

# BCW68G



# **PNP General Purpose Amplifier**

This device is designed for general purpose amplifier and switching applications at currents to 500 mA. Sourced from Process 63.

## **Absolute Maximum Ratings\***

TA = 25°C unless otherwise noted

Symbol	Parameter	Value	Units
$V_{CEO}$	Collector-Emitter Voltage	45	V
$V_{CBO}$	Collector-Base Voltage	60	V
$V_{EBO}$	Emitter-Base Voltage	5.0	V
Ic	Collector Current - Continuous	800	mA
T <sub>J</sub> , T <sub>stg</sub>	Operating and Storage Junction Temperature Range	-55 to +150	°C

<sup>\*</sup>These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

### **Thermal Characteristics**

TA = 25°C unless otherwise noted

Symbol	Characteristic	Max	Units
		*BCW68C	
$P_D$	Total Device Dissipation Derate above 25°C	350 2.8	mW mW/∘C
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	357	°C/W

<sup>\*</sup>Device mounted on FR-4 PCB 40 mm X 40 mm X 1.5 mm.

<sup>1)</sup> 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.

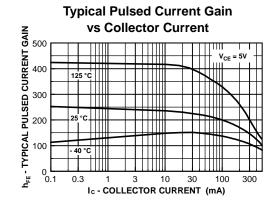
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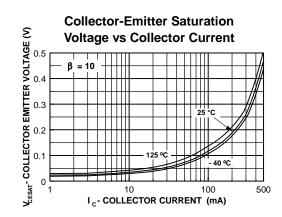
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Symbol	Parameter	Test Conditions	Min	Max	Units
	<u> </u>				
OFF CHA	RACTERISTICS				
V <sub>(BR)CEO</sub>	Collector-Emitter Breakdown Voltage	$I_{\rm C} = 10 \text{ mA}, I_{\rm B} = 0$		45	V
V <sub>(BR)CES</sub>	Collector-Base Breakdown Voltage	$I_C = 10 \mu A$		60	V
V <sub>(BR)CBO</sub>	Collector-Base Breakdown Voltage	$I_C = 100  \mu A, I_E = 0$		60	V
V <sub>(BR)EBO</sub>	Emitter-Base Breakdown Voltage	$I_E = 10 \mu\text{A},  I_C = 0$		5.0	V
CES	Collector-Cutoff Current	V <sub>CE</sub> = 45 V		20	nA
		V <sub>CE</sub> = 45 V, T <sub>A</sub> = 150 °C		10	μΑ
I <sub>EBO</sub>	Emitter-Cutoff Current	$V_{EB} = 4.0 \text{ V}$		20	nA
h <sub>FE</sub>	DC Current Gain	$I_C = 10 \text{ mA}, V_{CE} = 1.0 \text{ V}$ $I_C = 100 \text{ mA}, V_{CE} = 1.0 \text{ V}$ $I_C = 300 \text{ mA}, V_{CE} = 1.0 \text{ V}$	120 160 60	400	
V <sub>CE(sat)</sub>	Collector-Emitter Saturation Voltage	I <sub>C</sub> = 300 mA, I <sub>B</sub> = 30 mA		1.5	V
V <sub>BE(sat)</sub>	Base-Emitter Saturation Voltage	$I_C = 500 \text{ mA}, I_B = 50 \text{ mA}$		2.0	V
		-			
	IGNAL CHARACTERISTICS	T			T
fτ	IGNAL CHARACTERISTICS  Current Gain - Bandwidth Product	$I_C = 20 \text{ mA}, V_{CE} = 10 \text{ V},$ f = 100 MHz	100		MHz
T		, 52 ,	100	18	MHz pF
SMALL S  f <sub>T</sub> C <sub>obo</sub> C <sub>ibo</sub>	Current Gain - Bandwidth Product	f = 100 MHz	100	18 105	

 $R_S = 1.0 \text{ k}\Omega, f = 1.0 \text{ kHz},$  $B_W = 200 \text{ Hz}$ 

# **Typical Characteristics**

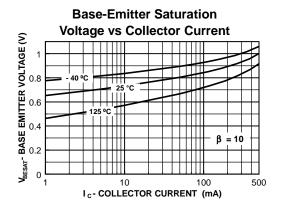


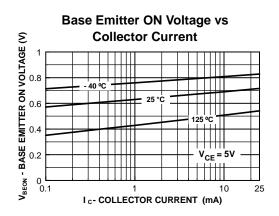


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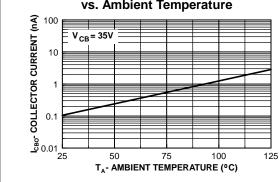
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## Typical Characteristics (continued)

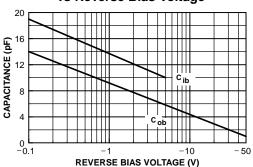




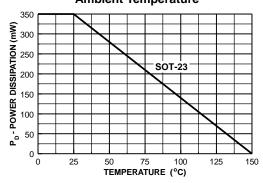
# Collector-Cutoff Current vs. Ambient Temperature



# Input and Output Capacitance vs Reverse Bias Voltage



Power Dissipation vs Ambient Temperature



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