

**Silicon NPN transistor epitaxial type  
C5893**
**[ Applications ]**

DC to DC conversion, MOSFET gate driving  
 Motor control, Power switching, Automotive applications

**[ Feature ]**

Very low collector saturation voltage  $V_{CE(sat)} = 0.5V$  (Max.) at  $I_C = 1A$ ,  $I_B = 0.1A$

**[ Absolute maximum ratings (Ta=25°C) ]**

Characteristic	Symbol	Maximum ratings	Unit
Collector-base voltage	VCBO	40	V
Collector-emitter voltage	VCEO	40	V
Emitter-base voltage	VEBO	5	V
Collector current (DC)	IC	1	A
Collector current (Pulse)	ICP	2	A
Junction temperature	Tj	150	C
Storage temperature	Tstg	-55 to 150	C

**[ Electrical characteristics (Ta=25°C) ]**

Characteristic	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BVCBO	40	-	-	V	$I_C = 100\mu A$ , $I_E = 0A$
Collector-emitter breakdown voltage	BVCEO	40	-	-	V	$I_C = 10mA$ , $I_B = 0A$
Emitter-base breakdown voltage	BVEBO	5	-	-	V	$I_E = 100\mu A$ , $I_C = 0A$
Collector cut-off current	ICBO	-	-	100	nA	$V_{CB} = 30V$ , $I_E = 0A$
Collector cut-off current	ICES	-	-	100	nA	$V_{CES} = 30V$
Emitter cut-off current	IEBO	-	-	100	nA	$V_{EB} = 4V$ , $I_C = 0A$
DC current gain 1	hFE 1	300	-	-	-	$V_{CE} = 5V$ , $I_C = 1mA$
DC current gain 2	hFE 2	300	-	900	-	$V_{CE} = 5V$ , $I_C = 0.5A$
DC current gain 3	hFE 3	200	-	-	-	$V_{CE} = 5V$ , $I_C = 1A$
DC current gain 4	hFE 4	35	-	-	-	$V_{CE} = 5V$ , $I_C = 2A$
Collector-emitter saturation voltage 1	$V_{CE(sat) 1}$	-	-	0.3	V	$I_C = 0.5A$ , $I_B = 50mA$
Collector-emitter saturation voltage 2	$V_{CE(sat) 2}$	-	-	0.5	V	$I_C = 1A$ , $I_B = 0.1A$
Base-emitter saturation voltage	$V_{BE(sat)}$	-	-	1.1	V	$I_C = 1A$ , $I_B = 0.1A$
Base-emitter on voltage	$V_{BE(on)}$	-	-	1	V	$V_{CE} = 5V$ , $I_C = 1A$
Transition frequency	fT	150	-	-	MHz	$V_{CE} = 10V$ , $I_E = -50mA$
Collector output capacitance	Cob	-	-	10	pF	$V_{CB} = 10V$ , $f = 1MHz$ , $I_E = 0A$

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. C5893-20080129

Fig.1 IC - VBE(on)  
at VCE= 5V, Ta= 25C

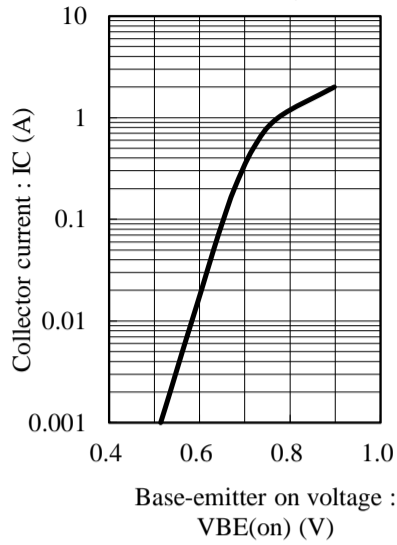


Fig.2 hFE - IC  
at VCE= 5V, Ta= 25C

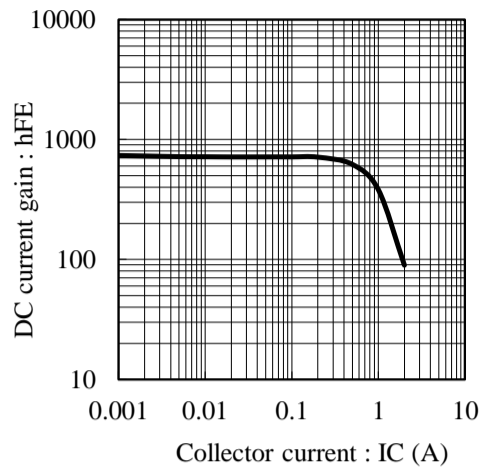


Fig.3 VCE(sat) - IC  
at IC/IB= 10, Ta= 25C

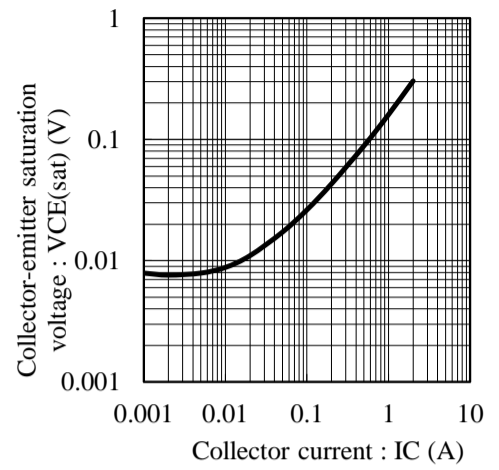


Fig.4 VBE(sat) - IC  
at IC/IB= 10, Ta= 25C

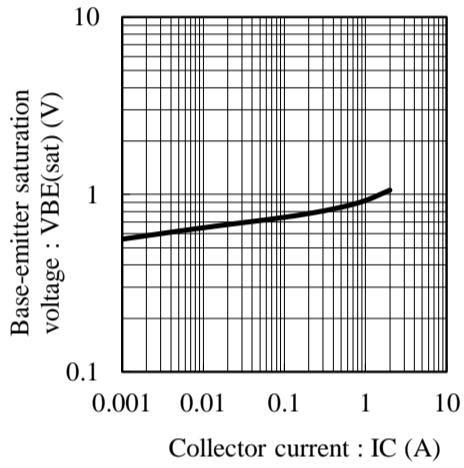


Fig.5 fT - IE  
at VCE= 10V, Ta= 25C

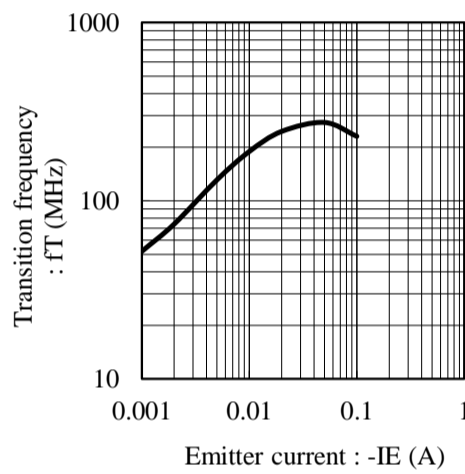


Fig.6 Cob - VCB  
at f= 1MHz, Ta= 25C

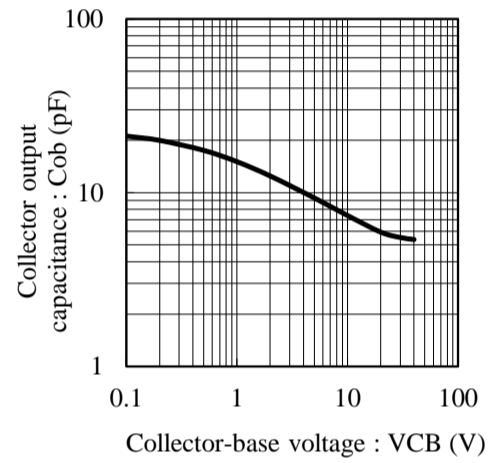


Fig.7 Cib - VEB  
at f= 1MHz, Ta= 25C

