

**Silicon PNP transistor epitaxial type
A5909**

[Applications]

Battery powered circuit

[Feature]

High DC gain $h_{FE} = 500-1500$ at $V_{CE} = -2V$, $I_C = -10mA$

Low collector saturation voltage $V_{CE(sat)} = -0.5V$ (Max.) at $I_C = -3A$, $I_B = -50mA$

[Absolute maximum ratings (Ta=25C)]

Characteristic	Symbol	Maximum ratings	Unit
Collector-base voltage	VCBO	-15	V
Collector-emitter voltage	VCEO	-15	V
Emitter-base voltage	VEBO	-5	V
Collector current (DC)	IC	-3	A
Collector current (Pulse)	ICP	-8	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	-15	-	-	V	$I_C = -100\mu A$, $I_E = 0A$
Collector-emitter breakdown voltage	BVCEO	-15	-	-	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	$V_{CB} = -10V$, $I_E = 0A$
Emitter cut-off current	IEBO	-	-	-100	nA	$V_{EB} = -4V$, $I_C = 0A$
DC current gain 1	$h_{FE} 1$	500	-	1500	-	$V_{CE} = -2V$, $I_C = -10mA$
DC current gain 2	$h_{FE} 2$	400	-	-	-	$V_{CE} = -2V$, $I_C = -1A$
DC current gain 3	$h_{FE} 3$	300	-	-	-	$V_{CE} = -2V$, $I_C = -2A$
DC current gain 4	$h_{FE} 4$	150	-	-	-	$V_{CE} = -2V$, $I_C = -6A$
Collector-emitter saturation voltage 1	$V_{CE(sat)} 1$	-	-	-0.15	V	$I_C = -0.5A$, $I_B = -2.5mA$
Collector-emitter saturation voltage 2	$V_{CE(sat)} 2$	-	-	-0.25	V	$I_C = -1A$, $I_B = -5mA$
Collector-emitter saturation voltage 3	$V_{CE(sat)} 3$	-	-	-0.45	V	$I_C = -2A$, $I_B = -10mA$
Collector-emitter saturation voltage 4	$V_{CE(sat)} 4$	-	-	-0.5	V	$I_C = -3A$, $I_B = -50mA$
Base-emitter saturation voltage	$V_{BE(sat)}$	-	-	-0.9	V	$I_C = -1A$, $I_B = -5mA$
Base-emitter on voltage	$V_{BE(on)}$	-	-0.78	-	V	$V_{CE} = -2V$, $I_C = -1A$
Transition frequency	f_T	100	-	-	MHz	$V_{CE} = -5V$, $I_E = 50mA$
Collector output capacitance	C_{ob}	-	50	-	pF	$V_{CB} = -10V$, $f = 1MHz$, $I_E = 0A$
Collector input capacitance	C_{ib}	-	260	-	pF	$V_{EB} = -0.5V$, $f = 1MHz$, $I_C = 0A$
Turn on time	t_{on}	-	35	-	ns	$V_{CC} = -10V$, $I_C = -500mA$
Turn off time	t_{off}	-	400	-	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=-2V, Ta= 25C

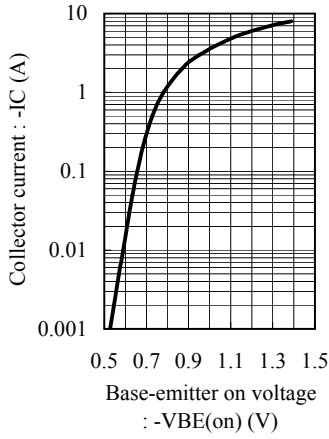


Fig.2 hFE - IC
at VCE=-2V, Ta= 25C

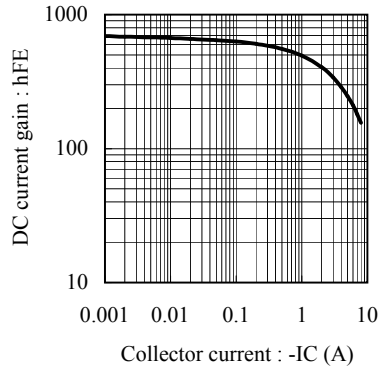


Fig.3 VCE(sat) - IC
at IC/IB= 60, Ta= 25C

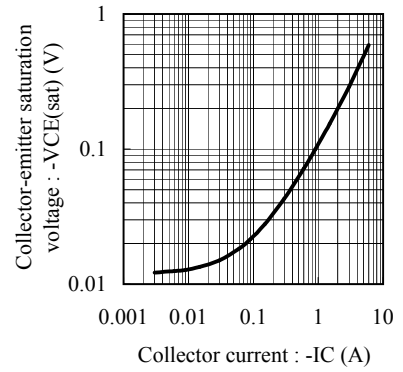


Fig.4 VCE(sat) - IC
at IC/IB= 200, Ta= 25C

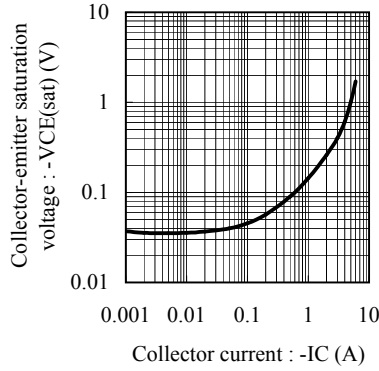


Fig.5 VBE(sat) - IC
at IC/IB= 200, Ta= 25C

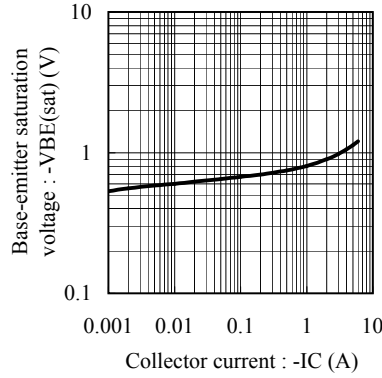


Fig.6 fT - IE
at VCE= -5V, Ta= 25C

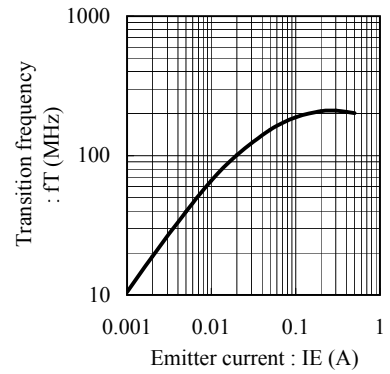


Fig.7 Cob - VCB
at f= 1MHz, Ta= 25C

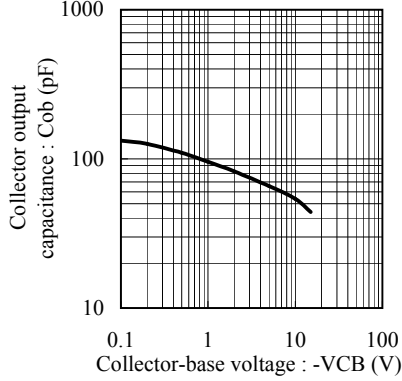


Fig.8 Cib - VEB
at f= 1MHz, Ta= 25C

