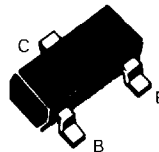


# SOT23 NPN SILICON PLANAR SMALL SIGNAL TRANSISTORS

**BCW31  
BCW32  
BCW33**

## PARTMARKING DETAILS:-

BCW31 - D1  
BCW32 - D2  
BCW33 - D3  
BCW31R - D4  
BCW32R - D5  
BCW33R - D6



## ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	VALUE	UNIT
Collector-Base Voltage	$V_{CBO}$	32	V
Collector-Emitter Voltage ( $I_C = 2.0\text{mA}$ )	$V_{ECO}$	32	V
Emitter-Base Voltage	$B_{EBO}$	5	V
Collector Current	$I_C$	100	mA
Peak Pulse Current	$I_{CM}$	200	mA
Power Dissipation at $T_{amb} = 25^\circ\text{C}$	$P_{TOT}$	330	mW
Operating and Storage Temperature Range	$t_j:tstg$	- 55 to + 150	$^\circ\text{C}$

## ELECTRICAL CHARACTERISTICS (at $T_{amb} = 25^\circ\text{C}$ unless otherwise stated)

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS
Collector-Base Cut-Off Current	$I_{CBO}$			100 10	nA $\mu\text{A}$	$I_E = 0, V_{CB} = 20\text{V}$ $I_E = 0, V_{CB} = 20\text{V}$ $T_j = 100^\circ\text{C}$
Base-Emitter Voltage	$V_{BE}$	550		700	mV	$I_C = 2\text{mA}, V_{CE} = 5\text{V}$
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$		120 210	250	mV mV	$I_C = 10\text{mA}, I_B = 0.5\text{mA}$ $I_C = 50\text{mA}, I_B = 2.5\text{mA}$
Base-Emitter Saturation Voltage	$V_{BE(SAT)}$		750 850		mV mV	$I_C = 10\text{mA}, I_B = 0.5\text{mA}$ $I_C = 50\text{mA}, I_B = 2.5\text{mA}$
Static Forward Current Transfer Ratio	BCW31	$h_{FE}$	110	90 220		$I_C = 10\mu\text{A}, V_{CE} = 5\text{V}$ $I_C = 2\text{mA}, V_{CE} = 5\text{V}$
	BCW32	$h_{FE}$	200	150 450		$I_C = 10\mu\text{A}, V_{CE} = 5\text{V}$ $I_C = 2\text{mA}, V_{CE} = 5\text{V}$
	BCW33	$h_{FE}$	420	270 800		$I_C = 10\mu\text{A}, V_{CE} = 5\text{V}$ $I_C = 2\text{mA}, V_{CE} = 5\text{V}$
Transition Frequency	$f_T$		300		MHz	$I_C = 10\text{mA}, V_{CE} = 5\text{V}$ $f = 35\text{MHz}$
Collector Capacitance	$C_{TC}$			4	pF	$I_E = I_B = 0, V_{CB} = 10\text{V}$ $f = 1\text{MHz}$
Noise Figure	N			10	dB	$I_C = 200\mu\text{A}, V_{CE} = 5\text{V}$ $R_s = 2\text{k}\Omega, f = 1\text{kHz}$ $B = 200\text{Hz}$