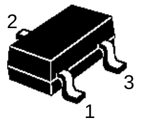
SGS-THOMSON
MICROELECTRONICS

BSR15
BSR16

SMALL SIGNAL PNP TRANSISTORS

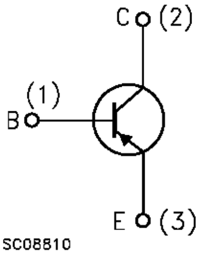
Type	Marking
BSR15	T7
BSR16	T8

- SILICON EPITAXIAL PLANAR PNP TRANSISTORS
- MINIATURE PLASTIC PACKAGE FOR APPLICATION IN SURFACE MOUNTING CIRCUITS
- MEDIUM CURRENT AF AMPLIFICATION AND SWITCHING
- NPN COMPLEMENTS ARE RESPECTIVELY BSR13 AND BSR14



SOT-23

INTERNAL SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value		Unit
		BSR15	BSR16	
V_{CBO}	Collector-Emitter Voltage (V_{BE} = 0)	-60	-60	V
V_{CEO}	Collector-Emitter Voltage (I_B = 0)	-40	-60	V
V_{EBO}	Emitter-Base Voltage (I_C = 0)	-5		V
I_{CM}	Collector Peak Current	-0.6		A
P_{tot}	Total Dissipation at T_c = 25 ^oC	350		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	350	°C/W

• Mounted on a ceramic substrate area = 15 x 15 x 0.5 mm

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

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CEX}	Collector Cut-off Current	V_{CE} = -30 V V_{BE} = -3 V			-50	nA
I_{BEX}	Base Cut-off Current	V_{CE} = -30 V V_{BE} = -3 V			-50	nA
I_{CBO}	Collector Cut-off Current (I_E = 0)	V_{CB} = -50 V for **BSR15** for **BSR16** V_{CB} = -50 V T_j = 150 °C for **BSR15** for **BSR16**			 -20 -10 -20 -10	 nA nA µA µA
$V_{(BR)CEO}$*	Collector-Emitter Breakdown Voltage (I_B = 0)	I_C = -10 mA for **BSR15** for **BSR16**	 -40 -60			 V 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 = -150 mA I_B = -15 mA I_C = -500 mA I_B = -50 mA			-0.4 -1.6	V V
$V_{BE(sat)}$*	Collector-Base Saturation Voltage	I_C = -150 mA I_B = -15 mA I_C = -500 mA I_B = -50 mA			-1.3 -2.6	V V
h_{FE}*	DC Current Gain	I_C = -0.1 mA V_{CE} = -10 V for **BSR15** for **BSR16** I_C = -1 mA V_{CE} = -10 V for **BSR15** for **BSR16** I_C = -10 mA V_{CE} = -10 V for **BSR15** for **BSR16** I_C = -150 mA V_{CE} = -10 V for **BSR15** for **BSR16** I_C = -500 mA V_{CE} = -10 V for **BSR15** for **BSR16**	 35 75 50 100 75 100 100 100 30 50		 300 300	
f_T	Transition Frequency	I_C = -50 mA V_{CE} = -20V f = 100MHz	200			MHz
C_{CB}	Collector Base Capacitance	I_E = 0 V_{CB} = -10 V f = 1 MHz			8	pF
C_{EB}	Emitter Base Capacitance	I_C = 0 V_{EB} = -2 V f = 1 MHz			30	pF

∗ Pulsed: Pulse duration = 300 µs, duty cycle ≤ 2 %

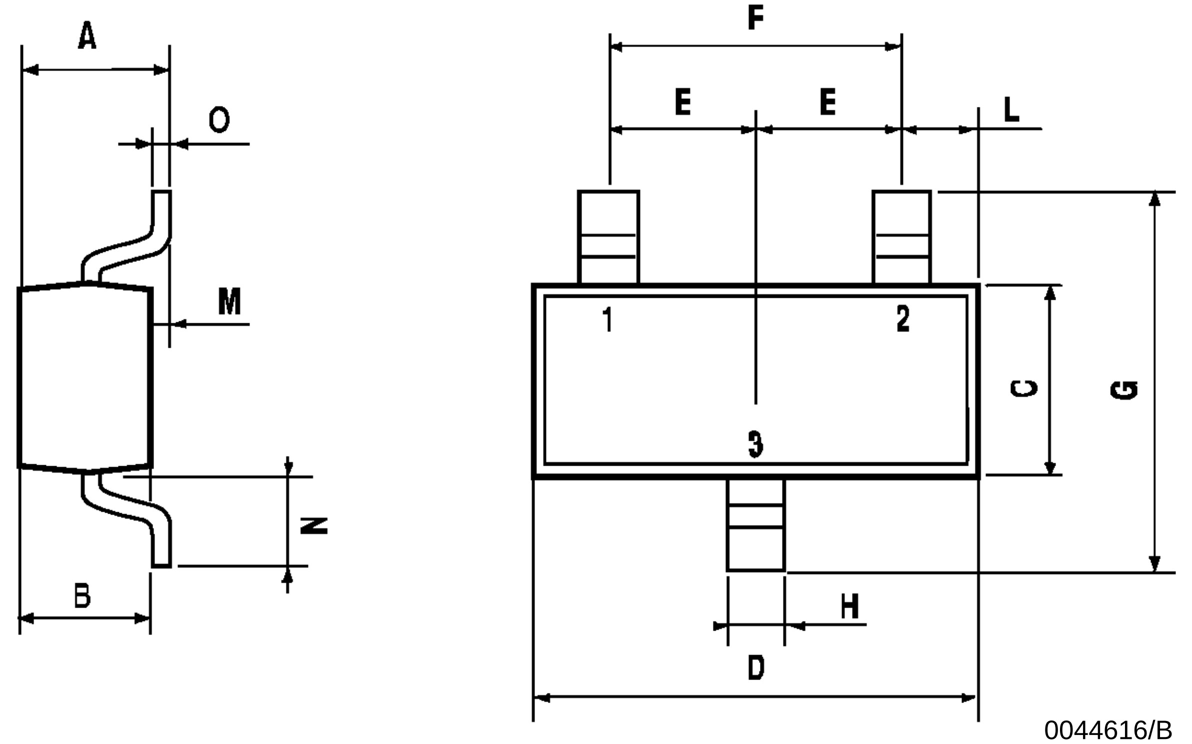
ELECTRICAL CHARACTERISTICS (Continued)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
t_d	Delay Time	I_C = -150 mA I_{B1} = -15 mA			10	ns
t_r	Rise Time				40	ns
t_{on}	Switching On Time				45	ns
t_s	Storage Time	I_C = -150 mA I_{B1} = -I_{B2} = -15mA			80	ns
t_f	Fall Time				30	ns
t_{off}	Switching Off Time				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



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