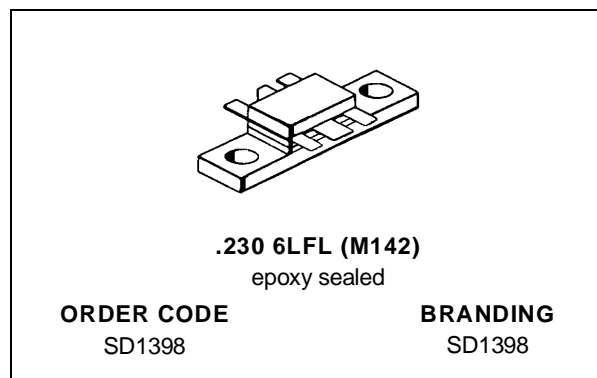


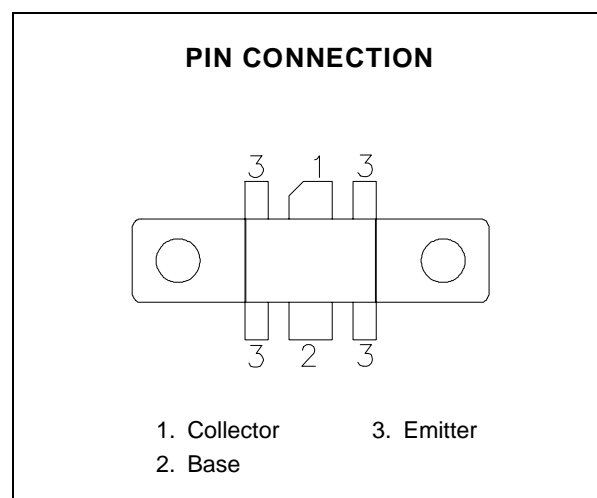
**RF & MICROWAVE TRANSISTORS
850-960 MHz APPLICATIONS**

- 850 - 960 MHz
- 24 VOLTS
- COMMON EMITTER
- OVERLAY GEOMETRY
- GOLD METALLIZATION
- P_{OUT} = 6.0 W MIN. WITH 10.0 dB GAIN


DESCRIPTION

The SD1398 is a gold metallized epitaxial silicon NPN transistor designed for high linearity Class AB operation cellular base station applications. The SD1398 can also be operated Class C.

The SD1398 is internally input matched and can be used as a driver for the SD1423 or SD1424.


ABSOLUTE MAXIMUM RATINGS (T_{case} = 25°C)

Symbol	Parameter	Value	Unit
V _{CBO}	Collector-Base Voltage	50	V
V _{CES}	Collector-Emitter Voltage	35	V
V _{EBO}	Emitter-Base Voltage	3.5	V
I _C	Device Current	2.4	A
P _{DISS}	Power Dissipation	53	W
T _J	Junction Temperature	+200	°C
T _{STG}	Storage Temperature	- 65 to +150	°C

THERMAL DATA

R _{TH(j-c)}	Junction-Case Thermal Resistance	3.3	°C/W
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ELECTRICAL SPECIFICATIONS ($T_{case} = 25^{\circ}C$)

STATIC

Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
BV_{CBO}	$I_C = 5mA$	$I_E = 0mA$	50	—	—	V
BV_{CEO}	$I_C = 5mA$	$I_B = 0mA$	24	—	—	V
BV_{EBO}	$I_E = 5mA$	$I_C = 0mA$	3.5	—	—	V
I_{CEO}	$V_{CE} = 24V$	$I_E = 0mA$	—	—	1.0	mA
I_{CBO}	$V_{CB} = 24V$	$I_E = 0mA$	—	—	1.0	mA
h_{FE}	$V_{CE} = 10V$	$I_C = 0.1A$	20	—	100	—

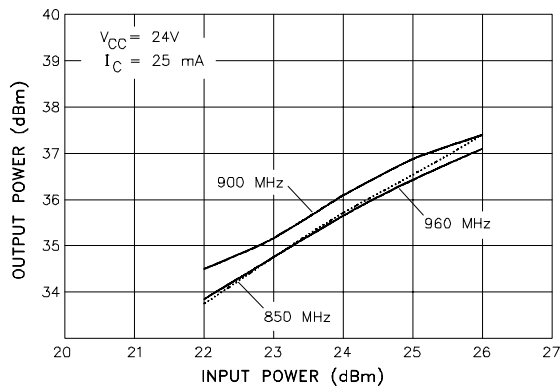
DYNAMIC

Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
P_{OUT}	$f = 850 - 960 MHz$	$V_{CE} = 24 V$	$I_{CQ} = 25 mA$	6	—	—	W
η_c	$f = 850 - 960 MHz$	$V_{CE} = 24 V$	$I_{CQ} = 25 mA$	—	50	—	%
G_P	$f = 850 - 960 MHz$	$V_{CE} = 24 V$	$I_{CQ} = 25 mA$	10	12	—	dB
C_{OB}	$f = 1 MHz$	$V_{CB} = 24 V$		—	7.5	8.5	pF

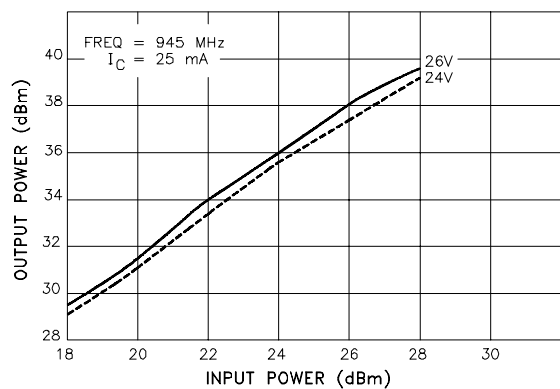
Note: $P_{IN} = 0.60w$

TYPICAL PERFORMANCE

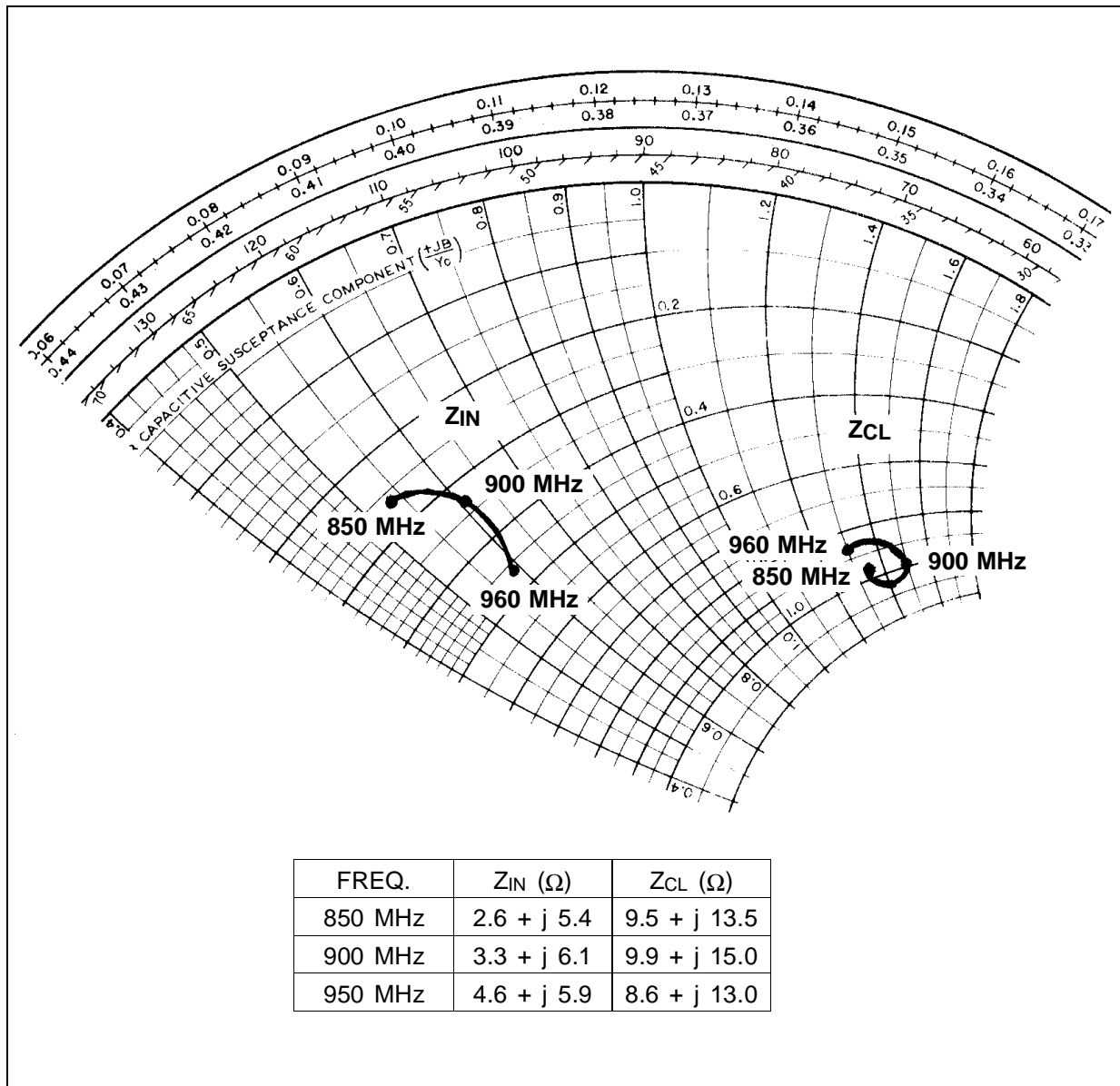
CLASS AB BROADBAND OUTPUT POWER vs INPUT POWER



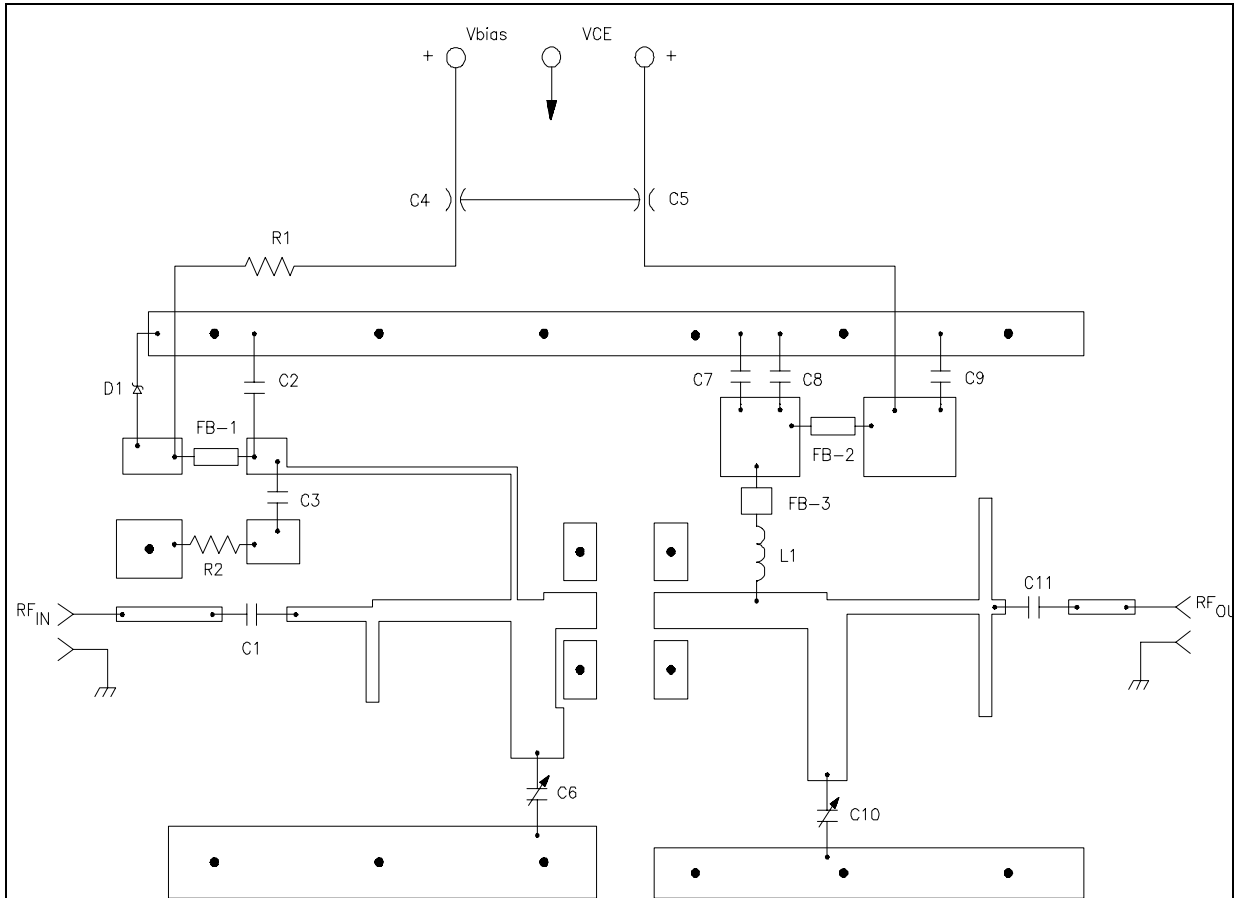
OUTPUT POWER vs INPUT POWER



IMPEDANCE DATA



TEST CIRCUIT

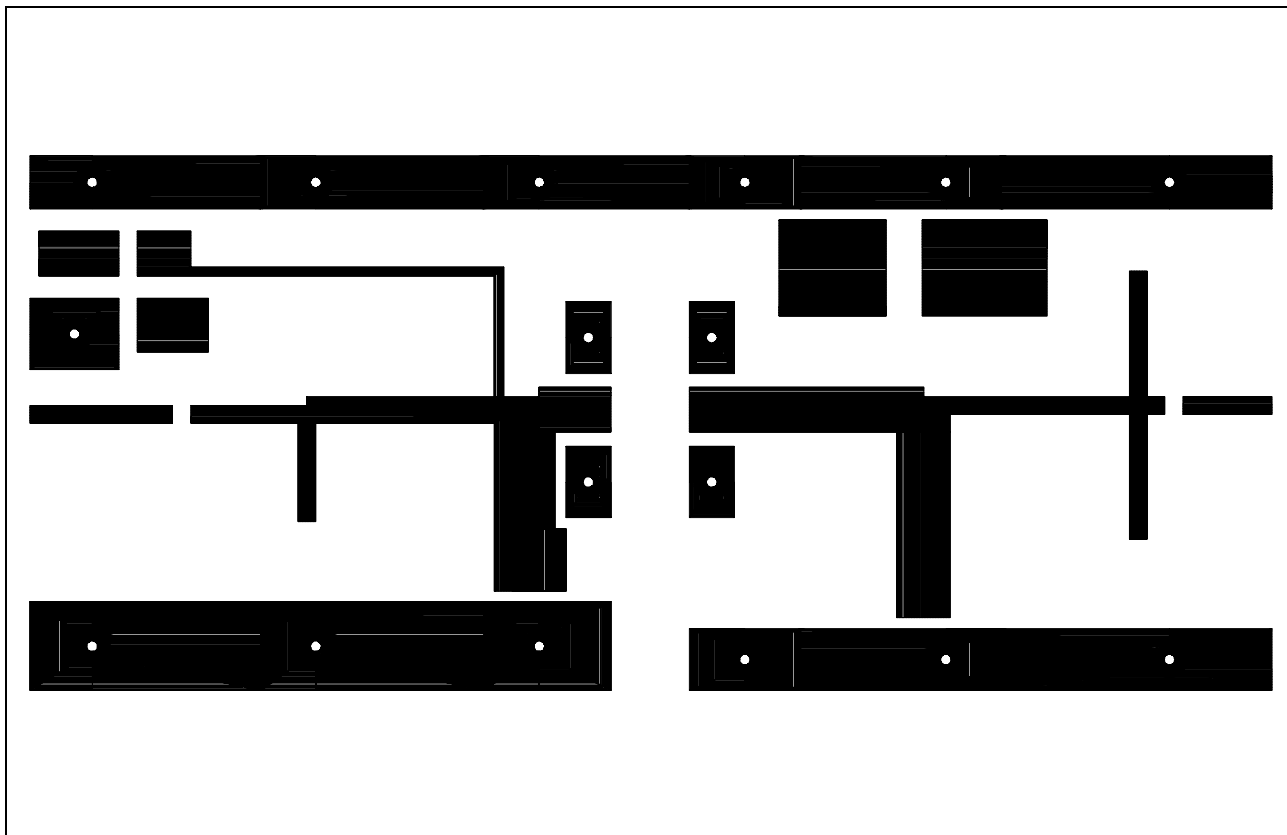


- C1, C2
- C7, C11 : 240pF ATC Size A
- C3 : 0.1MFD 50Vdc, CK05 Type
- C4, C5 : 1500pF Feedthru #9900-381-6004 Murata/Erie
- C6, C10 : 0.8 - 8.0pF Johanson Gigatrim
- C8 : 0.01 MFD 100Vdc CK05 Type
- C9 : 10MFD Electrolytic, 63Vdc
- D1 : IN5661

- FB-1,
- FB-2 : 2.5 Turns, #22 AWG, Ferrite Bead
- FB-3 : Ferrite Bead L1 Cold End
- L1 : 3 Turns, #22 AWG, 0.125" I.D.
- R1 : 150Ω in 5% Carbon Comp
- R2 : 51Ω, Chip Resistor

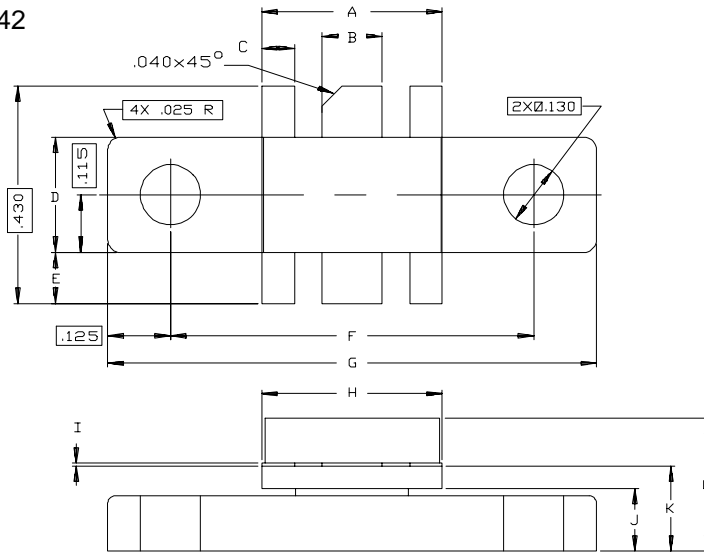
Board
Material: Er = 10.2, Height 0.05", Teflon Glass

TEST CIRCUIT LAYOUT



PACKAGE MECHANICAL DATA

Ref.: Dwg. No.12-0142



SGS-THOMSON MICROELECTRONICS			CONT'D		
	MINIMUM Inches/mm	MAXIMUM Inches/mm		MINIMUM Inches/mm	MAXIMUM Inches/mm
A	.355/9,02	.365/9,27	K	.160/4,06	.180/4,57
B	.115/2,92	.125/3,18	L	.230/5,84	.260/6,60
C	.075/1,91	.085/2,16			
D	.225/5,72	.235/5,97			
E	.090/2,29	.110/2,79			
F	.720/18,29	.730/18,54			
G	.970/24,64	.980/24,89			
H	.355/9,02	.365/9,27			
I	.004/0,10	.006/0,15			
J	.120/3,05	.130/3,30			

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