

**Silicon NPN transistor epitaxial type
C5910**

[Applications]

Switching
DC-DC convertor

[Feature]

High DC gain $h_{FE} = 400(\text{Typ.})$ at $V_{CE} = 2\text{V}$, $I_C = 1\text{A}$
 Low collector saturation voltage $V_{CE(\text{sat})} = 0.22\text{V}(\text{Max.})$ at $I_C = 2\text{A}$, $I_B = 50\text{mA}$
 High speed switching time $t_{\text{off}} = 750\text{ns}(\text{Typ.})$ at $V_{CC} = 10\text{V}$, $I_C = 1\text{A}$, $I_B = 10\text{mA}$

[Absolute maximum ratings (Ta=25°C)]

Characteristic	Symbol	Maximum ratings	Unit
Collector-base voltage	VCBO	50	V
Collector-emitter voltage	VCEO	50	V
Emitter-base voltage	VEBO	5	V
Collector current (DC)	IC	2	A
Collector current (Pulse)	ICP	6	A
Base current	IB	0.5	A
Junction temperature	Tj	150	C
Storage temperature	Tstg	-55 to 150	C

[Electrical characteristics (Ta=25°C)]

Characteristic	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BVCBO	50	-	-	V	$I_C = 100\mu\text{A}$, $I_E = 0\text{A}$
Collector-emitter breakdown voltage	BVCEO	50	-	-	V	$I_C = 10\text{mA}$, $I_B = 0\text{A}$
Emitter-base breakdown voltage	BVEBO	5	-	-	V	$I_E = 100\mu\text{A}$, $I_C = 0\text{A}$
Collector cut-off current	ICBO	-	-	100	nA	$V_{CB} = 40\text{V}$, $I_E = 0\text{A}$
Emitter cut-off current	IEBO	-	-	100	nA	$V_{EB} = 4\text{V}$, $I_C = 0\text{A}$
DC current gain 1	h_{FE1}	200	-	-	-	$V_{CE} = 2\text{V}$, $I_C = 10\text{mA}$
DC current gain 2	h_{FE2}	300	-	-	-	$V_{CE} = 2\text{V}$, $I_C = 200\text{mA}$
DC current gain 3	h_{FE3}	200	-	-	-	$V_{CE} = 2\text{V}$, $I_C = 1\text{A}$
DC current gain 4	h_{FE4}	100	-	-	-	$V_{CE} = 2\text{V}$, $I_C = 2\text{A}$
DC current gain 5	h_{FE5}	-	40	-	-	$V_{CE} = 2\text{V}$, $I_C = 6\text{A}$
Collector-emitter saturation voltage 1	$V_{CE(\text{sat})1}$	-	-	0.02	V	$I_C = 100\text{mA}$, $I_B = 10\text{mA}$
Collector-emitter saturation voltage 2	$V_{CE(\text{sat})2}$	-	-	0.2	V	$I_C = 1\text{A}$, $I_B = 10\text{mA}$
Collector-emitter saturation voltage 3	$V_{CE(\text{sat})3}$	-	-	0.22	V	$I_C = 2\text{A}$, $I_B = 50\text{mA}$
Base-emitter saturation voltage	$V_{BE(\text{sat})}$	-	-	1.0	V	$I_C = 2\text{A}$, $I_B = 50\text{mA}$
Base-emitter on voltage	$V_{BE(\text{on})}$	-	-	1.0	V	$V_{CE} = 2\text{V}$, $I_C = 2\text{A}$
Transition frequency	f_T	100	-	-	MHz	$V_{CE} = 10\text{V}$, $I_E = -50\text{mA}$
Collector output capacitance	C_{ob}	-	-	20	pF	$V_{CB} = 10\text{V}$, $f = 1\text{MHz}$, $I_E = 0\text{A}$
Turn on time	t_{on}	-	170	-	ns	$V_{CC} = 10\text{V}$, $I_C = 1\text{A}$
Turn off time	t_{off}	-	750	-	ns	$I_{B1} = -I_{B2} = 10\text{mA}$

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.

