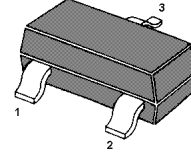


NPN Silicon Epitaxial Planar Transistors

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 ($T_a = 25\text{ }^\circ\text{C}$)

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

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

Parameter	Symbol	Min.	Typ.	Max.	Unit	
DC Current Gain at $V_{CE} = 5\text{ V}$, $I_C = 10\ \mu\text{A}$ 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 $V_{CB} = 32\text{ V}$, $T_j = 150^\circ\text{C}$	I_{CBO}	-	-	20	nA	
	I_{CBO}	-	-	20	μA	
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 $I_C = 200\ \mu\text{A}$, $V_{CE} = 5\text{ V}$, $R_S = 2\text{ K}\Omega$, $f = 1\text{ KHz}$, $\Delta f = 200\text{ Hz}$	NF	-	2	6	dB	
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	-	-	500 ¹⁾	K/W	

¹⁾ Transistor mounted on an FR4 printed-circuit board.