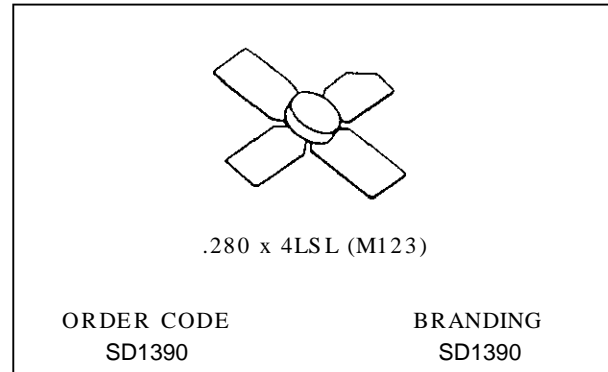


RF & MICROWAVE TRANSISTORS UHF BASE STATION APPLICATIONS

PRELIMINARY DATA

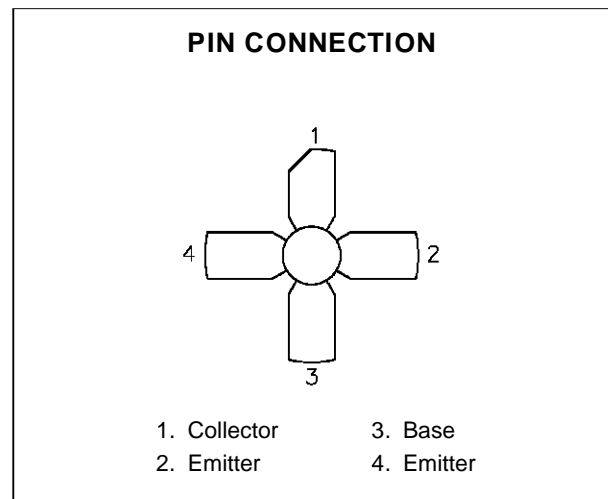
- 470 MHZ
- 24 VOLTS
- $P_{OUT} = 1.5\text{ W}$ WITH 13.0 dB MIN. GAIN
- CLASS A
- COMMON EMITTER
- POWER SATURATION 2.2 W MIN.



DESCRIPTION

The SD1390 is a gold metallized NPN planar transistor using diffused emitter ballast resistors for reliability and ruggedness.

The SD1390 is specifically designed as a low power, high gain driver and can be operated in Class A, B or C.



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

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	40	V
V_{CEO}	Collector-Emitter Voltage	24	V
V_{EBO}	Emitter-Base Voltage	3.5	V
I_C	Collector Current	0.35	A
P_{DISS}	Power Dissipation ($T_C \leq +75^{\circ}\text{C}$)	8.33	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	12	$^{\circ}\text{C}/\text{W}$
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ELECTRICAL SPECIFICATIONS ($T_{\text{case}} = 25^{\circ}\text{C}$)

STATIC

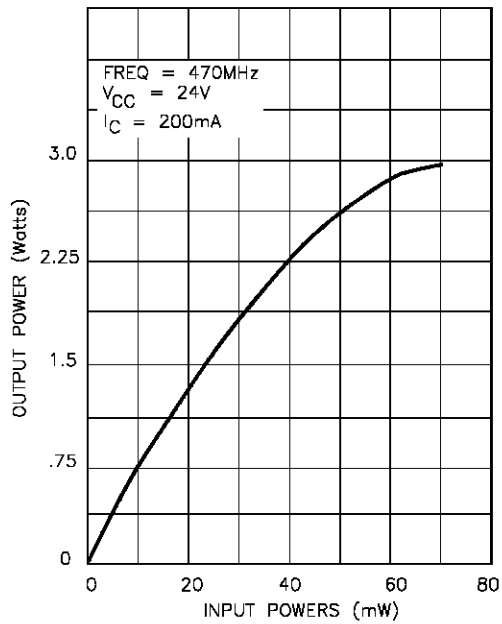
Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
BV_{CBO}	$I_{\text{C}} = 1 \text{ mA}$	$I_{\text{E}} = 0 \text{ mA}$	40	—	—	V
BV_{CEO}	$I_{\text{C}} = 1 \text{ mA}$	$I_{\text{B}} = 0 \text{ mA}$	24	—	—	V
BV_{EBO}	$I_{\text{E}} = 1 \text{ mA}$	$I_{\text{C}} = 0 \text{ mA}$	3.5	—	—	V
I_{CBO}	$V_{\text{CB}} = 24 \text{ V}$	$I_{\text{E}} = 0 \text{ mA}$	—	—	1.0	mA
hFE	$V_{\text{CE}} = 5 \text{ V}$	$I_{\text{C}} = 0.1 \text{ A}$	20	—	120	—

DYNAMIC

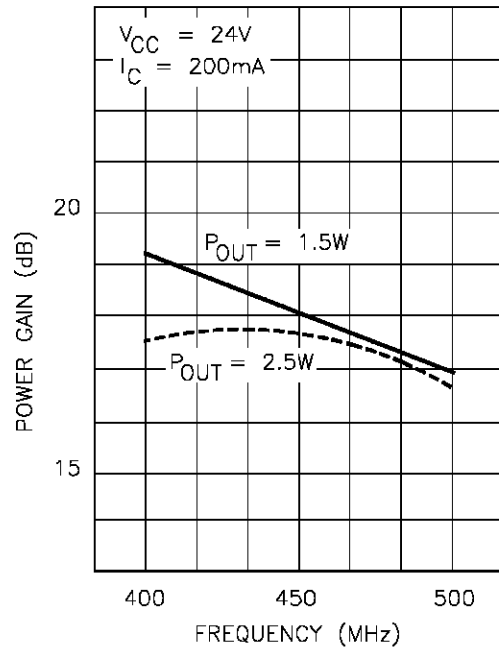
Symbol	Test Conditions				Value			Unit
					Min.	Typ.	Max.	
P_{OUT}	$f = 470 \text{ MHz}$	$P_{\text{IN}} = 75 \text{ mW}$	$V_{\text{CC}} = 24 \text{ V}$	$I_{\text{CQ}} = 200 \text{ mA}$	1.5	—	—	W
C_{OB}	$f = 1 \text{ MHz}$	$V_{\text{CB}} = 28 \text{ V}$			—	—	5.0	pF

TYPICAL PERFORMANCE

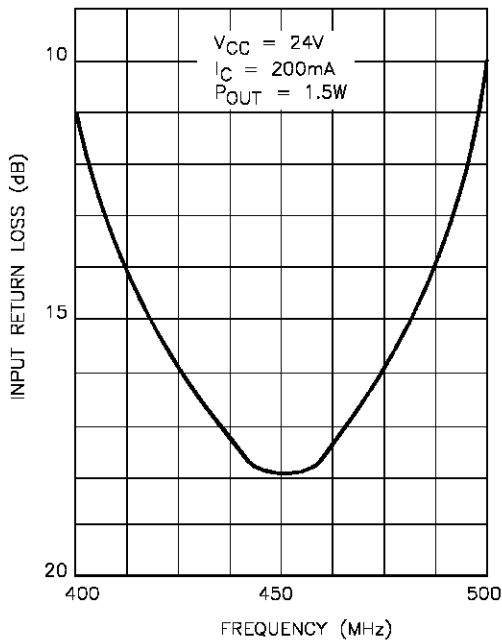
OUTPUT POWER vs INPUT POWER



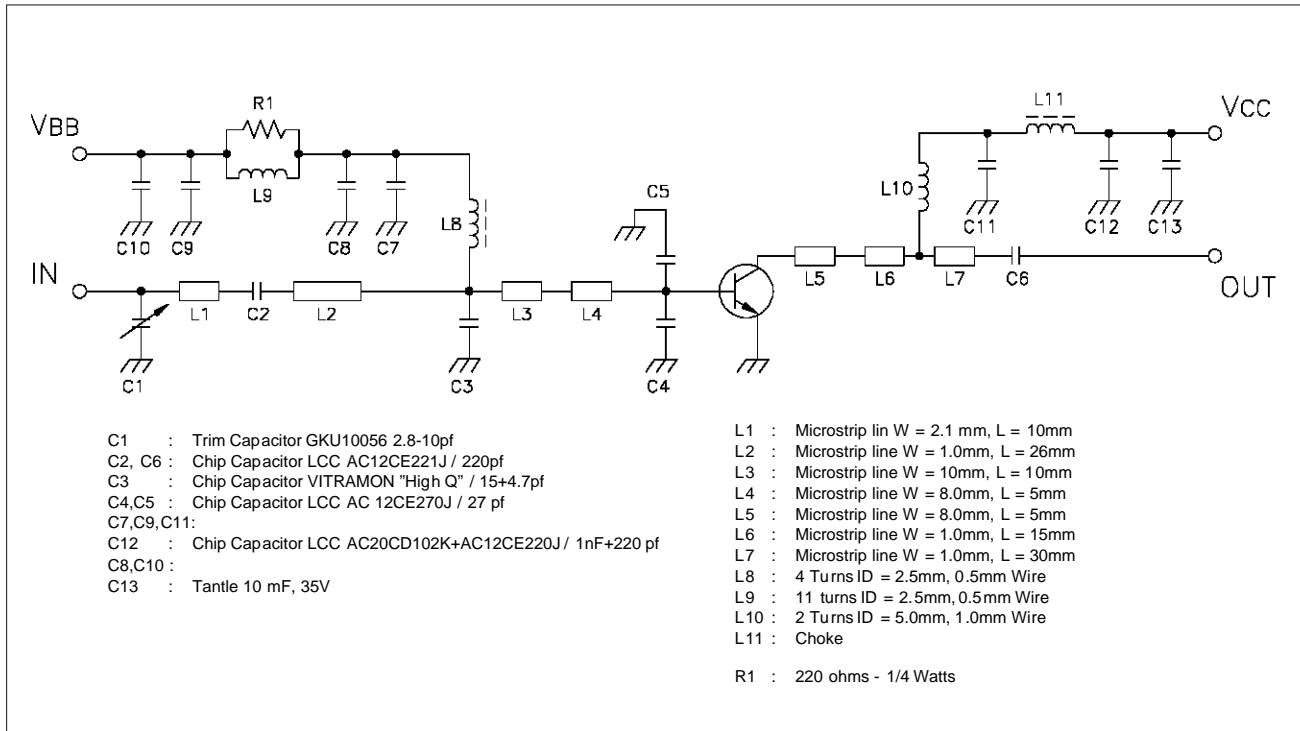
POWER GAIN vs FREQUENCY



INPUT RETURN LOSS vs FREQUENCY



TEST CIRCUIT



IMPEDANCE DATA

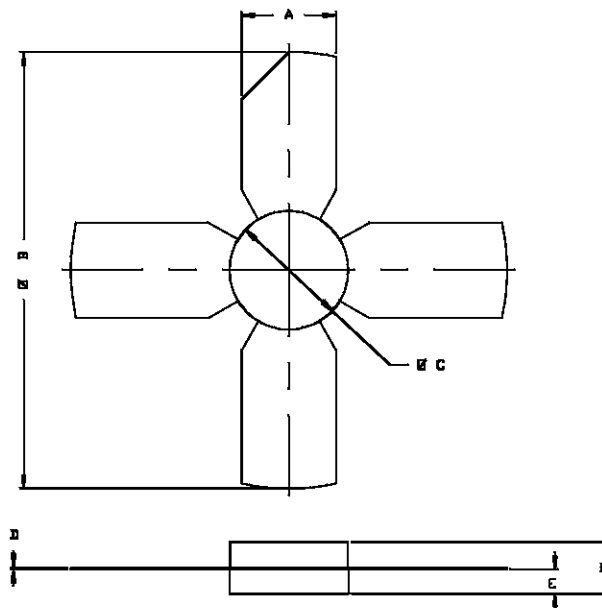
TYPICAL INPUT IMPEDANCE

TYPICAL COLLECTOR LOAD IMPEDANCE

FREQ.	Z _{IN} (Ω)	Z _{CL} (Ω)
400 MHz	2.8 + j 3.0	33 + j 47
430 MHz	2.6 + j 4.0	36 + j 49
470 MHz	2.4 + j 4.5	41 + j 52
500 MHz	2.0 + j 5.0	45 + j 54

PACKAGE MECHANICAL DATA

Ref.: Dwg. No. 12-0123 rev. A
UDCS No. 1010947



SGS-THOMSON MICROELECTRONICS		
	MINIMUM Inches/mm	MAXIMUM Inches/mm
A	.220/5.59	.230/5.84
B	-----	1.053/26.8
C	.275/6.99	.285/7.24
D	.004/0.10	.006/0.15
E	.050/1.27	.060/1.52
F	.118/3.00	.130/3.30

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