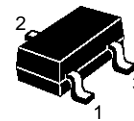


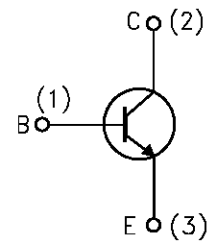
## SMALL SIGNAL NPN TRANSISTORS

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	$^{\circ}\text{C}/\text{W}$
$R_{thj-SR}$	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>

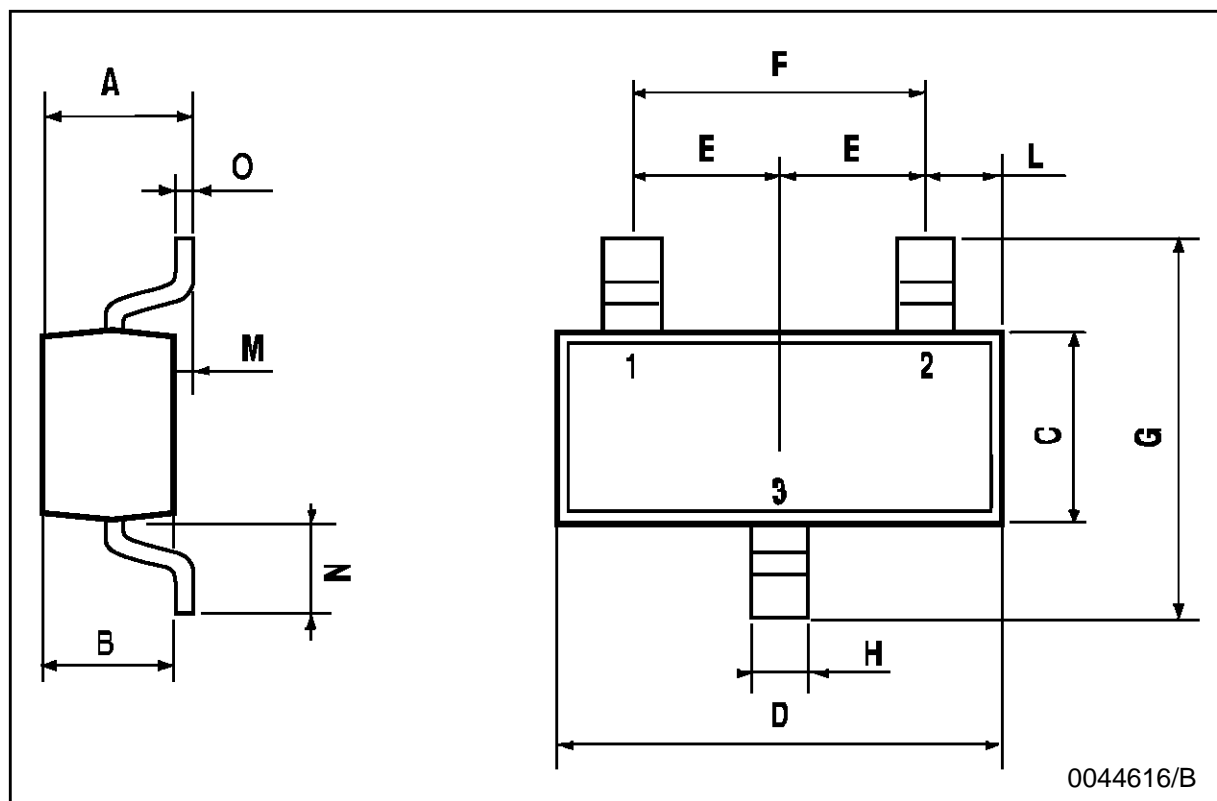
**ELECTRICAL CHARACTERISTICS** ( $T_{case} = 25^{\circ}\text{C}$  unless otherwise specified)

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



Information furnished is believed to be accurate and reliable. However, SGS-THOMSON Microelectronics assumes no responsibility for the consequences of use of such information nor for any infringement of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of SGS-THOMSON Microelectronics. Specifications mentioned in this publication are subject to change without notice. This publication supersedes and replaces all information previously supplied. SGS-THOMSON Microelectronics products are not authorized for use as critical components in life support devices or systems without express written approval of SGS-THOMSON Microelectronics.

© 1997 SGS-THOMSON Microelectronics - Printed in Italy - All Rights Reserved

SGS-THOMSON Microelectronics GROUP OF COMPANIES

Australia - Brazil - Canada - China - France - Germany - Hong Kong - Italy - Japan - Korea - Malaysia - Malta - Morocco - The Netherlands - Singapore - Spain - Sweden - Switzerland - Taiwan - Thailand - United Kingdom - U.S.A