

**Silicon PNP transistor epitaxial type**  
**A5859**
**[ Applications ]**

Battery powered circuit (FET driver)

**[ Feature ]**

 High DC gain  $h_{FE}= 120-360$  at  $V_{CE}= -2V$ ,  $I_C= -0.5A$ 

 Low collector saturation voltage  $V_{CE(sat)}= -0.25V$  (Max.) at  $I_C= -2A$ ,  $I_B= -0.2A$ 
**[ Absolute maximum ratings (Ta=25C) ]**

Characteristic	Symbol	Maximum ratings	Unit
Collector-base voltage	VCBO	-140	V
Collector-emitter voltage	VCEO	-100	V
Emitter-base voltage	VEBO	-7	V
Collector current (DC)	IC	-2	A
Collector current (Pulse)	ICP	-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-base breakdown voltage	BVCBO	-140	-	-	V	$I_C= -100\mu A$ , $I_E= 0A$
Collector-emitter breakdown voltage	BVCEO	-100	-	-	V	$I_C= -10mA$ , $I_B= 0A$
Emitter-base breakdown voltage	BVEBO	-7	-	-	V	$I_E= -100\mu A$ , $I_C= 0A$
Collector cut-off current	ICBO	-	-	-100	nA	$V_{CB}= -140V$ , $I_E= 0A$
Emitter cut-off current	IEBO	-	-	-50	nA	$V_{EB}= -6V$ , $I_C= 0A$
DC current gain 1	$h_{FE} 1$	150	-	-	-	$V_{CE}= -2V$ , $I_C= -10mA$
DC current gain 2	$h_{FE} 2$	120	240	360	-	$V_{CE}= -2V$ , $I_C= -0.5A$
DC current gain 3	$h_{FE} 3$	80	-	-	-	$V_{CE}= -2V$ , $I_C= -1A$
DC current gain 4	$h_{FE} 4$	50	-	-	-	$V_{CE}= -2V$ , $I_C= -2A$
Collector-emitter saturation voltage 1	$V_{CE(sat)} 1$	-	-	-0.04	V	$I_C= -0.1A$ , $I_B= -10mA$
Collector-emitter saturation voltage 2	$V_{CE(sat)} 2$	-	-	-0.08	V	$I_C= -0.5A$ , $I_B= -50mA$
Collector-emitter saturation voltage 3	$V_{CE(sat)} 3$	-	-	-0.115	V	$I_C= -1A$ , $I_B= -0.1A$
Collector-emitter saturation voltage 4	$V_{CE(sat)} 4$	-	-	-0.25	V	$I_C= -2A$ , $I_B= -0.2A$
Base-emitter saturation voltage	$V_{BE(sat)}$	-	-	-0.95	V	$I_C= -1A$ , $I_B= -0.1A$
Base-emitter on voltage	$V_{BE(on)}$	-	-	-0.85	V	$V_{CE}= -2V$ , $I_C= -1A$
Transition frequency	fT	-	120	-	MHz	$V_{CE}= -5V$ , $I_E= 0.1A$
Collector output capacitance	Cob	-	22	-	pF	$V_{CB}= -10V$ , $f= 1MHz$ , $I_E= 0A$
Collector input capacitance	Cib	-	200	-	pF	$V_{EB}= -2V$ , $f= 1MHz$ , $I_C= 0A$

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. A5859-20150722

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

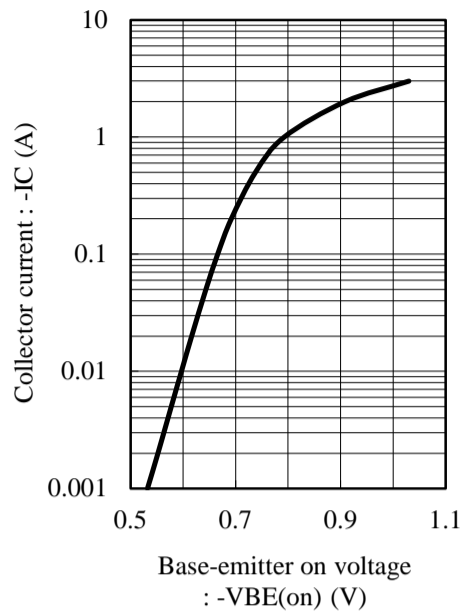


Fig.2 hFE - IC  
at VCE= -2V, Ta= 25C

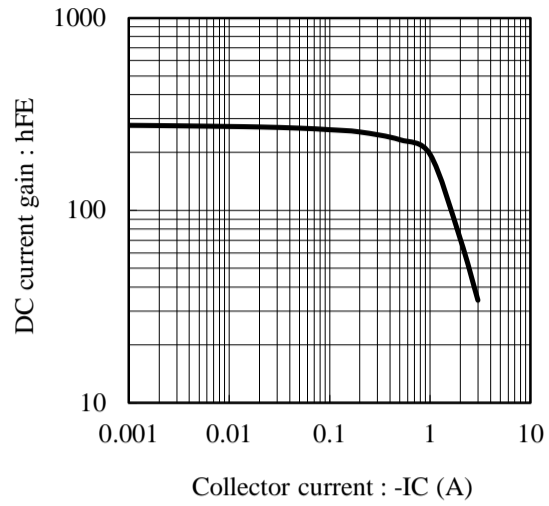


Fig.3 VCE(sat) - IC  
at IC/IB= 10, Ta= 25C

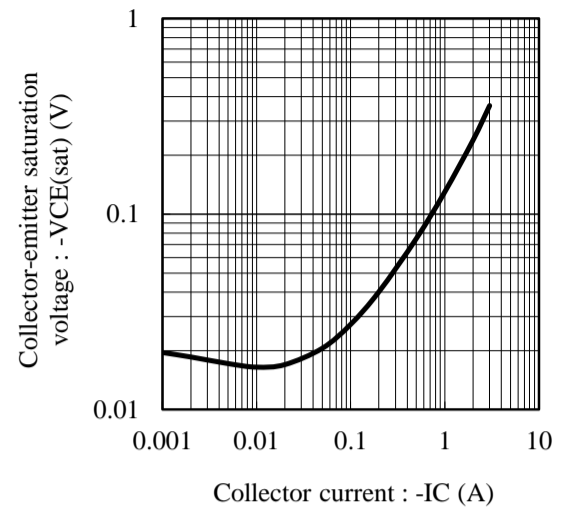


Fig.4 VBE(sat) - IC  
at IC/IB= 10, Ta= 25C

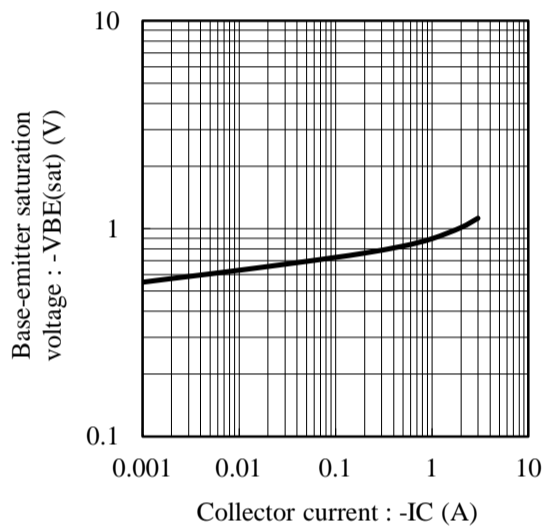


Fig.5 fT - IE  
at VCE= -5V, Ta= 25C

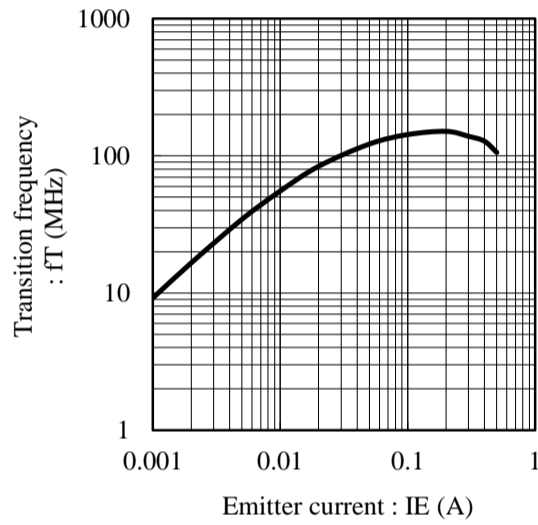


Fig.6 Cob - VCB  
at f= 1MHz, Ta= 25C

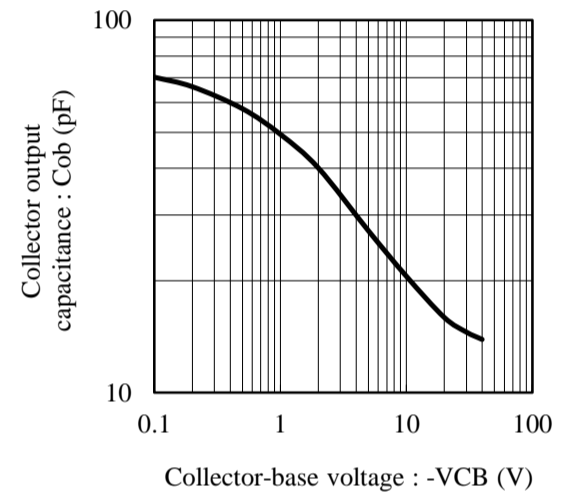


Fig.7 Cib - VEB  
at f= 1MHz, Ta= 25C

