

**Silicon NPN transistor epitaxial type  
C5937**
**[ Applications ]**

High voltage, High current

**[ Feature ]**

 High voltage  $V_{CEO} = 200V$ 

High current gain characteristic

 Low collector-emitter saturation voltage  $V_{CE(sat)} = 0.2V(\text{Max.})$  at  $I_C/I_B = 500mA/50mA$ 

Fast-switching speed

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

Characteristic	Symbol	Maximum ratings	Unit
Collector-base voltage	VCBO	250	V
Collector-emitter voltage	VCEO	200	V
Emitter-base voltage	VEBO	6	V
Collector current	IC	3	A
Junction temperature	Tj	150	C
Storage temperature	Tstg	-55 to 150	C

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

Characteristic	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BVCBO	250	-	-	V	$I_C = 100\mu A$
Collector-emitter breakdown voltage	BVCEO	200	-	-	V	$I_C = 1mA$
Emitter-base breakdown voltage	BVEBO	6	-	-	V	$I_E = 100\mu A$
Collector cut-off current	ICBO	-	-	100	nA	VCB = 200V
Emitter cut-off current	IEBO	-	-	100	nA	VEB = 6V
DC current gain 1	hFE 1	40	-	-	-	$V_{CE} = 5V, I_C = 20mA$
DC current gain 2	hFE 2	40	80	160	-	$V_{CE} = 5V, I_C = 500mA$
Collector-emitter saturation voltage	$V_{CE(sat)}$	-	-	0.2	V	$I_C = 500mA, I_B = 50mA$
Base-emitter saturation voltage	$V_{BE(sat)}$	-	-	1.1	V	$I_C = 500mA, I_B = 50mA$
Transition frequency	fT	50	-	-	MHz	$V_{CE} = 10V, I_E = -100mA$
Collector output capacitance	Cob	-	-	30	pF	VCB = 10V, f = 1MHz, $I_E = 0A$
Turn on time	ton	-	100	-	ns	$V_{CC} = 20V, I_C = 500mA$
Turn off time	toff	-	1500	-	ns	$I_{B1} = -I_{B2} = 50mA$

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

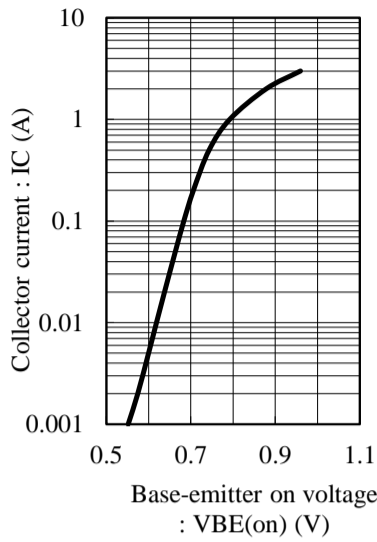


Fig.2 hFE - IC  
at VCE= 5V, Ta= 25C

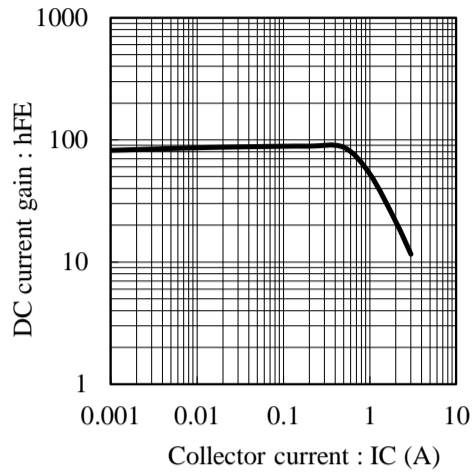


Fig.3 VCE(sat) - IC  
at IC/IB= 10, Ta= 25C

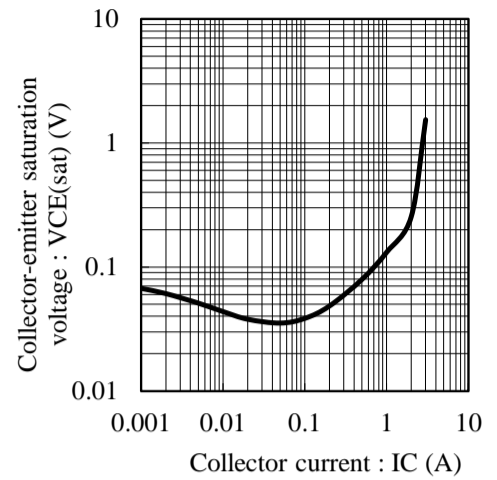


Fig.4 VBE(sat) - IC  
at IC/IB= 10, Ta= 25C

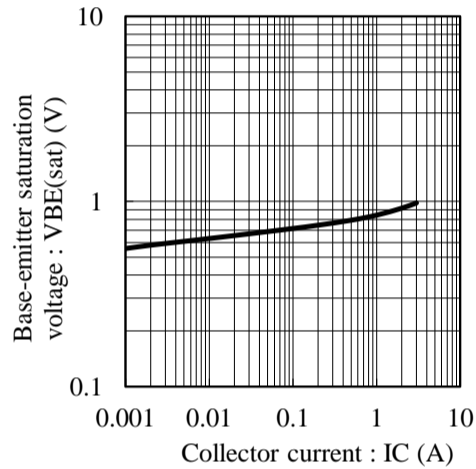


Fig.5 fT - IE  
at VCE= 10V, Ta= 25C

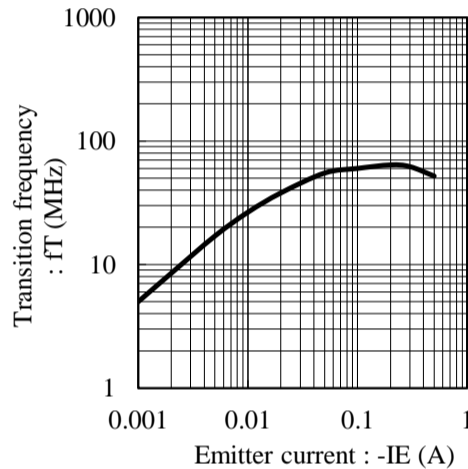


Fig.6 Cob - VCB  
at f= 1MHz, Ta= 25C

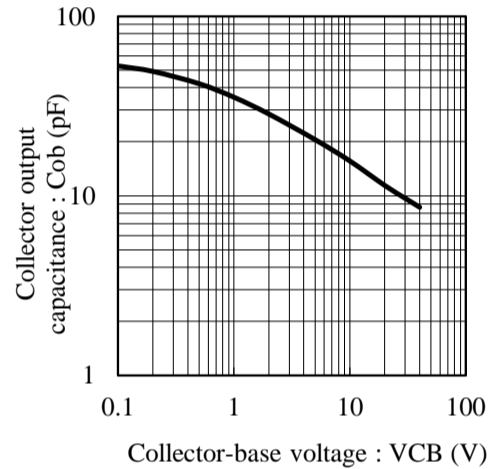


Fig.7 Cib - VEB  
at f= 1MHz, Ta= 25C

