

## Silicon NPN transistor epitaxial type C5886

### [ Applications ]

Supply line switching circuits, Battery charger  
DC-DC converter, MOSFET driver

### [ Feature ]

Very low collector saturation voltage  $V_{CE(sat)} = 355\text{mV}$  (Max.) at  $I_C = 5\text{A}$ ,  $I_B = 0.5\text{A}$

### [ Absolute maximum ratings (Ta=25C) ]

Characteristic	Symbol	Maximum ratings	Unit
Collector-base voltage	VCBO	40	V
Collector-emitter voltage	VCEO	40	V
Emitter-base voltage	VEBO	6	V
Collector current (DC)	IC	5	A
Collector current (Pulse)	ICP	10	A
Base current (Pulse)	IBP	2	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	40	-	-	V	$I_C = 100\mu\text{A}$ , $I_E = 0\text{A}$
Collector-emitter breakdown voltage	BVCEO	40	-	-	V	$I_C = 10\text{mA}$ , $I_B = 0\text{A}$
Emitter-base breakdown voltage	BVEBO	6	-	-	V	$I_E = 100\mu\text{A}$ , $I_C = 0\text{A}$
Collector cut-off current	ICBO	-	-	100	nA	$V_{CB} = 30\text{V}$ , $I_E = 0\text{A}$
Emitter cut-off current	IEBO	-	-	100	nA	$V_{EB} = 5\text{V}$ , $I_C = 0\text{A}$
DC current gain 1	hFE 1	300	500	-	-	$V_{CE} = 2\text{V}$ , $I_C = 0.5\text{A}$
DC current gain 2	hFE 2	300	500	-	-	$V_{CE} = 2\text{V}$ , $I_C = 1\text{A}$
DC current gain 3	hFE 3	250	450	-	-	$V_{CE} = 2\text{V}$ , $I_C = 2\text{A}$
DC current gain 4	hFE 4	100	300	-	-	$V_{CE} = 2\text{V}$ , $I_C = 5\text{A}$
Collector-emitter saturation voltage 1	$V_{CE(sat)1}$	-	50	90	mV	$I_C = 0.5\text{A}$ , $I_B = 5\text{mA}$
Collector-emitter saturation voltage 2	$V_{CE(sat)2}$	-	75	120	mV	$I_C = 1\text{A}$ , $I_B = 10\text{mA}$
Collector-emitter saturation voltage 3	$V_{CE(sat)3}$	-	90	150	mV	$I_C = 2\text{A}$ , $I_B = 0.2\text{A}$
Collector-emitter saturation voltage 4	$V_{CE(sat)4}$	-	210	355	mV	$I_C = 5\text{A}$ , $I_B = 0.5\text{A}$
Base-emitter saturation voltage	$V_{BE(sat)}$	-	1.1	1.3	V	$I_C = 5\text{A}$ , $I_B = 0.5\text{A}$
Base-emitter on voltage	$V_{BE(on)}$	-	0.8	1.1	V	$V_{CE} = 2\text{V}$ , $I_C = 2\text{A}$
Transition frequency	fT	70	130	-	MHz	$V_{CE} = 10\text{V}$ , $I_E = -0.1\text{A}$
Collector output capacitance	Cob	-	60	75	pF	$V_{CB} = 10\text{V}$ , $f = 1\text{MHz}$ , $I_E = 0\text{A}$

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. C5886-20081014

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

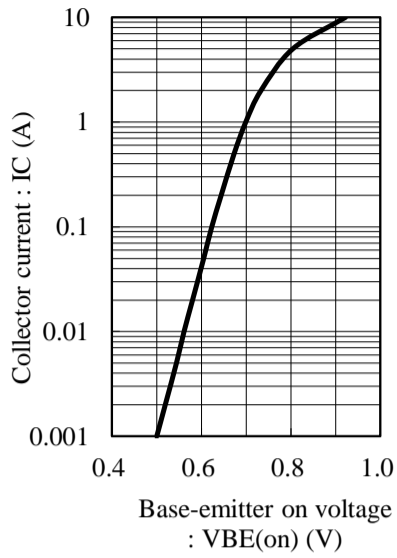


Fig.2 hFE - IC  
at VCE= 2V, Ta= 25C

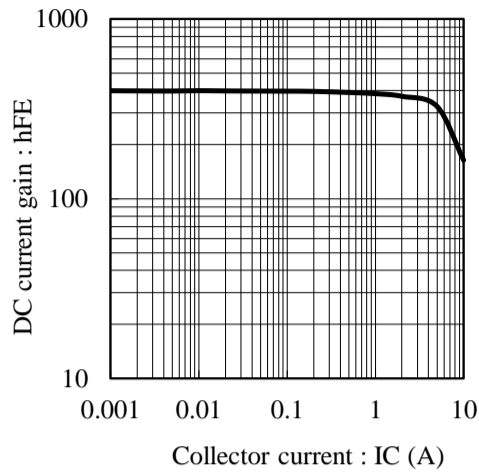


Fig.3 VCE(sat) - IC  
at IC/IB= 10, Ta= 25C

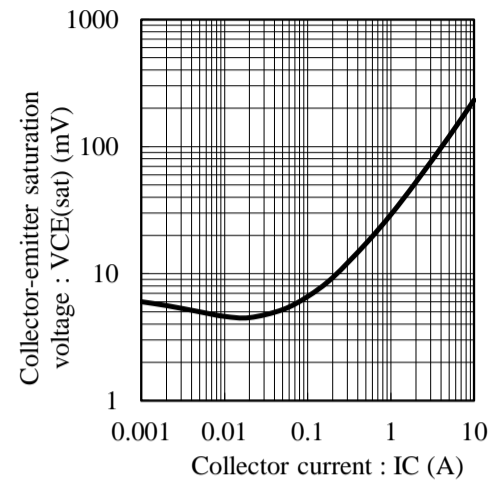


Fig.4 VCE(sat) - IC  
at IC/IB= 100, Ta= 25C

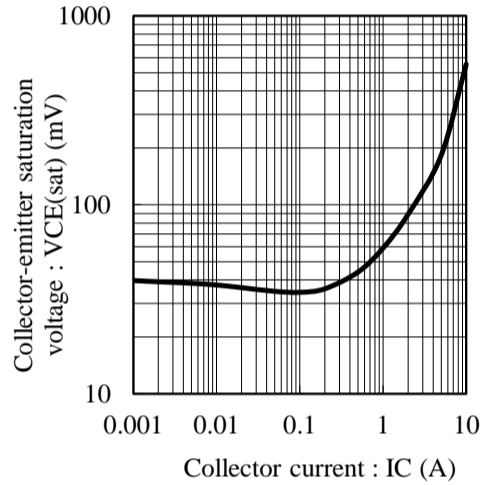


Fig.5 VBE(sat) - IC  
at IC/IB= 10, Ta= 25C

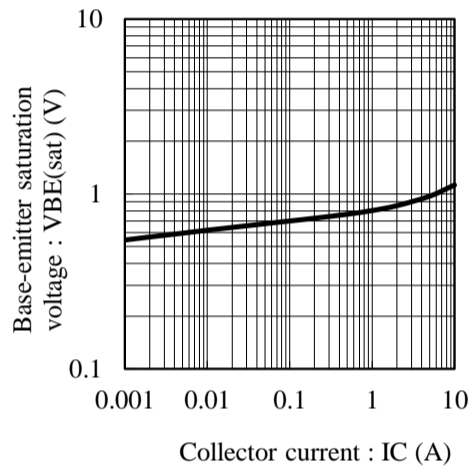


Fig.6 fT - IE  
at VCE= 10V, Ta= 25C

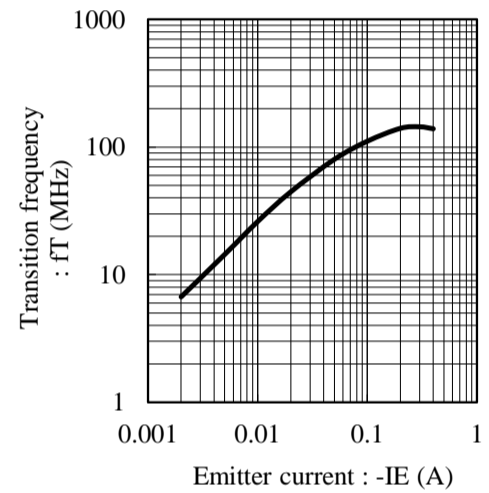


Fig.7 Cob - VCB  
at f= 1MHz, Ta= 25C

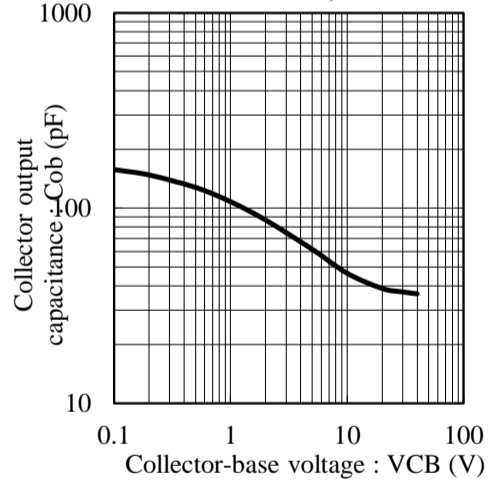


Fig.8 Cib - VEB  
at f= 1MHz, Ta= 25C

