

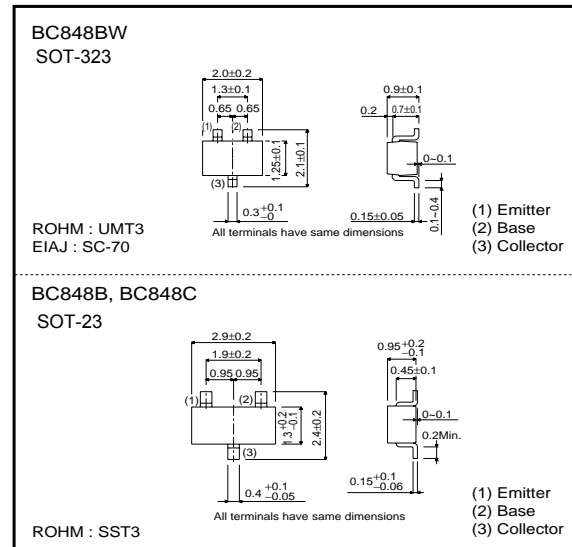
# NPN General Purpose Transistor

## BC848BW / BC848B

### ●Features

- 1)  $V_{CE0}$  minimum is 30V ( $I_C=1\text{mA}$ )
- 2) Complements the BC858B / BC858BW.

### ●External dimensions (Unit : mm)



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

Parameter	Symbol	Limits	Unit
Collector-base voltage	$V_{CBO}$	30	V
Collector-emitter voltage	$V_{CEO}$	30	V
Emitter-base voltage	$V_{EBO}$	5	V
Collector current	$I_C$	0.1	A
Collector power dissipation	Pc	0.2	W
		0.2	W
		0.35	W *
Junction temperature	$T_j$	150	$^\circ\text{C}$
Storage temperature	$T_{stg}$	-65~+150	$^\circ\text{C}$

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

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

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	$BV_{CBO}$	30	—	—	V	$I_C=50\mu\text{A}$
Collector-emitter breakdown voltage	$BV_{CEO}$	30	—	—	V	$I_C=1\text{mA}$
Emitter-base breakdown voltage	$BV_{EBO}$	5	—	—	V	$I_E=50\mu\text{A}$
Collector cutoff current	$I_{CBO}$	—	—	100	nA	$V_{CB}=30\text{V}$
		—	—	5	$\mu\text{A}$	$V_{CB}=30\text{V}, T_a=150^\circ\text{C}$
Collector-emitter saturation voltage	$V_{CE(sat)}$	—	—	0.25	V	$I_C/I_B=10\text{mA}/0.5\text{mA}$
		—	—	0.6	V	$I_C/I_B=100\text{mA}/5\text{mA}$
Base-emitter saturation voltage	$V_{BE(on)}$	0.58	—	0.77	V	$V_{CE}/I_C=5\text{V}/10\text{mA}$
DC current transfer ratio	$h_{FE}$	200	—	450	—	$V_{CE}/I_C=5\text{V}/2\text{mA}$
Transition frequency	$f_T$	—	200	—	MHz	$V_{CE}=5\text{V}, I_E=-20\text{mA}, f=100\text{MHz}$
Collector output capacitance	$C_{ob}$	—	3	—	pF	$V_{CB}=10\text{V}, I_E=0, f=1\text{MHz}$
Collector output capacitance	$C_{ib}$	—	8	—	pF	$V_{EB}=0.5\text{V}, I_E=0, f=1\text{MHz}$

(SPEC-C22)

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●Packaging specifications

Part No.	BC848BW	BC848B
Packaging type	UMT3	SST3
Marking	G1K	G1K
Code	T106	T116
Basic ordering unit (pieces)	3000	3000

●Electrical characteristic curves

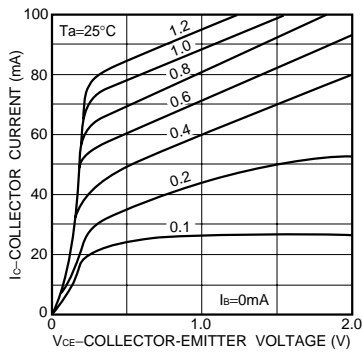


Fig.1 Grounded emitter output characteristics ( I )

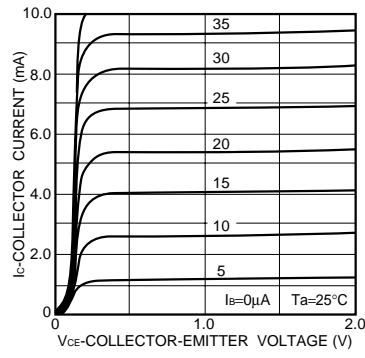


Fig.2 Grounded emitter output characteristics ( II )

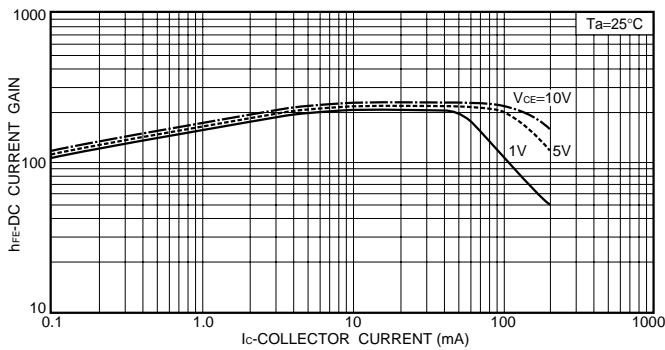


Fig.3 DC current gain vs. collector current ( I )

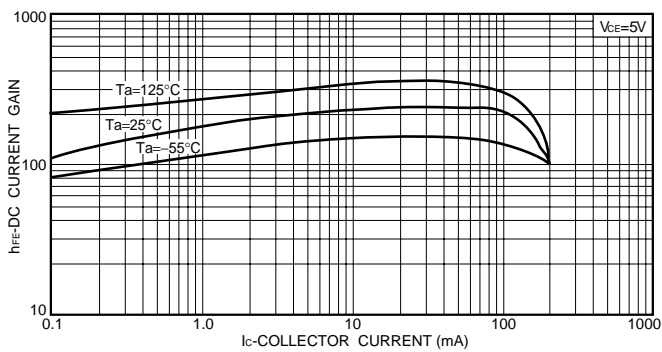


Fig.4 DC current gain vs. collector current ( II )

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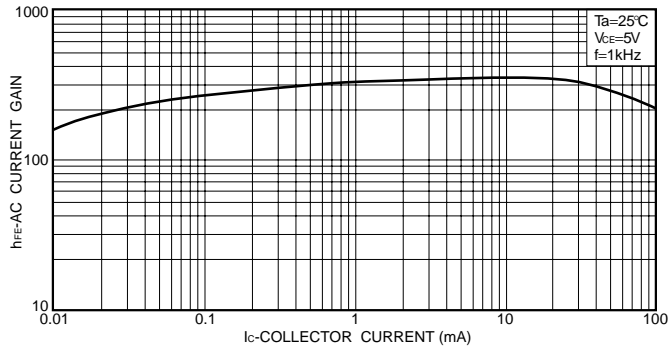


Fig.5 AC current gain vs. collector current

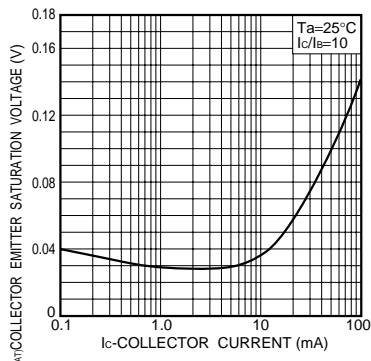


Fig.6 Collector-emitter saturation voltage vs. collector current

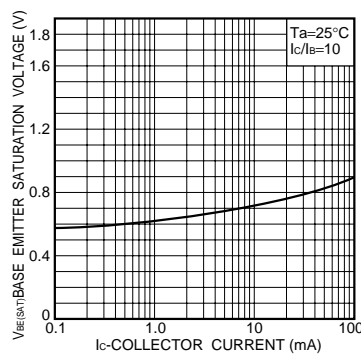


Fig.7 Base-emitter saturation voltage vs. collector current

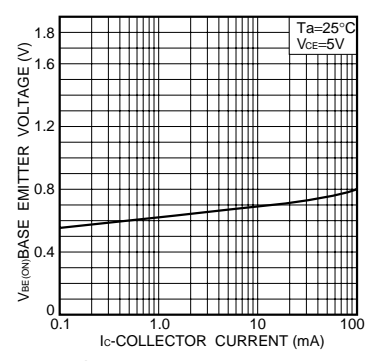


Fig.8 Grounded emitter propagation characteristics

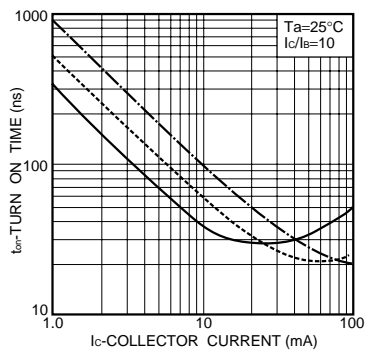


Fig.9 Turn-on time vs. collector current

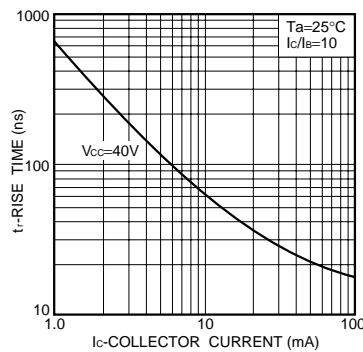


Fig.10 Rise time vs. collector current

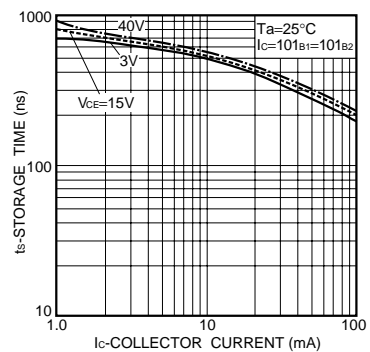


Fig.11 Storage time vs. collector current

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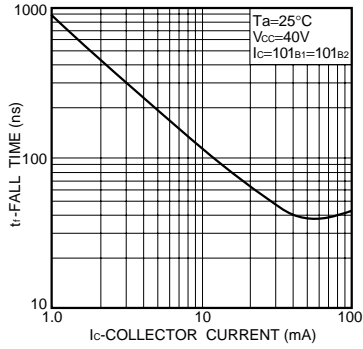


Fig.12 Fall time vs. collector current

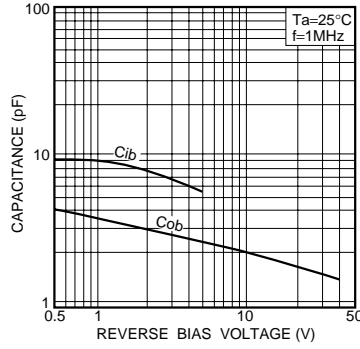


Fig.13 Input/output capacitance vs. voltage

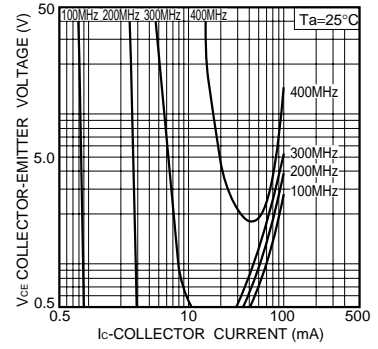


Fig.14 Gain bandwidth product

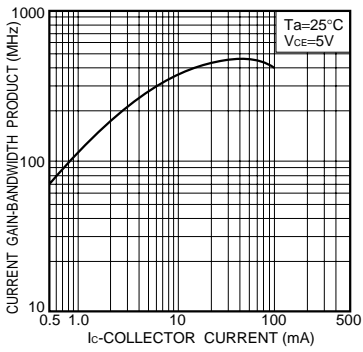


Fig.15 Gain bandwidth product vs. collector current

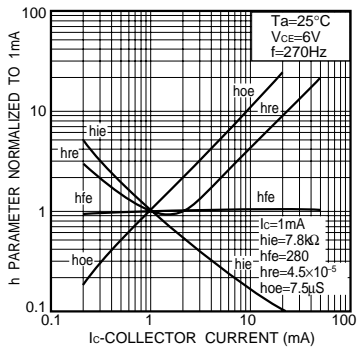


Fig.16 h parameter vs. collector current

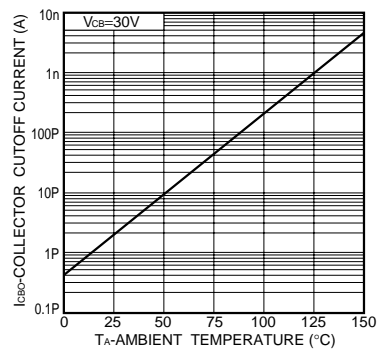


Fig.17 Collector cutoff current

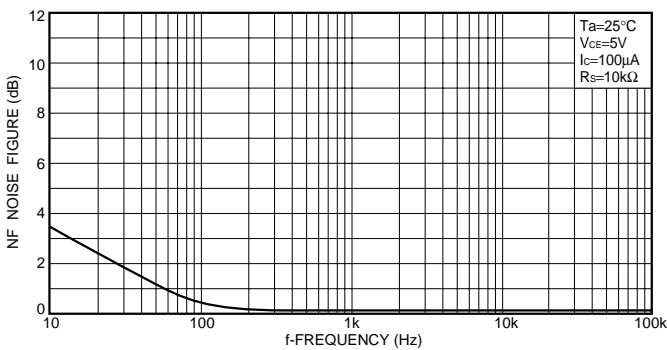


Fig.18 Noise vs. collector current

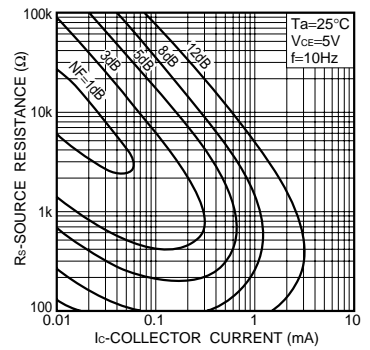


Fig.19 Noise characteristics (I)

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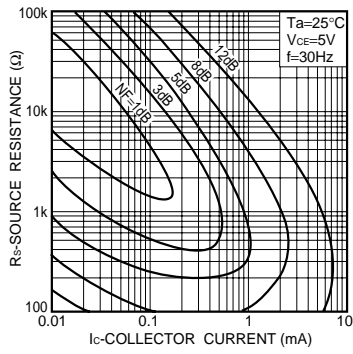


Fig.20 Noise characteristics (II)

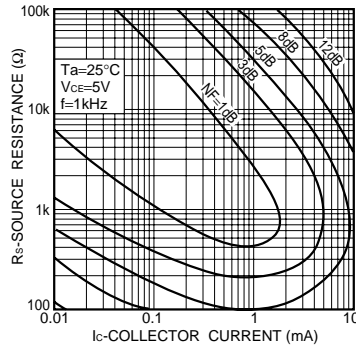


Fig.21 Noise characteristics (III)

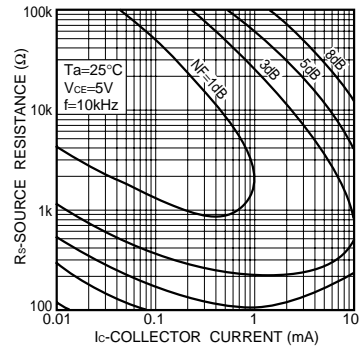


Fig.22 Noise characteristics (IV)

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