

## Silicon NPN transistor epitaxial type C5987

### [ Applications ]

High current amplifier

### [ Feature ]

Collector current  $I_C = 6A$

Very low collector saturation voltage  $V_{CE(sat)} = 400mV$  (Max.) at  $I_C = 5A$ ,  $I_B = 500mA$

Excellent gain characteristics specified up to 10 amperes

PNP complementary pair with A5987

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

Characteristic	Symbol	Maximum ratings	Unit
Collector-base voltage	VCBO	200	V
Collector-emitter voltage	VCEO	100	V
Emitter-base voltage	VEBO	6	V
Collector current (DC)	IC	6	A
Collector current (Pulse)	ICP	10	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	200	220	-	V	$I_C = 100\mu A$
Collector-emitter breakdown voltage	BVCEO	100	110	-	V	$I_C = 10mA$
Emitter-base breakdown voltage	BVEBO	6	8	-	V	$I_E = 100\mu A$
Collector cut-off current	ICBO	-	-	10	nA	$V_{CB} = 150V$
Emitter cut-off current	IEBO	-	-	10	nA	$V_{EB} = 6V$
DC current gain 1	hFE 1	100	-	-	-	$V_{CE} = 2V$ , $I_C = 10mA$
DC current gain 2	hFE 2	120	200	300	-	$V_{CE} = 2V$ , $I_C = 2A$
DC current gain 3	hFE 3	50	100	-	-	$V_{CE} = 2V$ , $I_C = 4A$
DC current gain 4	hFE 4	-	30	-	-	$V_{CE} = 2V$ , $I_C = 10A$
Collector-emitter saturation voltage 1	$V_{CE(sat)} 1$	-	22	50	mV	$I_C = 100mA$ , $I_B = 5mA$
Collector-emitter saturation voltage 2	$V_{CE(sat)} 2$	-	135	170	mV	$I_C = 2A$ , $I_B = 100mA$
Collector-emitter saturation voltage 3	$V_{CE(sat)} 3$	-	300	400	mV	$I_C = 5A$ , $I_B = 250mA$
Base-emitter saturation voltage	$V_{BE(sat)}$	-	1	1.2	V	$I_C = 5A$ , $I_B = 250mA$
Base-emitter on voltage	$V_{BE(on)}$	-	1.1	1.2	V	$V_{CE} = 2V$ , $I_C = 5A$
Transition frequency	fT	-	190	-	MHz	$V_{CE} = 10V$ , $I_E = -100mA$
Collector output capacitance	Cob	-	38	-	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. C5987-20070213

Fig.1  $I_C - V_{BE(on)}$   
at  $V_{CE} = 2V, T_a = 25C$

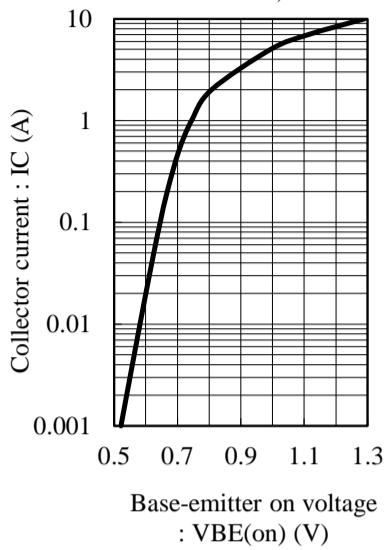


Fig.2  $h_{FE} - I_C$   
at  $V_{CE} = 2V, T_a = 25C$

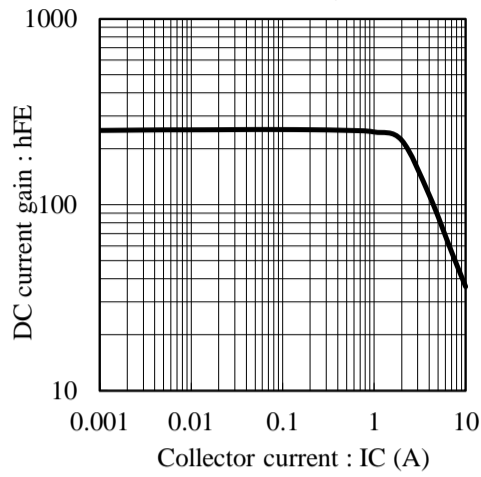


Fig.3  $V_{CE(sat)} - I_C$   
at  $I_C/I_B = 10, T_a = 25C$

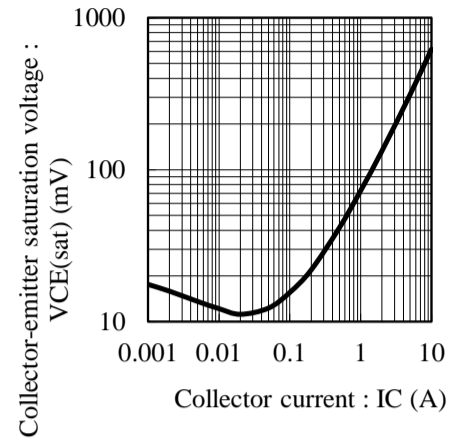


Fig.4  $V_{CE(sat)} - I_C$   
at  $I_C/I_B = 20, T_a = 25C$

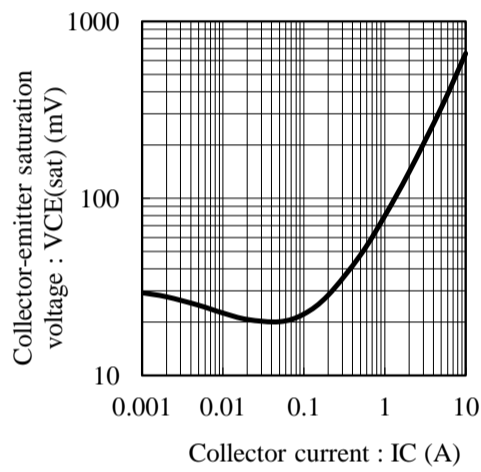


Fig.5  $V_{BE(sat)} - I_C$   
at  $I_C/I_B = 10, T_a = 25C$

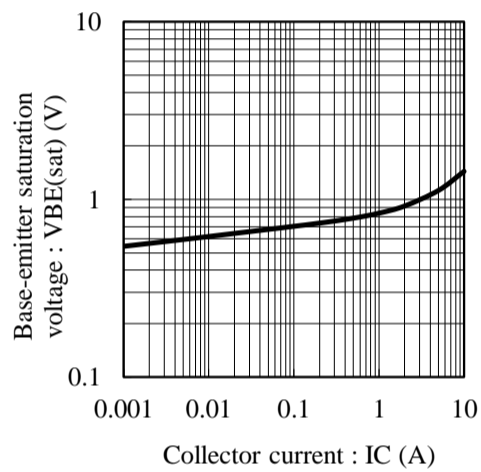


Fig.6  $f_T - I_E$   
at  $V_{CE} = 10V, T_a = 25C$

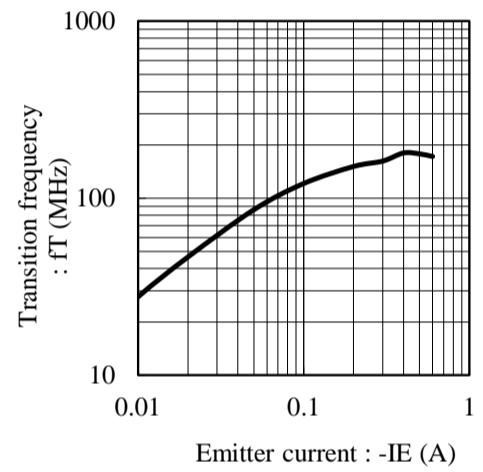


Fig.7  $C_{ob} - V_{CB}$   
at  $f = 1MHz, T_a = 25C$

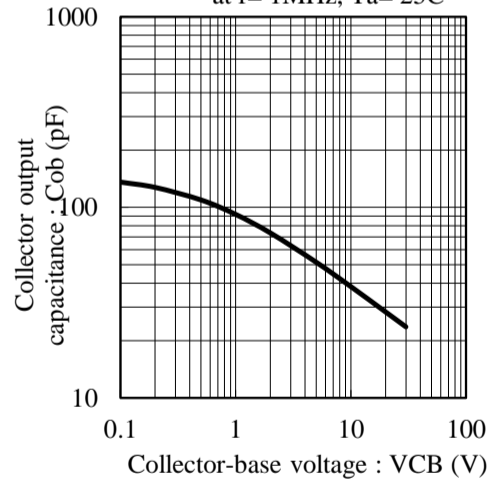


Fig.8  $C_{ib} - V_{EB}$   
at  $f = 1MHz, T_a = 25C$

