$   
at  $I_C/I_B = 10, T_a = 25C$

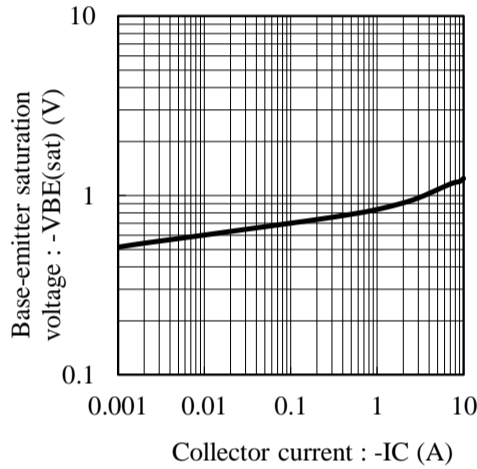


Fig.6  $f_T - I_E$   
at  $V_{CE} = -10V, T_a = 25C$

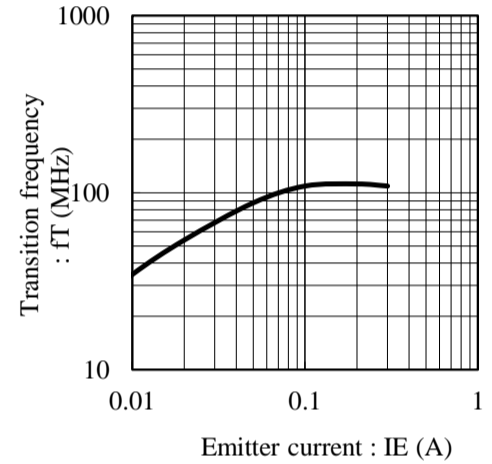


Fig.7  $C_{ob} - V_{CB}$   
at  $f = 1MHz, T_a = 25C$

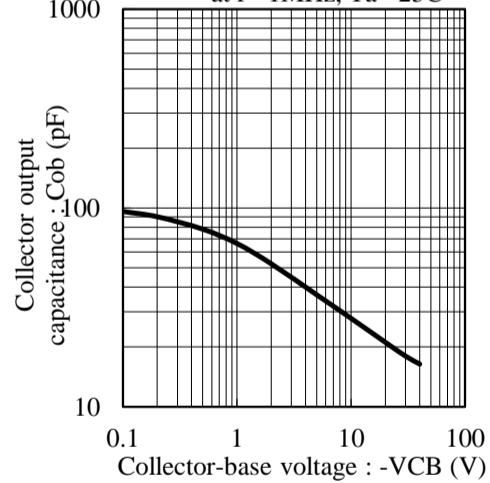


Fig.8  $C_{ib} - V_{EB}$   
at  $f = 1MHz, T_a = 25C$

