

**Silicon NPN transistor epitaxial type  
C5866**

**[ Applications ]**

Supply line switching circuits  
Battery management  
DC-DC convertor  
Strobe flash  
Motor and lamp driver

**[ Feature ]**

High DC gain  $h_{FE} = 350$ - at  $V_{CE} = 2V$ ,  $I_C = 0.1A$   
Low collector saturation voltage  $V_{CE(sat)} < 180mV$  at  $I_C = 1A$ ,  $I_B = 50mA$

**[ 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	5	V
Collector current (DC)	IC	2	A
Collector current (Pulse)	ICP	3	A
Base current (Pulse)	IBP	0.3	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-emitter breakdown voltage	BVCEO	40	-	-	V	$I_C = 10mA$ , $I_B = 0A$
Collector cut-off current	ICBO	-	-	100	nA	$V_{CB} = 30V$ , $I_E = 0A$
Emitter cut-off current	IEBO	-	-	100	nA	$V_{EB} = 4V$ , $I_C = 0A$
DC current gain 1	$h_{FE} 1$	350	450	-	-	$V_{CE} = 2V$ , $I_C = 0.1A$
DC current gain 2	$h_{FE} 2$	300	450	-	-	$V_{CE} = 2V$ , $I_C = 0.5A$
DC current gain 3	$h_{FE} 3$	300	420	-	-	$V_{CE} = 2V$ , $I_C = 1A$
DC current gain 4	$h_{FE} 4$	150	250	-	-	$V_{CE} = 2V$ , $I_C = 2A$
Collector-emitter saturation voltage 1	$V_{CE(sat)} 1$	-	45	70	mV	$I_C = 0.1A$ , $I_B = 1mA$
Collector-emitter saturation voltage 2	$V_{CE(sat)} 2$	-	70	100	mV	$I_C = 0.5A$ , $I_B = 50mA$
Collector-emitter saturation voltage 3	$V_{CE(sat)} 3$	-	120	180	mV	$I_C = 0.75A$ , $I_B = 15mA$
Collector-emitter saturation voltage 4	$V_{CE(sat)} 4$	-	130	180	mV	$I_C = 1A$ , $I_B = 50mA$
Collector-emitter saturation voltage 5	$V_{CE(sat)} 5$	-	240	320	mV	$I_C = 2A$ , $I_B = 0.2A$
Base-emitter saturation voltage	$V_{BE(sat)}$	-	-	1.1	V	$I_C = 2A$ , $I_B = 0.2A$
Base-emitter on voltage	$V_{BE(on)}$	-	-	0.75	V	$V_{CE} = 2V$ , $I_C = 0.1A$
Transition frequency	fT	100	200	-	MHz	$V_{CE} = 10V$ , $I_E = -0.1A$
Collector output capacitance	Cob	-	14	20	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.

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

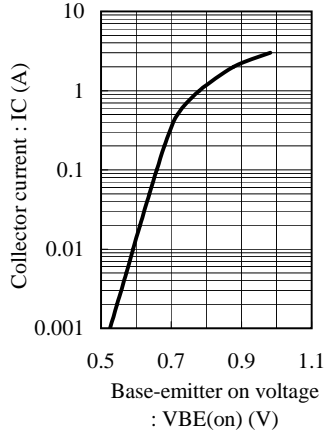


Fig.2 hFE - IC  
at VCE= 2V, Ta= 25C

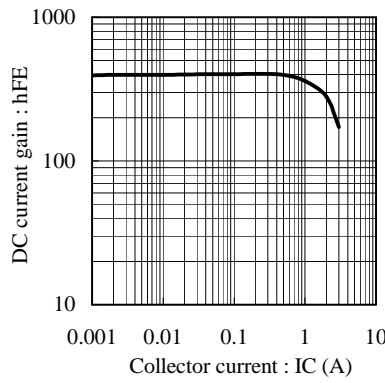


Fig.3 VCE(sat) - IC  
at IC/IB= 10, Ta= 25C

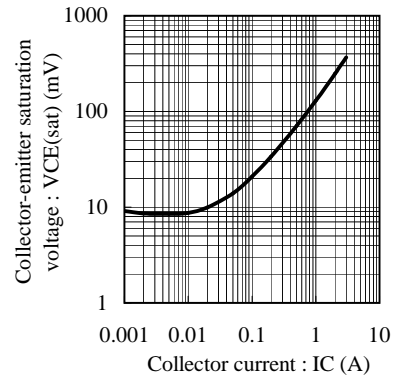


Fig.4 VCE(sat) - IC  
at IC/IB= 20, Ta= 25C

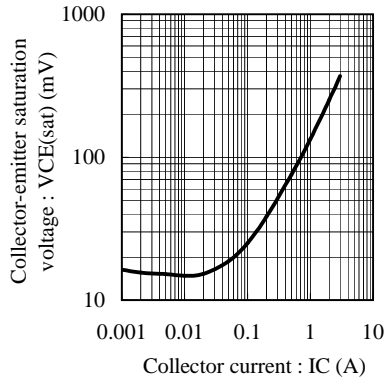


Fig.5 VCE(sat) - IC  
at IC/IB= 50, Ta= 25C

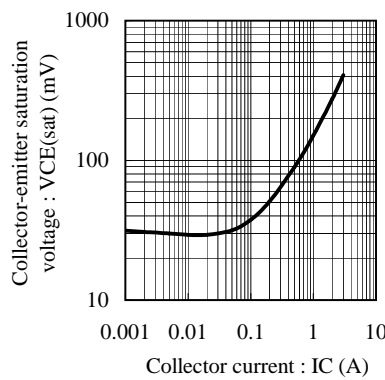


Fig.6 VCE(sat) - IC  
at IC/IB= 100, Ta= 25C

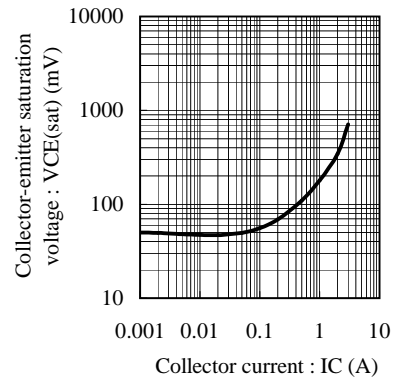


Fig.7 VBE(sat) - IC  
at IC/IB= 10, Ta= 25C

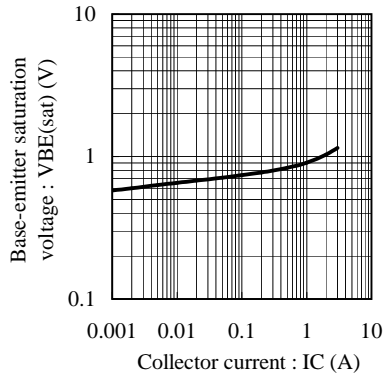


Fig.8 VBE(sat) - IC  
at IC/IB=20, Ta= 25C

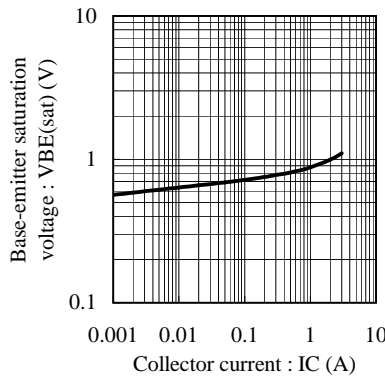


Fig.9 fT - IE  
at VCE= 10V, Ta= 25C

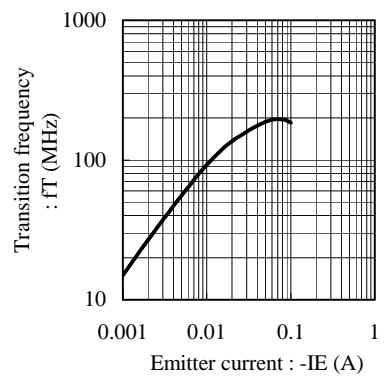


Fig.10 Cob - VCB  
at f= 1MHz, Ta= 25C

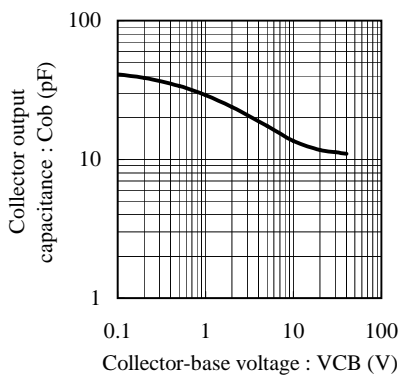


Fig.11 Cib - VEB  
at f= 1MHz, Ta= 25C

