

NPN General Purpose Transistor

BC847B

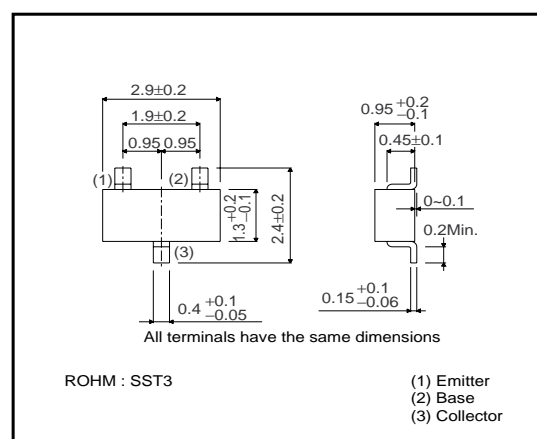
●Features

- 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_{CBO}	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_{CBO}	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	μA	$V_{CB}=30V, T_a=150^{\circ}C$
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 PN222A.

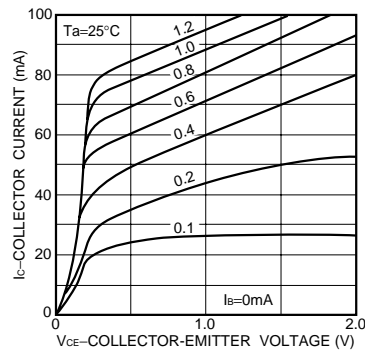


Fig.1 Grounded emitter output characteristics (I)

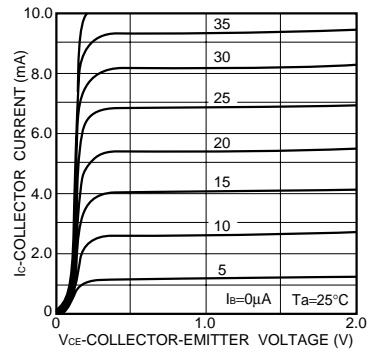


Fig.2 Grounded emitter output characteristics (II)

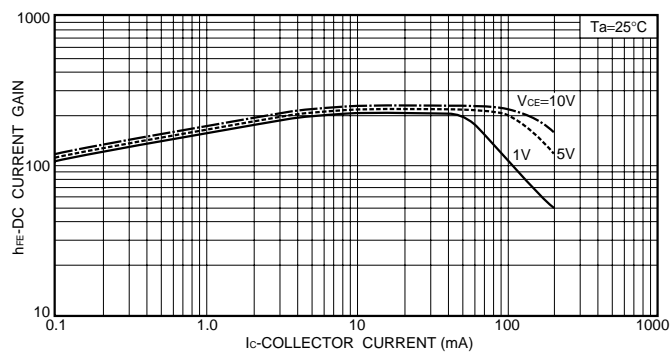


Fig.3 DC current gain vs. collector current (I)

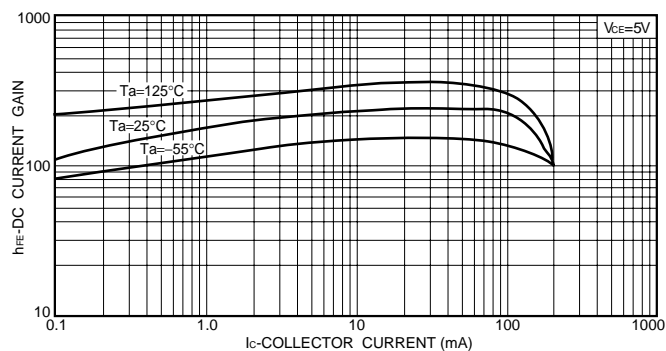


Fig.4 DC current gain vs. collector current (II)

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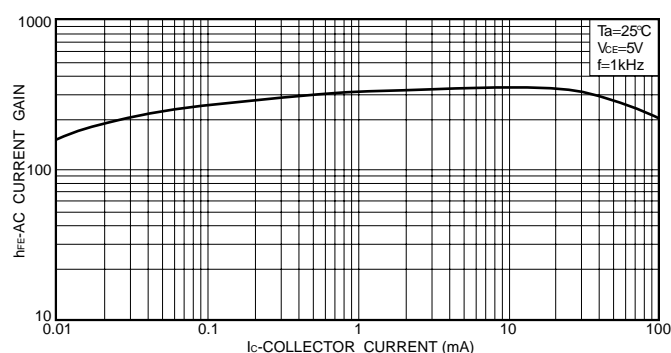


Fig.5 AC current gain vs. collector current

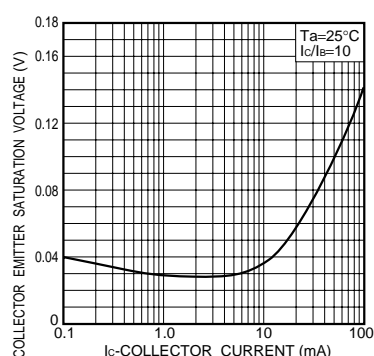


Fig.6 Collector-emitter saturation voltage vs. collector current

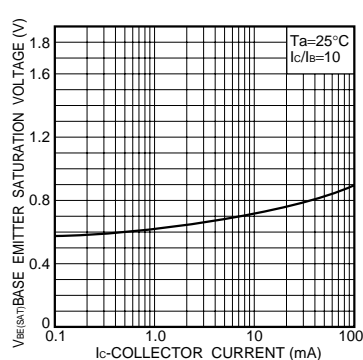


Fig.7 Base-emitter saturation voltage vs. collector current

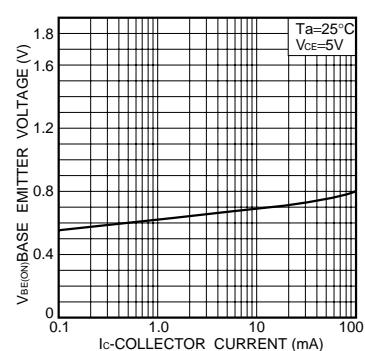


Fig.8 Grounded emitter propagation characteristics

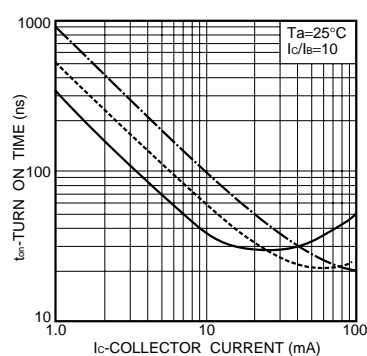


Fig.9 Turn-on time vs. collector current

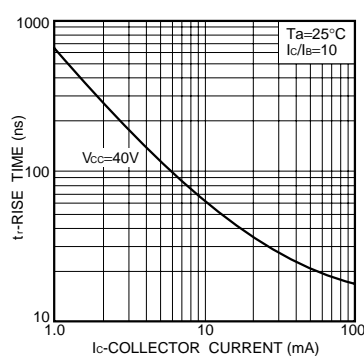


Fig.10 Rise time vs. collector current

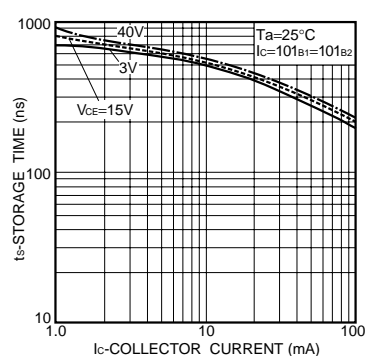


Fig.11 Storage time vs. collector current

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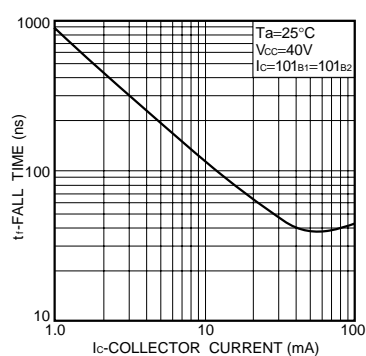


Fig.12 Fall time vs. collector current

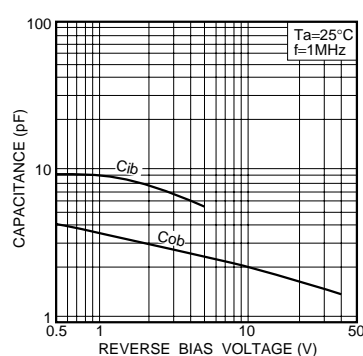


Fig.13 Input/output capacitance vs. voltage

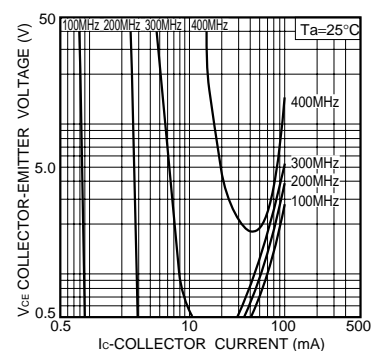


Fig.14 Gain bandwidth product

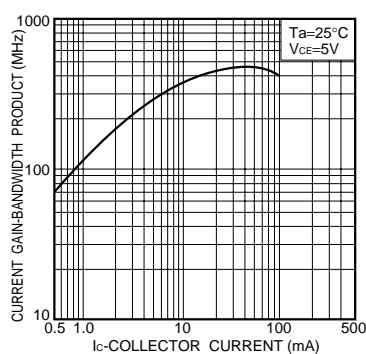


Fig.15 Gain bandwidth product vs. collector current

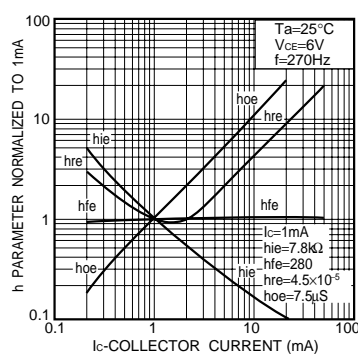


Fig.16 h parameter vs. collector current

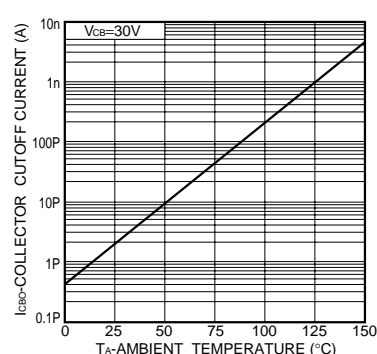


Fig.17 Collector cutoff current

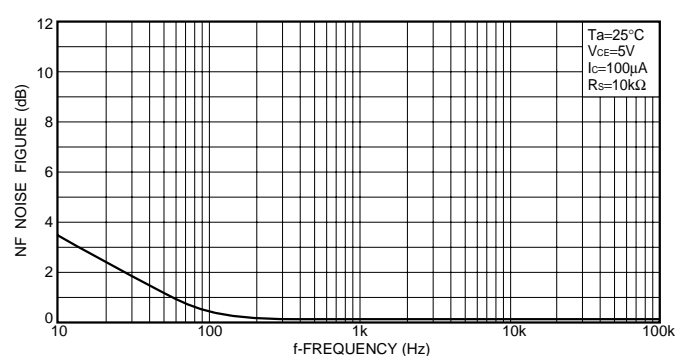


Fig.18 Noise vs. collector current

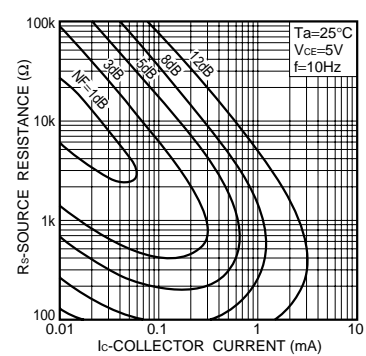


Fig.19 Noise characteristics (I)

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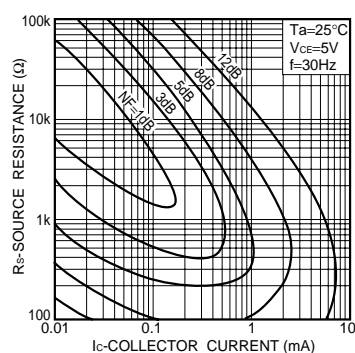


Fig.20 Noise characteristics (II)

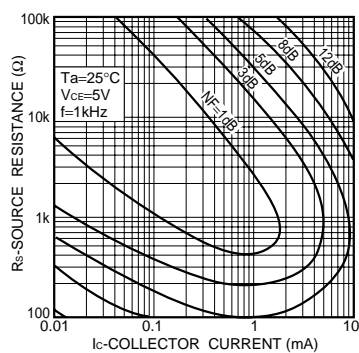


Fig.21 Noise characteristics (III)

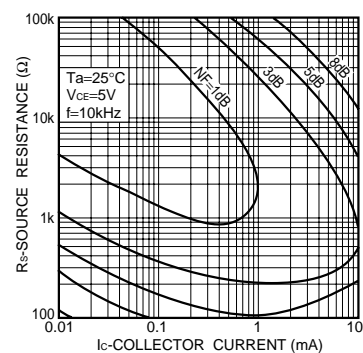


Fig.22 Noise characteristics (IV)

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