

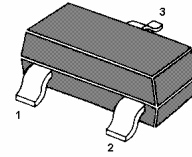
# BCW60

## NPN Silicon Epitaxial Planar Transistors

for general purpose switching and amplification.

These transistors are subdivided into three groups B, C and D, according to their current gain.

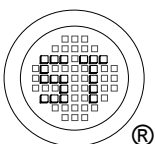
As complementary types the PNP transistors BCW61 are recommended.



1. Base 2. Emitter 3. Collector  
SOT-23 Plastic Package

### Absolute Maximum Ratings ( $T_a = 25^\circ\text{C}$ )

Parameter	Symbol	Value	Unit
Collector-Base Voltage	$V_{\text{CBO}}$	32	V
Collector-Emitter Voltage	$V_{\text{CEO}}$	32	V
Emitter-Base Voltage	$V_{\text{EBO}}$	5	V
Collector Current	$I_{\text{C}}$	100	mA
Peak Collector Current	$I_{\text{CM}}$	200	mA
Peak Base Current	$I_{\text{BM}}$	200	mA
Total Power Dissipation	$P_{\text{tot}}$	200	mW
Junction Temperature	$T_{\text{J}}$	150	$^\circ\text{C}$
Storage Temperature Range	$T_{\text{S}}$	-65 to +150	$^\circ\text{C}$



## SEMTECH ELECTRONICS LTD.

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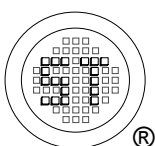
Dated : 21/12/2005

# BCW60

## Characteristics at $T_a = 25\text{ }^\circ\text{C}$

Parameter	Symbol	Min.	Typ.	Max.	Unit	
DC Current Gain at $V_{CE} = 5\text{ V}$ , $I_C = 10\text{ }\mu\text{A}$  at $V_{CE} = 5\text{ V}$ , $I_C = 2\text{ mA}$  at $V_{CE} = 1\text{ V}$ , $I_C = 50\text{ mA}$	BCW60B	$h_{FE}$	20	-	-	-
	BCW60C	$h_{FE}$	40	-	-	-
	BCW60D	$h_{FE}$	100	-	-	-
	BCW60B	$h_{FE}$	180	-	310	-
	BCW60C	$h_{FE}$	250	-	460	-
	BCW60D	$h_{FE}$	380	-	630	-
	BCW60B	$h_{FE}$	70	-	-	-
	BCW60C	$h_{FE}$	90	-	-	-
	BCW60D	$h_{FE}$	100	-	-	-
Collector Saturation Voltage at $I_C = 10\text{ mA}$ , $I_B = 0.25\text{ mA}$	$V_{CEsat}$	0.05	-	0.35	V	
Collector Saturation Voltage at $I_C = 50\text{ mA}$ , $I_B = 1.25\text{ mA}$	$V_{CEsat}$	0.1	-	0.55	V	
Base Saturation Voltage at $I_C = 10\text{ mA}$ , $I_B = 0.25\text{ mA}$	$V_{BEsat}$	0.6	-	0.85	V	
Base Saturation Voltage at $I_C = 50\text{ mA}$ , $I_B = 1.25\text{ mA}$	$V_{BEsat}$	0.7	-	1.05	V	
Base-Emitter Voltage at $I_C = 2\text{ mA}$ , $V_{CE} = 5\text{ V}$	$V_{BE(on)}$	0.55	-	0.75	V	
Collector Base Cutoff Current at $V_{CB} = 32\text{ V}$ at $V_{CB} = 32\text{ V}$ , $T_j = 150\text{ }^\circ\text{C}$	$I_{CBO}$	-	-	20	nA	
	$I_{CBO}$	-	-	20	$\mu\text{A}$	
Emitter-Base Cutoff Current at $V_{EB} = 4\text{ V}$	$I_{EBO}$	-	-	20	nA	
Gain -Bandwidth Product at $V_{CE} = 5\text{ V}$ , $I_C = 10\text{ mA}$ , $f = 100\text{ MHz}$	$f_T$	100	250	-	MHz	
Collector-Base Capacitance at $V_{CB} = 10\text{ V}$ , $f = 1\text{ MHz}$	$C_{CBO}$	-	1.7	-	pF	
Emitter-Base Capacitance at $V_{EB} = 0.5\text{ V}$ , $f = 1\text{ MHz}$	$C_{EBO}$	-	11	-	pF	
Noise figure at $I_C = 200\text{ }\mu\text{A}$ , $V_{CE} = 5\text{ V}$ , $R_S = 2\text{ K}\Omega$ , $f = 1\text{ KHz}$ , $\Delta f = 200\text{ Hz}$	NF	-	2	6	dB	
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	-	-	500 <sup>1)</sup>	K/W	

<sup>1)</sup> Transistor mounted on an FR4 printed-circuit board.



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ISO/TS 16949 : 2002 Certificate No. 05103  
 ISO 14001:2004 Certificate No. 7116  
 ISO 9001:2000 Certificate No. 0506098

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