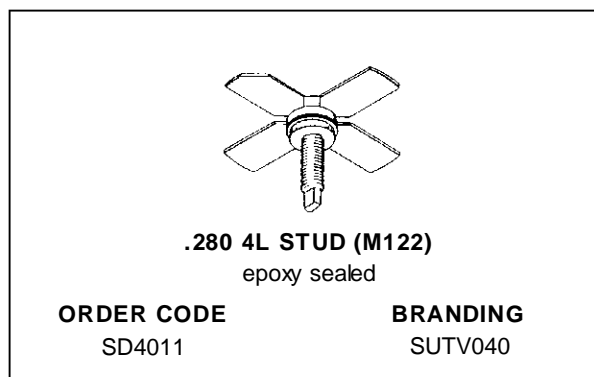


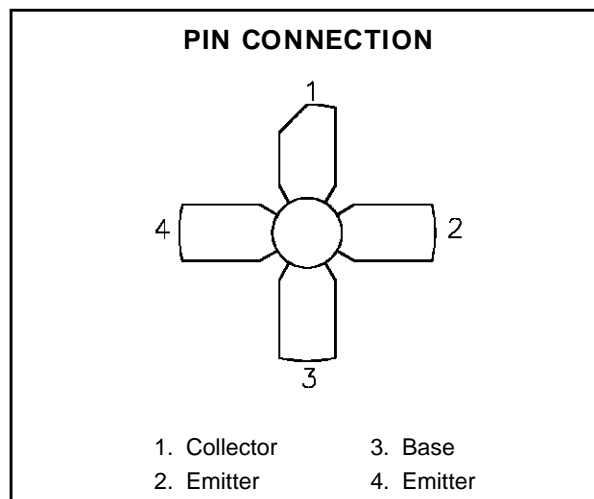
**RF & MICROWAVE TRANSISTORS  
UHF TV/LINEAR APPLICATIONS**

- GOLD METALLIZATION
- INTERNAL INPUT MATCHING
- COMMON EMITTER
- OVERLAY GEOMETRY
- CLASS A OPERATION
- METAL/CERAMIC PACKAGE
- $P_{OUT} = 4 \text{ W MIN. WITH } 8 \text{ dB GAIN}$


**DESCRIPTION**

The SD4011 is a gold metallized NPN silicon bipolar device optimized for Class A operation in TV Band IV/V.

Suitable for a variety of other UHF linear applications, SD4011 is supplied in an industry-standard .280 stud package.


**ABSOLUTE MAXIMUM RATINGS** ( $T_{case} = 25^{\circ}\text{C}$ )

Symbol	Parameter	Value	Unit
$V_{CBO}$	Collector-Base Voltage	65	V
$V_{CES}$	Collector-Emitter Voltage	65	V
$V_{EBO}$	Emitter-Base Voltage	3.5	V
$I_C$	Device Current	1.59	A
$P_{DISS}$	Power Dissipation	31.8	W
$T_J$	Junction Temperature	+200	$^{\circ}\text{C}$
$T_{STG}$	Storage Temperature	- 65 to +150	$^{\circ}\text{C}$

**THERMAL DATA**

$R_{TH(j-c)}$	Junction-Case Thermal Resistance	5.5	$^{\circ}\text{C/W}$
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# SD4011

## ELECTRICAL SPECIFICATIONS (T<sub>case</sub> = 25°C)

### STATIC

Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
BV <sub>CBO</sub>	I <sub>C</sub> = 5mA	I <sub>E</sub> = 0mA	65	—	—	V
BV <sub>EBO</sub>	I <sub>E</sub> = 5mA	I <sub>C</sub> = 0mA	3.5	—	—	V
BV <sub>CES</sub>	I <sub>C</sub> = 10mA	V <sub>BE</sub> = 0V	65	—	—	V
BV <sub>CEO</sub>	I <sub>C</sub> = 5mA	I <sub>B</sub> = 0mA	20	—	—	V
I <sub>CBO</sub>	V <sub>CB</sub> = 40V	I <sub>E</sub> = 0mA	—	—	1.0	mA
h <sub>FE</sub>	V <sub>C</sub> = 5V	I <sub>C</sub> = 800mA	20	—	200	—

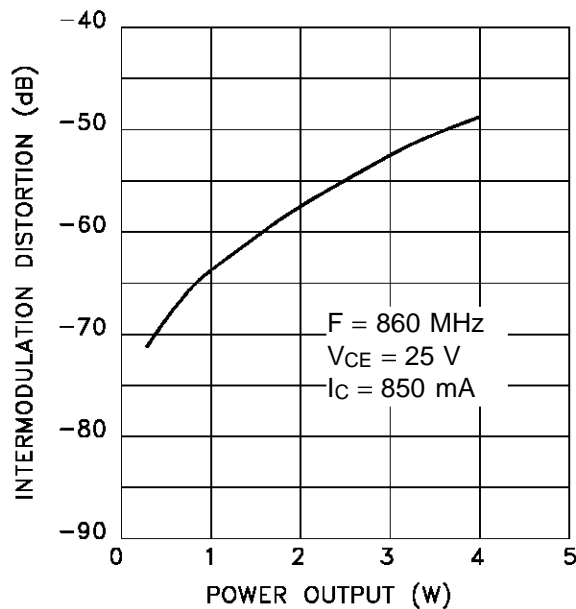
### DYNAMIC

Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
P <sub>OUT</sub>	f = 860 MHz	V <sub>CE</sub> = 25 V	I <sub>C</sub> = 850 mA	4	—	—	W
G <sub>P</sub>	f = 860 MHz	V <sub>CE</sub> = 25 V	I <sub>C</sub> = 850 mA	8.0	—	—	dB
IMD <sub>3</sub>	f = 860 MHz	V <sub>CE</sub> = 25 V	I <sub>C</sub> = 850 mA	-60	—	—	dBc
C <sub>OB</sub>	f = 1 MHz	V <sub>CE</sub> = 25 V		—	13	20	pF

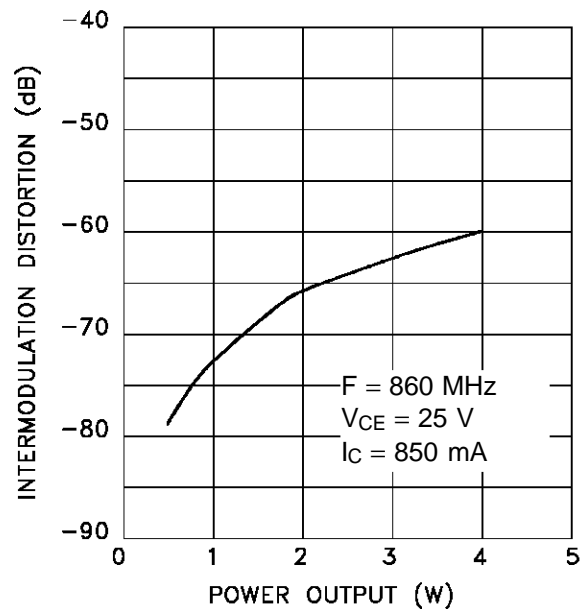
Note: P<sub>IN</sub> = 0.63

### TYPICAL PERFORMANCE

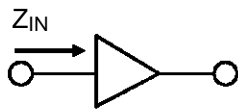
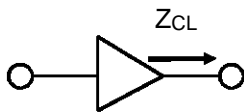
**INTERMODULATION DISTORTION vs POWER OUTPUT**



**INTERMODULATION DISTORTION (3 TONES) vs POWER OUTPUT**



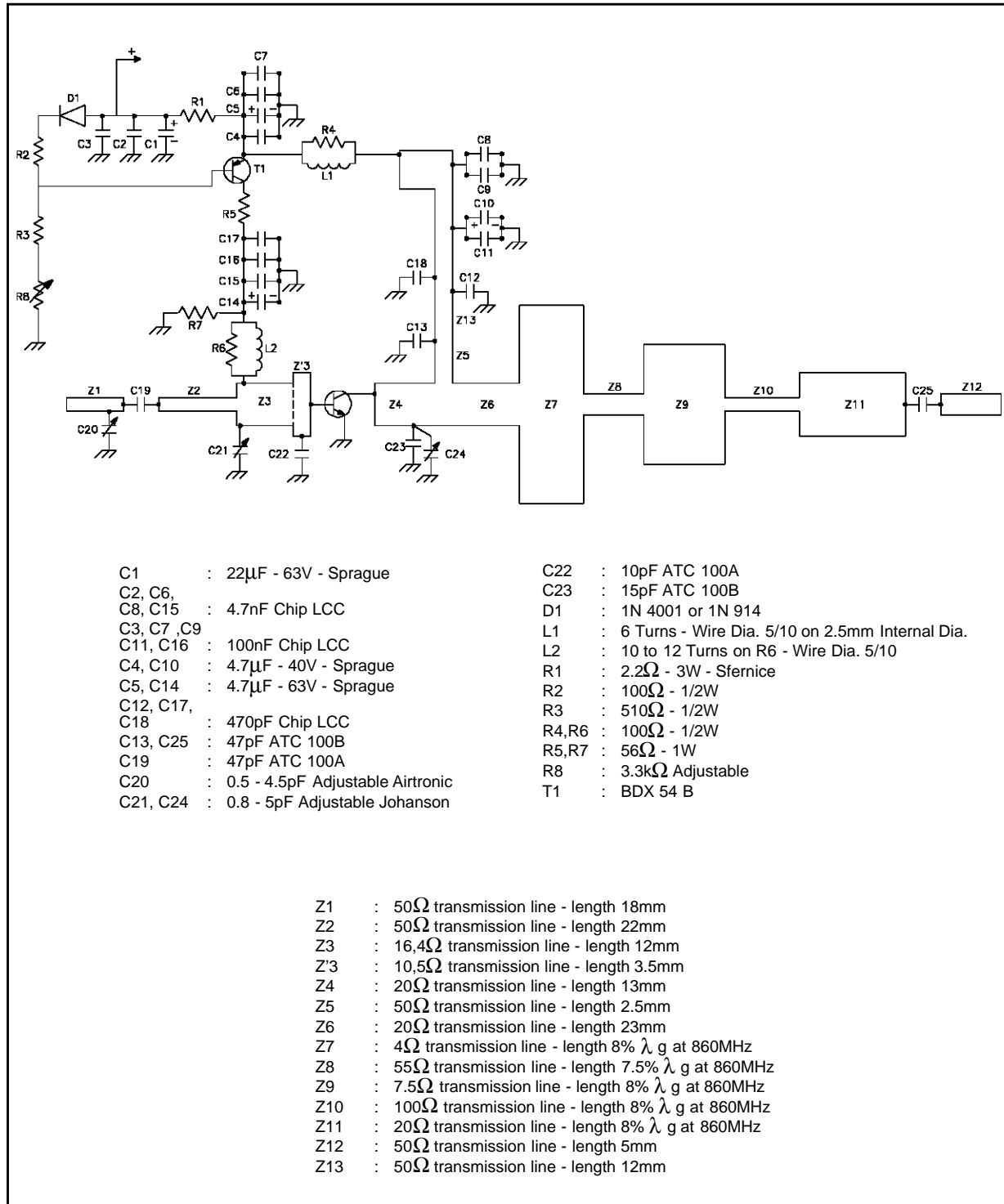
## IMPEDANCE DATA

TYPICAL INPUT  
IMPEDANCETYPICAL COLLECTOR  
LOAD IMPEDANCE

FREQ.	Z <sub>IN</sub> (Ω)	Z <sub>CL</sub> (Ω)
470 MHz	2.26 + j 1.67	11.30 + j 5.23
600 MHz	1.93 + j 1.96	10.65 + j 2.91
700 MHz	1.40 + j 2.38	8.41 + j 6.07
860 MHz	1.19 + j 3.45	5.63 + j 4.17

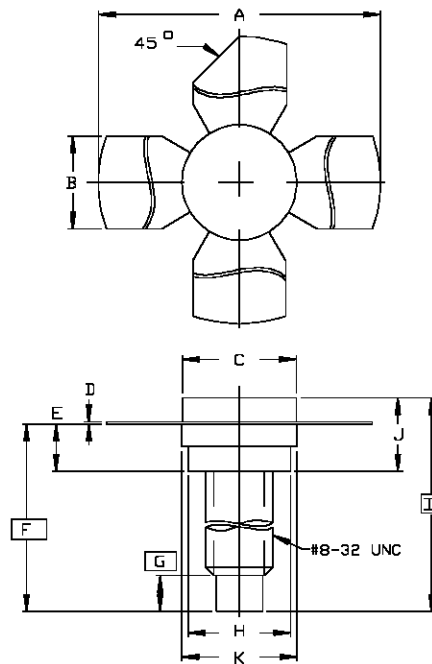
Normalized to 50 ohms

## TEST CIRCUIT



## PACKAGE MECHANICAL DATA

Ref.: Dwg. No. 12-0122



SGS-THOMSON MICROELECTRONICS		
	MINIMUM Inches/mm	MAXIMUM Inches/mm
A	1.010/25,65	1.055/26,80
B	.220/5,59	.230/5,84
C	.270/6,86	.285/7,24
D	.003/0,08	.007/0,18
E	.117/2,97	.137/3,48
F	.572/14,53	
G	.130/3,30	
H	.245/6,22	.255/6,48
I	.640/16,26	
J	.175/4,45	.217/5,51
K	.275/6,99	.285/7,24

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