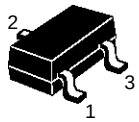
SGS-THOMSON MICROELECTRONICS

BCW89

SMALL SIGNAL PNP TRANSISTOR

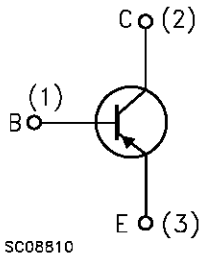
Type	Marking
BCW89	H3

- SILICON EPITAXIAL PLANAR PNP TRANSISTORS
- MINIATURE PLASTIC PACKAGE FOR APPLICATION IN SURFACE MOUNTING CIRCUITS
- LOW LEVEL AUDIO-AMPLIFICATION AND SWITCHING



SOT-23

INTERNAL SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{CES}	Collector-Emitter Voltage (V_{BE} = 0)	-60	V
V_{CEO}	Collector-Emitter Voltage (I_B = 0)	-60	V
V_{CBO}	Collector-Base Voltage (I_E = 0)	-60	V
V_{EBO}	Emitter-Base Voltage (I_C = 0)	-5	V
I_C	Collector Current	-0.1	A
I_{CM}	Collector Peak Current	-0.2	A
P_{tot}	Total Dissipation at T_c = 25 °C	350	mW
T_{stg}	Storage Temperature	-65 to 150	°C
T_j	Max. Operating Junction Temperature	150	°C

THERMAL DATA

$R_{thj\text{-}amb}$ •	Thermal Resistance Junction-Ambient	Max	420	$^oC/W$

• Mounted on a ceramic substrate area = 10 x 8 x 0.6 mm

ELECTRICAL CHARACTERISTICS (T_{case} = 25 ^oC unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CBO}	Collector Cut-off Current (I_E = 0)	V_{CB} = -20 V V_{CB} = -20 V T_j = 100 ^oC			-100 -10	nA µA
$V_{(BR)CES}$*	Collector-Emitter Breakdown Voltage (V_{BE} = 0)	I_C = -10 µA	-60			V
$V_{(BR)CEO}$*	Collector-Emitter Breakdown Voltage (I_B = 0)	I_C = -2 mA	-60			V
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage (I_E = 0)	I_C = -10 µA	-60			V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage (I_C = 0)	I_E = -10 µA	-5			V
$V_{CE(sat)}$*	Collector-Emitter Saturation Voltage	I_C = -10 mA I_B = -0.5 mA I_C = -50 mA I_B = -2.5 mA		 -0.18	-0.3	V V
$V_{BE(sat)}$*	Base-Emitter Saturation Voltage	I_C = -10 mA I_B = -0.5 mA I_C = -50 mA I_B = -2.5 mA		-0.72 -0.81		V V
$V_{BE(on)}$*	Base-Emitter On Voltage	I_C = -2 mA V_{CE} = -5 V	-0.6		-0.75	V
h_{FE}*	DC Current Gain	I_C = -10 µA V_{CE} = -5 V I_C = -2 mA V_{CE} = -5 V	 120	90	 260	
f_T	Transition Frequency	I_C = -10 mA V_{CE} = -5 V f = 100 MHz		150		MHz
C_{CB}	Collector Base Capacitance	I_E = 0 mA V_{CB} = -10 V f = 1MHz			7	pF
NF	Noise Figure	f = 1KHz Δf = 200 Hz R_g = 2 KΩ I_C = -0.2 mA V_{CE} = -5 V			10	dB

* 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