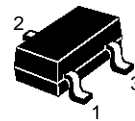


## SMALL SIGNAL NPN TRANSISTORS

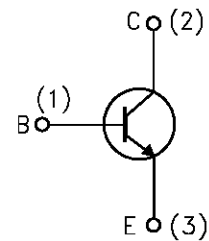
Type	Marking
SO5550	N79
SO5551	N80

- 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



SC08960

### 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 $T_c = 25^\circ\text{C}$	200		mW
$T_{stg}$	Storage Temperature	-65 to 150		$^\circ\text{C}$
$T_j$	Max. Operating Junction Temperature	150		$^\circ\text{C}$

## SO5550/SO5551

### THERMAL DATA

$R_{thj-amb}$	Thermal Resistance Junction-Ambient	Max	620	$^{\circ}\text{C/W}$
$R_{thj-SR}$	Thermal Resistance Junction-Substrate	Max	400	$^{\circ}\text{C/W}$

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

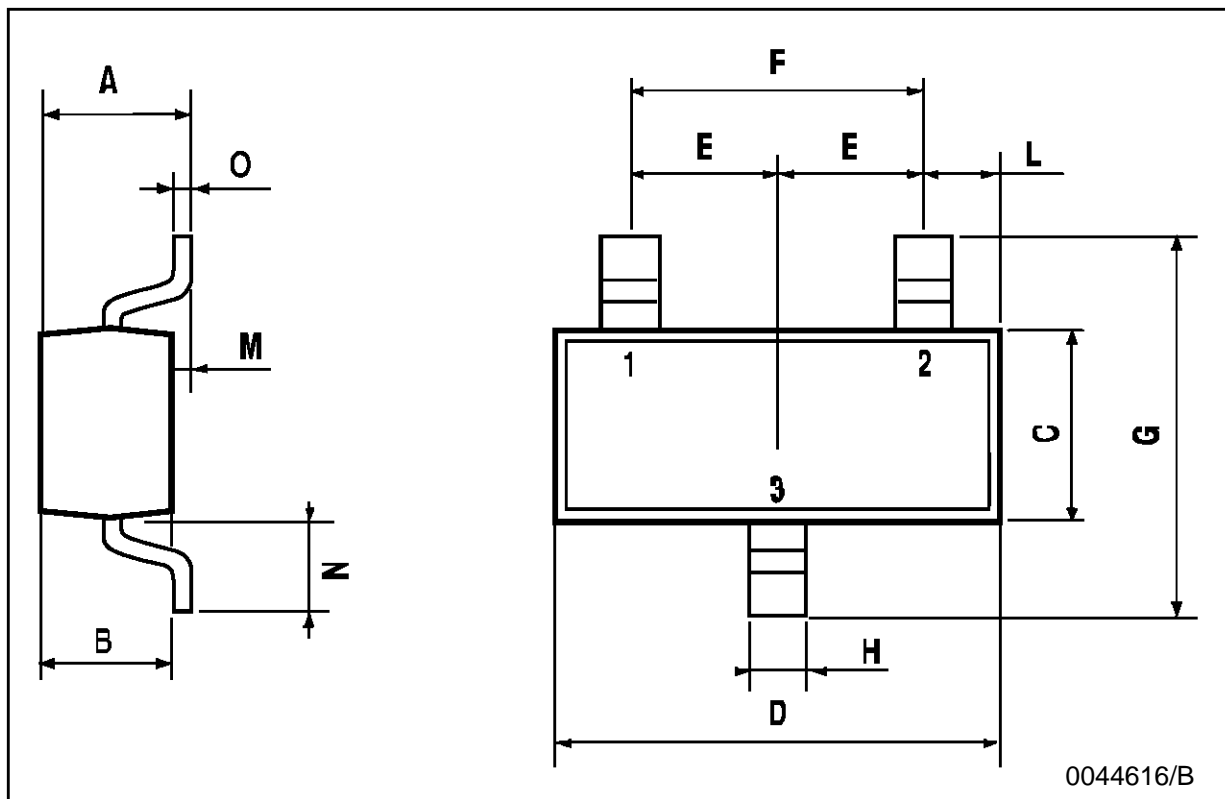
### ELECTRICAL CHARACTERISTICS ( $T_{case} = 25^{\circ}\text{C}$ unless otherwise specified)

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

\* 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



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