

## Silicon NPN transistor epitaxial type C5988

### [ Applications ]

High current amplifier

### [ Feature ]

Collector current  $I_C = 6A$

Very low collector saturation voltage  $V_{CE(sat)} = 550mV$  (Max.) at  $I_C = 6A$ ,  $I_B = 300mA$

Excellent gain characteristics specified up to 10 amperes

PNP complementary pair with A5988

### [ Absolute maximum ratings (Ta=25°C) ]

Characteristic	Symbol	Maximum ratings	Unit
Collector-base voltage	VCBO	150	V
Collector-emitter voltage	VCEO	60	V
Emitter-base voltage	VEBO	6	V
Collector current (DC)	$I_C$	6	A
Collector current (Pulse)	$I_{CP}$	20	A
Junction temperature	$T_j$	150	°C
Storage temperature	$T_{stg}$	-55 to 150	°C

### [ Electrical characteristics (Ta=25°C) ]

Characteristic	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BVCBO	150	170	-	V	$I_C = 100\mu A$
Collector-emitter breakdown voltage	BVCEO	60	70	-	V	$I_C = 10mA$
Emitter-base breakdown voltage	BVEBO	6	8	-	V	$I_E = 100\mu A$
Collector cut-off current	$I_{CBO}$	-	-	50	nA	$V_{CB} = 120V$
Emitter cut-off current	$I_{EBO}$	-	-	10	nA	$V_{EB} = 6V$
DC current gain 1	$h_{FE1}$	100	-	-	-	$V_{CE} = 1V$ , $I_C = 10mA$
DC current gain 2	$h_{FE2}$	120	200	300	-	$V_{CE} = 1V$ , $I_C = 2A$
DC current gain 3	$h_{FE3}$	75	100	-	-	$V_{CE} = 1V$ , $I_C = 5A$
DC current gain 4	$h_{FE4}$	-	30	-	-	$V_{CE} = 1V$ , $I_C = 10A$
Collector-emitter saturation voltage 1	$V_{CE(sat)1}$	-	20	50	mV	$I_C = 100mA$ , $I_B = 5mA$
Collector-emitter saturation voltage 2	$V_{CE(sat)2}$	-	80	120	mV	$I_C = 1A$ , $I_B = 50mA$
Collector-emitter saturation voltage 3	$V_{CE(sat)3}$	-	150	220	mV	$I_C = 2A$ , $I_B = 100mA$
Collector-emitter saturation voltage 4	$V_{CE(sat)4}$	-	400	550	mV	$I_C = 6A$ , $I_B = 300mA$
Base-emitter saturation voltage	$V_{BE(sat)}$	-	1.15	1.3	V	$I_C = 6A$ , $I_B = 300mA$
Base-emitter on voltage	$V_{BE(on)}$	-	1.05	1.2	V	$V_{CE} = 1V$ , $I_C = 6A$
Transition frequency	$f_T$	-	150	-	MHz	$V_{CE} = 10V$ , $I_E = -100mA$
Collector output capacitance	$C_{ob}$	-	50	-	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.

No. C5988-20070213

Fig.1 IC - VBE(on)  
at VCE= 1V, Ta= 25C

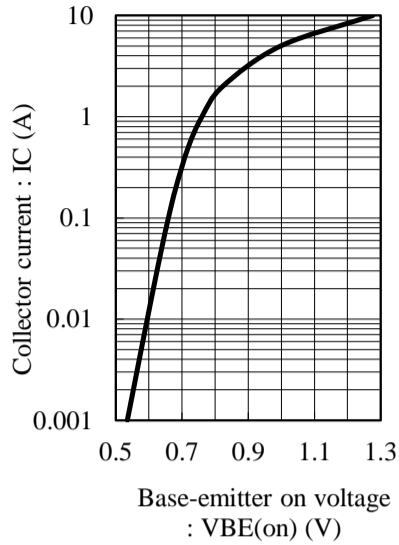


Fig.2 hFE - IC  
at VCE= 1V, Ta= 25C

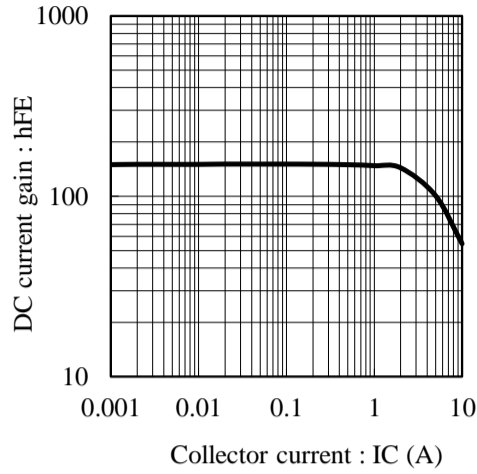


Fig.3 VCE(sat) - IC  
at IC/IB= 20, Ta= 25C

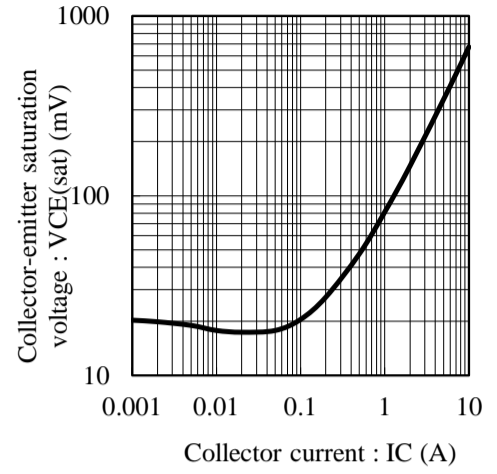


Fig.4 VBE(sat) - IC  
at IC/IB= 20, Ta= 25C

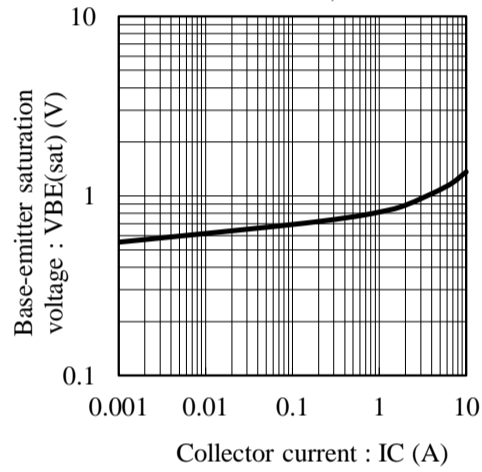


Fig.5 fT - IE  
at VCE= 10V, Ta= 25C

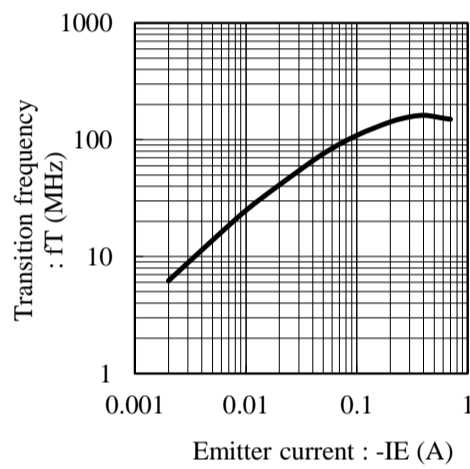


Fig.6 Cob - VCB  
at f= 1MHz, Ta= 25C

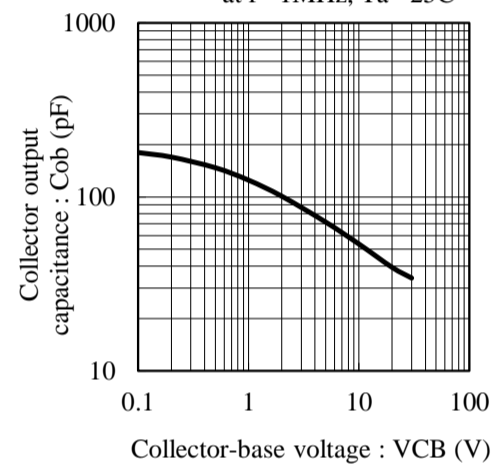


Fig.7 Cib - VEB  
at f= 1MHz, Ta= 25C

