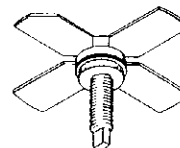


RF & MICROWAVE TRANSISTORS UHF MOBILE APPLICATIONS

- 470 MHz
- 12.5 VOLTS
- CLASS C
- EFFICIENCY 60%
- COMMON EMITTER
- $P_{OUT} = 10 \text{ W MIN. WITH } 8.0 \text{ dB GAIN}$



.280 4L STUD (M122)
epoxy sealed

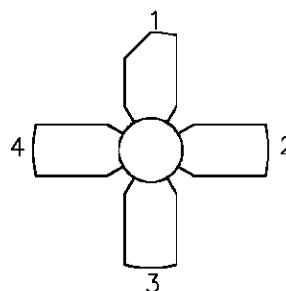
ORDER CODE
SD1433

BRANDING
SD1433

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.

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	36	V
V_{CEO}	Collector-Emitter Voltage	16	V
V_{CES}	Collector-Emitter Voltage	36	V
V_{EBO}	Emitter-Base Voltage	4.0	V
I_C	Device Current	2.5	A
P_{DISS}	Power Dissipation	58	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	3.0	$^{\circ}\text{C/W}$
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SD1433

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

STATIC

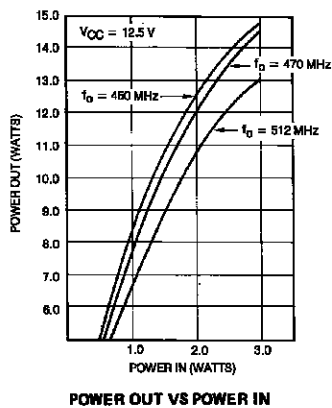
Symbol	Test Conditions	Value			Unit
		Min.	Typ.	Max.	
BV_{CES}	$I_C = 25mA$ $V_{BE} = 0V$	36	—	—	V
BV_{CEO}	$I_C = 20mA$ $I_B = 0mA$	16	—	—	V
BV_{EBO}	$I_E = 10mA$ $I_C = 0mA$	4.0	—	—	V
I_{CES}	$V_{CE} = 10V$ $I_E = 0mA$	—	—	3	mA
I_{CBO}	$V_{CB} = 15V$ $I_E = 0mA$	—	—	2	mA
h_{FE}	$V_{CE} = 5V$ $I_C = 1A$	10	—	—	—

DYNAMIC

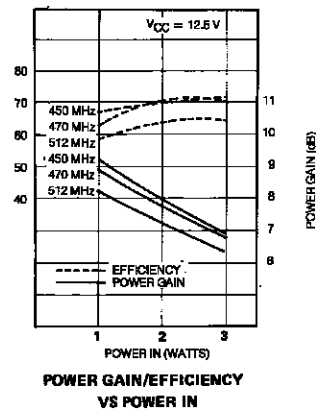
Symbol	Test Conditions	Value			Unit
		Min.	Typ.	Max.	
P_{OUT}	$f = 470 \text{ MHz}$ $P_{IN} = 2.0 \text{ W}$ $V_{CE} = 12.5 \text{ V}$	10	—	—	W
G_P	$f = 470 \text{ MHz}$ $P_{OUT} = 10 \text{ W}$ $V_{CE} = 12.5 \text{ V}$	7	—	—	dB
C_{OB}	$f = 1 \text{ MHz}$ $V_{CB} = 12.5 \text{ V}$	—	19	—	pF

TYPICAL PERFORMANCE

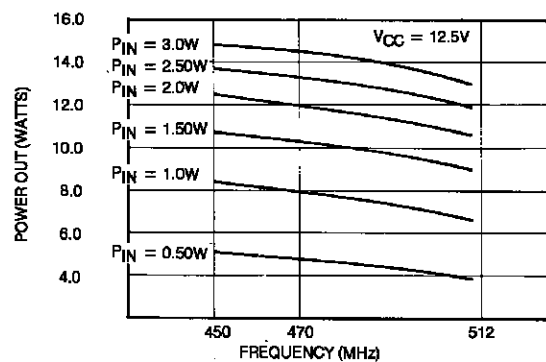
POWER OUTPUT vs POWER INPUT



POWER GAIN & EFFICIENCY vs POWER INPUT

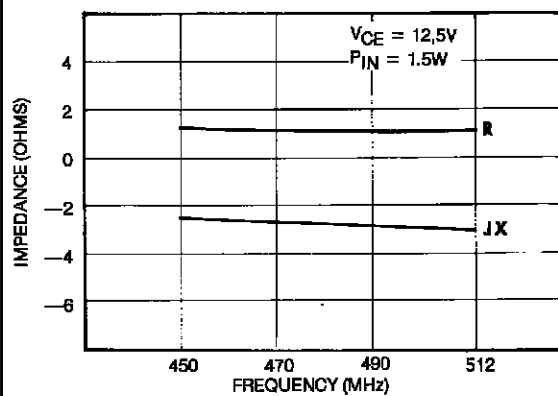
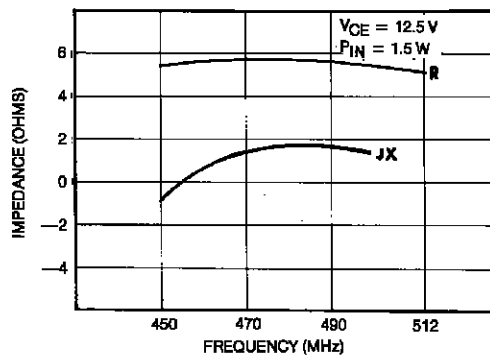


POWER OUTPUT vs FREQUENCY



IMPEDANCE DATA

TYPICAL INPUT IMPEDANCE

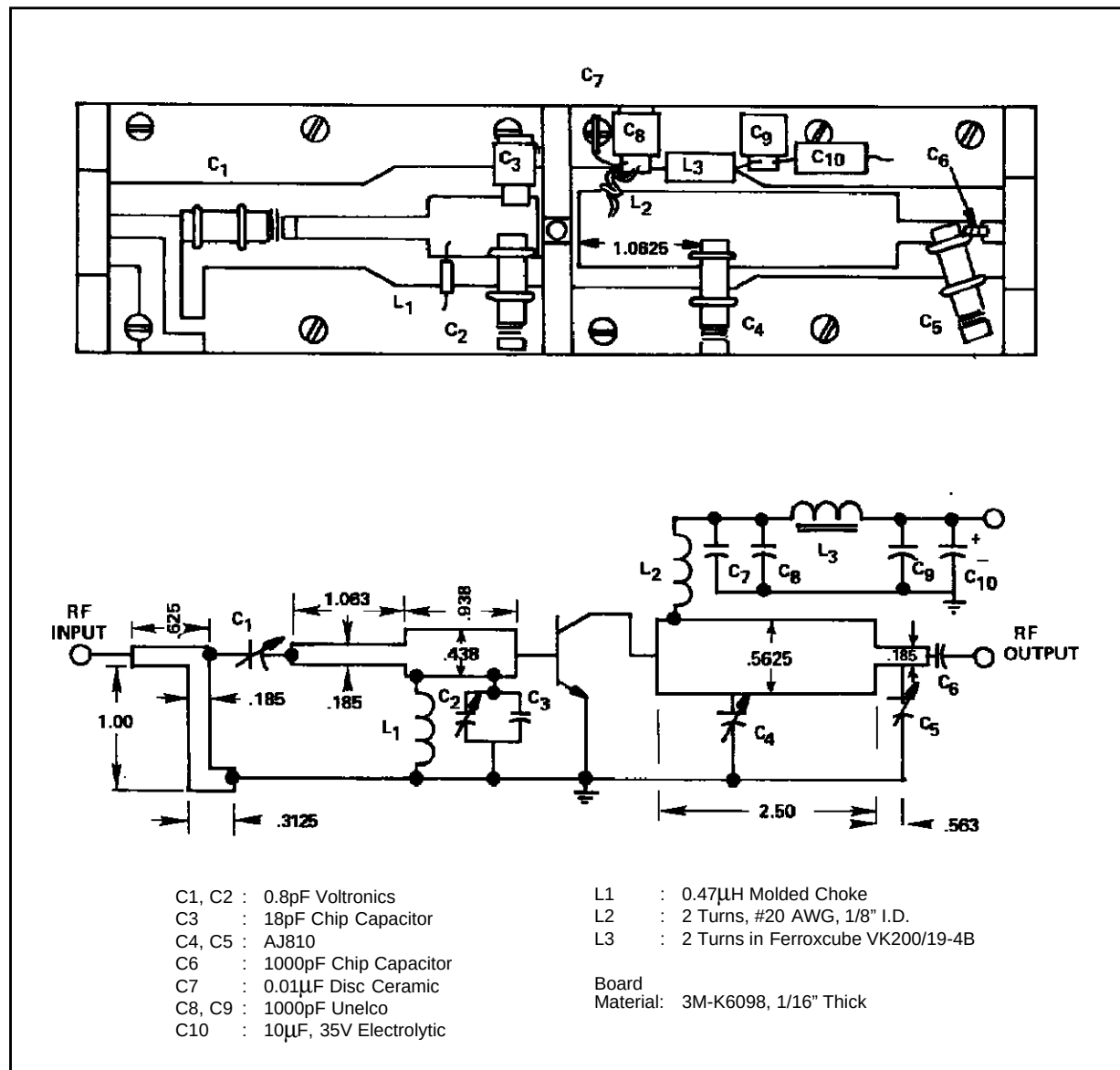
TYPICAL COLLECTOR
LOAD IMPEDANCE

SERIES COLLECTOR LOAD IMPEDANCE VS FREQUENCY

SERIES SOURCE IMPEDANCE VS FREQUENCY

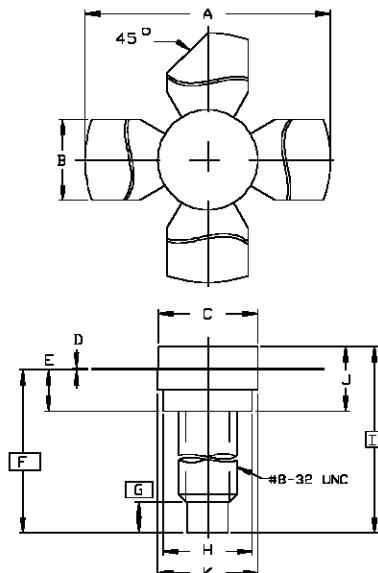
FREQ.	Z_{IN} (Ω)	Z_{CL} (Ω)
470 MHz	$1.5 - j 2.7$	$5.7 + j 1.5$

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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