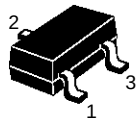
SGS-THOMSON MICROELECTRONICS

SO930
SO2484

SMALL SIGNAL NPN TRANSISTORS

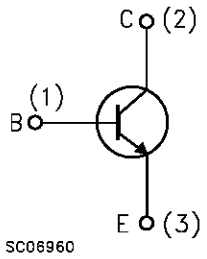
Type	Marking
SO930	N08
SO2484	N05

- SILICON EPITAXIAL PLANAR NPN TRANSISTORS
- MINIATURE PLASTIC PACKAGE FOR APPLICATION IN SURFACE MOUNTING CIRCUITS
- LOW NOISE SMALL SIGNAL AMPLIFIER



SOT-23

INTERNAL SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value		Unit
		SO930	SO2484	
V_{CBO}	Collector-Base Voltage (I_E = 0)	45	60	V
V_{CEO}	Collector-Emitter Voltage (I_B = 0)	45	60	V
V_{EBO}	Emitter-Base Voltage (I_C = 0)	5	6	V
I_C	Collector Current	30	50	mA
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_{CE} = 30 V			25	nA
I_{EBO}	Emitter Cut-off Current (I_C = 0)	V_{EB} = 5 V			25	nA
$V_{(BR)CBO}$*	Collector-Base Breakdown Voltage (I_E = 0)	I_C = 10 µA for **SO2484**	60			V
$V_{(BR)CEO}$*	Collector-Emitter Breakdown Voltage (I_B = 0)	I_C = 10 mA for **SO930** for **SO2484**	 45 60			 V V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage (I_C = 0)	I_C = 10 µA for **SO2482**	6			V
$V_{CE(sat)}$*	Collector-Emitter Saturation Voltage	I_C = 10 mA I_B = 0.5 mA for **SO930** I_C = 1 mA I_B = 0.1 mA for **SO2484**		0.25	1 0.35	V V
$V_{BE(sat)}$*	Base-Emitter Saturation Voltage	I_C = 10 mA I_B = 0.5 mA for **SO930**			 1	 V
$V_{BE(on)}$	Base-Emitter On Voltage	I_C = 100 µA V_{CE} = 5 V for **SO2484**	 0.5		 0.7	 V
h_{FE}*	DC Current Gain	I_C = 10 µA V_{CE} = 5 V for **SO930** for **SO2484** I_C = 100 µA V_{CE} = 5 V for **SO2484** I_C = 500 µA V_{CE} = 5 V for **SO930** I_C = 1 mA V_{CE} = 5 V for **SO2484** I_C = 10 mA V_{CE} = 5 V for **SO930** for **SO2484**	 100 100 175 150 250 		 300 500 600 800	
f_T	Transition Frequency	I_C = 10 mA V_{CE} = 5 V f = 100MHz		200		MHz
C_{CB}	Collector Base Capacitance	I_E = 0 V_{CB} = 5 V f = 1 MHz		3	6	pF
C_{EB}	Emitter Base Capacitance	I_C = 0 V_{EB} = 0.5 V f = 1 MHz		3.5		pF
NF	Noise Figure	V_{CE} = 5 V I_C = 0.01 mA f = 1KHz Δf = 200 Hz R_G = 10 KΩ		2		dB

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

ELECTRICAL CHARACTERISTICS (Continued)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
h_{ie}	Input Impedance	V_{CE} = 5 V I_C = 2 mA f = 1KHz for **SO2484**	3.5	10	24	KΩ
h_{re}	Reverse Voltage Ratio	V_{CE} = 5 V I_C = 2 mA f = 1KHz for **SO2484**		5	8	10^{-4}
h_{fe}	Small Signal Current Gain	V_{CE} = 5 V I_C = 2 mA f = 1KHz for **SO930** for **SO2484**	150 150		600 900	
h_{oe}	Output Admittance	V_{CE} = 5 V I_C = 2 mA f = 1KHz for **SO2484**		25	40	µs

∗ 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