

Silicon NPN transistor epitaxial type C5910

[Applications]

Switching
DC-DC convertor

[Feature]

High DC gain $hFE=400$ (Typ.) at $VCE=2V$, $IC=1A$
 Low collector saturation voltage $VCE(sat)=0.22V$ (Max.) at $IC=2A$, $IB=50mA$
 High speed switching time $t_{off}=750ns$ (Typ.) at $VCC=10V$, $IC=1A$, $IB=10mA$

[Absolute maximum ratings (Ta=25C)]

Characteristic	Symbol	Maximum ratings	Unit
Collector-base voltage	VCBO	50	V
Collector-emitter voltage	VCEO	50	V
Emitter-base voltage	VEBO	5	V
Collector current (DC)	IC	2	A
Collector current (Pulse)	ICP	6	A
Base current	IB	0.5	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	50	-	-	V	$IC=100\mu A$, $IE=0A$
Collector-emitter breakdown voltage	BVCEO	50	-	-	V	$IC=10mA$, $IB=0A$
Emitter-base breakdown voltage	BVEBO	5	-	-	V	$IE=100\mu A$, $IC=0A$
Collector cut-off current	ICBO	-	-	100	nA	$VCB=40V$, $IE=0A$
Emitter cut-off current	IEBO	-	-	100	nA	$VEB=4V$, $IC=0A$
DC current gain 1	$hFE1$	200	-	-	-	$VCE=2V$, $IC=10mA$
DC current gain 2	$hFE2$	300	-	-	-	$VCE=2V$, $IC=200mA$
DC current gain 3	$hFE3$	200	-	-	-	$VCE=2V$, $IC=1A$
DC current gain 4	$hFE4$	100	-	-	-	$VCE=2V$, $IC=2A$
DC current gain 5	$hFE5$	-	40	-	-	$VCE=2V$, $IC=6A$
Collector-emitter saturation voltage 1	$VCE(sat)1$	-	-	0.02	V	$IC=100mA$, $IB=10mA$
Collector-emitter saturation voltage 2	$VCE(sat)2$	-	-	0.2	V	$IC=1A$, $IB=10mA$
Collector-emitter saturation voltage 3	$VCE(sat)3$	-	-	0.22	V	$IC=2A$, $IB=50mA$
Base-emitter saturation voltage	$VBE(sat)$	-	-	1.0	V	$IC=2A$, $IB=50mA$
Base-emitter on voltage	$VBE(on)$	-	-	1.0	V	$VCE=2V$, $IC=2A$
Transition frequency	f_T	100	-	-	MHz	$VCE=10V$, $IE=-50mA$
Collector output capacitance	Cob	-	-	20	pF	$VCB=10V$, $f=1MHz$, $IE=0A$
Turn on time	ton	-	170	-	ns	$VCC=10V$, $IC=1A$
Turn off time	toff	-	750	-	ns	$IB1=-IB2=10mA$

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= 2V, Ta= 25C

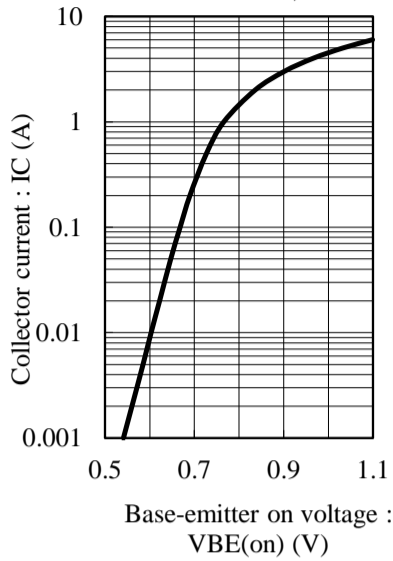


Fig.2 hFE - IC
at VCE= 2V, Ta= 25C

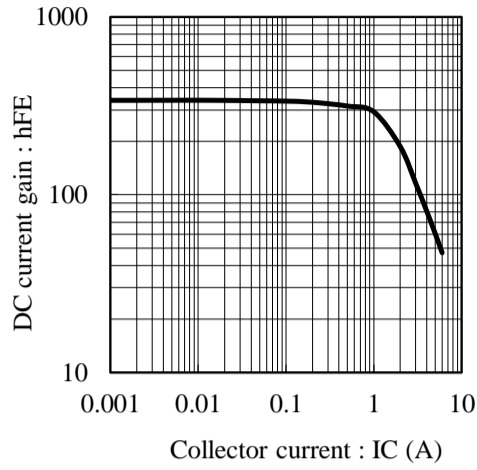


Fig.3 VCE(sat) - IC
at IC/IB= 10, Ta= 25C

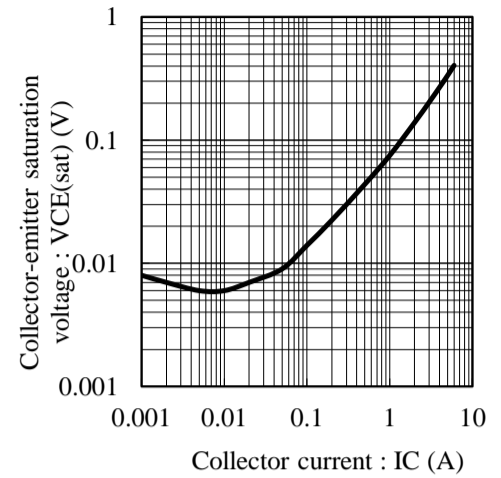


Fig.4 VCE(sat) - IC
at IC/IB= 40, Ta= 25C

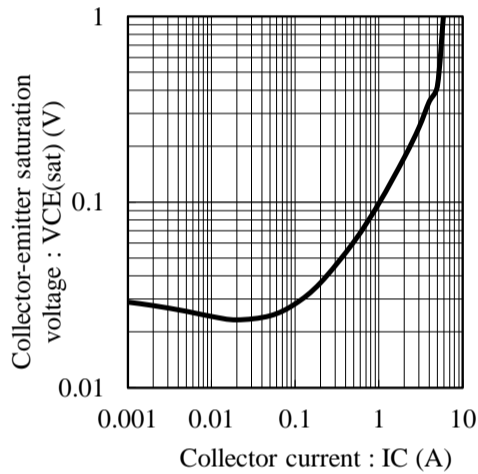


Fig.5 VCE(sat) - IC
at IC/IB= 100, Ta= 25C

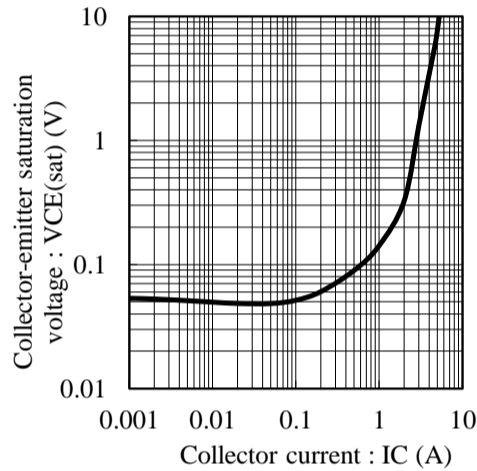


Fig.6 VBE(sat) - IC
at IC/IB= 40, Ta= 25C

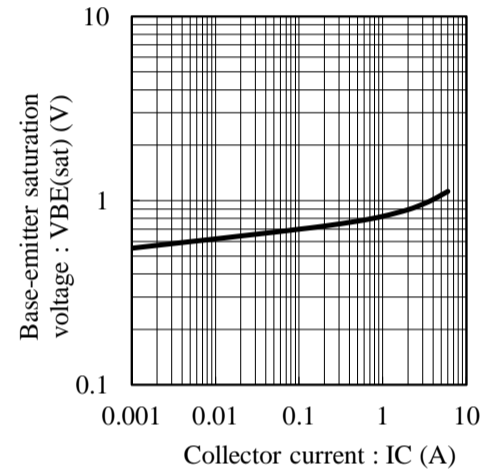


Fig.7 fT - IE
at VCE= 10V, Ta= 25C

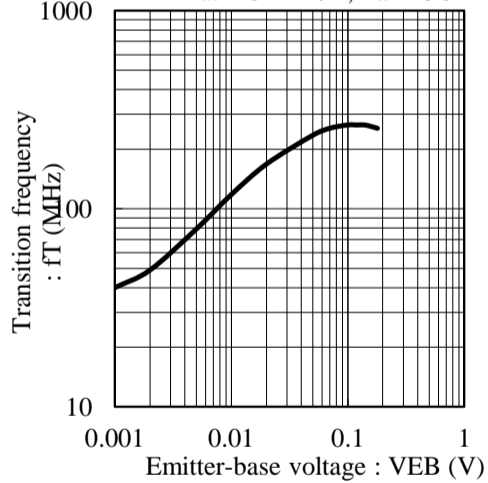


Fig.8 Cob - VCB
at f= 1MHz, Ta= 25C

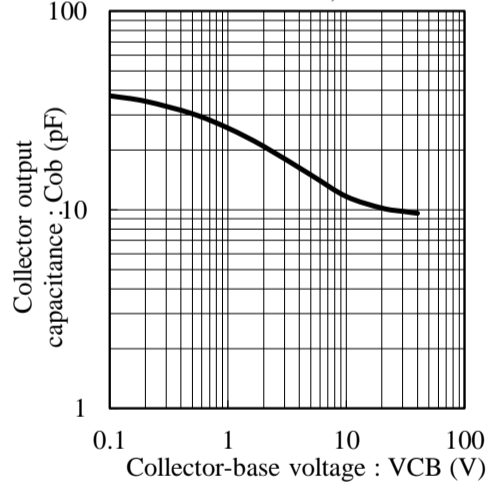


Fig.9 Cib - VEB
at f=1MHz, Ta= 25C

