

**Silicon NPN transistor epitaxial type  
C5913**
**[ Applications ]**

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

**[ Feature ]**

High DC gain  $h_{FE} = 400-1000$  at  $V_{CE} = 2V$ ,  $I_C = 0.3A$

Low collector saturation voltage  $V_{CE(sat)} = 0.14V$  (Max.) at  $I_C = 1A$ ,  $I_B = 20mA$

High speed switching time  $t_f = 120ns$  (Typ.) at  $V_{CC} = 30V$ ,  $I_C = 1A$ ,  $I_B = 33.3mA$

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

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)	$I_C$	3	A
Collector current (Pulse)	ICP	5	A
Base current	$I_B$	0.3	A
Junction temperature	$T_j$	150	C
Storage temperature	$T_{stg}$	-55 to 150	C

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

Characteristic	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-emitter breakdown voltage	BVCEO	50	-	-	V	$I_C = 10mA$ , $I_B = 0A$
Collector cut-off current	ICBO	-	-	100	nA	$V_{CB} = 100V$ , $I_E = 0A$
Emitter cut-off current	IEBO	-	-	100	nA	$V_{EB} = 7V$ , $I_C = 0A$
DC current gain 1	$h_{FE1}$	400	-	1000	-	$V_{CE} = 2V$ , $I_C = 0.3A$
DC current gain 2	$h_{FE2}$	200	-	-	-	$V_{CE} = 2V$ , $I_C = 1A$
Collector-emitter saturation voltage	$V_{CE(sat)}$	-	-	0.14	V	$I_C = 1A$ , $I_B = 20mA$
Base-emitter saturation voltage	$V_{BE(sat)}$	-	-	1.1	V	$I_C = 1A$ , $I_B = 20mA$
Transition frequency	$f_T$	-	250	-	MHz	$V_{CE} = 2V$ , $I_E = -0.3A$
Collector output capacitance	$C_{ob}$	-	13	-	pF	$V_{CB} = 10V$ , $f = 1MHz$ , $I_E = 0A$
Turn on time	$t_{on}$	-	40	-	ns	$V_{CC} = 30V$ , $I_C = 1A$
Storage time	$t_{stg}$	-	500	-	ns	$I_B1 = -I_B2 = 33.3mA$
Fall time	$t_f$	-	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.

Fig.1 IC - VBE(on)  
at VCE= 2V, Ta= 25C

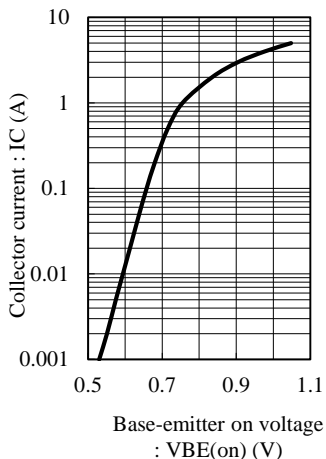


Fig.2 hFE - IC  
at VCE= 2V, Ta= 25C

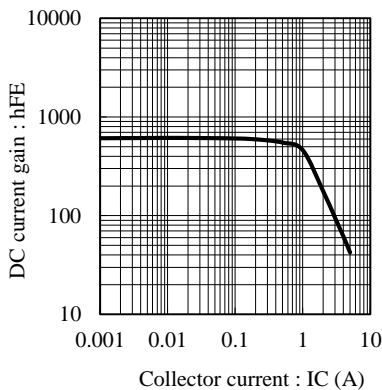


Fig.3 VCE(sat) - IC  
at IC/IB= 50, Ta= 25C

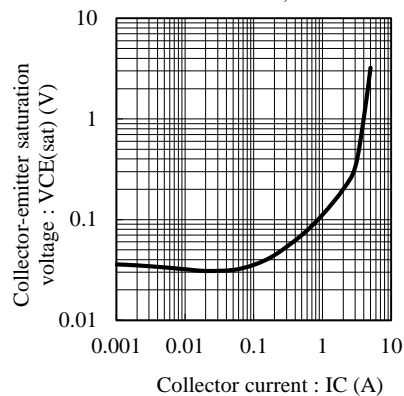


Fig.4 VBE(sat) - IC  
at IC/IB= 50, Ta= 25C

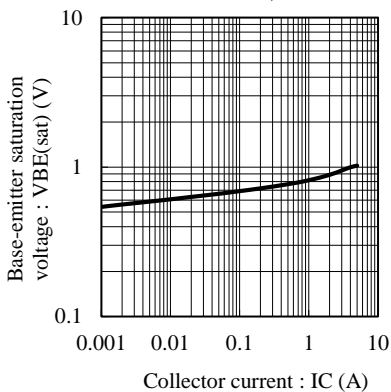


Fig.5 fT - IE  
at VCE= 5V, Ta= 25C

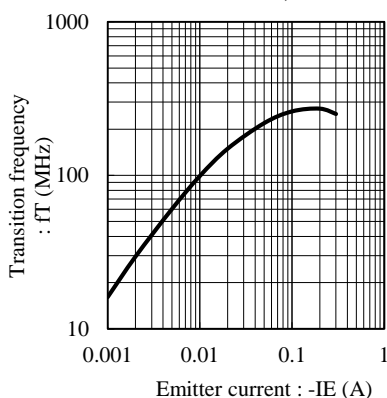


Fig.6 Cob - VCB  
at f= 1MHz, Ta= 25C

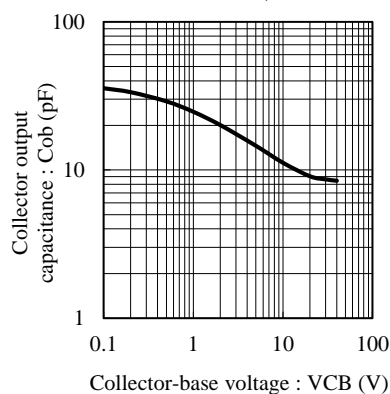


Fig.7 Cib - VEB  
at f= 1MHz, Ta= 25C

