SGS-THOMSON MICROELECTRONICS

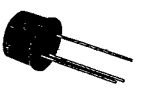
S G S-THOMSON

2N930

LOW-LEVEL, LOW-NOISE AMPLIFIERS

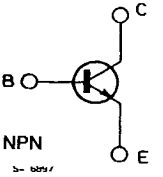
DESCRIPTION

The 2N930 is a silicon planar epitaxial NPN transistor in Jedec TO-18 metal case, designed for use in high performance, low-level, low-noise amplifier applications.



TO-18

INTERNAL SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-base Voltage (I_E = 0)	45	V
V_{CEO}	Collector–emitter Voltage (I_B = 0)	45	V
V_{EBO}	Emitter–base Voltage (I_C = 0)	5	V
I_C	Collector Current	30	mA
P_{tot}	Total Power Dissipation at T_{amb} = 25 °C at T_{case} = 25 °C	0.3 0.6	W W
T_{stg}, T_j	Storage and Junction Temperature	– 55 to 200	°C

THERMAL DATA

$R_{th\ j\text{-}case}$	Thermal Resistance Junction-case	Max	292	°C/W
$R_{th\ j\text{-}amb}$	Thermal Resistance Junction-ambient	Max	583	°C/W

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

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CBO}	Collector Cutoff Current (I_E = 0)	V_{CB} = 45 V			10	nA
I_{CES}	Collector Cutoff Current (V_{BE} = 0)	V_{CE} = 45 V V_{CE} = 45 V T_{amb} = 150 °C			10 10	nA µA
I_{CEO}	Collector Cutoff Current (I_B = 0)	V_{CE} = 5 V			2	nA
I_{EBO}	Emitter Cutoff Current (I_C = 0)	V_{EB} = 5 V			10	nA
$V_{(BR)CEO}$*	Collector–emitter Breakdown Voltage (I_B = 0)	I_C = 10 mA	45			V
$V_{(BR)EBO}$	Emitter–base Breakdown Voltage (I_C = 0)	I_E = 10 nA	5			V
$V_{CE(sat)}$*	Collector–emitter Sustaining Voltage	I_C = 10 mA I_B = 0.5 mA			1	V
V_{BE}*	Base–emitter Voltage	I_C = 10 mA I_B = 0.5 mA	0.6		1	V
h_{FE}*	DC Current Gain	I_C = 10 µA V_{CE} = 5 V I_C = 0.5 mA V_{CE} = 5 V I_C = 10 mA V_{CE} = 5 V I_C = 10 µA V_{CE} = 5 V T_{amb} = − 55 °C	100 150 20		300 600 	– – – –
h_{fe}	Small Signal Current Gain	I_C = 1 mA V_{CE} = 5 V f = 1 kHz	150		600	–
f_T	Transition Frequency	I_C = 0.5 mA V_{CE} = 5 V f = 30 MHz	30			MHz
C_{CBO}	Collector–base Capacitance	I_E = 0 V_{CB} = 5 V f = 1 MHz			8	pF
NF	Noise Figure	I_C = 10 µA V_{CE} = 5 V f = 1 kHz R_g = 10 kΩ			3	dB

* Pulsed : pulse duration = 300 µs, duty cycle = 1%