BCW60 NPN general purpose transistors

FEATURES

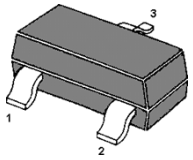
- Low current (max. 100 mA)
- Low voltage (max. 32 V).

APPLICATIONS

- General purpose switching and amplification.

DESCRIPTION

NPN transistor in a SOT23 plastic package.
PNP complements: BCW61 series.



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

MARKING

TYPE NUMBER	MARKING CODE
BCW60B	AB
BCW60C	AC
BCW60D	AD

Absolute Maximum Ratings (T_a = 25 °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	°C
Storage Temperature Range	T_S	-65 to +150	°C

ELECTRICAL CHARACTERISTICS @ Ta=25℃ unless otherwise specified

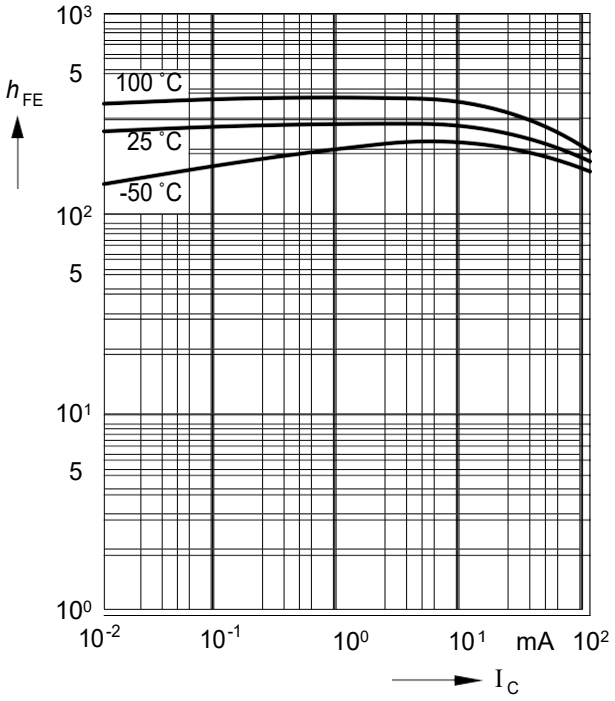
Parameter		Symbol	Min.	Typ.	Max.	Unit
DC Current Gain at VCE = 5 V, IC = 10 μA	BCW60B	h_{FE}	20	-	-	-
	BCW60C		40	-	-	-
	BCW60D		100	-	-	-
DC Current Gain at V_{CE} = 5 V, I_C = 2 mA	BCW60B		180	-	310	-
	BCW60C		250	-	460	-
	BCW60D		380	-	630	-
DC Current Gain at V_{CE} = 1 V, I_C = 50 mA	BCW60B		70	-	-	-
	BCW60C		90	-	-	-
	BCW60D		100	-	-	-
Collector Saturation Voltage at I_C = 10 mA, I_B = 0.25 mA		V_{CEsat}	0.05	-	0.35	V
Collector Saturation Voltage at I_C = 50 mA, I_B = 1.25 mA		V_{CEsat}	0.1	-	0.55	V
Base Saturation Voltage at I_C = 10 mA, I_B = 0.25 mA		V_{BEsat}	0.6	-	0.85	V
Base Saturation Voltage at I_C = 50 mA, I_B = 1.25 mA		V_{BEsat}	0.7	-	1.05	V
Base-Emitter Voltage at I_C = 2 mA, V_{CE} = 5V		$V_{BE(on)}$	0.55	-	0.75	V
Collector Base Cutoff Current at V_{CB} = 32 V		I_{CBO}	-	-	20	nA
at V_{CB} = 32 V， T_j =150 °C			-	-	20	μA
Emitter-Base Cutoff Current at V_{EB} = 4 V		I_{EBO}	-	-	20	nA
Gain -Bandwidth Product at V_{CE} = 5 V, I_C = 10 mA, f = 100 MHz		f_T	100	250	-	MHz
Collector-Base Capacitance at V_{CB} = 10 V, f = 1 MHz		C_{CBO}	-	1.7	-	pF
Emitter-Base Capacitance at V_{EB} = 0.5 V, f = 1 MHz		C_{EBO}	-	11	-	pF
Noise figure at I_C = 200 μA, V_{CE} = 5 V, R_S = 2 KΩ, f =1 KHz, Δf=200Hz		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.

Typical Characteristics

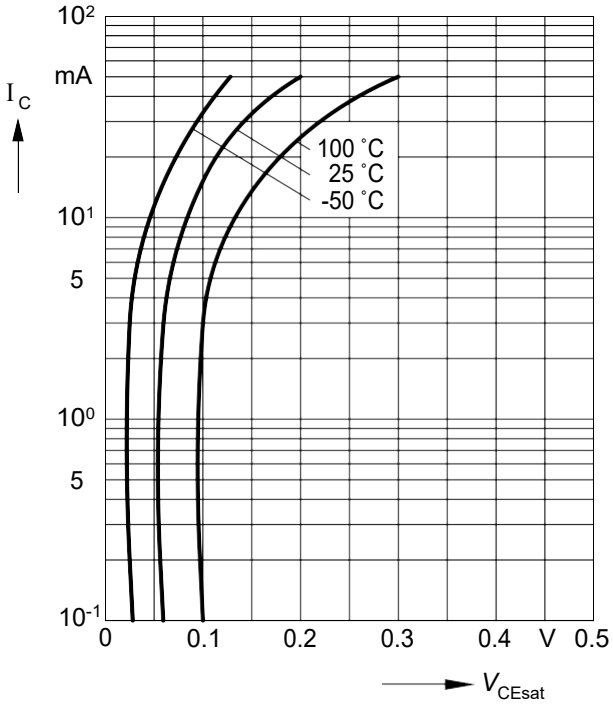
DC current gain h_{FE} = $f(I_C)$

V_{CE} = 5 V



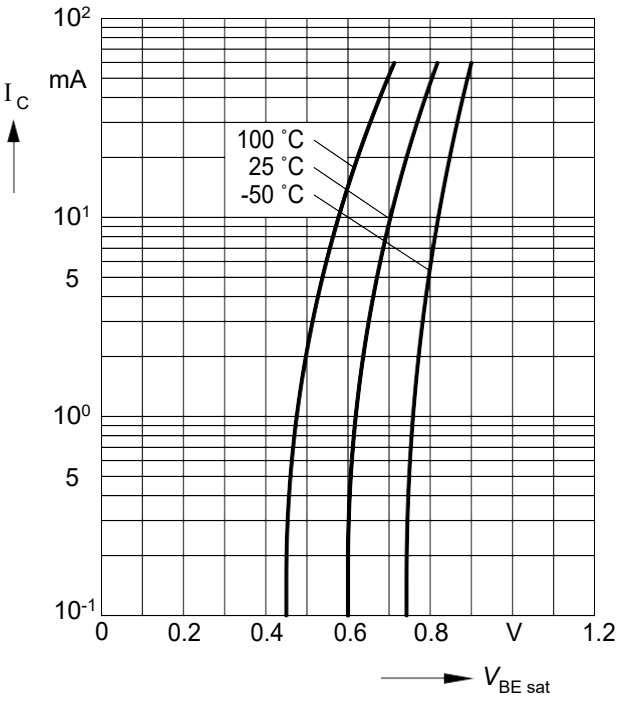
Collector-emitter saturation voltage

$I_C = f(V_{CEsat})$, h_{FE} = 10



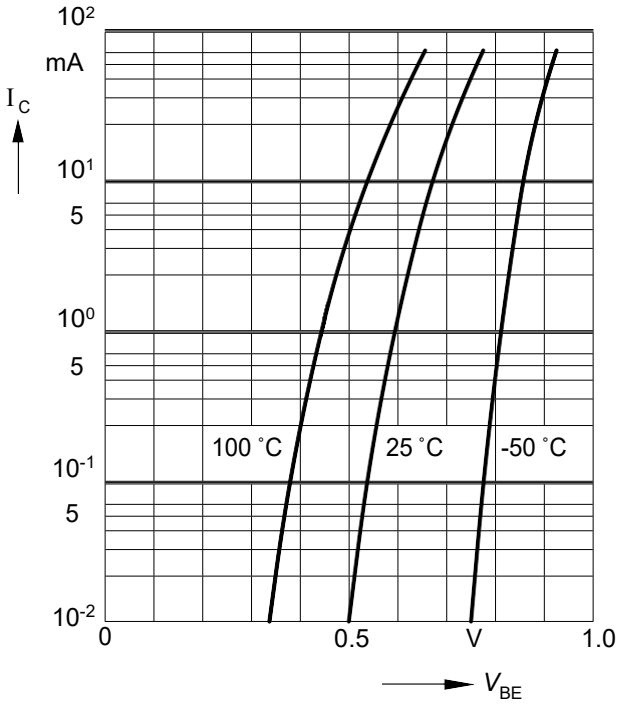
Base-emitter saturation voltage

I_C = $f(V_{BEsat})$, h_{FE} = 40



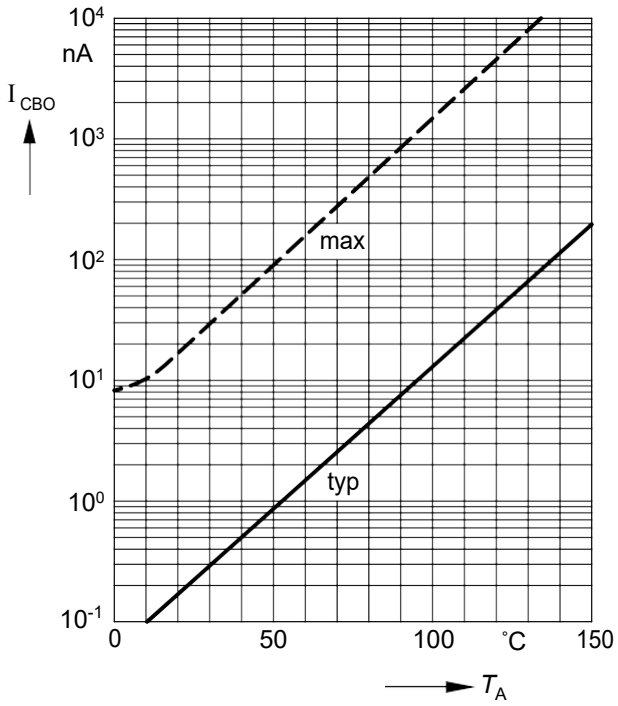
Collector current I_C = $f(V_{BE})$

V_{CE} = 5V

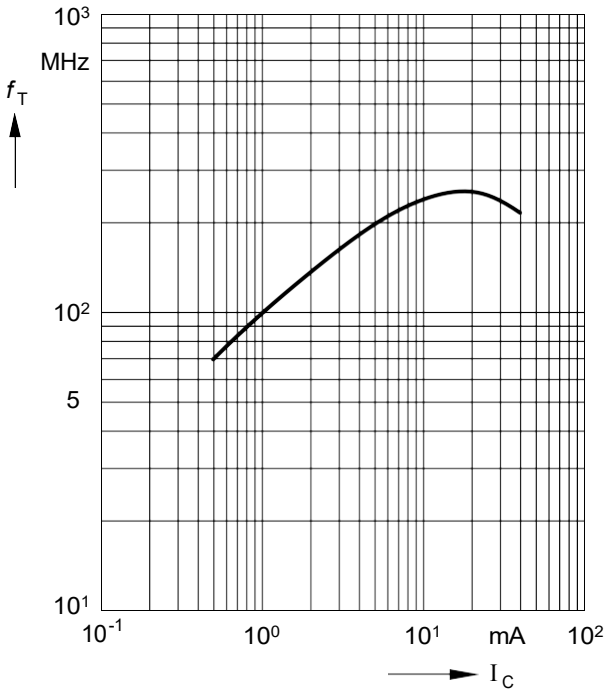


Typical Characteristics

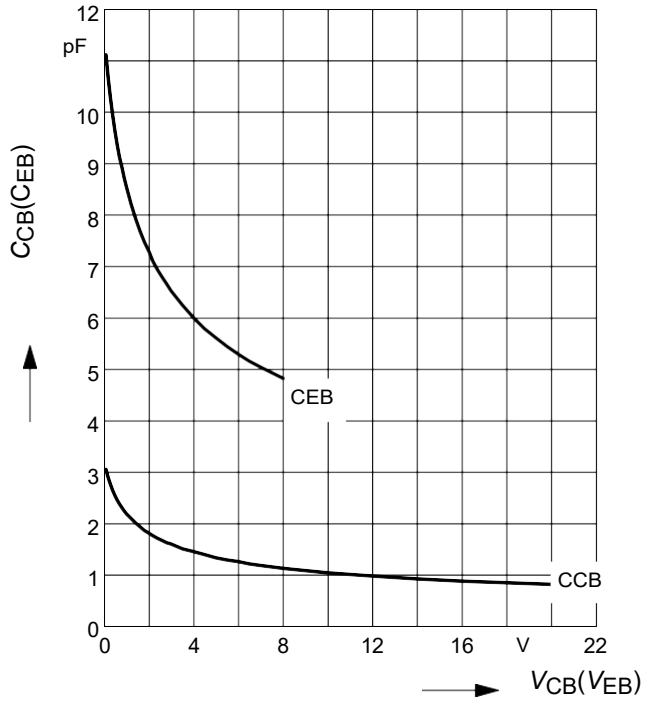
Collector cutoff current $I_{CBO} = f(T_A)$
$V_{CB} = V_{CEmax}$



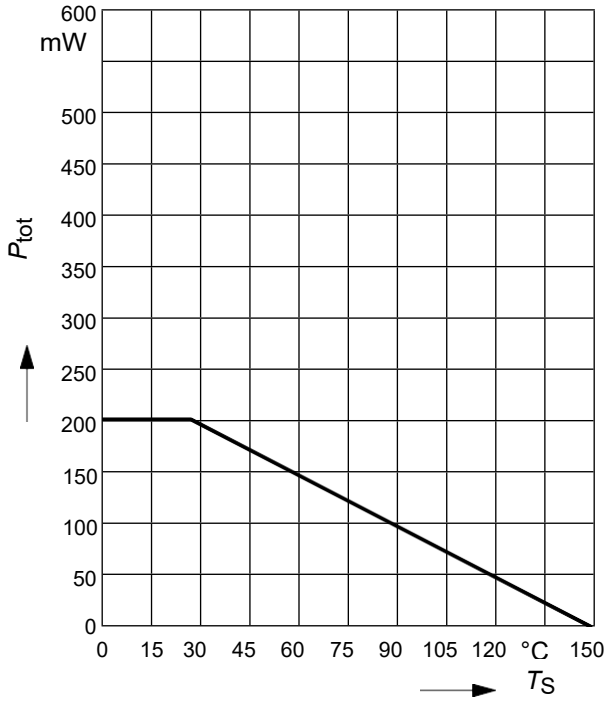
Transition frequency $f_T = f(I_C)$
V_{CE} = parameter in V, f = 2 GHz



Collector-base capacitance $C_{cb} = f(V_{CB})$
Emitter-base capacitance $C_{eb} = f(V_{EB})$

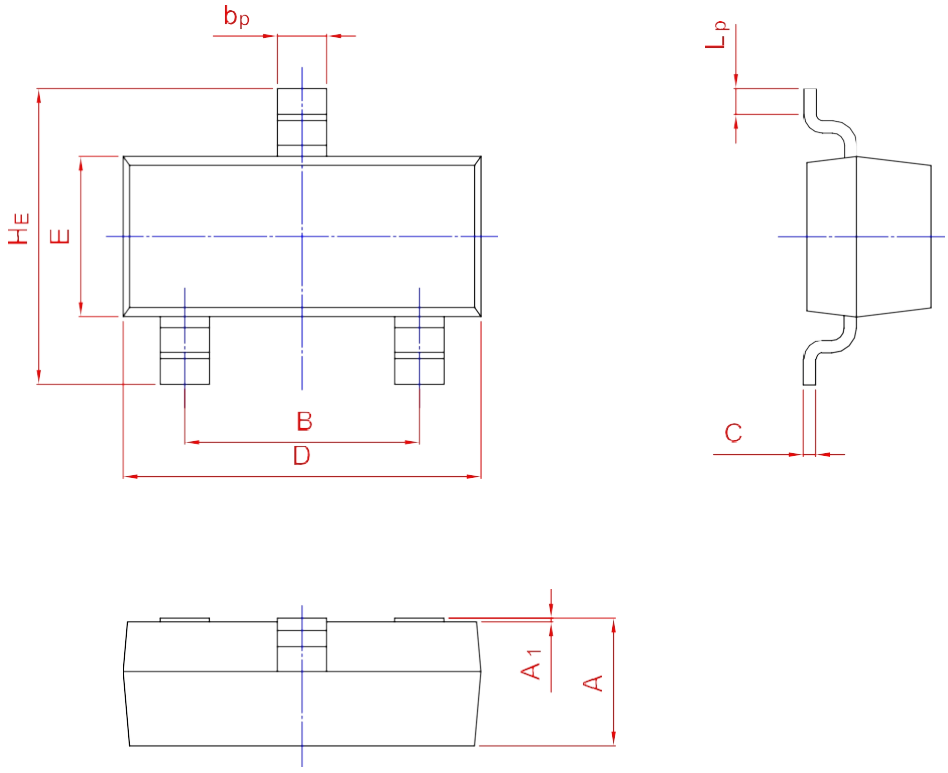


Total power dissipation $P_{tot} = f(T_S)$



PACKAGE OUTLINE

Plastic surface mounted package; 3 leads **SOT-23**



UNIT	A	B	bp	C	D	E	HE	A1	Lp
mm	1.40 0.95	2.04 1.78	0.50 0.35	0.19 0.08	3.10 2.70	1.65 1.20	3.00 2.20	0.100 0.013	0.50 0.20