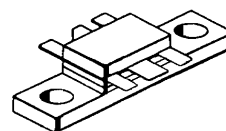


RF & MICROWAVE TRANSISTORS 850-960 MHz APPLICATIONS

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



.230 6LFL (M142)
epoxy sealed

ORDER CODE
SD1398

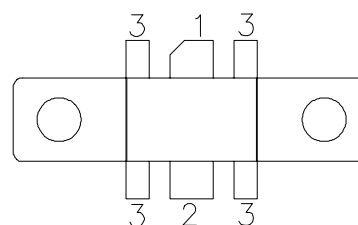
BRANDING
SD1398

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.

PIN CONNECTION



1. Collector 3. Emitter
2. Base

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

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	$^{\circ}\text{C}$
T_{STG}	Storage Temperature	- 65 to +150	$^{\circ}\text{C}$

THERMAL DATA

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

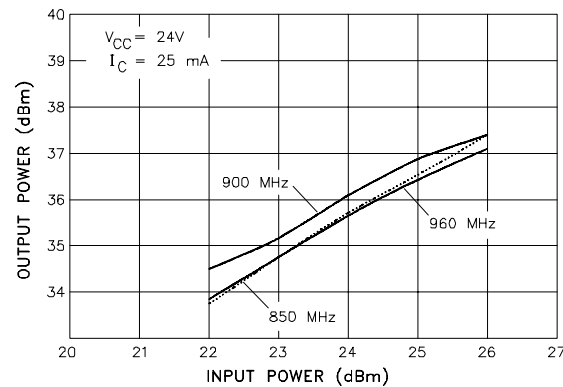
DYNAMIC

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

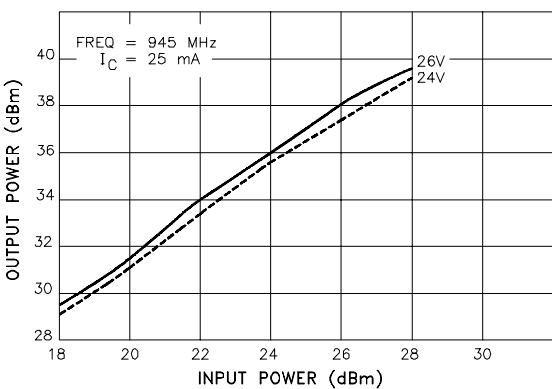
Note: P_{IN} = 0.60w

TYPICAL PERFORMANCE

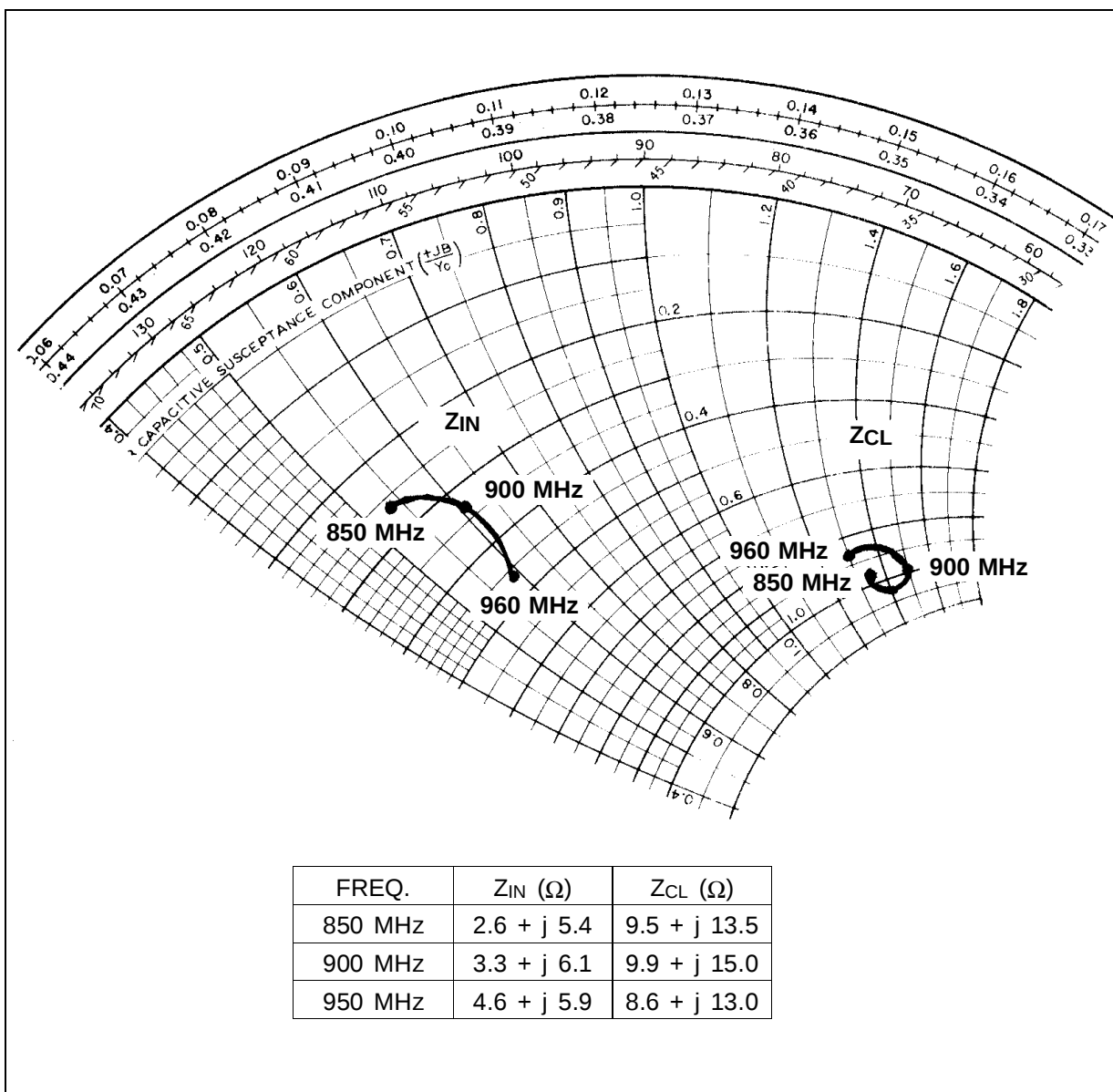
CLASS AB BROADBAND OUTPUT POWER
vs INPUT POWER



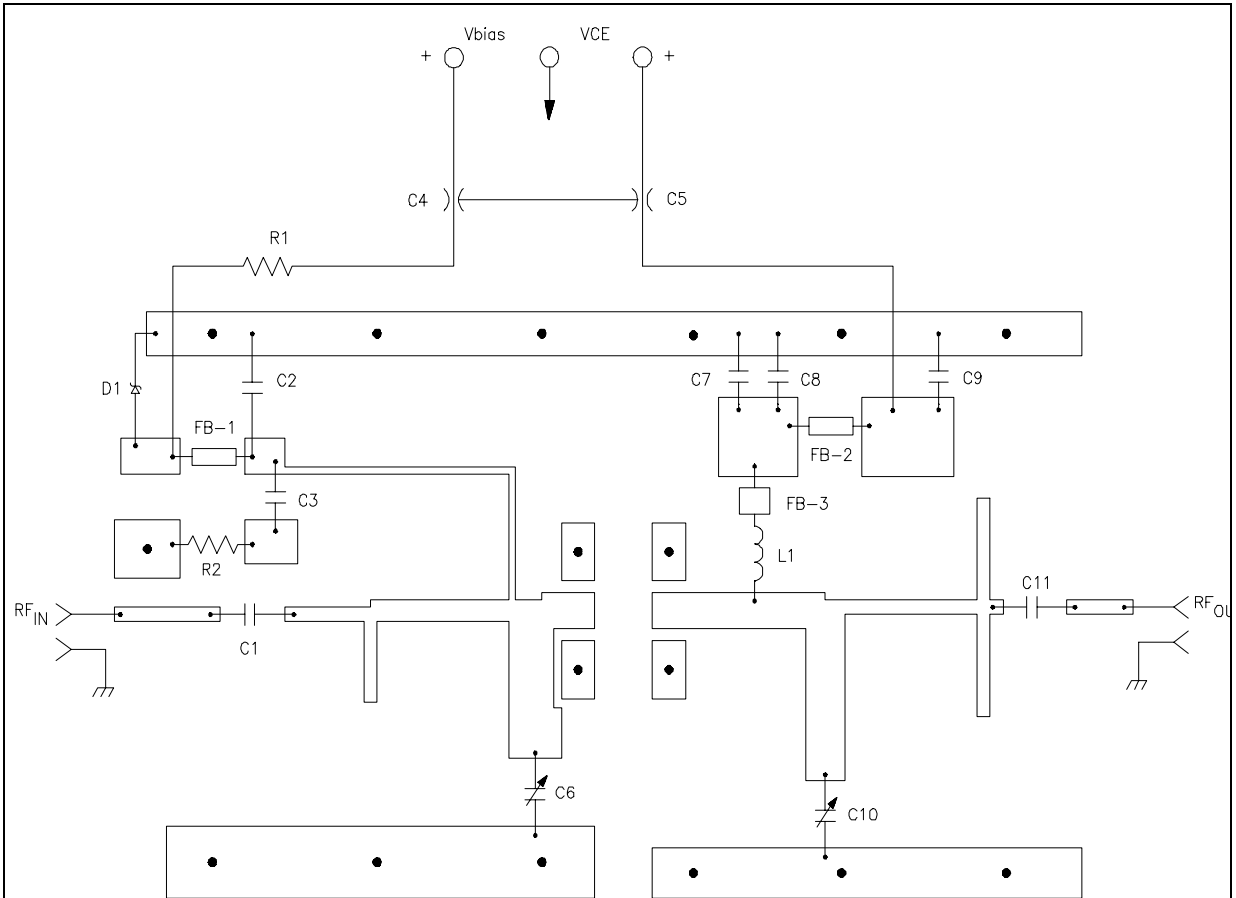
OUTPUT POWER vs INPUT POWER



IMPEDANCE DATA



TEST CIRCUIT



C1, C2 : 240pF ATC Size A
 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

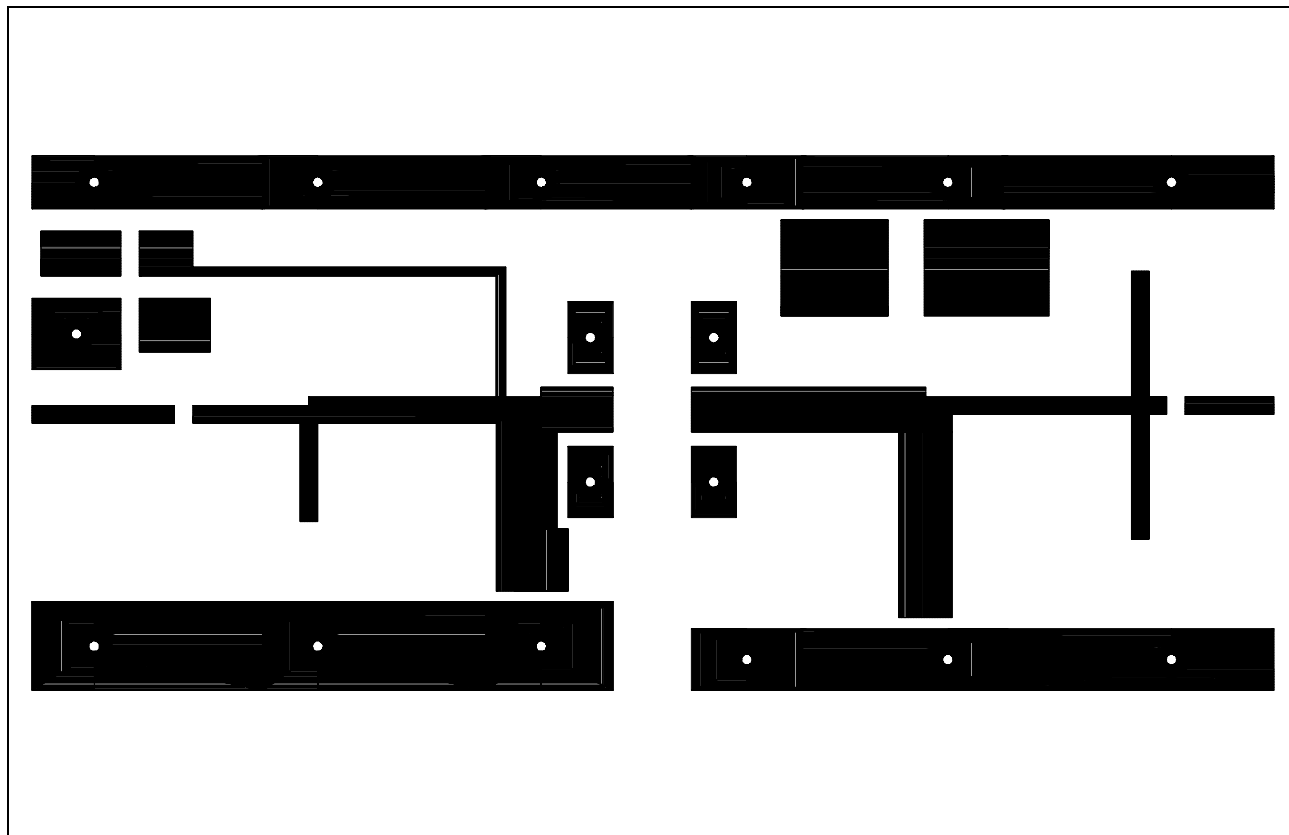
FB-1, : 2.5 Turns, #22 AWG, Ferrite Bead
 FB-2 : 2.5 Turns, #22 AWG, Ferrite Bead
 FB-3 : Ferrite Bead L1 Cold End

L1 : 3 Turns, #22 AWG, 0.125" I.D.

R1 : 150 Ω in 5% Carbon Comp
 R2 : 51 Ω , Chip Resistor

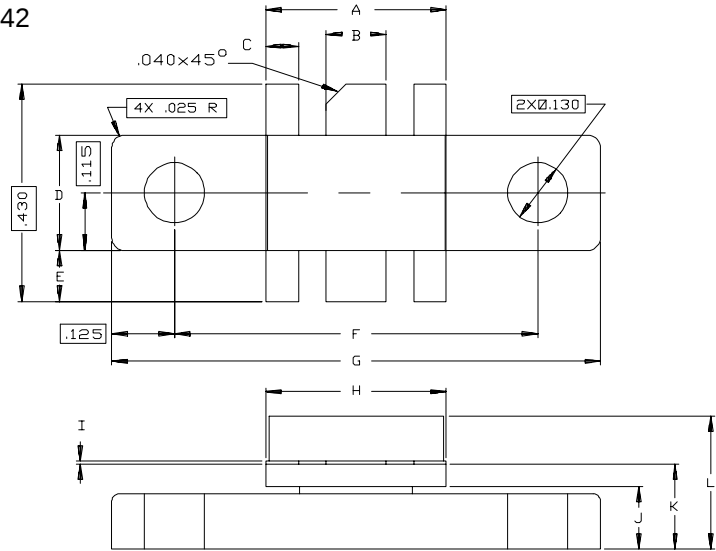
Board
 Material: Er = 10.2, Height 0.05", Teflon Glass

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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