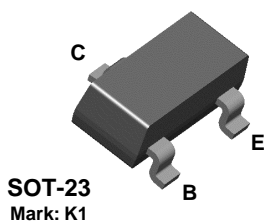


BCW71



NPN General Purpose Amplifier

This device is designed for general purpose amplifier applications at collector currents to 300 mA. Sourced from Process 10.

Absolute Maximum Ratings* TA = 25°C unless otherwise noted

Symbol	Parameter	Value	Units
V_{CEO}	Collector-Emitter Voltage	45	V
V_{CES}	Collector-Base Voltage	50	V
V_{EBO}	Emitter-Base Voltage	5.0	V
I_C	Collector Current - Continuous	500	mA
T_J, T_{stg}	Operating and Storage Junction Temperature Range	-55 to +150	°C

* These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

NOTES:

- 1) These ratings are based on a maximum junction temperature of 150 degrees C.
- 2) These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.

Thermal Characteristics TA = 25°C unless otherwise noted

Symbol	Characteristic	Max	Units
		*BCW71	
P_D	Total Device Dissipation Derate above 25°C	350	mW
		2.8	mW/°C
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	357	°C/W

* Device mounted on FR-4 PCB 40 mm X 40 mm X 1.5 mm.

NPN General Purpose Amplifier

(continued)

BCW71

Electrical Characteristics TA = 25°C unless otherwise noted

Symbol	Parameter	Test Conditions	Min	Typ	Max	Units
OFF CHARACTERISTICS						
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	$I_C = 1.0 \text{ mA}, I_B = 0$	45			V
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	$I_C = 10 \text{ } \mu\text{A}, I_E = 0$	50			V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	$I_E = 10 \text{ } \mu\text{A}, I_C = 0$	5.0			V
I_{CBO}	Collector-Cutoff Current	$V_{CB} = 20 \text{ V}, I_E = 0$ $V_{CB} = 20 \text{ V}, I_E = 0, T_A = 100^\circ\text{C}$			100 10	μA

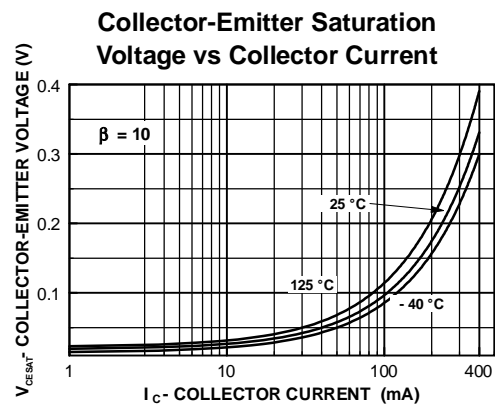
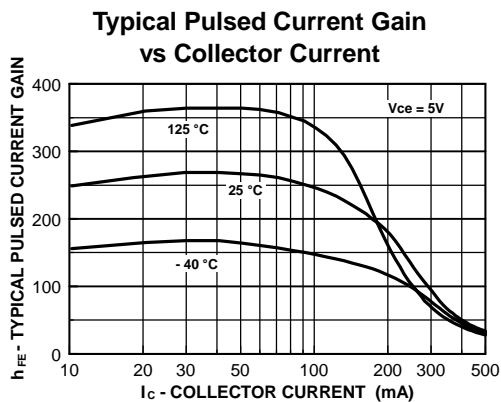
ON CHARACTERISTICS

h_{FE}	DC Current Gain	$I_C = 2.0 \text{ mA}, V_{CE} = 5.0 \text{ V}$	110		220	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = 10 \text{ mA}, I_B = 0.5 \text{ mA}$			0.25	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C = 50 \text{ mA}, I_B = 2.5 \text{ mA}$		0.85		V
$V_{BE(on)}$	Base-Emitter On Voltage	$I_C = 2.0 \text{ mA}, V_{CE} = 5.0 \text{ V}$	0.6		0.75	V

SMALL SIGNAL CHARACTERISTICS

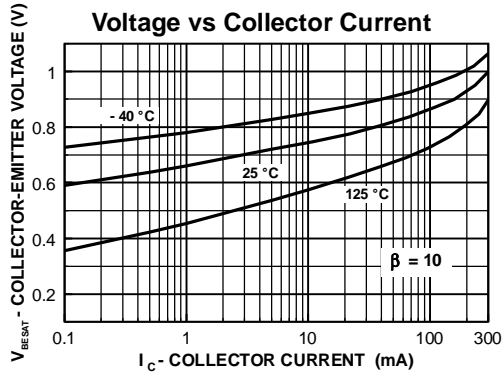
f_T	Current Gain - Bandwidth Product	$I_C = 10 \text{ mA}, V_{CE} = 5.0 \text{ V},$ $f = 35 \text{ MHz}$		330		MHz
C_{obo}	Output Capacitance	$V_{CE} = 10 \text{ V}, I_E = 0, f = 1.0 \text{ MHz}$			4.0	pF
C_{ibo}	Input Capacitance	$V_{EB} = 0.5 \text{ V}, I_C = 0, f = 1.0 \text{ MHz}$		9.0		pF
NF	Noise Figure	$I_C = 0.2 \text{ mA}, V_{CE} = 5.0 \text{ V},$ $R_S = 2.0 \text{ k}\Omega, f = 1.0 \text{ kHz},$ $BW = 200 \text{ Hz}$			10	dB

Typical Characteristics

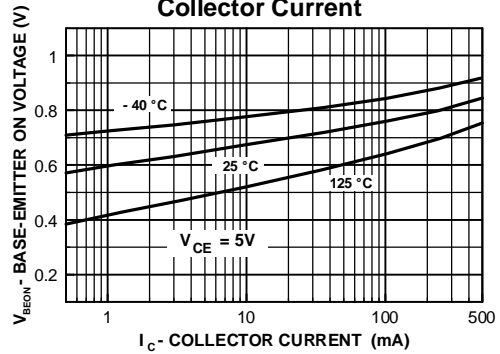


Typical Characteristics (continued)

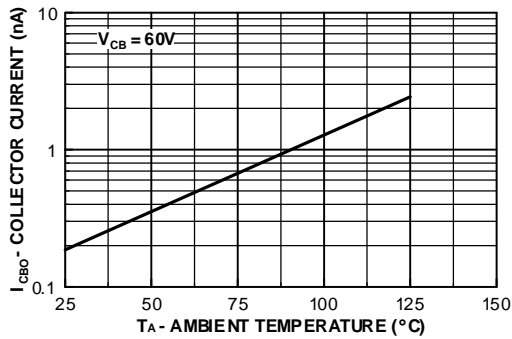
Base-Emitter Saturation Voltage vs Collector Current



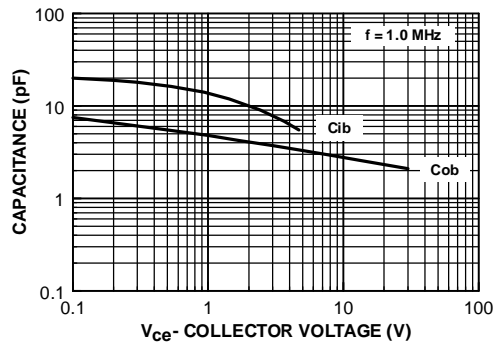
Base-Emitter ON Voltage vs Collector Current



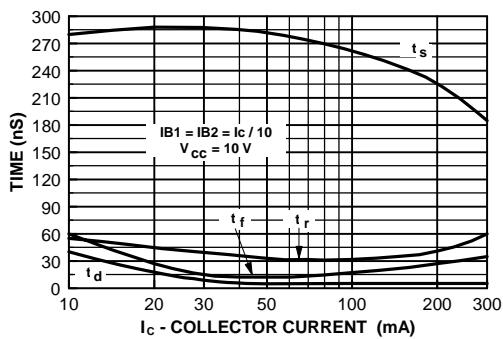
Collector-Cutoff Current vs Ambient Temperature



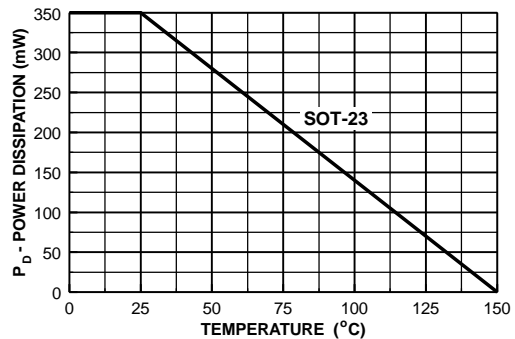
Input and Output Capacitance vs Reverse Voltage



Switching Times vs Collector Current



Power Dissipation vs Ambient Temperature



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Definition of Terms

Datasheet Identification	Product Status	Definition
Advance Information	Formative or In Design	This datasheet contains the design specifications for product development. Specifications may change in any manner without notice.
Preliminary	First Production	This datasheet contains preliminary data, and supplementary data will be published at a later date. Fairchild Semiconductor reserves the right to make changes at any time without notice in order to improve design.
No Identification Needed	Full Production	This datasheet contains final specifications. Fairchild Semiconductor reserves the right to make changes at any time without notice in order to improve design.
Obsolete	Not In Production	This datasheet contains specifications on a product that has been discontinued by Fairchild semiconductor. The datasheet is printed for reference information only.

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BCW71

NPN General Purpose Amplifier

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General description

This device is designed for general purpose amplifier applications at collector currents to 300 mA. Sourced from Process 10.

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Product status/pricing/packaging

BUY

Product	Product status	Pb-free Status	Pricing*	Package type	Leads	Packing method	Package Marking Convention**
BCW71	Full Production	 Full Production	\$0.0286	SOT-23	3	TAPE REEL	Line 1: &Y (Binary Calendar Year Coding) Line 2: K1
BCW71_D87Z	Full Production	 Full Production	N/A	SOT-23	3	TAPE REEL	Line 1: &Y (Binary Calendar Year Coding) Line 2: K1
BCW71_ND87Z	Full Production	 Full Production	N/A	SOT-23	3	TAPE REEL	Line 1: &Y (Binary Calendar Year Coding) Line 2: K1
BCW71_NL	Full Production		N/A	SOT-23	3	TAPE REEL	Line 1: &Y (Binary Calendar Year Coding)

BUY

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							Line 2: K1
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* Fairchild 1,000 piece Budgetary Pricing

** A sample button will appear if the part is available through Fairchild's on-line samples program. If there is no sample button, please contact a [Fairchild distributor](#) to obtain samples



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Qualification Support

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