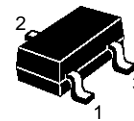


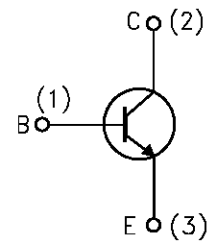
## SMALL SIGNAL NPN TRANSISTORS

Type	Marking
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 COMPLEMENT IS BCW68


**SOT-23**

### INTERNAL SCHEMATIC DIAGRAM



SC08960

### ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
$V_{CES}$	Collector-Emitter Voltage ( $V_{BE} = 0$ )	75	V
$V_{CEO}$	Collector-Emitter Voltage ( $I_B = 0$ )	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	$^\circ\text{C}$

**THERMAL DATA**

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

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

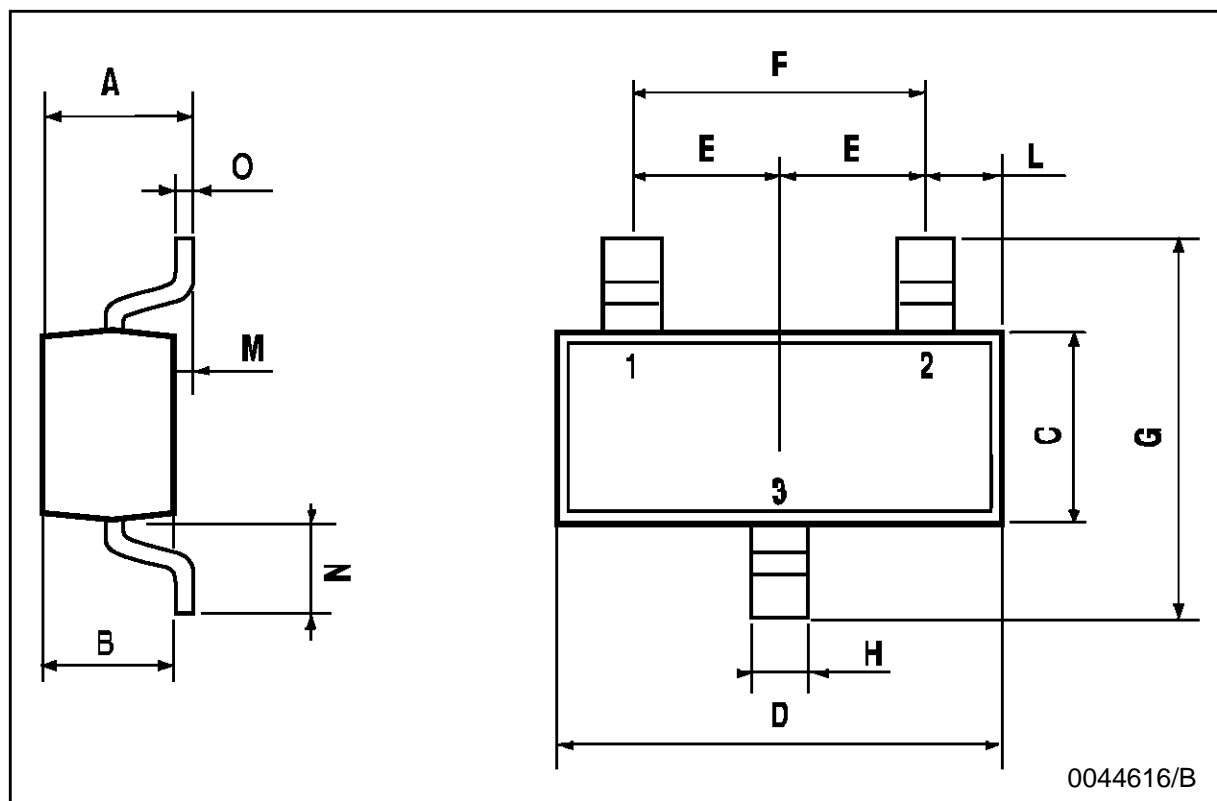
**ELECTRICAL CHARACTERISTICS** ( $T_{case} = 25^{\circ}C$  unless otherwise specified)

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

\* Pulsed: Pulse duration = 300  $\mu s$ , 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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