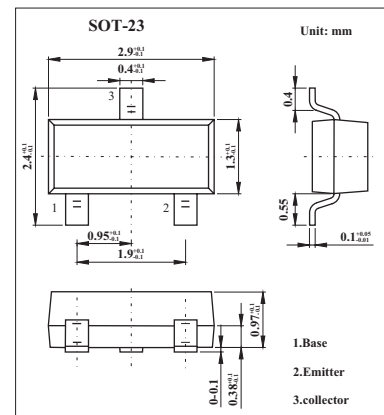


NPN General Purpose Transistors

BCW31,BCW32,BCW33

■ Features

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

■ 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
Peak collector current	I_{CM}	200	mA
Peak base current	I_{BM}	200	mA
Total power dissipation	P_{tot}	250	mW
Storage temperature	T_{stg}	-65 to +150	$^\circ\text{C}$
Junction temperature	T_j	150	$^\circ\text{C}$
Operating ambient temperature	R_{amb}	-65 to +150	$^\circ\text{C}$
Thermal resistance from junction to ambient *	$R_{th\ j-a}$	500	K/W

* Transistor mounted on an FR4 printed-circuit board.

BCW31,BCW32,BCW33■ Electrical Characteristics $T_a = 25^\circ\text{C}$

Parameter		Symbol	Testconditions	Min	Typ	Max	Unit
Collector cutoff current		I_{CBO}	$I_E = 0; V_{CB} = 32\text{ V}$			100	nA
		I_{CBO}	$I_E = 0; V_{CB} = 32\text{ V}; T_j = 100^\circ\text{C}$			10	μA
Emitter cutoff current		I_{EBO}	$I_C = 0; V_{EB} = 5\text{ V}$			100	nA
DC current gain	BCW31	h_{FE}	$I_C = 2\text{ mA}; V_{CE} = 5\text{ V}$	110		120	
	BCW32			200		450	
	BCW33			420		800	
Collector-emitter saturation voltage		$V_{CE(sat)}$	$I_C = 10\text{ mA}; I_B = 0.5\text{ mA}$		120	250	mV
			$I_C = 50\text{ mA}; I_B = 2.5\text{ mA}$		210		mV
Base to emitter saturation voltage		$V_{BE(sat)}$	$I_C = 10\text{ mA}; I_B = 0.5\text{ mA}$		750		mV
			$I_C = 50\text{ mA}; I_B = 2.5\text{ mA}$		850		mV
Base to emitter voltage		V_{BE}	$I_C = 2\text{ mA}; V_{CE} = 5\text{ V}$	550		700	mV
Collector capacitance		C_C	$I_E = I_C = 0; V_{CB} = 10\text{ V}; f = 1\text{ MHz}$		2.5		pF
Transition frequency		f_T	$I_C = 10\text{ mA}; V_{CE} = 5\text{ V}; f = 100\text{ MHz}$	100			MHz
Noise figure		NF	$I_C = 200\text{ }\mu\text{A}; V_{CE} = 5\text{ V}; R_s = 2\text{ k}\Omega;$ $f = 1\text{ kHz}; B = 200\text{ Hz}$			10	dB

■ h_{FE} Classification

TYPE	BCW31	BCW32	BCW33
Marking	D1	D2	D3