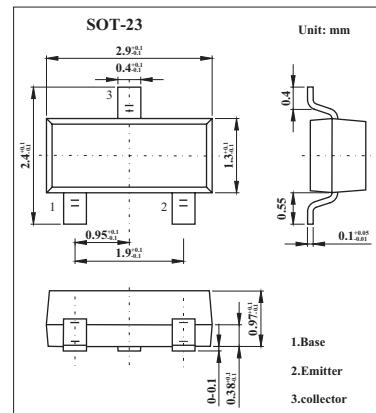


## NPN General Purpose Transistors

### BCW60A/B/C/D

#### ■ Features

- NPN epitaxial silicon transistor.



#### ■ Absolute Maximum Ratings Ta = 25°C

Parameter	Symbol	Rating	Unit
Collector-base voltage	V <sub>CBO</sub>	32	V
Collector-emitter voltage	V <sub>CCEO</sub>	32	V
Emitter-base voltage	V <sub>EBO</sub>	5	V
Collector current	I <sub>C</sub>	100	mA
Collector power dissipation	P <sub>C</sub>	350	mW
Storage temperature	T <sub>stg</sub>	150	°C

**BCW60A/B/C/D**■ Electrical Characteristics  $T_a = 25^\circ\text{C}$ 

Parameter	Symbol	Testconditons	Min	Typ	Max	Unit
Collector-emitter breakdown voltage	$\text{BV}_{\text{CEO}}$	$I_c=2\text{mA}, I_b=0$	32			
Emitter-base breakdown voltage	$\text{BV}_{\text{EBO}}$	$I_e=1\mu\text{A}, I_c=0$	5			
Collector cut-off current	$I_{\text{CES}}$	$V_{\text{CE}}=32\text{V}, V_{\text{BE}}=0$			20	nA
Emitter cutoff current	$I_{\text{EBO}}$	$I_c = 0; V_{\text{EB}} = 4 \text{ V}$			20	nA
DC Current Gain	BCW60B	$V_{\text{CE}}=5\text{V}, I_c=10\mu\text{A}$	20			
	BCW60C		40			
	BCW60D		100			
	BCW60A		120		220	
	BCW60B		180		310	
	BCW60C	$V_{\text{CE}}=5\text{V}, I_c=2\text{mA}$	250		460	
	BCW60D		380		630	
	BCW60A		60			
	BCW60B	$V_{\text{CE}}=1\text{V}, I_c=50\text{mA}$	70			
	BCW60C		90			
	BCW60D		10			
Collector-Emitter Saturation Voltage		$V_{\text{CE(sat)}}$	$I_c = 50 \text{ mA}; I_b = 1.25 \text{ mA}$		0.55	V
			$I_c = 10 \text{ mA}; I_b = 0.25 \text{ mA}$		0.35	V
Base to emitter saturation voltage		$V_{\text{BE(sat)}}$	$I_c = 50 \text{ mA}; I_b = 1.25 \text{ mA}$	0.7	1.05	V
			$I_c = 10 \text{ mA}; I_b = 0.25 \text{ mA}$	0.6	0.85	V
Base to emitter voltage		$V_{\text{BE(on)}}$	$I_c = 2 \text{ mA}; V_{\text{CE}} = 5 \text{ V}$	0.55	0.75	V
Collector capacitance		$C_{\text{ob}}$	$I_E = i_E = 0; V_{\text{CB}} = 10 \text{ V}; f = 1 \text{ MHz}$		4.5	pF
Transition frequency		$f_T$	$I_c = 10 \text{ mA}; V_{\text{CE}} = 5 \text{ V}; f = 100 \text{ MHz}$	125		MHz
Noise figure		NF	$I_c = 0.2 \text{ mA}; V_{\text{CE}} = 5 \text{ V}; R_g = 2 \text{ k}\Omega; f = 1 \text{ kHz}$		6	dB
Turn On Time		$t_{\text{on}}$	$I_c=10\text{mA}, I_{b1}=1\text{mA}$		150	ns
Turn Off Time		$t_{\text{off}}$	$V_{\text{BB}}=3.6\text{V}, I_{b2}=1\text{mA}$ $R_1=R_2=5\text{K} \Omega, R_L=990 \Omega$		800	ns

## ■ Marking

TYPE	BCW60A	BCW60B	BCW60C	BCW60D
Marking	AA	AB	AC	AD