Silicon NPN transistor epitaxial type
C5904

[Applications]

DC-DC converter, Strobo flash, Relay drive, Inverter drive
with small VCE(sat) and high current

[Feature]

High collector-emitter breakdown voltage BVCEO= 60V
High collector current IC= 3A
Low collector-emitter saturation voltage VCE(sat)= 0.09V(Typ.) at IC= 1A, IB= 100mA

[Absolute maximum ratings (Ta=25C)]

Characteristic	Symbol	Maximum ratings	Unit
Collector-base voltage	VCBO	80	V
Collector-emitter voltage	VCEO	60	V
Emitter-base voltage	VEBO	5	V
Collector current	IC	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	80	-	-	V	IC= 100uA, IE= 0A
Collector-emitter breakdown voltage	BVCEO	60	-	-	V	IC= 10mA, IB= 0A
Emitter-base breakdown voltage	BVEBO	5	-	-	V	IE= 100uA, IC= 0A
Collector cut-off current	ICBO	-	-	0.1	uA	VCB= 60V, IE= 0A
Emitter cut-off current	IEBO	-	-	0.1	uA	VEB= 4V, IE= 0A
DC current gain 1	hFE 1	70	-	-	-	VCE= 2V, IC= 50mA
DC current gain 2	hFE 2	100	-	300	-	VCE= 2V, IC= 500mA
DC current gain 3	hFE 3	80	-	-	-	VCE= 2V, IC= 1A
DC current gain 4	hFE 4	40	-	-	-	VCE= 2V, IC= 2A
Collector-emitter saturation voltage 1	VCE(sat) 1	-	0.09	0.3	V	IC= 1A, IB= 100mA
Collector-emitter saturation voltage 2	VCE(sat) 2	-	0.23	0.6	V	IC= 3A, IB= 300mA
Base-emitter saturation voltage	VBE(sat)	-	-	1.25	V	IC= 1A, IB= 100mA
Base-emitter on voltage	VEE(on)	-	-	1	V	VCE= 2V, IC= 1A
Transition frequency	f T	140	-	-	MHz	VCE= 5V, IE= -100mA
Collector output capacitance	Cob	-	-	30	pF	VCB= 10V, f = 1MHz, IE= 0A
Turn on time	ton	-	28	-	ns	VCC= 10V, IC= 500mA
Turn off time	toff	-	700	-	ns	IB1= -IB2= 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 VBE(on) - IC
at VCE= 2V, Ta= 25C

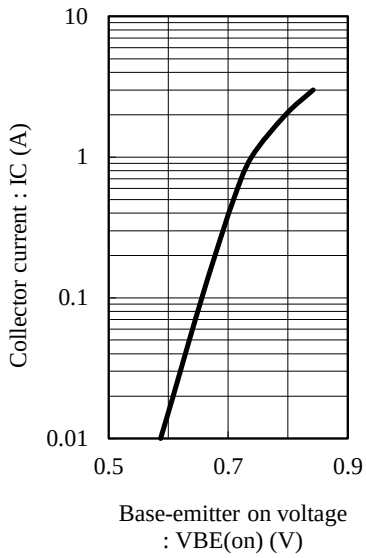

Fig.2 hFE - IC
at VCE= 2V, Ta= 25C

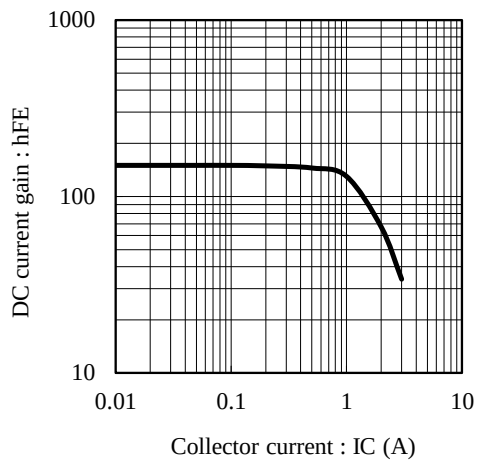

Fig.3 VCE(sat) - IC
at IC/IB= 10, Ta= 25C

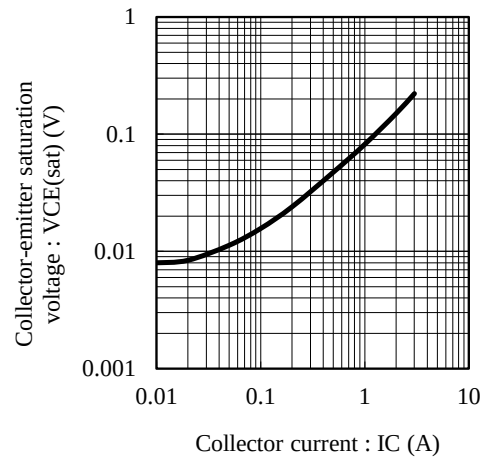

Fig.4 VBE(sat) - IC
at IC/IB= 10, Ta= 25C

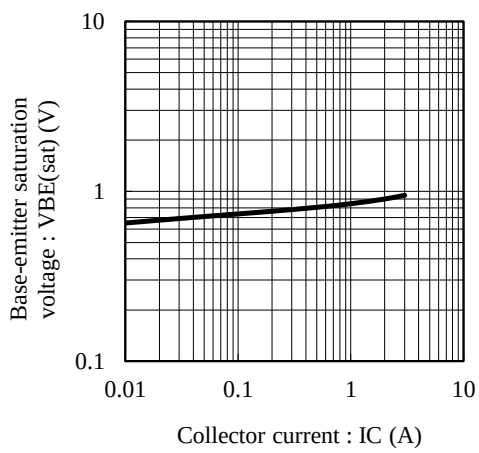

Fig.5 fT - IE
at VCE= 5V, Ta= 25C

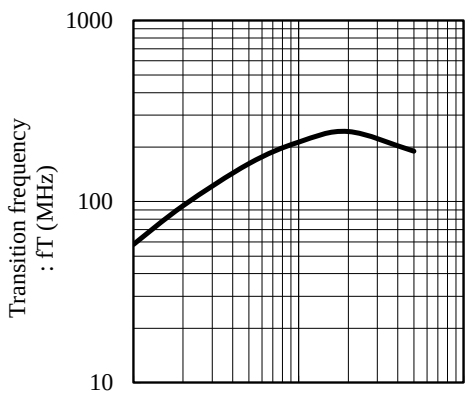

Fig.6 Cob - VCB
at f= 1MHz, Ta= 25C