



# THE DATASHEET OF BCW61C





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## BCW61C Silicon PNP Transistor General Purpose Amp SOT-23 Type Surface Mount Package

**Description:**

The BCW61C is a silicon PNP general purpose transistor in a SOT-23 type surface mount package designed for use in general purpose switching and amplification applications..

**Absolute Maximum Ratings:**

Collector-Base Voltage, $V_{CBO}$ .....	32V
Collector-Emitter Voltage, $V_{CEO}$ .....	32V
Emitter-Base Voltage, $V_{EBO}$ .....	5V
Collector Current, $I_C$	
Continuous .....	100mA
Peak .....	200mA
Peak Base Current, $I_{BM}$ .....	100mA
Total Power Dissipation ( $T_A \leq +25^\circ\text{C}$ , Note 1), $P_{tot}$ .....	250mW
Junction Temperature, $T_J$ .....	+150°C
Operating Ambient Temperature Range, $T_{amb}$ .....	-65° to +150°C
Storage Temperature Range, $T_{stg}$ .....	-65° to +150°C
Thermal Resistance, Junction-to-Ambient (Note 1), $R_{thJA}$ .....	500K/W

Note 1. Mounted on an FR4 printed-circuit board.

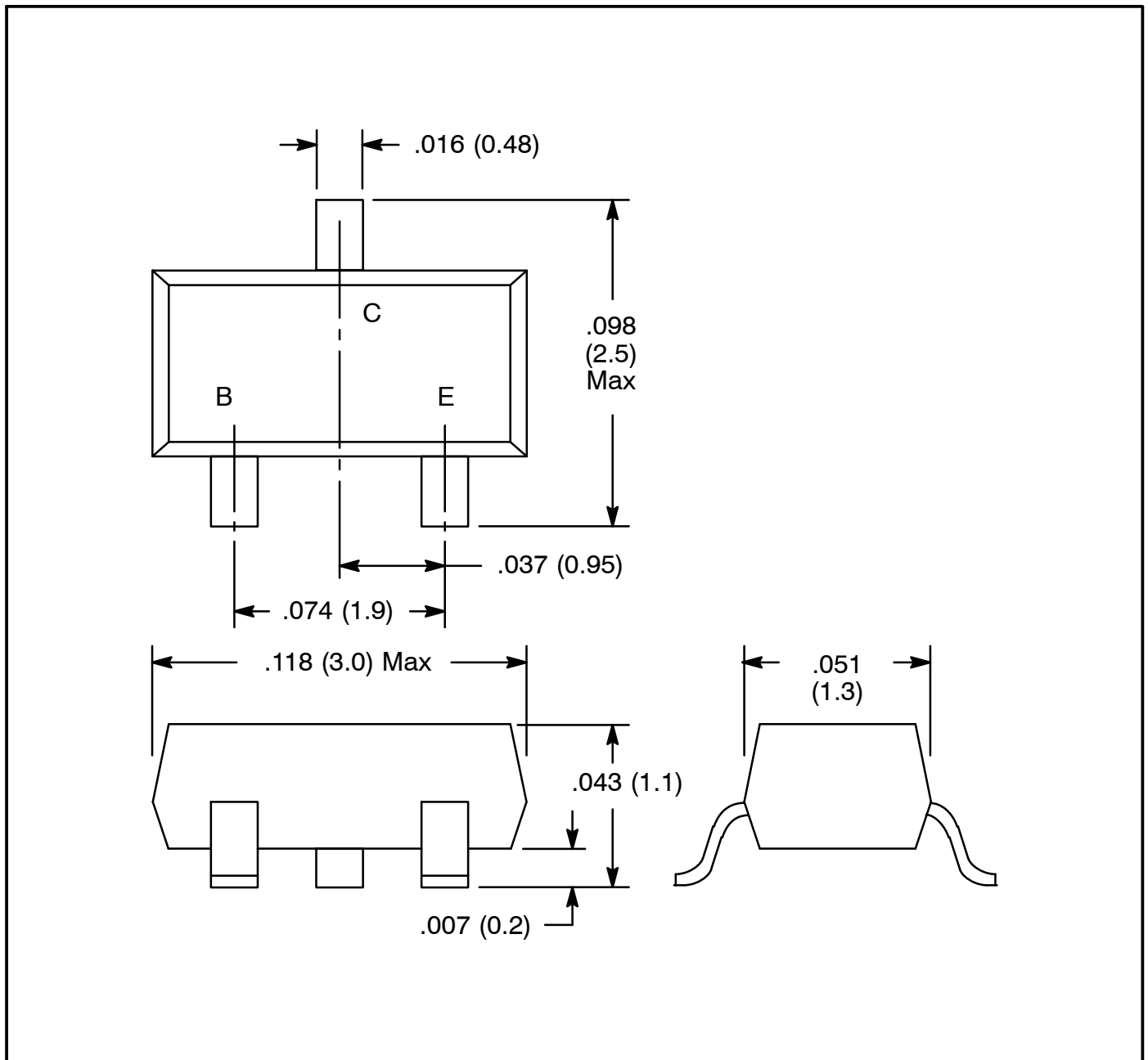
**Electrical Characteristics:** ( $T_A = +25^\circ\text{C}$  unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector Cutoff Current	$I_{CBO}$	$V_{CB} = 32V, I_E = 0$	-	-	20	nA
		$V_{CB} = 32V, I_E = 0, T_J = +150^\circ\text{C}$	-	-	20	$\mu\text{A}$
Emitter Cutoff Current	$I_{EBO}$	$V_{EB} = 4V, I_C = 0$	-	-	20	nA
Base-Emitter Voltage	$V_{BE}$	$V_{CE} = 5V, I_C = 2mA$	600	650	750	mV
		$V_{CE} = 5V, I_C = 10\mu\text{A}$	-	550	-	mV
		$V_{CE} = 1V, I_C = 50mA$	-	720	-	mV
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 10mA, I_B = 0.25mA$	60	-	250	mV
		$I_C = 50mA, I_B = 1.25mA$	120	-	550	mV
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 10mA, I_B = 0.25mA$	600	-	850	mV
		$I_C = 50mA, I_B = 1.25mA$	0.68	-	1.05	V

**Electrical Characteristics (Cont'd):** ( $T_A = +25^\circ\text{C}$  unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
DC Current Gain	$h_{FE}$	$V_{CE} = 5V, I_C = 10\mu A$	40	-	-	
		$V_{CE} = 5V, I_C = 2mA$	250	-	460	
		$V_{CE} = 1V, I_C = 50mA$	100	-	-	
Transition Frequency	$f_T$	$V_{CE} = 5V, I_C = 10mA, f = 100MHz,$ Note 2	100	-	-	MHz
Collector Capacitance	$C_c$	$V_{CB} = 10V, I_E = I_e = 0, f = 1MHz$	-	4.5	-	pF
Emitter Capacitance	$C_e$	$V_{EB} = 0.5V, I_C = I_c = 0, f = 1MHz$	-	11	-	pF
Small-Signal Current Gain	$h_{fe}$	$V_{CE} = 5V, I_C = 2mA$	75	-	900	
Noise Figure	NF	$V_{CE} = 5V, I_C = 200\mu A, f = 1kHz,$ $B = 200Hz, R_S = 2k\Omega$	-	2	6	dB

Note 2. Pulse Test:  $t_p \leq 300\mu s, \delta \leq 0.02.$



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