

Silicon NPN transistor epitaxial type C5913

[Applications]

High speed switching, DC-DC convertor, DC-AC convertor

[Feature]

High DC gain $hFE= 400-1000$ at $VCE= 2V, IC= 0.3A$

Low collector saturation voltage $VCE(sat)= 0.14V$ (Max.) at $IC= 1A, IB= 20mA$

High speed switching time $tf= 120ns$ (Typ.) at $VCC= 30V, IC= 1A, IB= 33.3mA$

[Absolute maximum ratings (Ta=25C)]

Characteristic	Symbol	Maximum ratings	Unit
Collector-base voltage	VCBO	100	V
Collector-emitter voltage	VCEO	50	V
Emitter-base voltage	VEBO	7	V
Collector current (DC)	IC	3	A
Collector current (Pulse)	ICP	5	A
Base current	IB	0.3	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-emitter breakdown voltage	BVCEO	50	-	-	V	IC= 10mA, IB= 0A
Collector cut-off current	ICBO	-	-	100	nA	VCB= 100V, IE= 0A
Emitter cut-off current	IEBO	-	-	100	nA	VEB= 7V, IC= 0A
DC current gain 1	hFE 1	400	-	1000	-	VCE= 2V, IC= 0.3A
DC current gain 2	hFE 2	200	-	-	-	VCE= 2V, IC= 1A
Collector-emitter saturation voltage	VCE(sat)	-	-	0.14	V	IC= 1A, IB= 20mA
Base-emitter saturation voltage	VBE(sat)	-	-	1.1	V	IC= 1A, IB= 20mA
Transition frequency	fT	-	250	-	MHz	VCE= 2V, IE= -0.3A
Collector output capacitance	Cob	-	13	-	pF	VCB= 10V, f = 1MHz, IE= 0A
Turn on time	ton	-	40	-	ns	VCC= 30V, IC= 1A IB1= -IB2= 33.3mA
Storage time	tstg	-	500	-	ns	
Fall time	tf	-	120	-	ns	

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. C5913-20080806

Fig.1 $I_C - V_{BE(on)}$
at $V_{CE} = 2V, T_a = 25C$

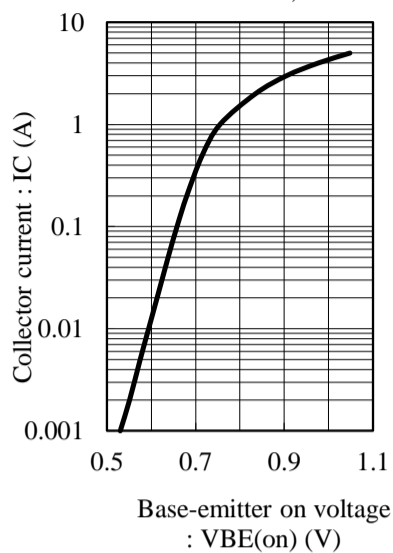


Fig.2 $h_{FE} - I_C$
at $V_{CE} = 2V, T_a = 25C$

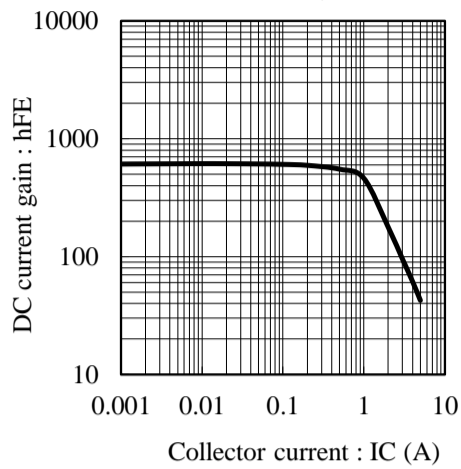


Fig.3 $V_{CE(sat)} - I_C$
at $I_C/I_B = 50, T_a = 25C$

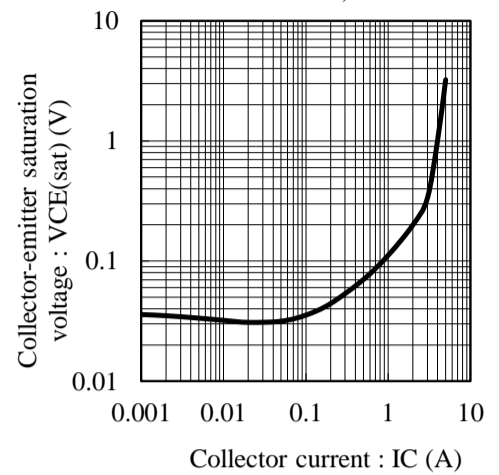


Fig.4 $V_{BE(sat)} - I_C$
at $I_C/I_B = 50, T_a = 25C$

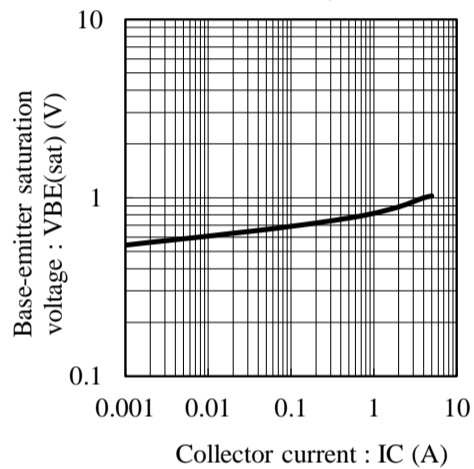


Fig.5 $f_T - I_E$
at $V_{CE} = 5V, T_a = 25C$

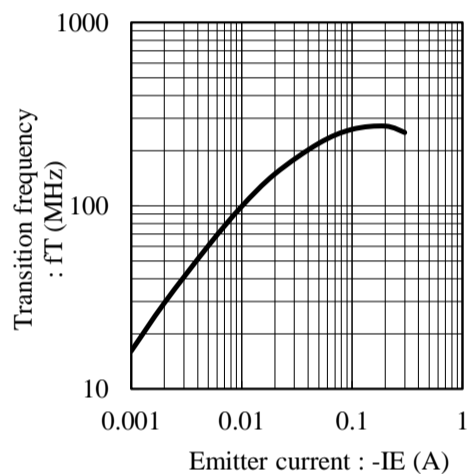


Fig.6 $C_{ob} - V_{CB}$
at $f = 1MHz, T_a = 25C$

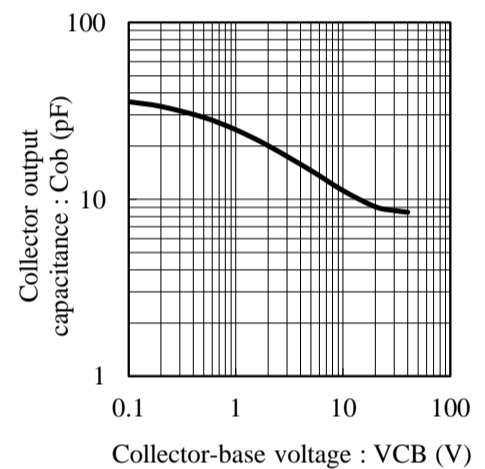


Fig.7 $C_{ib} - V_{EB}$
at $f = 1MHz, T_a = 25C$

