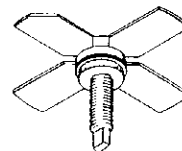


RF & MICROWAVE TRANSISTORS UHF TV/LINEAR APPLICATIONS

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



.280 4L STUD (M122)
epoxy sealed

ORDER CODE
SD4011

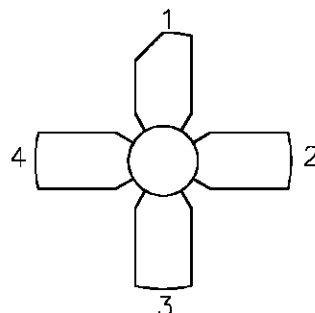
BRANDING
SUTV040

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.

PIN CONNECTION



- | | |
|--------------|------------|
| 1. Collector | 3. Base |
| 2. Emitter | 4. Emitter |

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 ($T_{\text{case}} = 25^{\circ}\text{C}$)

STATIC

Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
BV_{CBO}	$I_{\text{C}} = 5\text{mA}$	$I_{\text{E}} = 0\text{mA}$	65	—	—	V
BV_{EBO}	$I_{\text{E}} = 5\text{mA}$	$I_{\text{C}} = 0\text{mA}$	3.5	—	—	V
BV_{CES}	$I_{\text{C}} = 10\text{mA}$	$V_{\text{BE}} = 0\text{V}$	65	—	—	V
BV_{CEO}	$I_{\text{C}} = 5\text{mA}$	$I_{\text{B}} = 0\text{mA}$	20	—	—	V
I_{CBO}	$V_{\text{CB}} = 40\text{V}$	$I_{\text{E}} = 0\text{mA}$	—	—	1.0	mA
h_{FE}	$V_{\text{C}} = 5\text{V}$	$I_{\text{C}} = 800\text{mA}$	20	—	200	—

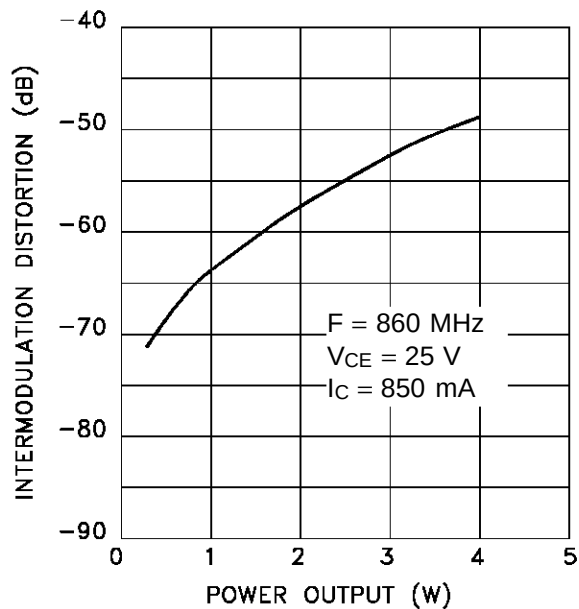
DYNAMIC

Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
P_{OUT}	$f = 860\text{ MHz}$	$V_{\text{CE}} = 25\text{ V}$	$I_{\text{C}} = 850\text{ mA}$	4	—	—	W
G_{P}	$f = 860\text{ MHz}$	$V_{\text{CE}} = 25\text{ V}$	$I_{\text{C}} = 850\text{ mA}$	8.0	—	—	dB
IMD_3	$f = 860\text{ MHz}$	$V_{\text{CE}} = 25\text{ V}$	$I_{\text{C}} = 850\text{ mA}$	-60	—	—	dBc
C_{OB}	$f = 1\text{ MHz}$	$V_{\text{CE}} = 25\text{ V}$		—	13	20	pF

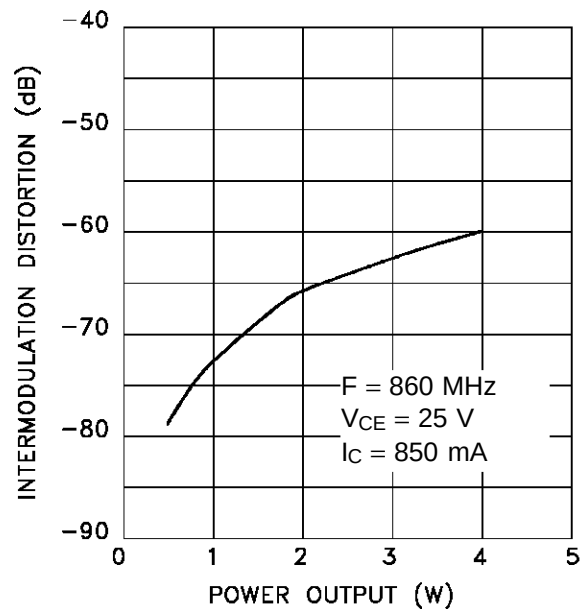
Note: $P_{\text{IN}} = 0.63$

TYPICAL PERFORMANCE

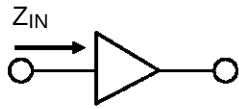
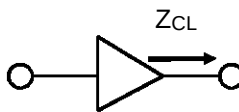
INTERMODULATION DISTORTION
vs POWER OUTPUT



INTERMODULATION DISTORTION
(3 TONES) vs POWER OUTPUT



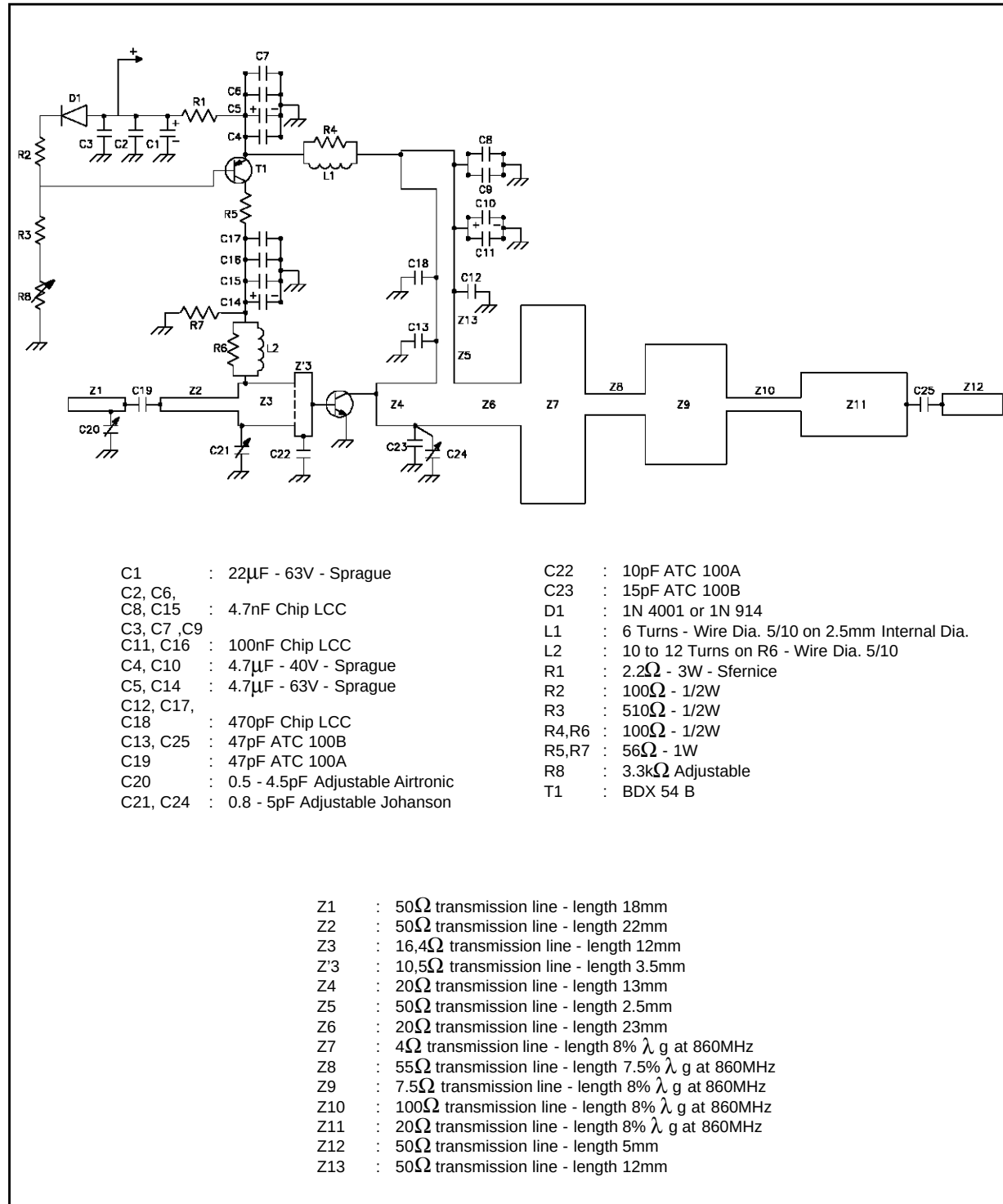
IMPEDANCE DATA

TYPICAL INPUT
IMPEDANCETYPICAL COLLECTOR
LOAD IMPEDANCE

FREQ.	$Z_{IN} (\Omega)$	$Z_{CL} (\Omega)$
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	$1.19 + j 3.45$	$5.63 + j 4.17$

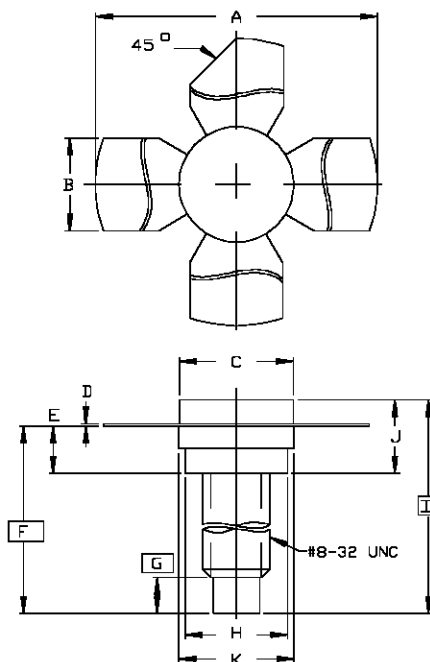
Normalized to 50 ohms

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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