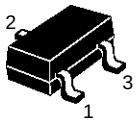
SGS-THOMSON MICROELECTRONICS

BCW66

SMALL SIGNAL NPN TRANSISTORS

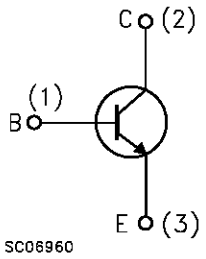
Type	Marking
BCW66F	EF
BCW66G	EG
BCW66H	EH

- 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



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 ^oC	360	mW
T_{stg}	Storage Temperature	-65 to 150	^oC
T_j	Max. Operating Junction Temperature	150	^oC

THERMAL DATA

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

• Mounted on a ceramic substrate area = 0.7 mm x 2.5 cm^2

ELECTRICAL CHARACTERISTICS (T_{case} = 25 °C unless otherwise specified)

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

* Pulsed: Pulse duration = 300 µs, duty cycle ≤ 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