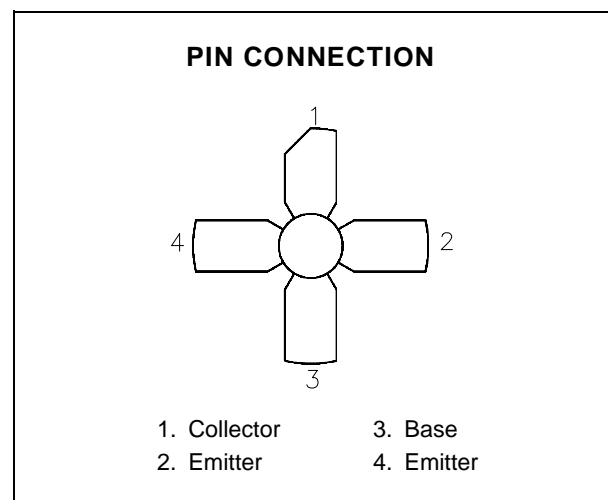
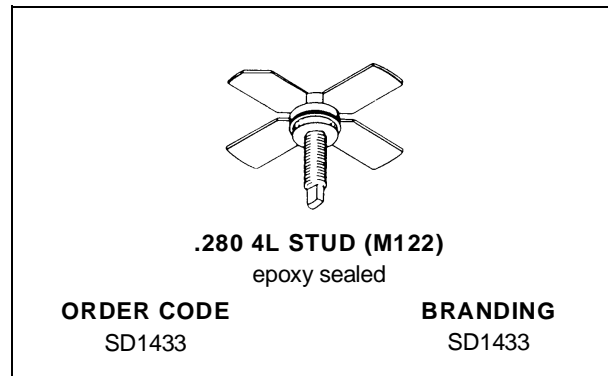


**RF & MICROWAVE TRANSISTORS  
UHF MOBILE APPLICATIONS**

- 470 MHz
- 12.5 VOLTS
- CLASS C
- EFFICIENCY 60%
- COMMON EMITTER
- P<sub>OUT</sub> = 10 W MIN. WITH 8.0 dB GAIN


**DESCRIPTION**

The SD1433 is a Class C epitaxial silicon NPN planar transistor designed for driver applications in the 450 - 512 MHz frequency range. This device uses an emitter ballasted geometry specifically designed for optimum stable power gain, maximum efficiency and infinite VSWR.

**ABSOLUTE MAXIMUM RATINGS** (T<sub>case</sub> = 25°C)

Symbol	Parameter	Value	Unit
V <sub>CBO</sub>	Collector-Base Voltage	36	V
V <sub>CEO</sub>	Collector-Emitter Voltage	16	V
V <sub>CES</sub>	Collector-Emitter Voltage	36	V
V <sub>EBO</sub>	Emitter-Base Voltage	4.0	V
I <sub>c</sub>	Device Current	2.5	A
P <sub>DISS</sub>	Power Dissipation	58	W
T <sub>J</sub>	Junction Temperature	+200	°C
T <sub>STG</sub>	Storage Temperature	- 65 to +150	°C

**THERMAL DATA**

R <sub>TH(j-c)</sub>	Junction-Case Thermal Resistance	3.0	°C/W
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# SD1433

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

### STATIC

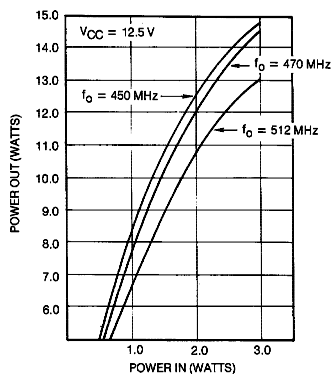
Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
BV <sub>CES</sub>	I <sub>C</sub> = 25mA	V <sub>BE</sub> = 0V	36	—	—	V
BV <sub>CEO</sub>	I <sub>C</sub> = 20mA	I <sub>B</sub> = 0mA	16	—	—	V
BV <sub>EBO</sub>	I <sub>E</sub> = 10mA	I <sub>C</sub> = 0mA	4.0	—	—	V
I <sub>CES</sub>	V <sub>CE</sub> = 10V	I <sub>E</sub> = 0mA	—	—	3	mA
I <sub>CBO</sub>	V <sub>CB</sub> = 15V	I <sub>E</sub> = 0mA	—	—	2	mA
h <sub>FE</sub>	V <sub>CE</sub> = 5V	I <sub>C</sub> = 1A	10	—	—	—

### DYNAMIC

Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
P <sub>OUT</sub>	f = 470 MHz	P <sub>IN</sub> = 2.0 W	V <sub>CE</sub> = 12.5 V	10	—	—	W
G <sub>P</sub>	f = 470 MHz	P <sub>OUT</sub> = 10 W	V <sub>CE</sub> = 12.5 V	7	—	—	dB
C <sub>OB</sub>	f = 1 MHz	V <sub>CB</sub> = 12.5 V		—	19	—	pF

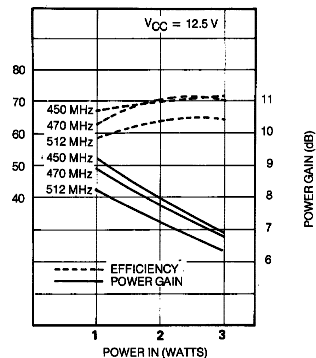
### TYPICAL PERFORMANCE

#### POWER OUTPUT vs POWER INPUT



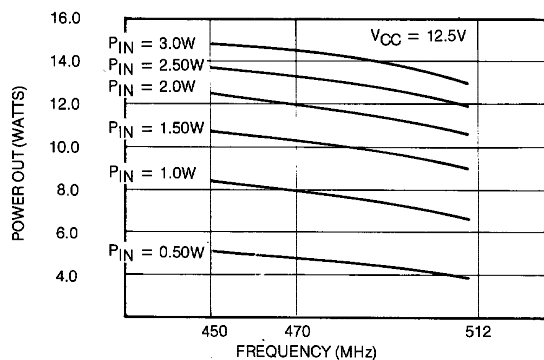
POWER OUT VS POWER IN

#### POWER GAIN & EFFICIENCY vs POWER INPUT



POWER GAIN/EFFICIENCY vs POWER IN

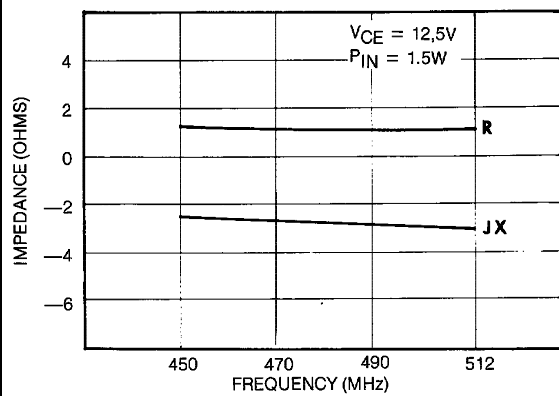
#### POWER OUTPUT vs FREQUENCY



POWER OUT VS FREQUENCY

## IMPEDANCE DATA

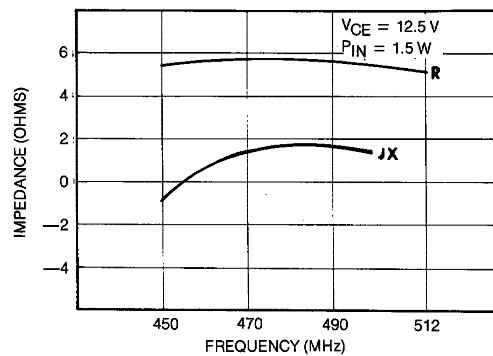
## TYPICAL INPUT IMPEDANCE



## SERIES SOURCE IMPEDANCE VS FREQUENCY

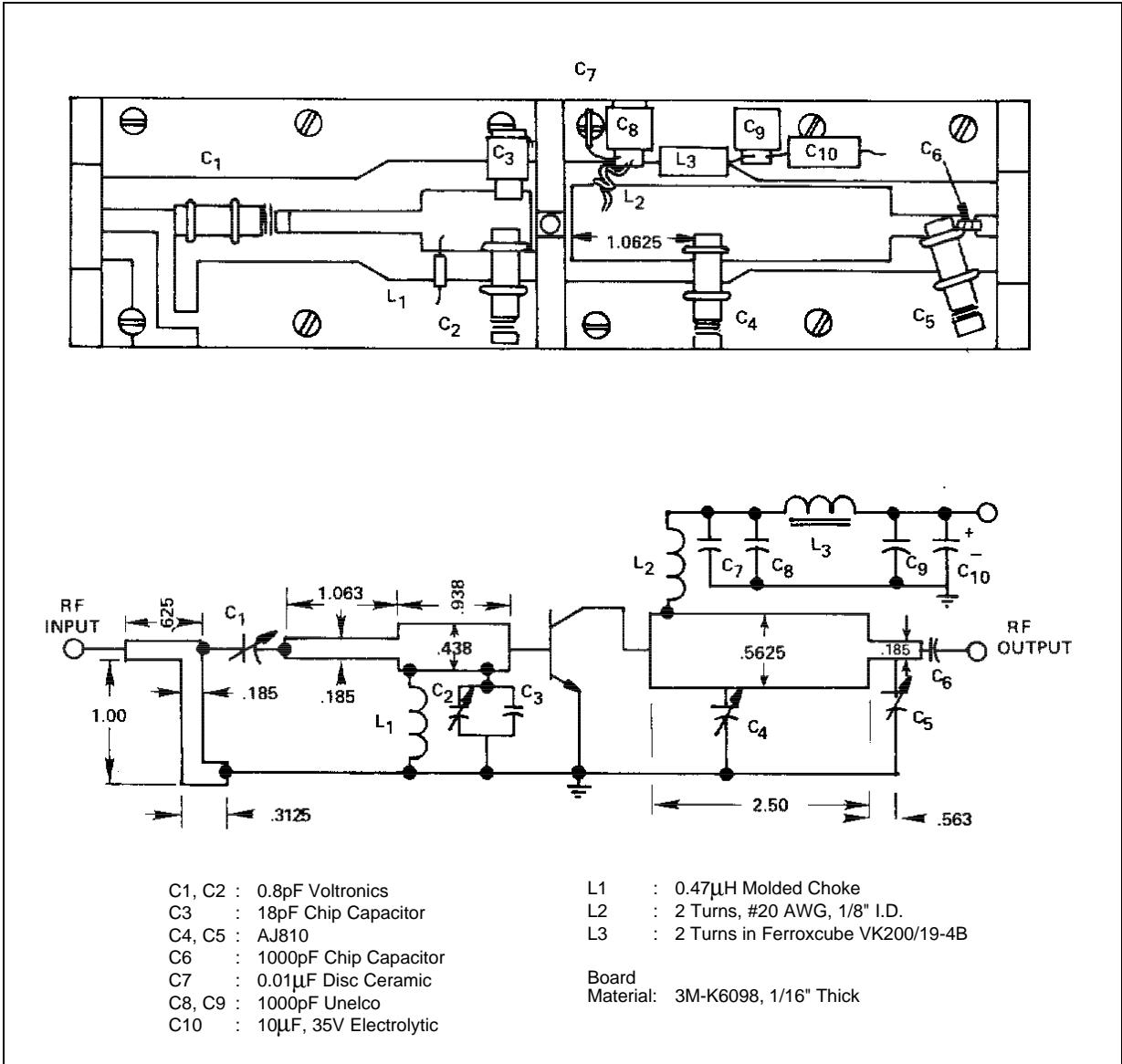
FREQ.	$Z_{IN}$ ( $\Omega$ )	$Z_{CL}$ ( $\Omega$ )
470 MHz	$1.5 - j 2.7$	$5.7 + j 1.5$

## TYPICAL COLLECTOR LOAD IMPEDANCE



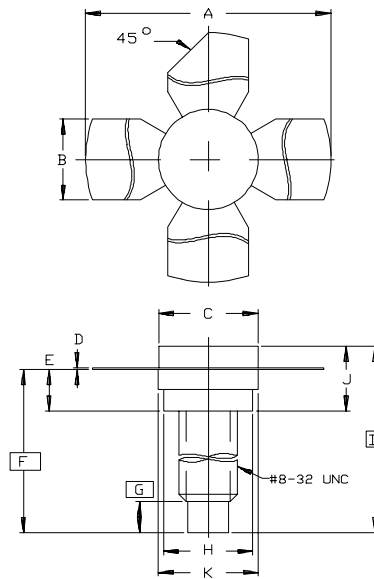
## SERIES COLLECTOR LOAD IMPEDANCE VS FREQUENCY

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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