

**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 ( $T_a = 25C$ ) ]**

Characteristic	Symbol	Maximum ratings	Unit
Collector-base voltage	$V_{CBO}$	180	V
Collector-emitter voltage	$V_{CEO}$	160	V
Emitter-base voltage	$V_{EBO}$	6	V
Collector current	$I_C$	600	mA
Junction temperature	$T_j$	150	C
Storage temperature	$T_{stg}$	-55 to 150	C

**[ Electrical characteristics ( $T_a = 25C$ ) ]**

Characteristic	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	$BV_{CBO}$	180	-	-	V	$I_C = 100\mu A$ , $I_E = 0A$
Collector-emitter breakdown voltage	$BV_{CEO}$	160	-	-	V	$I_C = 1mA$ , $I_B = 0A$
Emitter-base breakdown voltage	$BV_{EBO}$	6	-	-	V	$I_E = 10\mu A$ , $I_C = 0A$
Collector cut-off current	$I_{CBO}$	-	-	50	nA	$V_{CB} = 120V$ , $I_E = 0A$
Emitter cut-off current	$I_{EBO}$	-	-	50	nA	$V_{EB} = 4V$ , $I_C = 0A$
DC current gain 1	$h_{FE1}$	72	-	-	-	$V_{CE} = 5V$ , $I_C = 1mA$
DC current gain 2	$h_{FE2}$	72	-	330	-	$V_{CE} = 5V$ , $I_C = 10mA$
DC current gain 3	$h_{FE3}$	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	$f_T$	100	-	300	MHz	$V_{CE} = 10V$ , $I_E = -10mA$
Collector output capacitance	$C_{ob}$	-	-	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

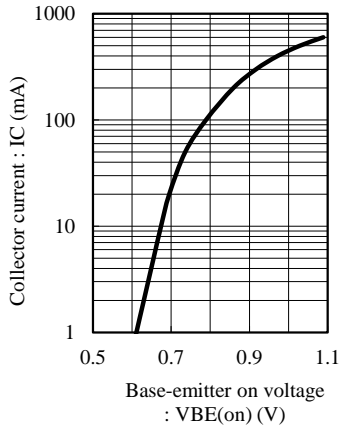


Fig.2 hFE - IC  
at VCE= 5V, Ta= 25C

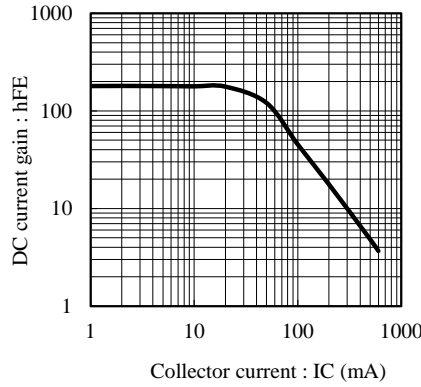


Fig.3 VCE(sat) - IC  
at IC/IB= 10, Ta= 25C

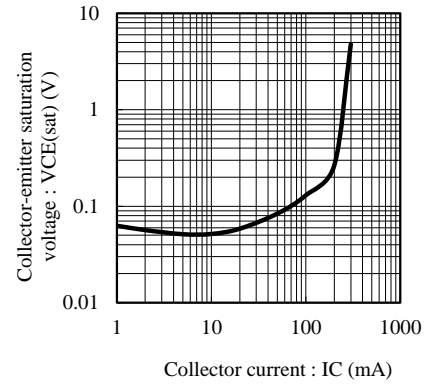


Fig.4 VBE(sat) - IC  
at IC/IB= 10, Ta= 25C

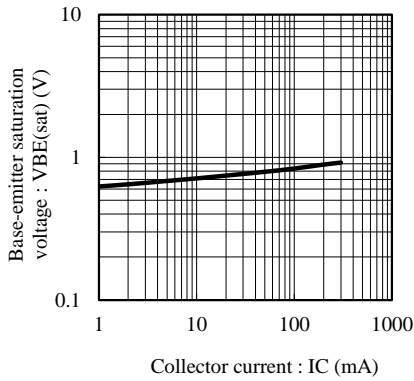


Fig.5 fT - IE  
at VCE= 10V, Ta= 25C

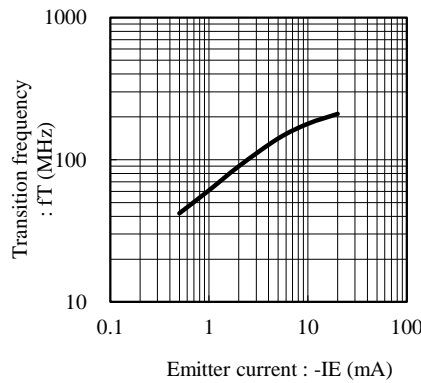


Fig.6 Cob - VCB  
at f= 1MHz, Ta= 25C

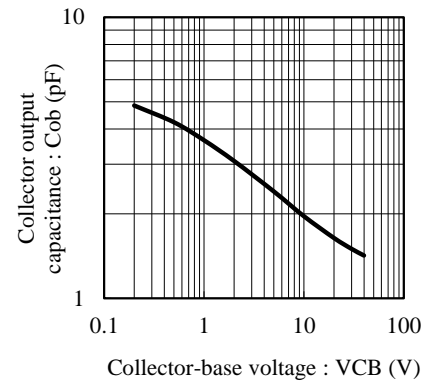


Fig.7 Cib - VEB  
at f= 1MHz, Ta= 25C

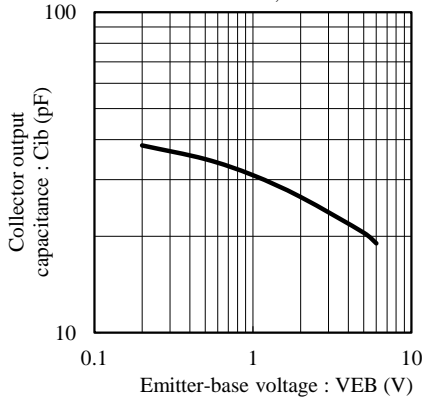


Fig.8 Switching time : ton - IC  
at IC/IB= 10, Ta=25 C

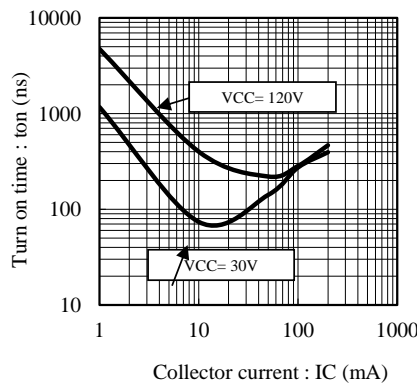


Fig.9 Switching time : tstg - IC  
at IC/IB= 10, Ta= 25C

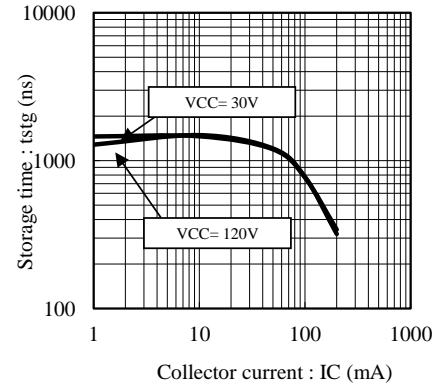


Fig.10 Switching time : tf - IC  
at IC/IB= 10, Ta= 25C

