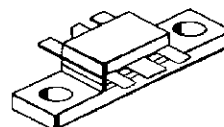


RF & MICROWAVE TRANSISTORS 850-960 MHz APPLICATIONS

- 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

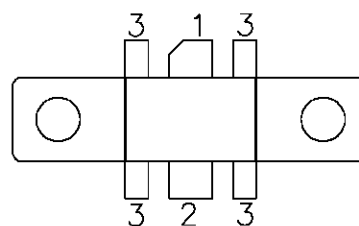
BRANDING
SD1398

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	$^{\circ}\text{C}$

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THERMAL DATA

$R_{TH(j-c)}$	Junction-Case Thermal Resistance	3.3	$^{\circ}\text{C/W}$
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SD1398

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

STATIC

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

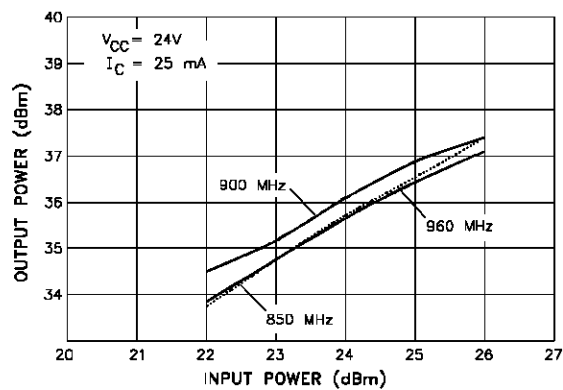
DYNAMIC

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

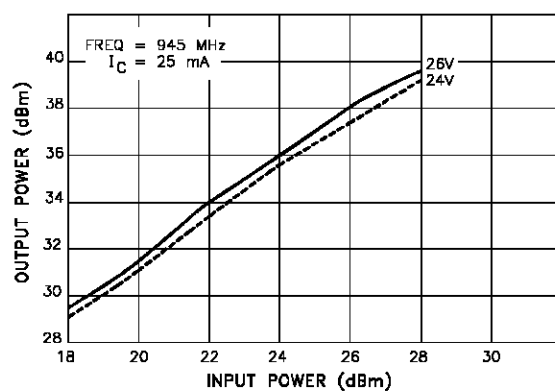
Note: $P_{IN} = 0.60\text{W}$

TYPICAL PERFORMANCE

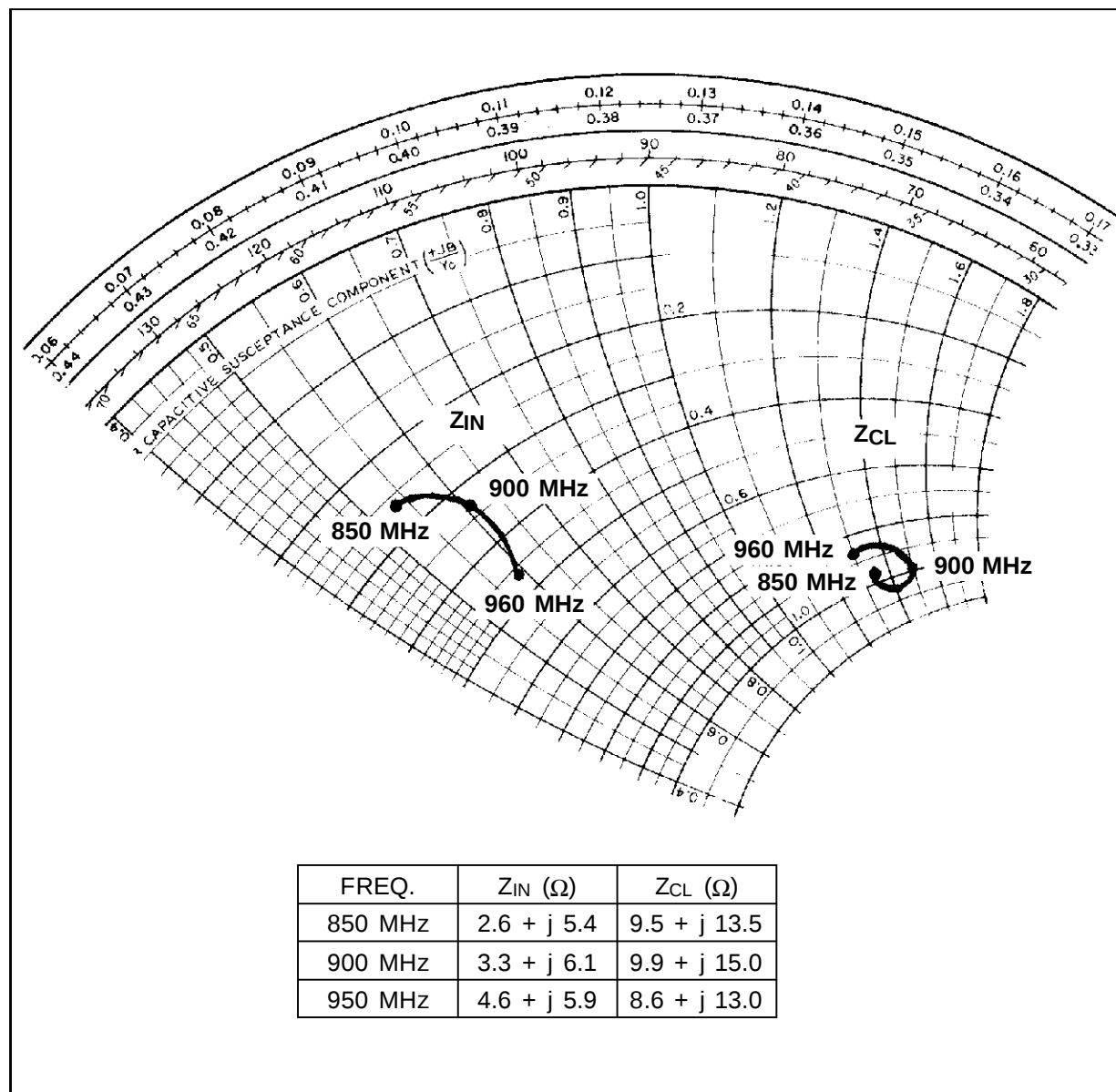
CLASS AB BROADBAND OUTPUT POWER vs INPUT POWER



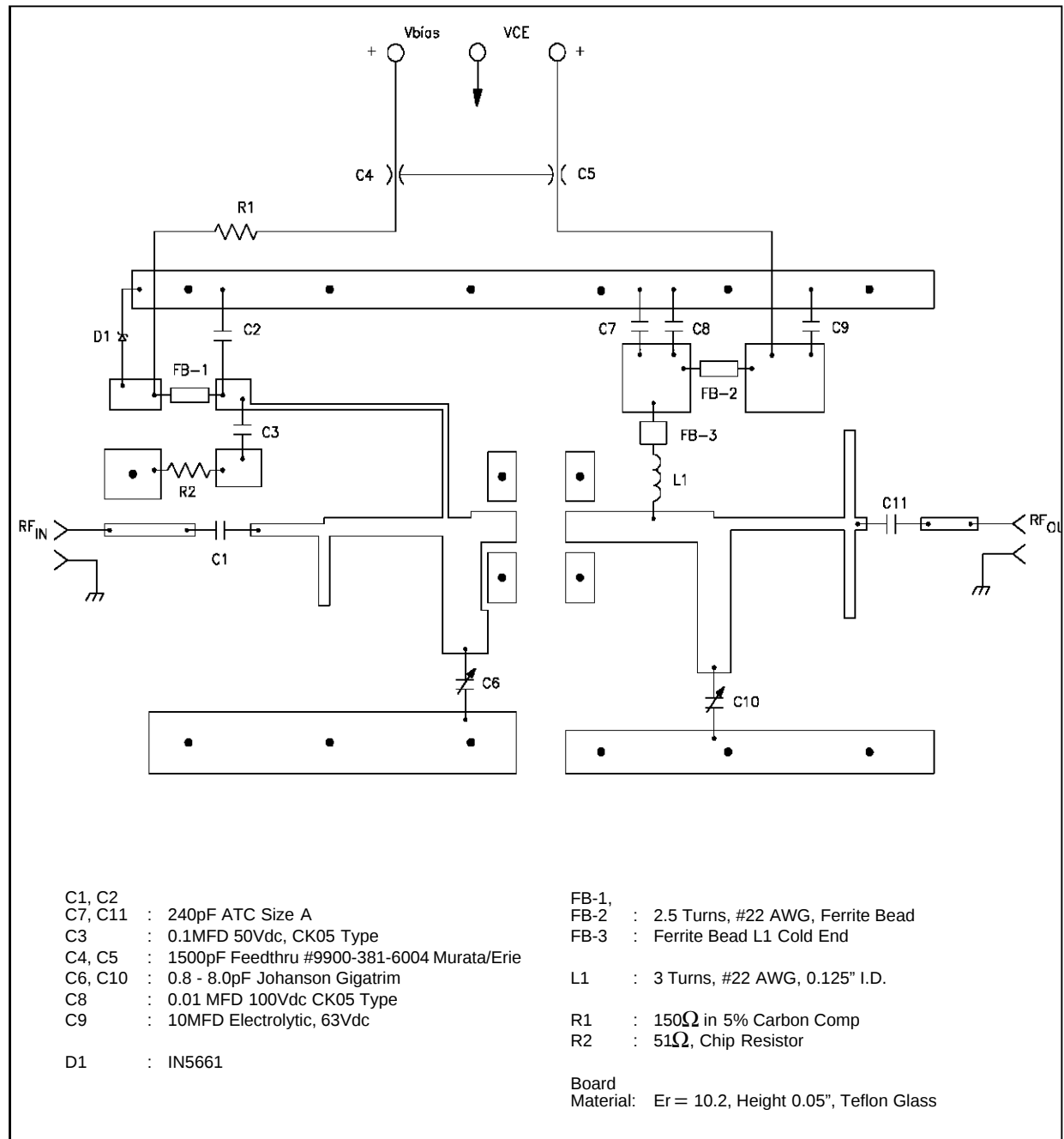
OUTPUT POWER vs INPUT POWER



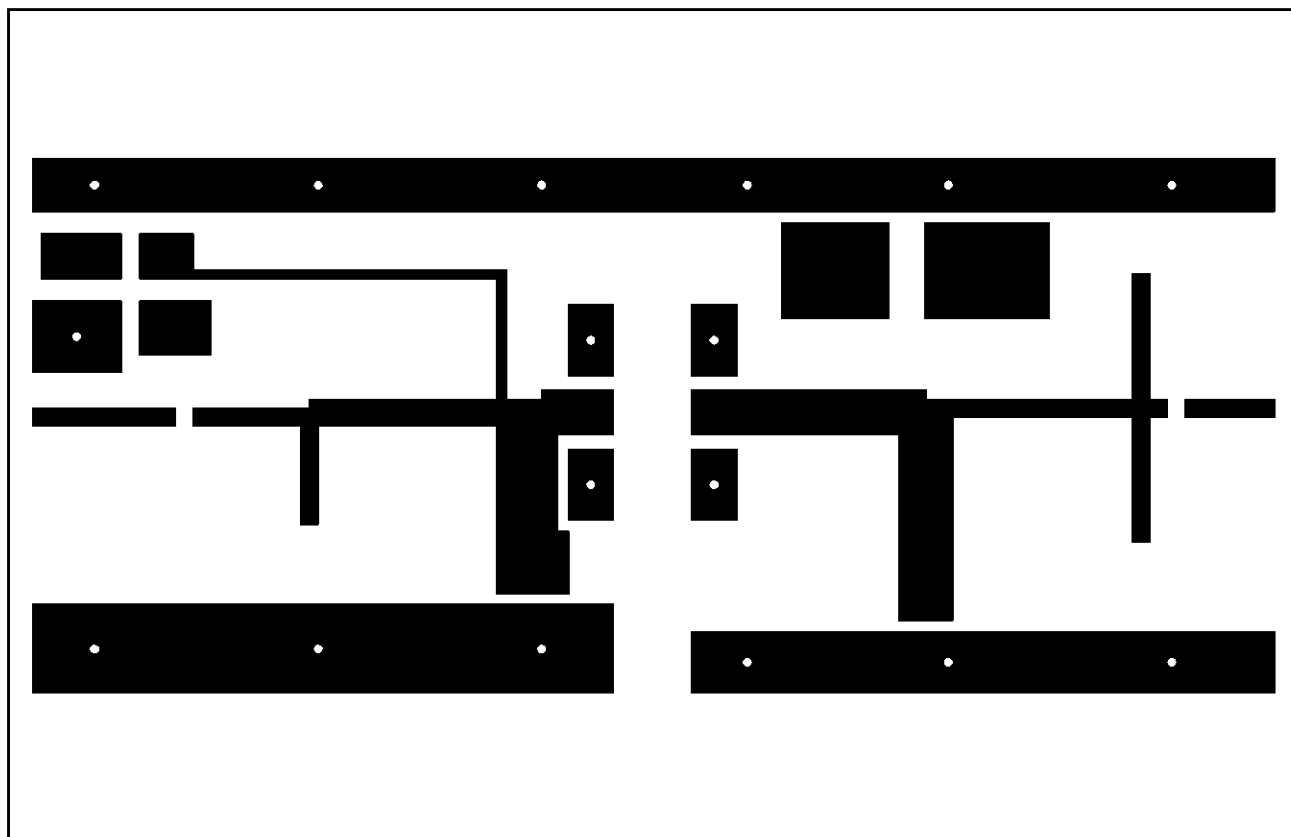
IMPEDANCE DATA



TEST CIRCUIT

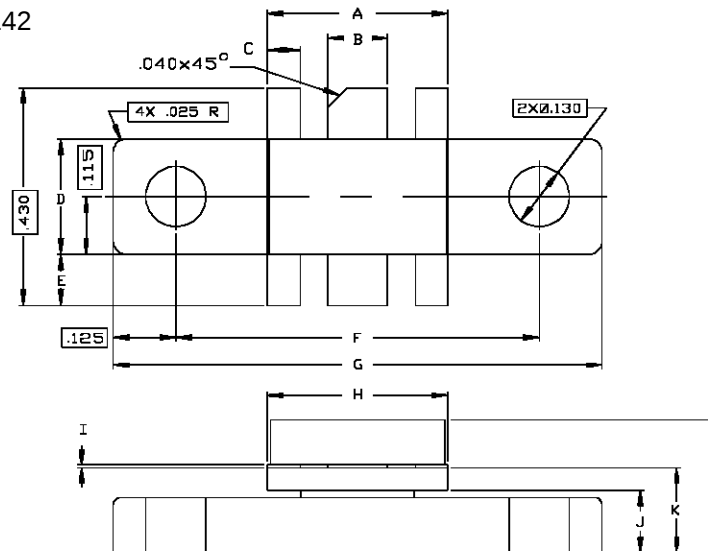


TEST CIRCUIT LAYOUT



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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