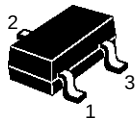
SGS-THOMSON MICROELECTRONICS

SO5550
SO5551

SMALL SIGNAL NPN TRANSISTORS

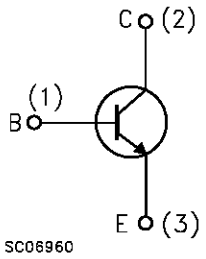
Type	Marking
SO5550	N79
SO5551	N80

- SILICON EPITAXIAL PLANAR NPN TRANSISTORS
- MINIATURE PLASTIC PACKAGE FOR APPLICATION IN SURFACE MOUNTING CIRCUITS
- GENERAL PURPOSE AND HIGH VOLTAGE AMPLIFIER
- PNP COMPLEMENTS ARE SO5400 AND SO5401



SOT-23

INTERNAL SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value		Unit
		SO5550	SO5551	
V_{CBO}	Collector-Base Voltage (I_E = 0)	160	180	V
V_{CEO}	Collector-Emitter Voltage (I_B = 0)	140	160	V
V_{EBO}	Emitter-Base Voltage (I_C = 0)	6		V
I_{CM}	Collector Peak Current	0.6		A
P_{tot}	Total Dissipation at T_c = 25 °C	200		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	620	°C/W
$R_{thj\text{-}SR}$ •	Thermal Resistance Junction-Substrate Max	400	°C/W

• Mounted on a ceramic substrate area = 7 x 5 x 0.5 mm

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

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CBO}	Collector Cut-off Current (I_E = 0)	V_{CB} = 100 V for **SO5550** V_{CB} = 120 V for **SO5551**			100 50	nA nA
I_{EBO}	Collector Cut-off Current (I_C = 0)	V_{EB} = 4 V			50	nA
$V_{(BR)CBO}$*	Collector-Emitter Breakdown Voltage (I_E = 0)	I_C = 100 µA for **SO5400** for **SO5401**	 160 180			 V V
$V_{(BR)CEO}$*	Collector-Emitter Breakdown Voltage (I_B = 0)	I_C = 1 mA for **SO5400** for **SO5401**	 140 160			 V V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage (I_C = 0)	I_E = 10 µA	6			V
$V_{CE(sat)}$*	Collector-Emitter Saturation Voltage	I_C = 10 mA I_B = 1 mA I_C = 50 mA I_B = 5 mA for **SO5550** I_C = 50 mA I_B = 5 mA for **SO5551**			0.15 0.25 0.2	V V V
$V_{BE(sat)}$*	Collector-Base Saturation Voltage	I_C = 10 mA I_B = 1 mA I_C = 50 mA I_B = 5 mA for **SO5550** I_C = 50 mA I_B = 5 mA for **SO5551**			1 1.2 1	V V V
h_{FE}*	DC Current Gain	for **SO5400** I_C = 1 mA V_{CE} = 5 V I_C = 10 mA V_{CE} = 5 V I_C = 50 mA V_{CE} = 5 V for **SO5401** I_C = 1 mA V_{CE} = 5 V I_C = 10 mA V_{CE} = 5 V I_C = 50 mA V_{CE} = 5 V	 60 60 20 80 80 30	 250 250		
f_T	Transition Frequency	I_C = 10 mA V_{CE} = 10 V f = 100 MHz	100		300	MHz
C_{CB}	Collector Base Capacitance	I_E = 0 V_{CB} = 10 V f = 1 MHz			6	pF
C_{EB}	Emitter Base Capacitance	I_C = 0 V_{EB} = 0.5 V f = 1 MHz			20	pF
NF	Noise Figure	V_{CE} = 5 V I_C = 0.25 mA f = 1KHz Δf = 200 Hz R_G = 1 KΩ		6		dB
h_{fe}*	Small Signal Current Gain	V_{CE} = 5 V I_C = 1 mA f = 1KHz	50		200	

* 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