

**Silicon NPN transistor epitaxial type
C5983**

[Applications]

General purpose amplifier
High voltage switching (such as telephone)

[Feature]

High voltage $V_{CEO} = 160V$
Collector current $I_C = 0.6A$
Low collector saturation voltage $V_{CE(sat)} = 0.2V$ (Max.) at $I_C = 50mA$, $I_B = 5mA$
PNP complementary pair with A5983

[Absolute maximum ratings (Ta=25C)]

Characteristic	Symbol	Maximum ratings	Unit
Collector-base voltage	VCBO	180	V
Collector-emitter voltage	VCEO	160	V
Emitter-base voltage	VEBO	6	V
Collector current	IC	600	mA
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	180	-	-	V	$I_C = 100\mu A$, $I_E = 0A$
Collector-emitter breakdown voltage	BVCEO	160	-	-	V	$I_C = 1mA$, $I_B = 0A$
Emitter-base breakdown voltage	BVEBO	6	-	-	V	$I_E = 10\mu A$, $I_C = 0A$
Collector cut-off current	ICBO	-	-	50	nA	$V_{CB} = 120V$, $I_E = 0A$
Emitter cut-off current	IEBO	-	-	50	nA	$V_{EB} = 4V$, $I_C = 0A$
DC current gain 1	hFE 1	72	-	-	-	$V_{CE} = 5V$, $I_C = 1mA$
DC current gain 2	hFE 2	72	-	330	-	$V_{CE} = 5V$, $I_C = 10mA$
DC current gain 3	hFE 3	27	-	-	-	$V_{CE} = 5V$, $I_C = 50mA$
Collector-emitter saturation voltage 1	$V_{CE(sat) 1}$	-	-	0.15	V	$I_C = 10mA$, $I_B = 1mA$
Collector-emitter saturation voltage 2	$V_{CE(sat) 2}$	-	-	0.2	V	$I_C = 50mA$, $I_B = 5mA$
Base-emitter saturation voltage 1	$V_{BE(sat) 1}$	-	-	1.0	V	$I_C = 10mA$, $I_B = 1mA$
Base-emitter saturation voltage 2	$V_{BE(sat) 2}$	-	-	1.0	V	$I_C = 50mA$, $I_B = 5mA$
Base-emitter on voltage (only C5983)	$V_{BE(on)}$	-	-	0.76	V	$V_{CE} = 5V$, $I_C = 10mA$
Transition frequency	fT	100	-	300	MHz	$V_{CE} = 10V$, $I_E = -10mA$
Collector output capacitance	Cob	-	-	6	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= 5V, Ta= 25C

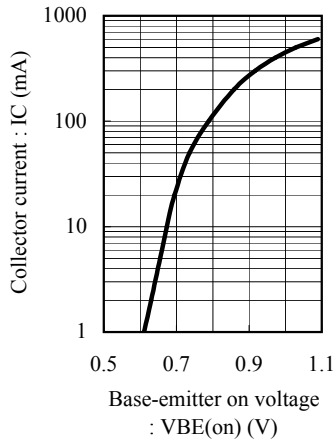


Fig.2 hFE - IC
at VCE= 5V, Ta= 25C

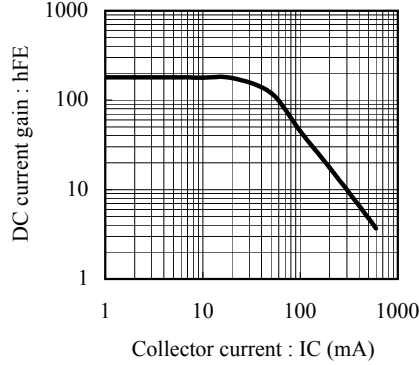


Fig.3 VCE(sat) - IC
at IC/IB= 10, Ta= 25C

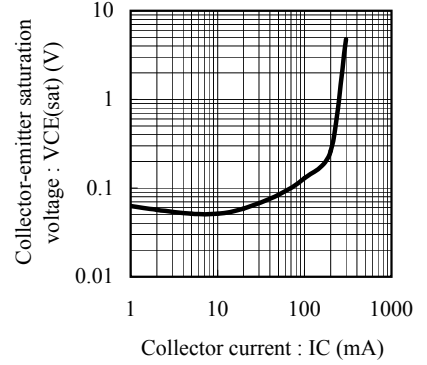


Fig.4 VBE(sat) - IC
at IC/IB= 10, Ta= 25C

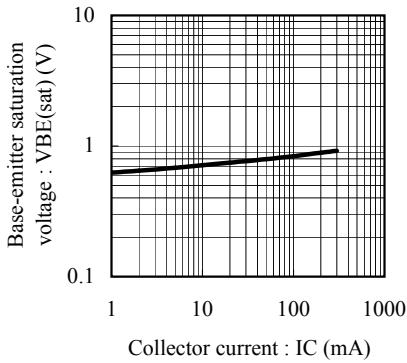


Fig.5 fT - IE
at VCE= 10V, Ta= 25C

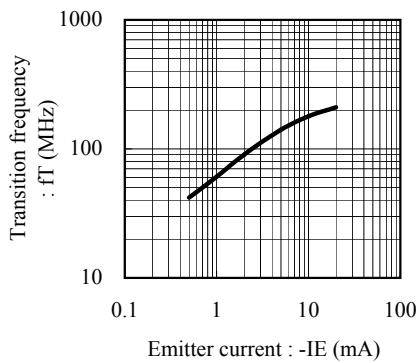


Fig.6 Cob - VCB
at f= 1MHz, Ta= 25C

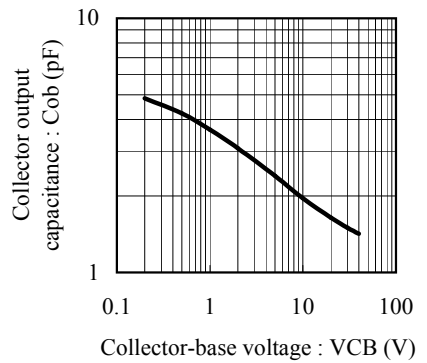


Fig.7 Cib - VEB
at f= 1MHz, Ta= 25C

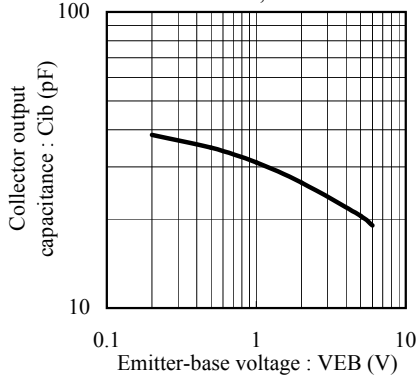


Fig.8 Switching time : ton - IC
at IC/IB= 10, Ta=25 C

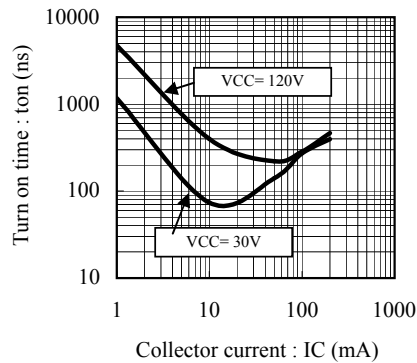


Fig.9 Switching time : tstg - IC
at IC/IB= 10, Ta= 25C

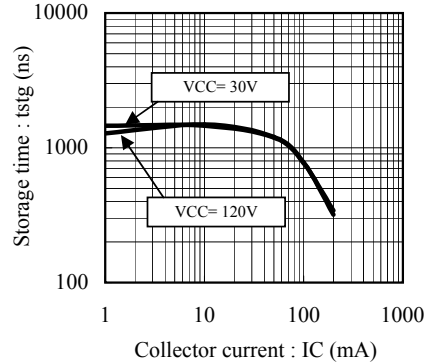


Fig.10 Switching time : tf - IC
at IC/IB= 10, Ta= 25C

