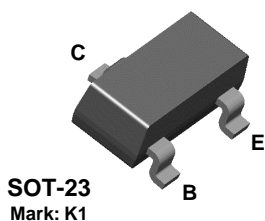


# BCW71



## 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 <sub>CEO</sub>	Collector-Emitter Voltage	45	V
V <sub>CES</sub>	Collector-Base Voltage	50	V
V <sub>EBO</sub>	Emitter-Base Voltage	5.0	V
I <sub>C</sub>	Collector Current - Continuous	500	mA
T <sub>J</sub> , T <sub>stg</sub>	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 <sub>D</sub>	Total Device Dissipation Derate above 25°C	350 2.8	mW mW/°C
R <sub>θJA</sub>	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)

## Electrical Characteristics

$T_A = 25^\circ\text{C}$  unless otherwise noted

Symbol	Parameter	Test Conditions	Min	Typ	Max	Units
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### 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	$\mu\text{A}$

### ON CHARACTERISTICS

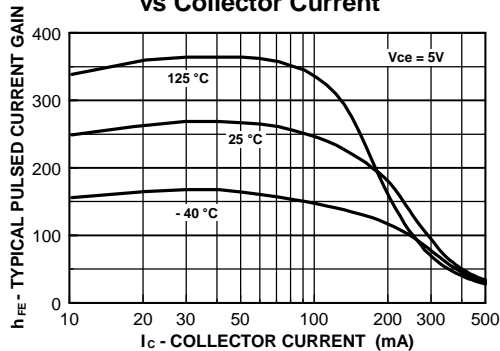
$h_{FE}$	DC Current Gain	$I_C = 2.0\text{ mA}$ , $V_{CE} = 5.0\text{ V}$	110		220	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = 10\text{ mA}$ , $I_B = 0.5\text{ mA}$			0.25	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C = 50\text{ mA}$ , $I_B = 2.5\text{ mA}$		0.85		V
$V_{BE(on)}$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

### SMALL SIGNAL CHARACTERISTICS

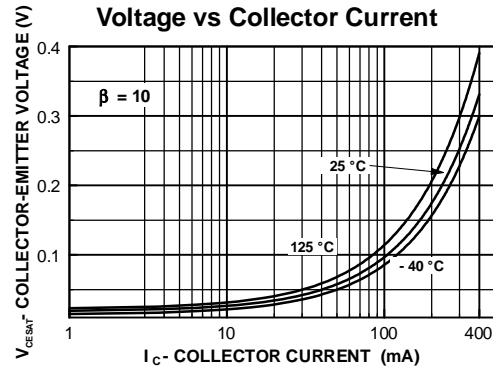
$f_T$	Current Gain - Bandwidth Product	$I_C = 10\text{ mA}$ , $V_{CE} = 5.0\text{ V}$ , $f = 35\text{ MHz}$		330		MHz
$C_{obo}$	Output Capacitance	$V_{CE} = 10\text{ V}$ , $I_E = 0$ , $f = 1.0\text{ MHz}$			4.0	pF
$C_{ibo}$	Input Capacitance	$V_{EB} = 0.5\text{ V}$ , $I_C = 0$ , $f = 1.0\text{ MHz}$		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 Pulsed Current Gain  
vs Collector Current



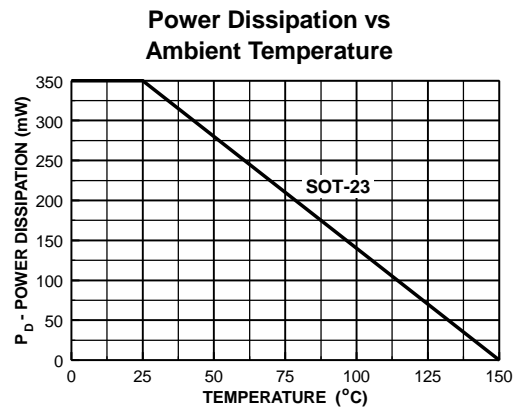
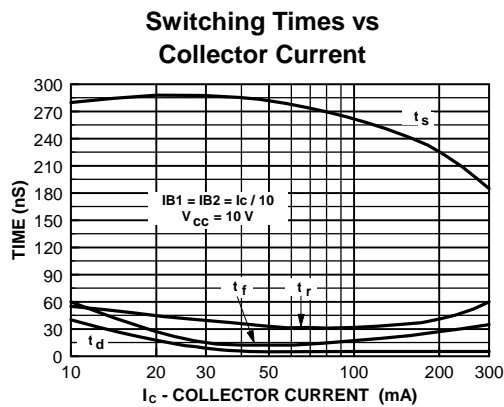
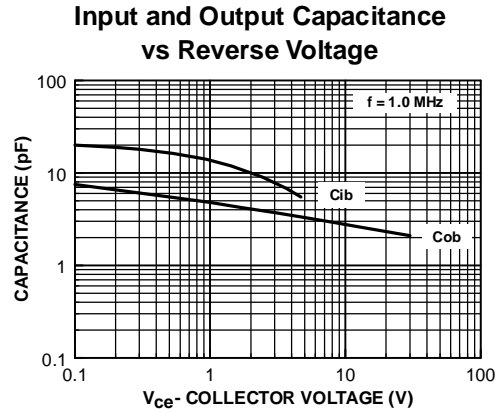
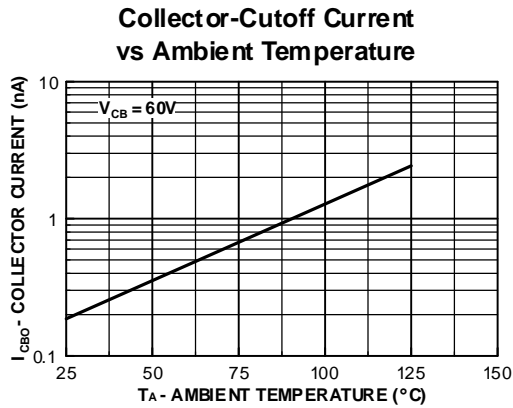
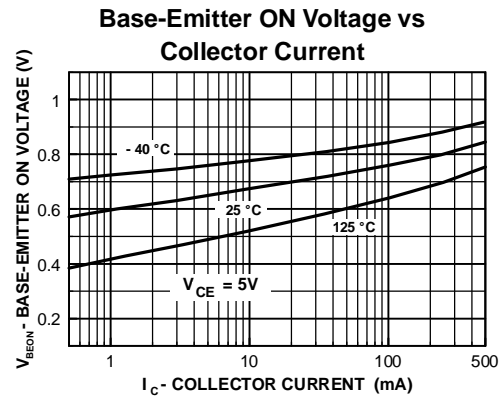
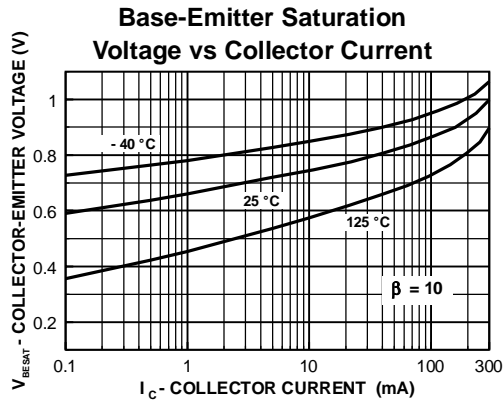
Collector-Emitter Saturation  
Voltage vs Collector Current



# NPN General Purpose Amplifier (continued)

BCW71

## Typical Characteristics (continued)



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