SOLID STATE MICROWAVE

THOMSON-CSF COMPONENTS CORPORATION
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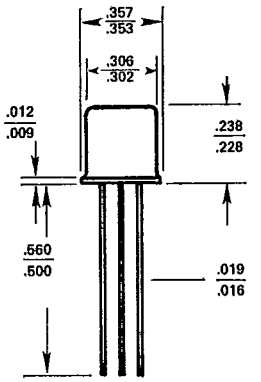
SD1300
SD1301

NPN SMALL SIGNAL TRANSISTOR

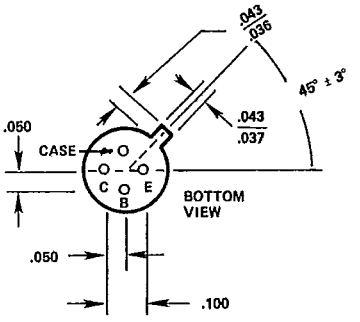
DESCRIPTION:

This line of NPN silicon transistors are designed primarily for applications in the VHF/UHF frequency range. Primarily used in low noise, linear, broadband amplifiers, the device is capable of being utilized in circuits where high gain and low intermodulation products are required, such as MATV amplifiers.



FEATURES:

- High gain bandwidth product, f_T
- Low noise figure
- UHF package TO-72
- Low output capacitance



TO 72

ABSOLUTE MAX. RATINGS (+25°C except where noted)

Symbol	Characteristic	SD1300	SD1301
V_{CBO}	Collector to Base Voltage	30.0 V	30.0 V
V_{CEO}	Collector to Emitter Voltage	15.0 V	15.0 V
V_{EBO}	Emitter to Base Voltage	3.5 V	3.5 V
I_C (max)	Continuous Collector Current	50.0 mA	50.0 mA
P_D	Total Device Dissipation at 25°C	0.2 W	0.2 W
ϕ_{JC}	Thermal Resistance to Case	875°C/W	875°C/W
T_J	Junction Temperature	−65°C to +200°C	−65°C to +200°C
T_{stg}	Storage Temperature	−65°C to +200°C	−65°C to +200°C

ELECTRICAL CHARACTERISTICS

Symbol	Characteristic	Test Conditions	SD1300 Min.	SD1300 Typ.	SD1300 Max.	SD1301 Min.	SD1301 Typ.	SD1301 Max.	Units
BV_{CEO}	Collector Emitter Breakdown Voltage*	I_C = 10mA, I_B = 0	15.0	–	–	15.0	–	–	Vdc
BV_{CBO}	Collector Base Breakdown Voltage	I_C = 0.1mA, I_E = 0	30.0	–	–	30.0	–	–	Vdc
BV_{EBO}	Emitter Base Breakdown Voltage	I_E = 0.1mA, I_C = 0	3.5	–	–	3.5	–	–	Vdc
I_{CBO}	Collector Cutoff Current	V_{CB} = 15V, I_E = 0	–	–	0.1	–	–	0.1	μA
h_{FE}	DC Current Gain	V_{CE} = 10V, I_C = 10mA	30.0	–	300.0	30.0	–	300.0	
*Pulsed through a 25mH Inductor									

RF CHARACTERISTICS: SMALL SIGNAL

f_T	Gain Bandwidth Product	V_{CE} = 10V, I_C = 5.0mA	1500.0	–	–	2000.0	–	–	mHz
C_{ob}	Output Capacitance	V_{CB} = 10V, I_E = 0, f = 1.0mHz	–	–	1.8	–	–	1.0	pF
C_{ib}	Input Capacitance	V_{EB} = 0.5V, I_C = 0, f = 1.0mHz	–	–	1.8	–	–	1.0	pF

RF CHARACTERISTICS: LARGE SIGNAL

G_{pe}	Amplifier Power Gain	V_{CE} = 5.5V, I_C = 15mA, f = 200mHz	–	20.0	–	–	20.0	–	dB
NF	Noise Figure	V_{CE} = 5V, I_C = 2.0mA, f = 450mHz, R_S = 50 Ω	–	–	5.0	–	–	5.0	dB