

# NPN General Purpose Transistor

## BC847B

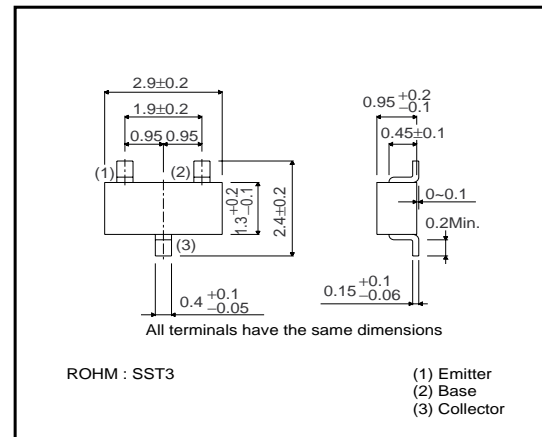
### ●Features

- 1)  $BV_{CEO} < 45V$  ( $I_C=1mA$ )
- 2) Complements the BC857B.

### ●Package, marking, and Packaging specifications

Part No.	BC847B
Packaging type	SST3
Marking	G1F
Code	T116
Basic ordering unit (pieces)	3000

### ●External dimensions (Unit : mm)



### ●Absolute maximum ratings ( $T_a=25^\circ C$ )

Parameter	Symbol	Limits	Unit
Collector-base voltage	$V_{CB0}$	50	V
Collector-emitter voltage	$V_{CEO}$	45	V
Emitter-base voltage	$V_{EBO}$	6	V
Collector current	$I_C$	0.1	A
Collector power dissipation	$P_C$	0.2	W *
		0.35	
Junction temperature	$T_j$	150	$^\circ C$
Storage temperature	$T_{stg}$	-65 to +150	$^\circ C$

\* When mounted on a 7×5×0.6mm ceramic board.

### ●Electrical characteristics ( $T_a=25^\circ C$ )

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	$BV_{CB0}$	50	–	–	V	$I_C=50\mu A$
Collector-emitter breakdown voltage	$BV_{CEO}$	45	–	–	V	$I_C=1mA$
Emitter-base breakdown voltage	$BV_{EBO}$	6	–	–	V	$I_E=50\mu A$
Collector cutoff current	$I_{CBO}$	–	–	15	nA	$V_{CB}=30V$
		–	–	5	$\mu A$	$V_{CB}=30V, T_a=150^\circ C$
Collector-emitter saturation voltage	$V_{CE(sat)}$	–	–	0.25	V	$I_C/I_B=10mA/0.5mA$
		–	–	0.6		$I_C/I_B=100mA/5mA$
Base-emitter saturation voltage	$V_{BE(on)}$	0.58	–	0.77	V	$V_{CE}/I_C=5V/10mA$
DC current transfer ratio	$h_{FE}$	200	–	450	–	
Transition frequency	$f_T$	–	200	–	MHz	$V_{CE}=5V, I_E=-20mA, f=100MHz$
Collector output capacitance	$C_{ob}$	–	3	–	pF	$V_{CB}=10V, I_E=0, f=1MHz$
Emitter input capacitance	$C_{ib}$	–	8	–	pF	$V_{EB}=0.5V, I_C=0, f=1MHz$

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●Electrical characteristic curves

The electrical characteristic curves for these products are the same as those of UMT222A, SST222A, MMST222A and PN2222A.

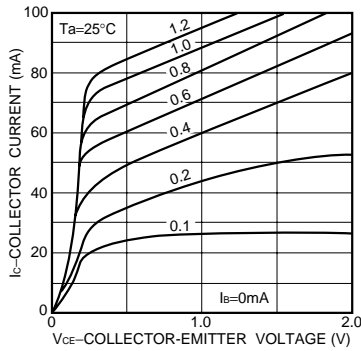


Fig.1 Grounded emitter output characteristics ( I )

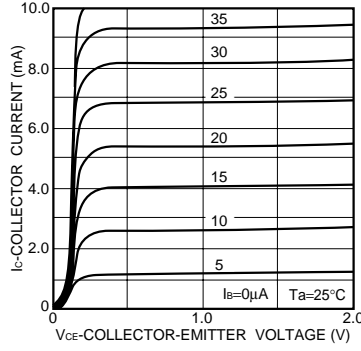


Fig.2 Grounded emitter output characteristics ( II )

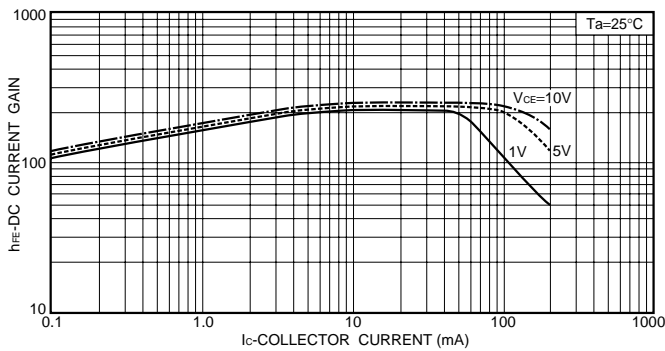


Fig.3 DC current gain vs. collector current ( I )

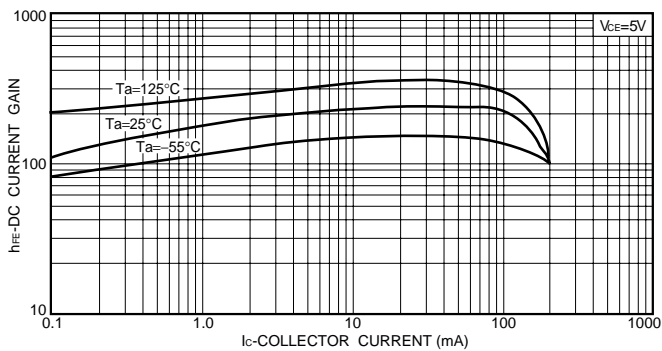


Fig.4 DC current gain vs. collector current ( II )

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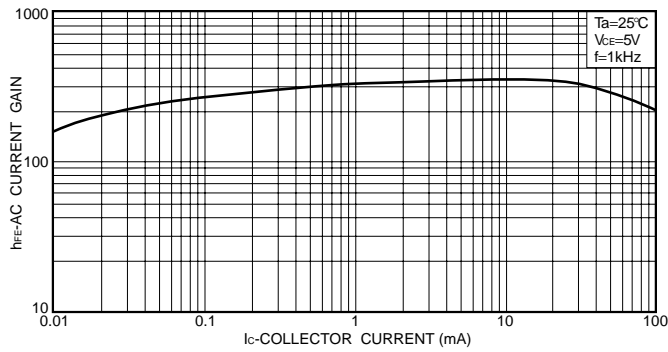


Fig.5 AC current gain vs. collector current

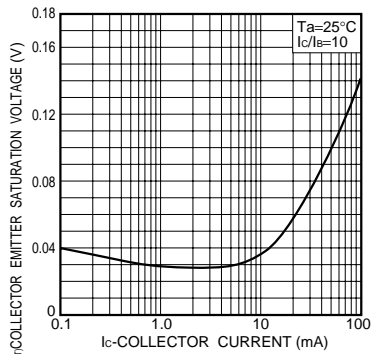


Fig.6 Collector-emitter saturation voltage vs. collector current

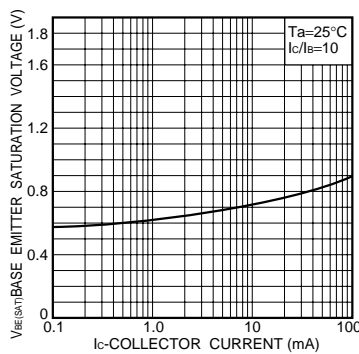


Fig.7 Base-emitter saturation voltage vs. collector current

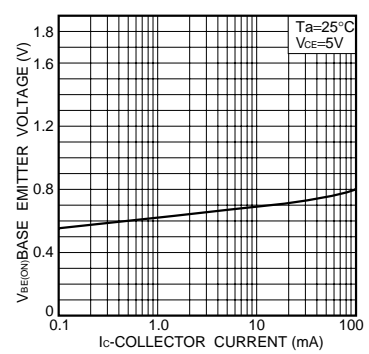


Fig.8 Grounded emitter propagation characteristics

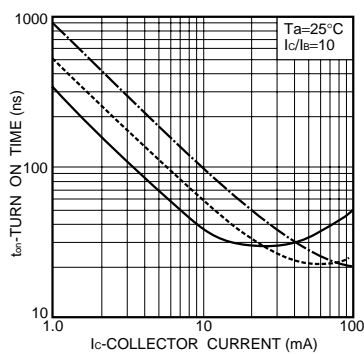


Fig.9 Turn-on time vs. collector current

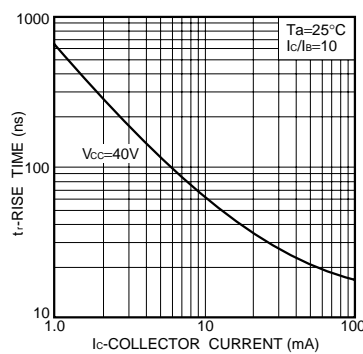


Fig.10 Rise time vs. collector current

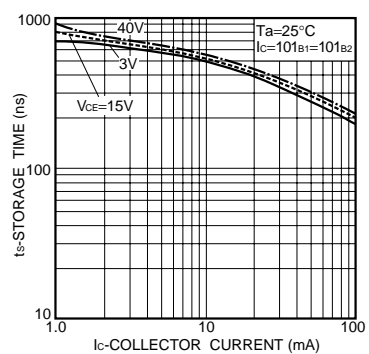


Fig.11 Storage time vs. collector current

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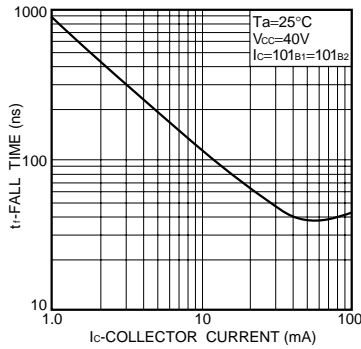


Fig.12 Fall time vs. collector current

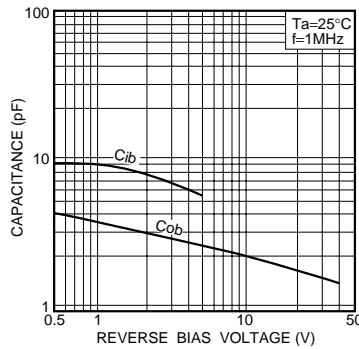


Fig.13 Input/output capacitance vs. voltage

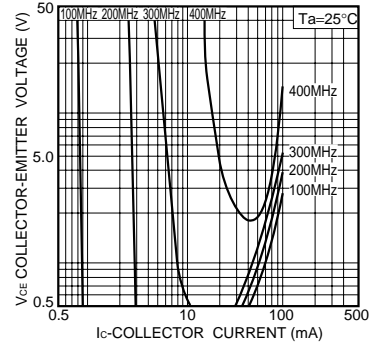


Fig.14 Gain bandwidth product

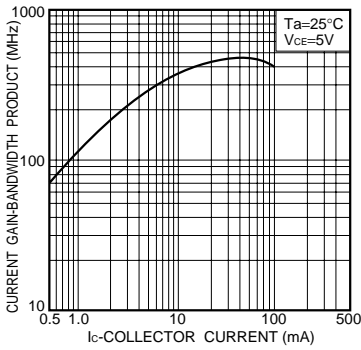


Fig.15 Gain bandwidth product vs. collector current

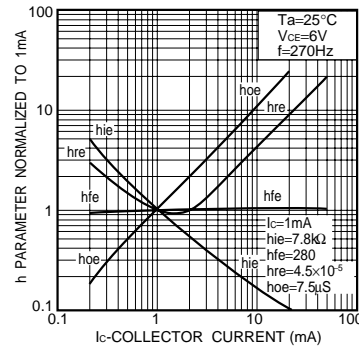


Fig.16 h parameter vs. collector current

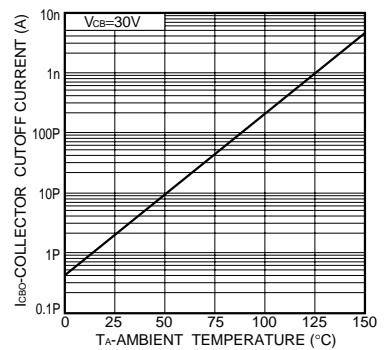


Fig.17 Collector cutoff current

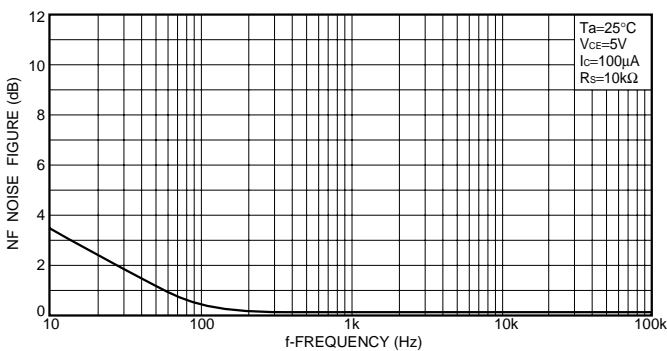


Fig.18 Noise vs. collector current

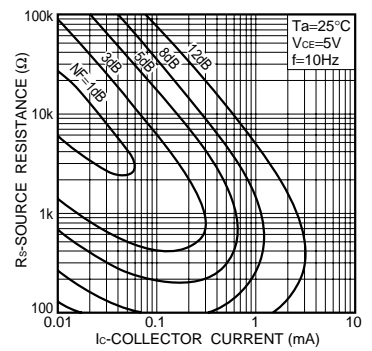


Fig.19 Noise characteristics (I)

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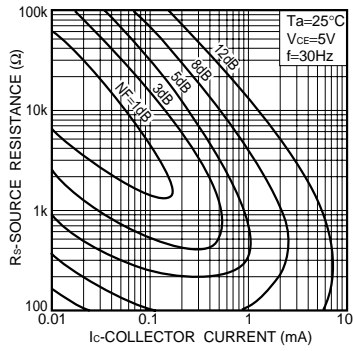


Fig.20 Noise characteristics (II)

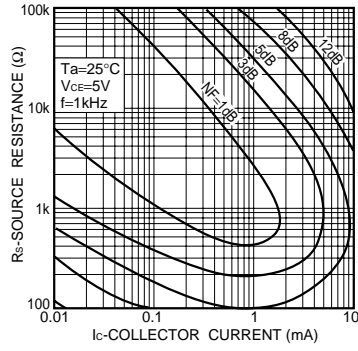


Fig.21 Noise characteristics (III)

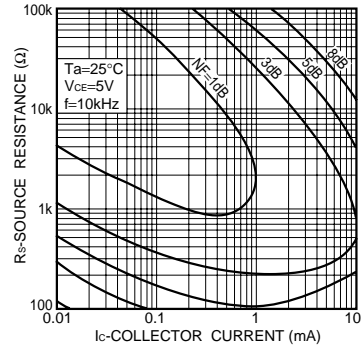


Fig.22 Noise characteristics (IV)

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