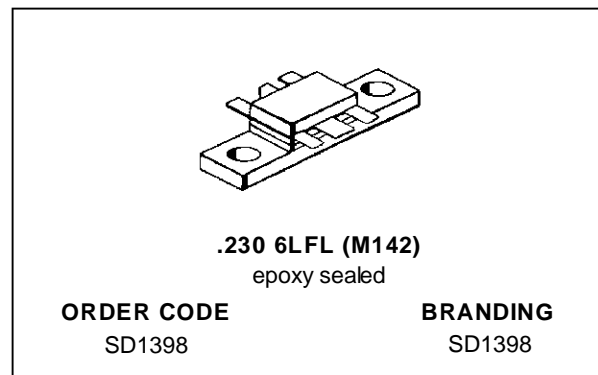


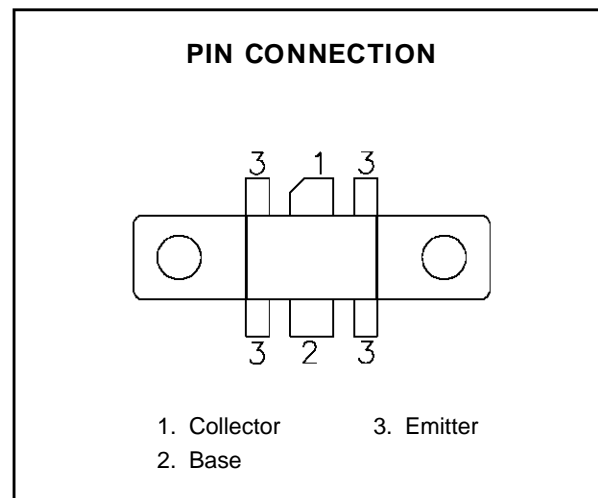
**RF & MICROWAVE TRANSISTORS
850-960 MHz APPLICATIONS**

- 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 _{CB0} | 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 |
|----------------------|----------------------------------|-----|------|

SD1398

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 | — |

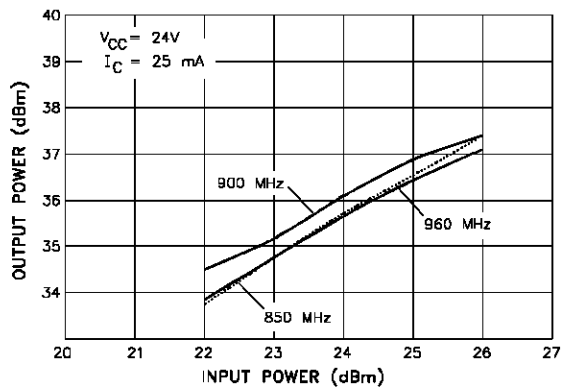
DYNAMIC

| 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 |

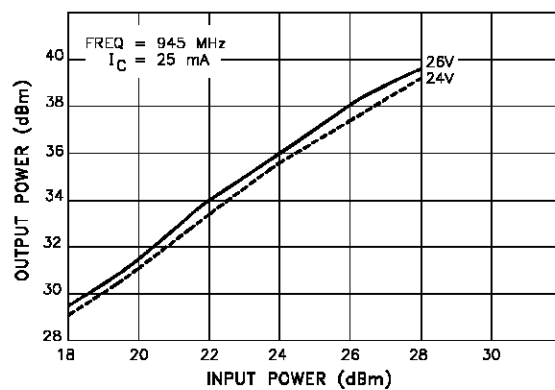
Note: P_{IN} = 0.60w

TYPICAL PERFORMANCE

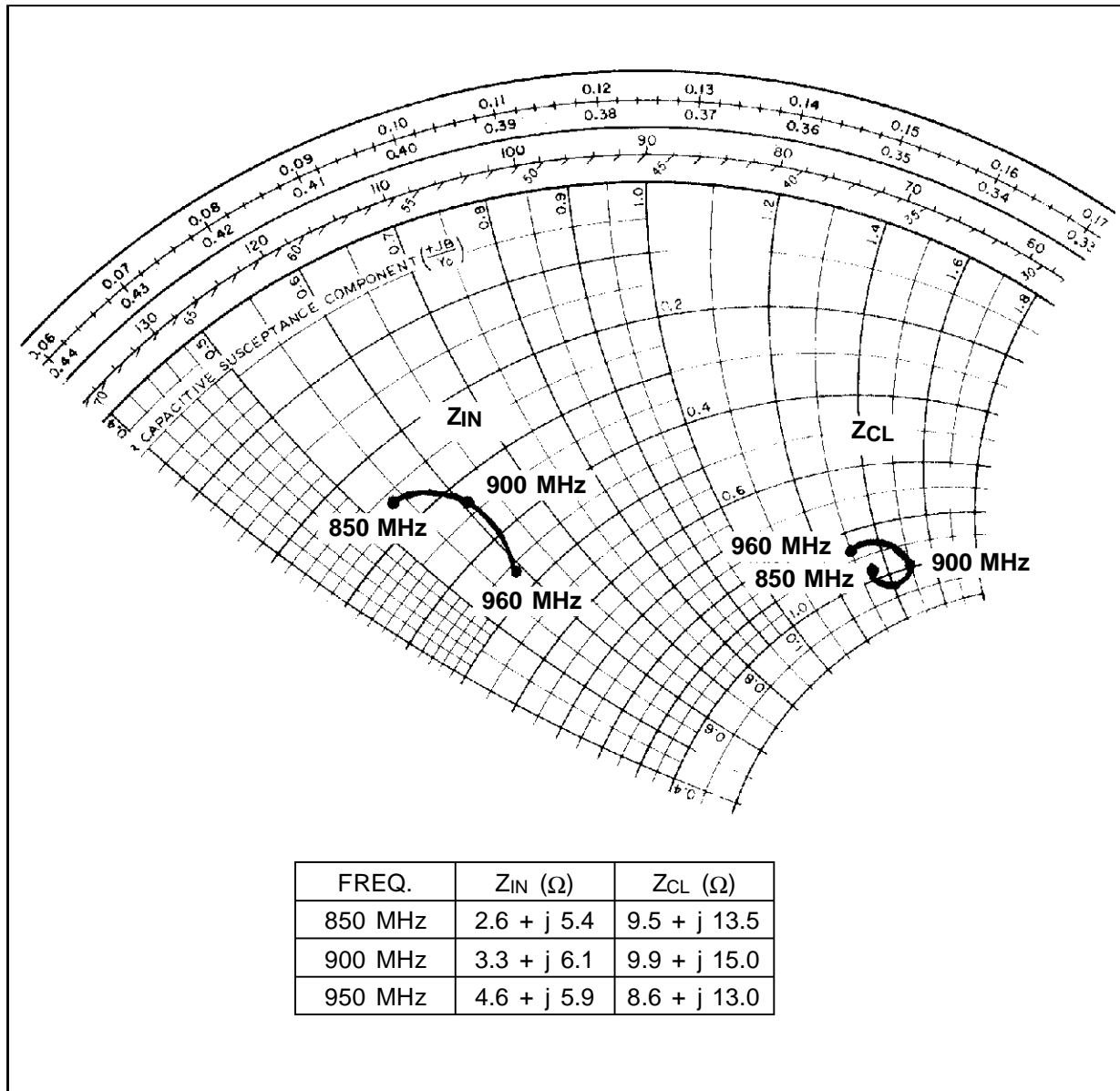
CLASS AB BROADBAND OUTPUT POWER vs INPUT POWER



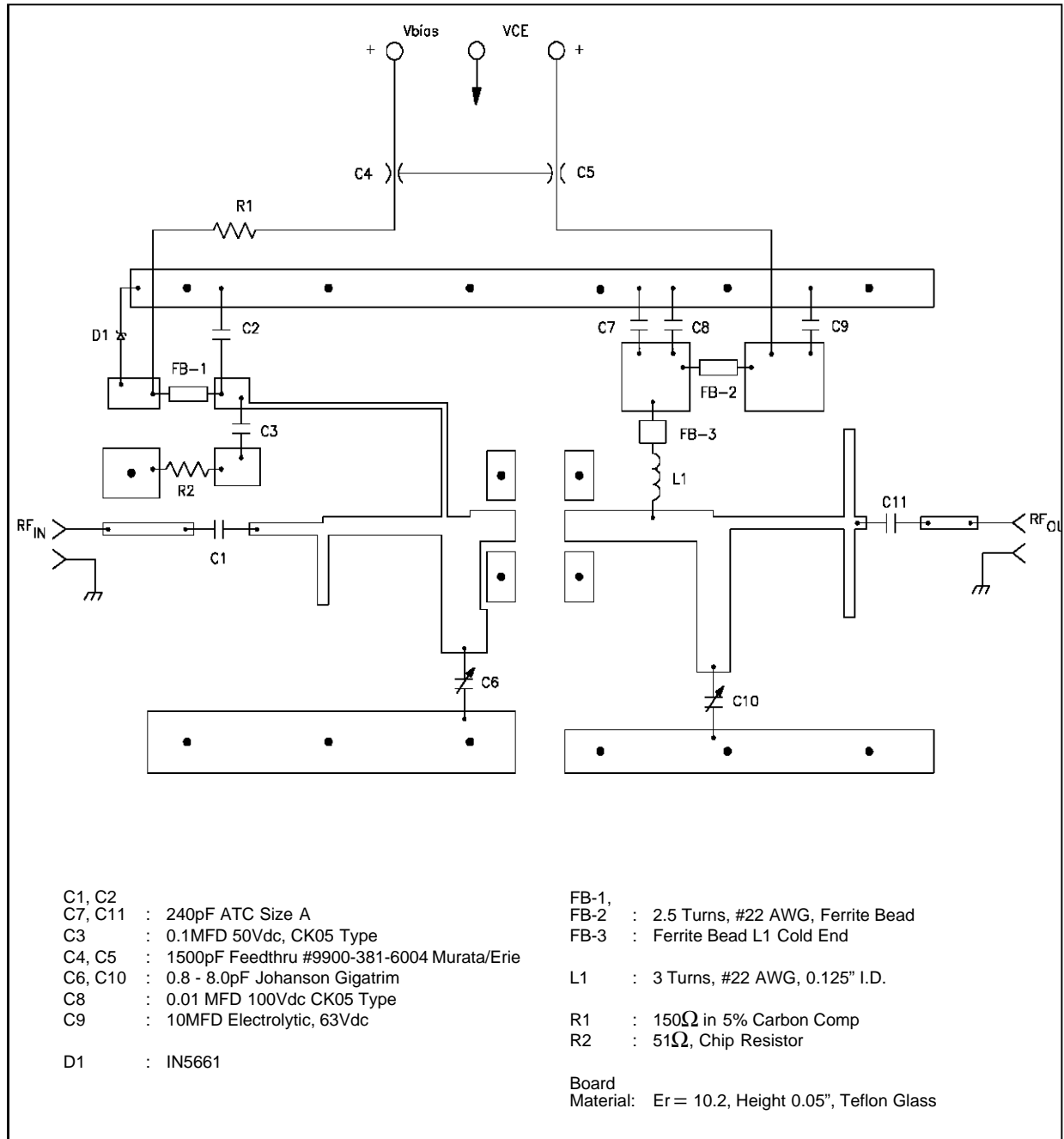
OUTPUT POWER vs INPUT POWER



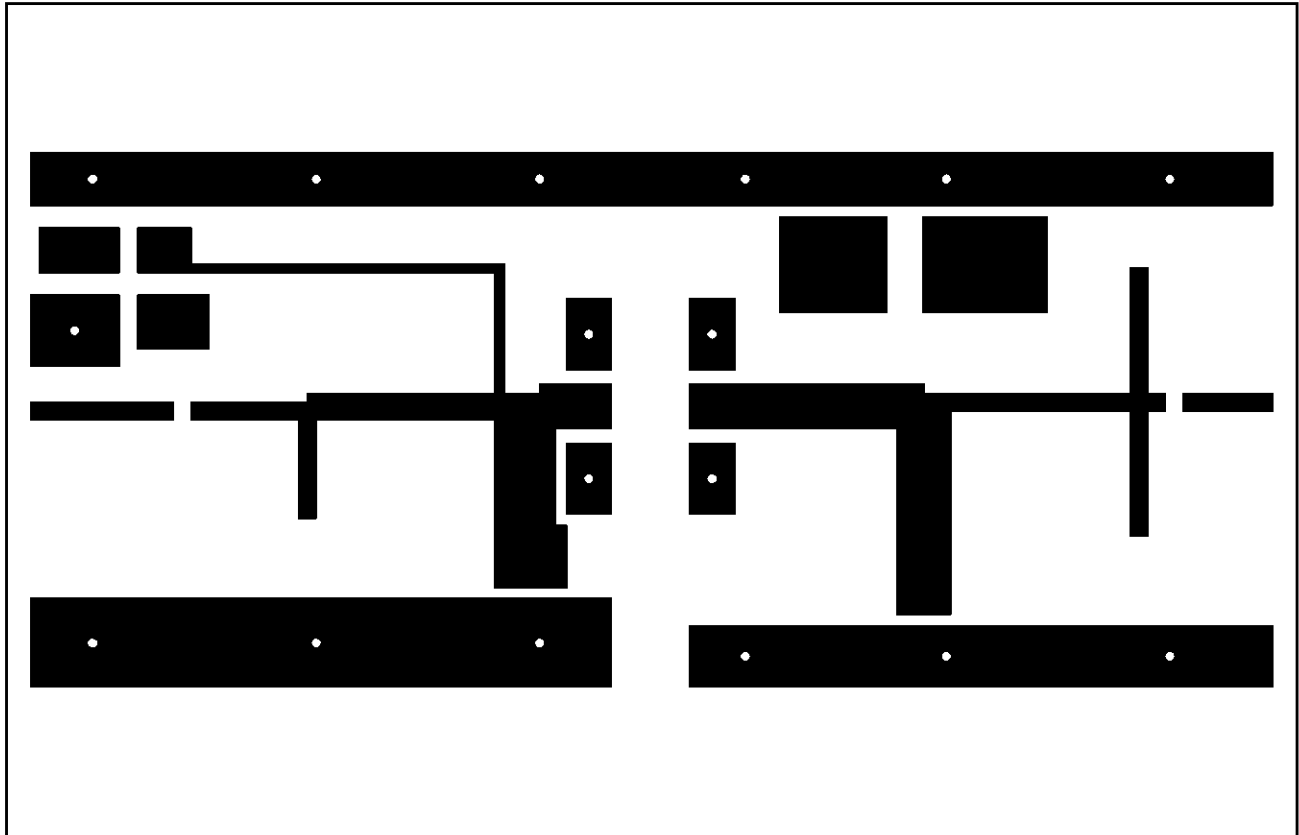
IMPEDANCE DATA



TEST CIRCUIT

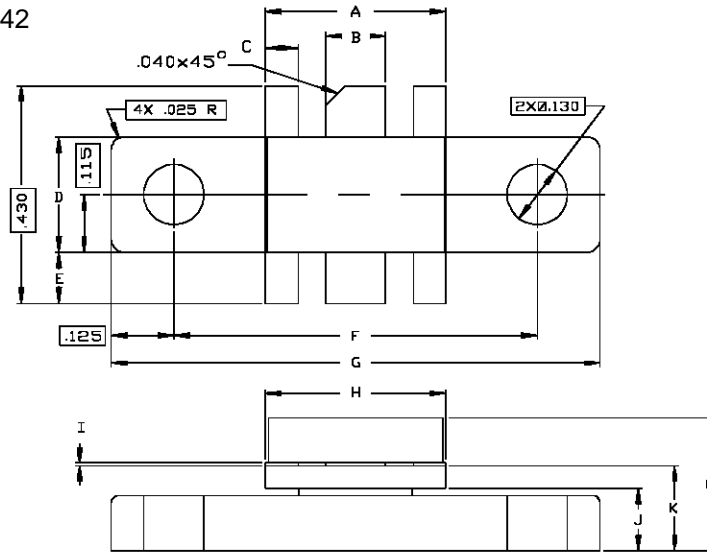


TEST CIRCUIT LAYOUT



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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