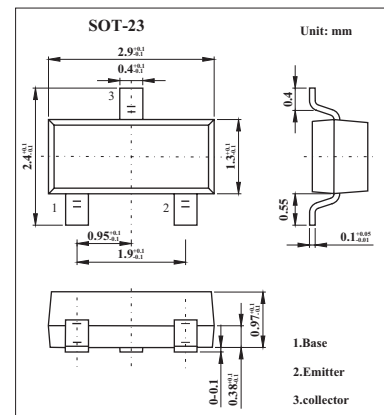


## NPN General Purpose Transistors

## BCW60A/B/C/D

## ■ Features

- NPN epitaxial silicon transistor.

■ Absolute Maximum Ratings  $T_a = 25^\circ\text{C}$ 

Parameter	Symbol	Rating	Unit
Collector-base voltage	$V_{CB0}$	32	V
Collector-emitter voltage	$V_{CE0}$	32	V
Emitter-base voltage	$V_{EB0}$	5	V
Collector current	$I_c$	100	mA
Collector power dissipation	$P_c$	350	mW
Storage temperature	$T_{stg}$	150	$^\circ\text{C}$

## BCW60A/B/C/D

## ■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit
Collector-emitter breakdown voltage	$BV_{CEO}$	$I_C=2mA, I_B=0$	32			
Emitter-base breakdown voltage	$BV_{EBO}$	$I_E=1\mu A, I_C=0$	5			
Collector cut-off current	$I_{CES}$	$V_{CE}=32V, V_{BE}=0$			20	nA
Emitter cutoff current	$I_{EBO}$	$I_C = 0; V_{EB} = 4 V$			20	nA
DC Current Gain	BCW60B	$V_{CE}=5V, I_C=10\mu A$	20			
	BCW60C		40			
	BCW60D		100			
	BCW60A		120		220	
	BCW60B	$V_{CE}=5V, I_C=2mA$	180		310	
	BCW60C		250		460	
	BCW60D		380		630	
	BCW60A		60			
	BCW60B	$V_{CE}=1V, I_C=50mA$	70			
	BCW60C		90			
	BCW60D		10			
	BCW60A					
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 50 mA; I_B = 1.25 mA$			0.55	V
		$I_C = 10 mA; I_B = 0.25 mA$			0.35	V
Base to emitter saturation voltage	$V_{BE(sat)}$	$I_C = 50 mA; I_B = 1.25 mA$	0.7		1.05	V
		$I_C = 10 mA; I_B = 0.25 mA$	0.6		0.85	V
Base to emitter voltage	$V_{BE(on)}$	$I_C = 2 mA; V_{CE} = 5 V$	0.55		0.75	V
Collector capacitance	$C_{ob}$	$I_E = i_e = 0; V_{CB} = 10 V; f = 1 MHz$			4.5	pF
Transition frequency	$f_T$	$I_C = 10 mA; V_{CE} = 5 V; f = 100 MHz$	125			MHz
Noise figure	NF	$I_C = 0.2 mA; V_{CE} = 5 V; R_G = 2 k\Omega; f = 1 kHz$			6	dB
Turn On Time	$t_{on}$	$I_C=10mA, I_{B1}=1mA$			150	ns
Turn Off Time	$t_{off}$	$V_{BB}=3.6V, I_{B2}=1mA$ $R_1=R_2=5K\Omega, R_L=990\Omega$			800	ns

## ■ Marking

TYPE	BCW60A	BCW60B	BCW60C	BCW60D
Marking	AA	AB	AC	AD