

**Silicon NPN transistor epitaxial type
C5906**
[Applications]

High voltage, High current

[Feature]

 High voltage $V_{CEO} = 170V$

High current gain characteristic

 Low collector-emitter saturation voltage $V_{CE(sat)} = 0.45V(\text{Max.})$ at $I_C/I_B = 2A/200mA$

Fast-switching speed

[Absolute maximum ratings ($T_a=25C$)]

Characteristic	Symbol	Maximum ratings	Unit
Collector-base voltage	VCBO	200	V
Collector-emitter voltage	VCEO	170	V
Emitter-base voltage	VEBO	6	V
Collector current	IC	5	A
Junction temperature	Tj	150	C
Storage temperature	Tstg	-55 to 150	C

[Electrical characteristics ($T_a=25C$)]

Characteristic	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BVCBO	200	-	-	V	$I_C = 1mA$
Collector-emitter breakdown voltage	BVCEO	170	-	-	V	$I_C = 20mA$
Emitter-base breakdown voltage	BVEBO	6	-	-	V	$I_E = 1mA$
Collector cut-off current	ICBO	-	-	10	μA	$V_{CB} = 100V$
DC current gain 1	hFE 1	40	-	-	-	$V_{CE} = 5V, I_C = 500mA$
DC current gain 2	hFE 2	40	-	-	-	$V_{CE} = 5V, I_C = 2A$
DC current gain 3	hFE 3	15	-	-	-	$V_{CE} = 5V, I_C = 5A$
Collector-emitter saturation voltage 1	$V_{CE(sat) 1}$	-	-	0.45	V	$I_C = 2A, I_B = 200mA$
Collector-emitter saturation voltage 2	$V_{CE(sat) 2}$	-	-	1	V	$I_C = 5A, I_B = 500mA$
Base-emitter saturation voltage 1	$V_{BE(sat) 1}$	-	-	1.1	V	$I_C = 2A, I_B = 200mA$
Base-emitter saturation voltage 2	$V_{BE(sat) 2}$	-	-	1.5	V	$I_C = 5A, I_B = 500mA$
Transition frequency	fT	-	90	-	MHz	$V_{CE} = 10V, I_E = -100mA$
Collector output capacitance	Cob	-	-	80	pF	$V_{CB} = 50V, f = 1MHz, I_E = 0A$
Turn on time	ton	-	-	1	μs	$V_{CC} = 40V, I_C = 5A$
Turn off time	toff	-	-	2	μs	$I_B1 = -I_B2 = 500mA$

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 IC - VBE(on)
at VCE= 5V, Ta= 25C

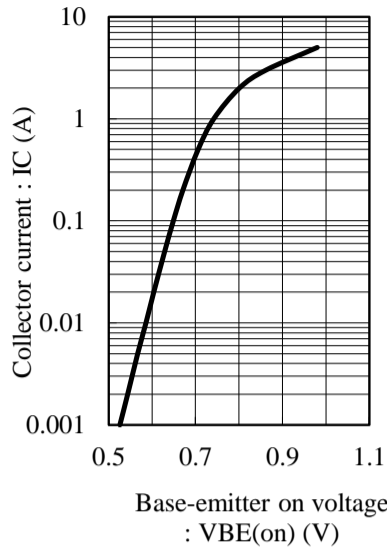


Fig.2 hFE - IC
at VCE= 5V, Ta= 25C

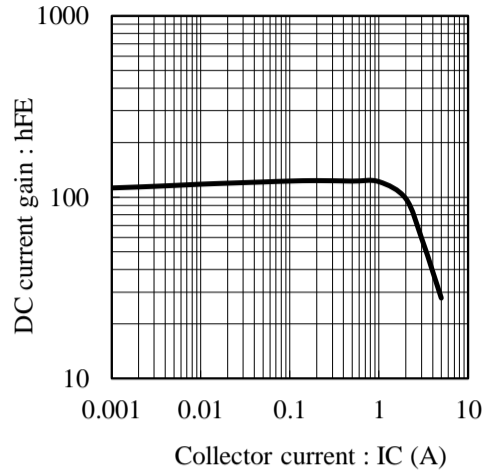


Fig.3 VCE(sat) - IC
at IC/IB= 10, Ta= 25C

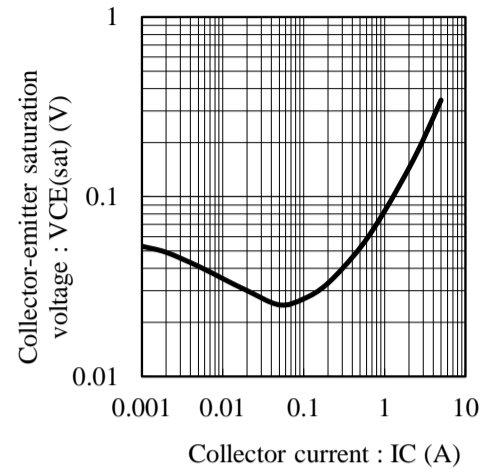


Fig.4 VBE(sat) - IC
at IC/IB= 10, Ta= 25C

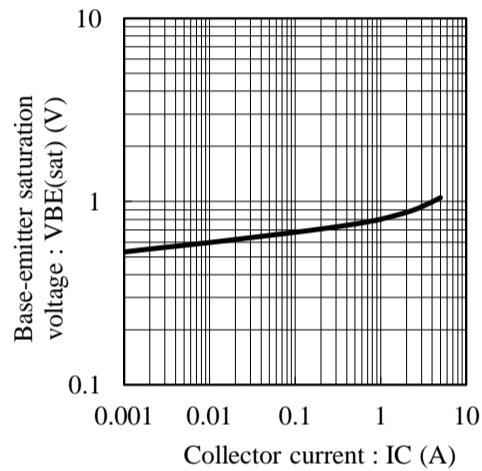


Fig.5 fT - IE
at VCE= 10V, Ta= 25C

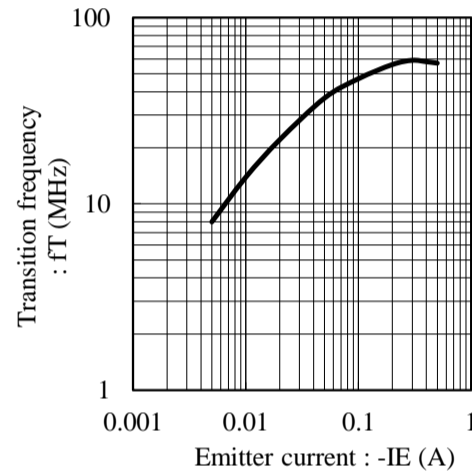
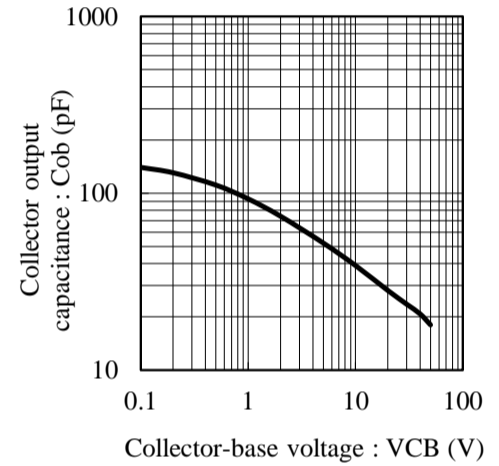


Fig.6 Cob - VCB
at f= 1MHz, Ta= 25C



Ftg.7 Cib - VEB
at f= 1MHz, Ta= 25C

