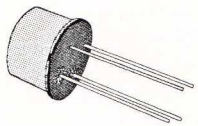
SGS-THOMSON
MICROELECTRONICS

2N2857

VHF/UHF AMPLIFIERS

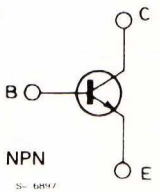
DESCRIPTION

The 2N2857 is a silicon planar epitaxial NPN transistors in Jedec TO-72 metal case, intended for amplifier, oscillator and converter applications up to 500 MHz.



TO-72

INTERNAL SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-base Voltage (I_E = 0)	30	V
V_{CEO}	Collector-emitter Voltage (I_B = 0)	15	V
V_{EBO}	Emitter-base Voltage (I_C = 0)	2.5	V
I_C	Collector Current	40	mA
P_{tot}	Total Power Dissipation at $T_{amb} \leq 25$ °C at $T_{case} \leq 25$ °C	200 300	mW mW
T_{stg}, T_j	Storage and Junction Temperature	– 65 to 200	°C

THERMAL DATA

$R_{th\ j\text{-}case}$	Thermal Resistance Junction-case	Max	583	°C/W
$R_{th\ j\text{-}amb}$	Thermal Resistance Junction-ambient	Max	875	°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} = 15 V V_{CB} = 15 V	 T_{amb} = 150 °C			10 1	nA µA
$V_{(BR)\ CBO}$	Collector-base Breakdown Voltage (I_E = 0)	I_C = 1 µA		30			V
$V_{(BR)\ CEO}$	Collector-emitter Breakdown Voltage (I_B = 0)	I_C = 3 mA		15			V
$V_{(BR)\ EBO}$	Emitter-base Breakdown Voltage (I_C = 0)	I_E = 10 µA		2.5			V
h_{FE}	DC Current Gain	I_C = 3 mA	V_{CE} = 1 V	30		150	
f_T	Transition Frequency	I_C = 5 mA f = 100 MHz	V_{CE} = 6 V	1		1.9	GHz
C_{EBO}	Emitter-base Capacitance	I_C = 0 f = 1 MHz	V_{EB} = 0.5 V		1.4		pF
C_{re}	Reverse Capacitance	I_C = 0 f = 1 MHz	V_{CE} = 10 V		0.6	1	pF
NF	Noise Figure	I_C = 1.5 mA f = 450 MHz	V_{CE} = 6 V R_g = 50 Ω		3.8	4.5	dB
G_{pe}	Power Gain (neutralized)	I_C = 1.5 mA f = 450 MHz	V_{CE} = 6 V R_g = 50 Ω	12.5		19	dB
P_o	Oscillator Power Output	I_C = 12 mA f = 500 MHz	V_{CB} = 10 V	30			mW
$r_{bb'}C_{b'c}$	Feedback Time Constant	I_C = 2 mA f = 31.9 MHz	V_{CB} = 6 V	4	7	15	ps