

TRANSISTOR (NPN)

FEATURE

- General Purpose Transistor

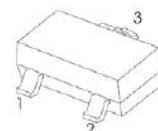
MARKING:

BCW65A: EA

BCW65B: EB

BCW65C:EC

SOT - 23



1. BASE

2. EMITTER

3. COLLECTOR

MAXIMUM RATINGS (T_a=25°C unless otherwise noted)

Symbol	Parameter	Value	Unit
V _{CBO}	Collector-Base Voltage	60	V
V _{CEO}	Collector-Emitter Voltage	32	V
V _{EBO}	Emitter-Base Voltage	5	V
I _C	Collector Current -Continuous	800	mA
P _C	Collector Power Dissipation	225	mW
R _{θJA}	Thermal Resistance from Junction to Ambient	556	°C/W
T _J	Junction Temperature	150	°C
T _{stg}	Storage Temperature	-55~+150	°C

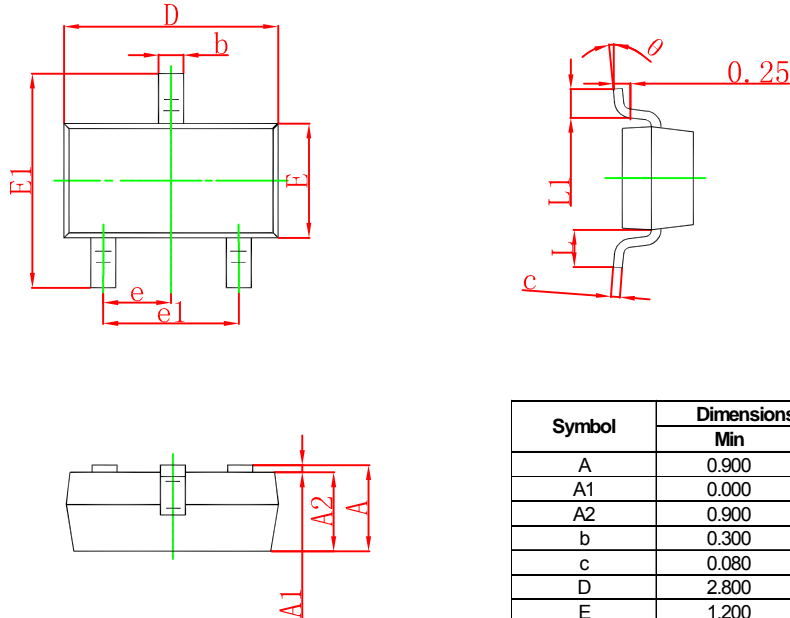


ELECTRICAL CHARACTERISTICS ($T_a=25^{\circ}\text{C}$ unless otherwise specified)

Parameter		Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage		$V_{(BR)CBO}$	$I_C=10\mu\text{A}$, $I_E=0$	60			V
Collector-emitter breakdown voltage		$V_{(BR)CEO}$	$I_C=10\text{mA}$, $I_B=0$	32			V
Emitter-base breakdown voltage		$V_{(BR)EBO}$	$I_E=10\mu\text{A}$, $I_C=0$	5			V
Collector cut-off current		I_{CBO}	$V_{CB}=32\text{V}$, $I_E=0$			0.02	μA
Emitter cut-off current		I_{EBO}	$V_{EB}=4\text{V}$, $I_C=0$			0.02	μA
DC current gain	BCW65A	$h_{FE(1)}^*$	$V_{CE}=10\text{V}$, $I_C=100\mu\text{A}$	35			
	BCW65B/BCW65C			80			
	BCW65A	$h_{FE(2)}^*$	$V_{CE}=1\text{V}$, $I_C=10\text{mA}$	75			
	BCW65B/BCW65C			180			
	BCW65A	$h_{FE(3)}^*$	$V_{CE}=1\text{V}$, $I_C=100\text{mA}$	100		250	
	BCW65B			160		400	
	BCW65C			250		630	
	BCW65A	$h_{FE(4)}^*$	$V_{CE}=2\text{V}$, $I_C=500\text{mA}$	35			
	BCW65B/BCW65C			100			
Collector-emitter saturation voltage		$V_{CE(sat)}^*$	$I_C=100\text{mA}$, $I_B=10\text{mA}$			0.3	V
			$I_C=500\text{mA}$, $I_B=50\text{mA}$			0.7	V
Base-emitter saturation voltage		$V_{BE(sat)}^*$	$I_C=500\text{mA}$, $I_B=50\text{mA}$			2	V
Transition frequency		f_T	$V_{CE}=10\text{V}$, $I_C=20\text{mA}$, $f=100\text{MHz}$	100			MHz
Collector output capacitance		C_{ob}	$V_{CB}=6\text{V}$, $I_E=0$, $f=1\text{MHz}$			12	pF
Collector input capacitance		C_{ib}	$V_{EB}=0.5\text{V}$, $I_C=0$, $f=1\text{MHz}$			80	pF
Noise figure		NF	$V_{CE}=5\text{V}$, $I_C=0.2\text{mA}$, $R_S=1\text{k}\Omega$, $f=1\text{kHz}$, $BW=200\text{Hz}$			10	dB

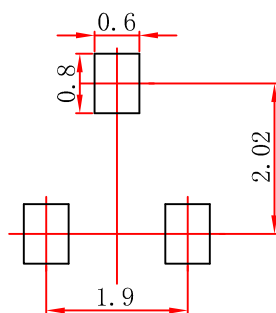
*Pulse test: pulse width $\leq 300\mu\text{s}$, duty cycles $\leq 2.0\%$.

SOT-23 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP		0.037 TYP	
e1	1.800	2.000	0.071	0.079
L	0.550 REF		0.022 REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°

SOT-23 Suggested Pad Layout



Note:

1. Controlling dimension: in millimeters.
2. General tolerance: $\pm 0.05\text{mm}$.
3. The pad layout is for reference purposes only.