

# BCW29,30

CASE 318-02/03, STYLE 6  
SOT-23 (TO-236AA/AB)

GENERAL PURPOSE TRANSISTOR

PNP SILICON

## MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	$V_{CE0}$	20	Vdc
Collector-Base Voltage	$V_{CBO}$	30	Vdc
Emitter-Base Voltage	$V_{EBO}$	5.0	Vdc
Collector Current — Continuous	$I_C$	100	mA <sub>dc</sub>

## THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
*Total Device Dissipation, $T_A = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	350 2.8	mW mW/ $^\circ\text{C}$
Storage Temperature	$T_{stg}$	150	$^\circ\text{C}$
*Thermal Resistance Junction to Ambient	$R_{\theta JA}$	357	$^\circ\text{C/W}$

\*Package mounted on 99.5% alumina 10 x 8 x 0.6 mm.

## ELECTRICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ unless otherwise noted.)

Characteristic	Symbol	Min	Max	Unit
<b>OFF CHARACTERISTICS</b>				
Collector-Emitter Breakdown Voltage ( $I_C = 2.0 \text{ mA}_{dc}$ , $I_E = 0$ )	$V_{(BR)CEO}$	20	—	Vdc
Collector-Emitter Breakdown Voltage ( $I_C = 100 \mu\text{A}_{dc}$ , $V_{EB} = 0$ )	$V_{(BR)CES}$	30	—	Vdc
Collector-Base Breakdown Voltage ( $I_C = 10 \mu\text{A}_{dc}$ , $I_C = 0$ )	$V_{(BR)CBO}$	30	—	Vdc
Emitter-Base Breakdown Voltage ( $I_E = 10 \mu\text{A}_{dc}$ , $I_C = 0$ )	$V_{(BR)EBO}$	5.0	—	Vdc
Collector Cutoff Current ( $V_{CB} = 20 \text{ Vdc}$ , $I_E = 0$ ) ( $V_{CB} = 20 \text{ Vdc}$ , $I_E = 0$ , $T_A = 100^\circ\text{C}$ )	$I_{CBO}$	— —	100 10	nA <sub>dc</sub> $\mu\text{A}_{dc}$
<b>ON CHARACTERISTICS</b>				
DC Current Gain ( $I_C = 2.0 \text{ mA}_{dc}$ , $V_{CE} = 5.0 \text{ Vdc}$ )	BCW29 BCW30 $h_{FE}$	120 215	260 500	— —
Collector-Emitter Saturation Voltage ( $I_C = 10 \text{ mA}_{dc}$ , $I_B = 0.5 \text{ mA}_{dc}$ )	$V_{CE(sat)}$	—	0.3	Vdc
Base-Emitter On Voltage ( $I_C = 2.0 \text{ mA}_{dc}$ , $V_{CE} = 5.0 \text{ Vdc}$ )	$V_{BE(on)}$	0.6	0.75	Vdc
<b>SMALL-SIGNAL CHARACTERISTICS</b>				
Output Capacitance ( $I_E = 0$ , $V_{CE} = 10 \text{ Vdc}$ , $f = 1.0 \text{ MHz}$ )	$C_{obo}$	—	7.0	pF
Noise Figure ( $I_C = 0.2 \text{ mA}_{dc}$ , $V_{CE} = 5.0 \text{ Vdc}$ , $R_S = 2.0 \text{ k}\Omega$ , $f = 1.0 \text{ kHz}$ , $BW = 200 \text{ Hz}$ )	NF	—	10	dB