



SOLID STATE MICROWAVE

SD1303

THOMSON-CSF COMPONENTS CORPORATION

Montgomeryville, PA 18936 ■ (215) 362-8500 ■ TWX 510-661-7299

VHF/UHF COMMUNICATIONS TRANSISTOR

DESCRIPTION:

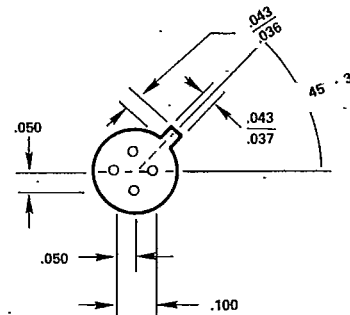
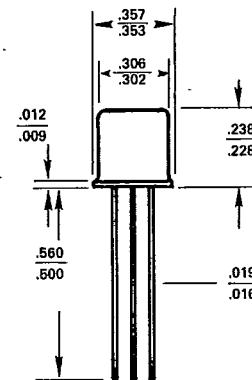
This line of NPN silicon transistors are designed primarily for applications in the VHF/UHF frequency range. Primarily used in low noise, linear, broadband amplifiers, the device is capable of being utilized in circuits where high gain and low intermodulation products are required, such as MATV amplifiers.

FEATURES

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

ABSOLUTE MAX. RATING

V_{CBO}	: Collector to Base Voltage	30.0 V
V_{CEO}	: Collector to Emitter Voltage	15.0 V
V_{EBO}	: Emitter to Base Voltage	3.5 V
I_C	: Continuous Collector Current (max.)	50.0 mA
PT.	: Total Device Dissipation @ 25°C	0.2 W
ϕ_{jc}	: Thermal Resistance to Case	875°C/W
T_j	: Junction Temperature	-65°C to +200°C
T_s	: Storage Temperature	-65°C to +200°C



TO 72

ELECTRICAL CHARACTERISTICS

Characteristics	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Collector-Emitter Breakdown Voltage	BV_{CEO}	$I_C = 1 \text{ mA}, I_b = 0$	15.0	—	—	V_{dc}
Collector-Base Breakdown Voltage	BV_{CBO}	$I_C = 0.1 \text{ mA}, I_e = 0$	30.0	—	—	V_{dc}
Emitter-Base Breakdown Voltage	BV_{EBO}	$I_e = 0.1 \text{ mA}, I_C = 0$	3.5	—	—	V_{dc}
Collector Cut Off Current	I_{CBO}	$V_{cb} = 15.0 \text{ V}, I_e = 0$	—	—	0.1	μA
DC Current Gain	h_{FE}	$V_{ce} = 10.0 \text{ V}, I_C = 10 \text{ mA}$	30.0	—	300.0	—

RF CHARACTERISTICS: SMALL SIGNAL

Characteristics	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Gain Bandwidth Product	f_T	$V_{ce} = 10 \text{ V}, I_C = 10 \text{ mA}$	2500.0	3000	—	MHz
Collector-Base Capacitance	C_{cb}	$V_{cb} = 6.0 \text{ V}, I_e = 0, F = 1.0 \text{ MHz}$	—	.45	0.8	pF
Input Capacitance	C_{ib}	$V_{eb} = 0.5 \text{ V}, I_C = 0, F = 1.0 \text{ MHz}$	—	.70	1.0	pF

RF CHARACTERISTICS: LARGE SIGNAL

Characteristics	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Amplifier Power Gain	G_{pe}	$V_{ce} = 6 \text{ V}, I_C = 1.5 \text{ mA}, F = 450 \text{ MHz}$	15.0	18.0	—	dB
Noise Figure	NF	$V_{ce} = 6 \text{ V}, I_C = 1.5 \text{ mA}, F = 450 \text{ MHz}$	—	3.0	4.0	dB

