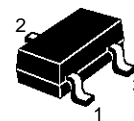


## SMALL SIGNAL NPN TRANSISTORS

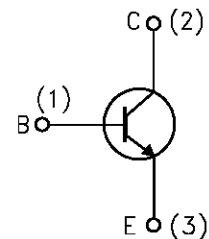
Type	Marking
BCW65A	EA
BCW65B	EB
BCW65C	EC
BCW66F	EF
BCW66G	EG
BCW66H	EH

- SILICON EPITAXIAL PLANAR NPN TRANSISTORS
- MINIATURE PLASTIC PACKAGE FOR APPLICATION IN SURFACE MOUNTING CIRCUITS
- MEDIUM CURRENT AF AMPLIFICATION AND SWITCHING
- PNP COMPLEMENTS ARE RESPECTIVELY BCW67 AND BCW68



**SOT-23**

### INTERNAL SCHEMATIC DIAGRAM



SC08960

### ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value		Unit
		BCW65	BCW66	
$V_{CES}$	Collector-Emitter Voltage ( $V_{BE} = 0$ )	60	75	V
$V_{CEO}$	Collector-Emitter Voltage ( $I_B = 0$ )	32	45	V
$V_{EBO}$	Emitter-Base Voltage ( $I_C = 0$ )	5		V
$I_C$	Collector Current	0.8		A
$I_{CM}$	Collector Peak Current	1		A
$I_B$	Base Current	0.1		A
$P_{tot}$	Total Dissipation at $T_c = 25^\circ\text{C}$	360		mW
$T_{stg}$	Storage Temperature	-65 to 150		$^\circ\text{C}$
$T_j$	Max. Operating Junction Temperature	150		$^\circ\text{C}$

## BCW65/BCW66

### THERMAL DATA

$R_{thj-amb}$	Thermal Resistance Junction-Ambient	Max	375	$^{\circ}\text{C}/\text{W}$
$R_{thj-SR}$	Thermal Resistance Junction-Substrate	Max	278	$^{\circ}\text{C}/\text{W}$

• Mounted on a ceramic substrate area = 0.7 mm x 2.5 cm<sup>2</sup>

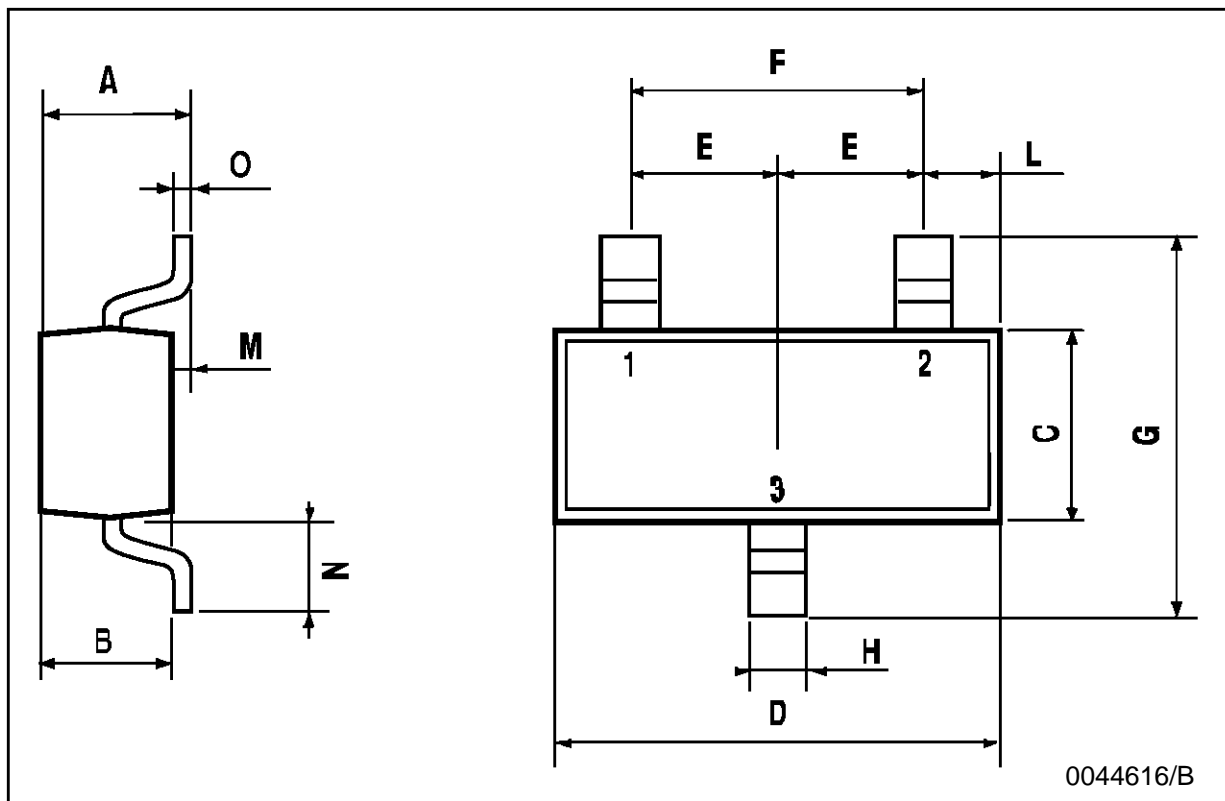
### ELECTRICAL CHARACTERISTICS (T<sub>case</sub> = 25 °C unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$I_{CES}$	Collector Cut-off Current ( $V_{BE} = 0$ )	$V_{CE} = \text{Rated } V_{CES}$ $V_{CE} = \text{Rated } V_{CES}$ $T_{amb} = 150\text{ }^{\circ}\text{C}$			20 20	nA $\mu\text{A}$
$I_{EBO}$	Collector Cut-off Current ( $I_E = 0$ )	$V_{EB} = 4\text{ V}$			20	nA
$V_{(BR)CEO}^*$	Collector-Emitter Breakdown Voltage ( $I_B = 0$ )	$I_C = 10\text{ mA}$ for <b>BCW65</b> for <b>BCW66</b>	32 45			V V
$V_{(BR)CES}^*$	Collector-Emitter Breakdown Voltage ( $V_{EB} = 0$ )	$I_C = 10\text{ }\mu\text{A}$ for <b>BCW65</b> for <b>BCW66</b>	60 75			V V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage ( $I_C = 0$ )	$I_C = 10\text{ }\mu\text{A}$	5			V
$V_{CE(sat)}^*$	Collector-Emitter Saturation Voltage	$I_C = 100\text{ mA}$ $I_B = 10\text{ mA}$ $I_C = 500\text{ mA}$ $I_B = 50\text{ mA}$			0.3 0.7	V V
$V_{BE(sat)}^*$	Collector-Base Saturation Voltage	$I_C = 100\text{ mA}$ $I_B = 10\text{ mA}$ $I_C = 500\text{ mA}$ $I_B = 50\text{ mA}$			1.25 2	V V
$h_{FE}^*$	DC Current Gain	$I_C = 0.1\text{ mA}$ $V_{CE} = 10\text{ V}$ for <b>group A, F</b> for <b>group B, G</b> for <b>group C, H</b> $I_C = 10\text{ mA}$ $V_{CE} = 1\text{ V}$ for <b>group A, F</b> for <b>group B, G</b> for <b>group C, H</b> $I_C = 100\text{ mA}$ $V_{CE} = 1\text{ V}$ for <b>group A, F</b> for <b>group B, G</b> for <b>group C, H</b> $I_C = 500\text{ mA}$ $V_{CE} = 2\text{ V}$ for <b>group A, F</b> for <b>group B, G</b> for <b>group C, H</b>	35 50 80 75 110 180 100 160 250 35 60 100		250 400 630	
$f_T$	Transition Frequency	$I_C = 20\text{ mA}$ $V_{CE} = 10\text{ V}$ $f = 100\text{ MHz}$	100			MHz
$C_{CB}$	Collector Base Capacitance	$I_E = 0$ $V_{CB} = 10\text{ V}$ $f = 1\text{ MHz}$			12	pF
$C_{EB}$	Emitter Base Capacitance	$I_C = 0$ $V_{CE} = 0.5\text{ V}$ $f = 1\text{ MHz}$			80	pF
NF	Noise Figure	$V_{CE} = 5\text{ V}$ $I_C = 0.2\text{ mA}$ $f = 1\text{ KHz}$ $\Delta f = 200\text{ Hz}$ $R_G = 2\text{ K}\Omega$		2	10	dB
$t_{on}$	Switching On Time	$I_C = 150\text{ mA}$ $I_{B1} = -I_{B2} = 15\text{ mA}$ $R_L = 150\text{ }\Omega$			100	ns

\* Pulsed: Pulse duration = 300  $\mu\text{s}$ , duty cycle  $\leq 2\%$

## SOT-23 MECHANICAL DATA

DIM.	mm			mils		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	0.85		1.1	33.4		43.3
B	0.65		0.95	25.6		37.4
C	1.20		1.4	47.2		55.1
D	2.80		3	110.2		118
E	0.95		1.05	37.4		41.3
F	1.9		2.05	74.8		80.7
G	2.1		2.5	82.6		98.4
H	0.38		0.48	14.9		18.8
L	0.3		0.6	11.8		23.6
M	0		0.1	0		3.9
N	0.3		0.65	11.8		25.6
O	0.09		0.17	3.5		6.7



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