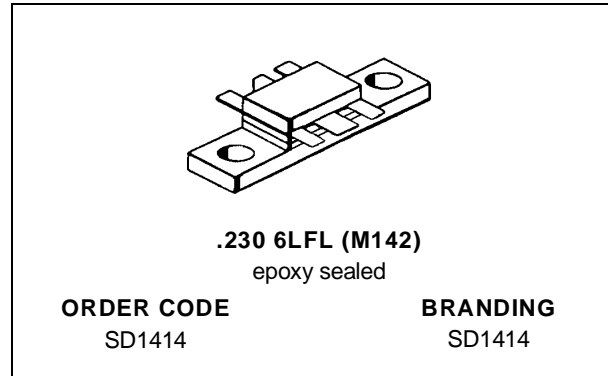
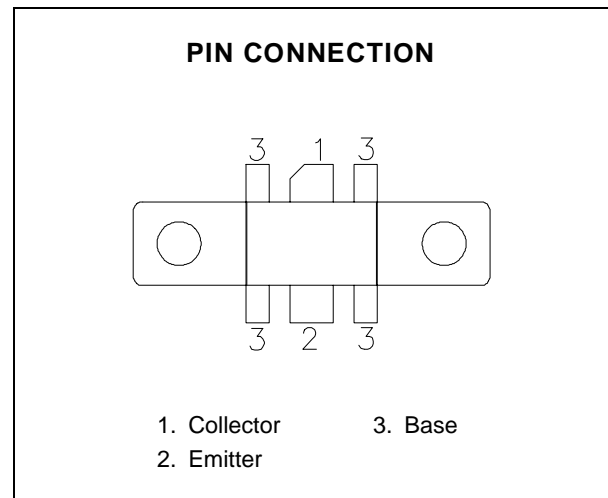


**RF & MICROWAVE TRANSISTORS
800-900 MHz APPLICATIONS**

- 836 MHz
- 12.5 VOLTS
- COMMON BASE
- $P_{OUT} = 45 \text{ W MIN. WITH } 4.7 \text{ dB GAIN}$


DESCRIPTION

The SD1414 is a 12.5 V Class C epitaxial silicon NPN planar transistor designed for amplifier applications in the 806 - 866 MHz frequency range. Internal input matching and common base configuration assure optimum gain and efficiency across the entire frequency band. The SD1414 withstands infinite VSWR at rated power output.


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

| Symbol | Parameter | Value | Unit |
|------------|---------------------------|--------------|--------------------|
| V_{CBO} | Collector-Base Voltage | 36 | V |
| V_{CEO} | Collector-Emitter Voltage | 18 | V |
| V_{CES} | Collector-Emitter Voltage | 36 | V |
| V_{EBO} | Emitter-Base Voltage | 4.0 | V |
| I_C | Device Current | 9.0 | A |
| P_{DISS} | Power Dissipation | 150 | 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 | 1.2 | $^{\circ}\text{C/W}$ |
|---------------|----------------------------------|-----|----------------------|

SD1414

ELECTRICAL SPECIFICATIONS (T_{case} = 25°C)

STATIC

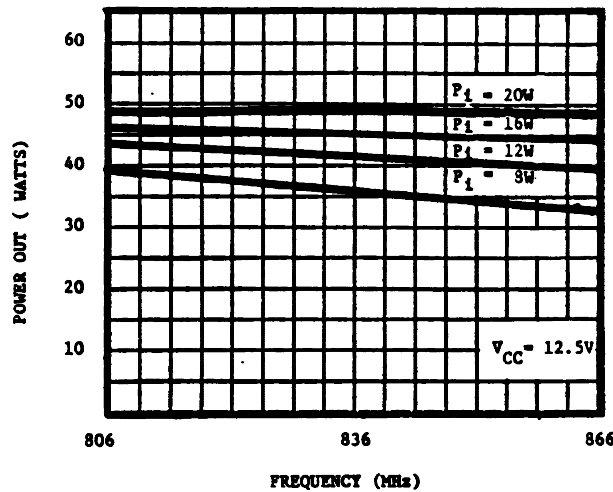
| Symbol | Test Conditions | | Value | | | Unit |
|-------------------|-----------------------|----------------------|-------|------|------|------|
| | | | Min. | Typ. | Max. | |
| BV _{CES} | I _C = 50mA | V _{BE} = 0V | 36 | — | — | V |
| BV _{CEO} | I _C = 50mA | I _B = 0mA | 18 | — | — | V |
| BV _{EBO} | I _E = 10mA | I _C = 0mA | 4.0 | — | — | V |
| I _{CBO} | V _{CB} = 15V | I _E = 0mA | — | — | 5 | mA |
| h _{FE} | V _{CE} = 5V | I _C = 1A | 5 | — | 200 | — |

DYNAMIC

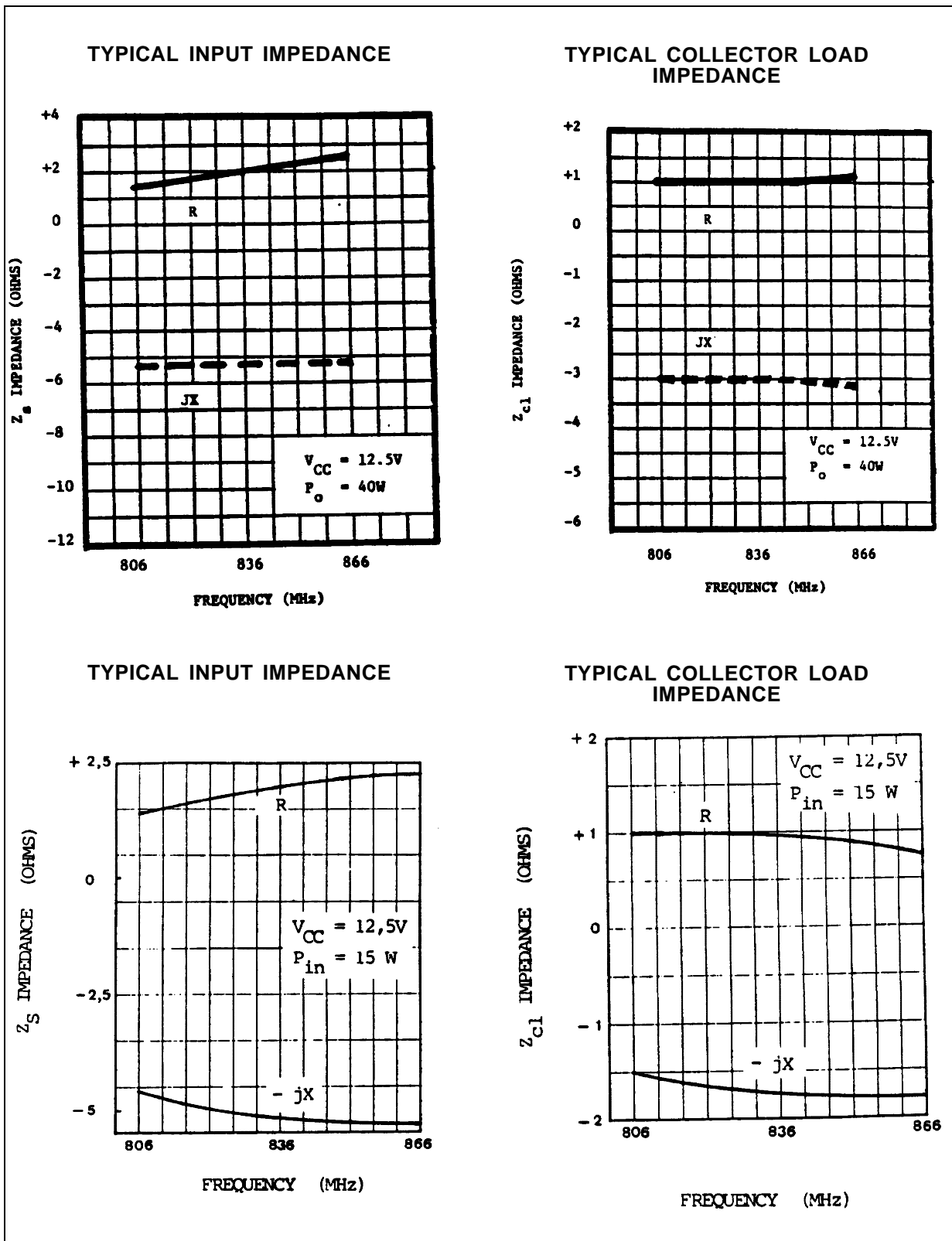
| Symbol | Test Conditions | | | Value | | | Unit |
|------------------|-----------------|--------------------------|--------------------------|-------|------|------|------|
| | | | | Min. | Typ. | Max. | |
| P _{OUT} | f = 836 MHz | P _{IN} = 15 W | V _{CE} = 12.5 V | 45 | — | — | W |
| G _P | f = 836 MHz | P _{IN} = 15 W | V _{CE} = 12.5 V | 4.7 | — | — | dB |
| C _{OB} | f = 1 MHz | V _{CB} = 12.5 V | | — | 80 | — | pF |

TYPICAL PERFORMANCE

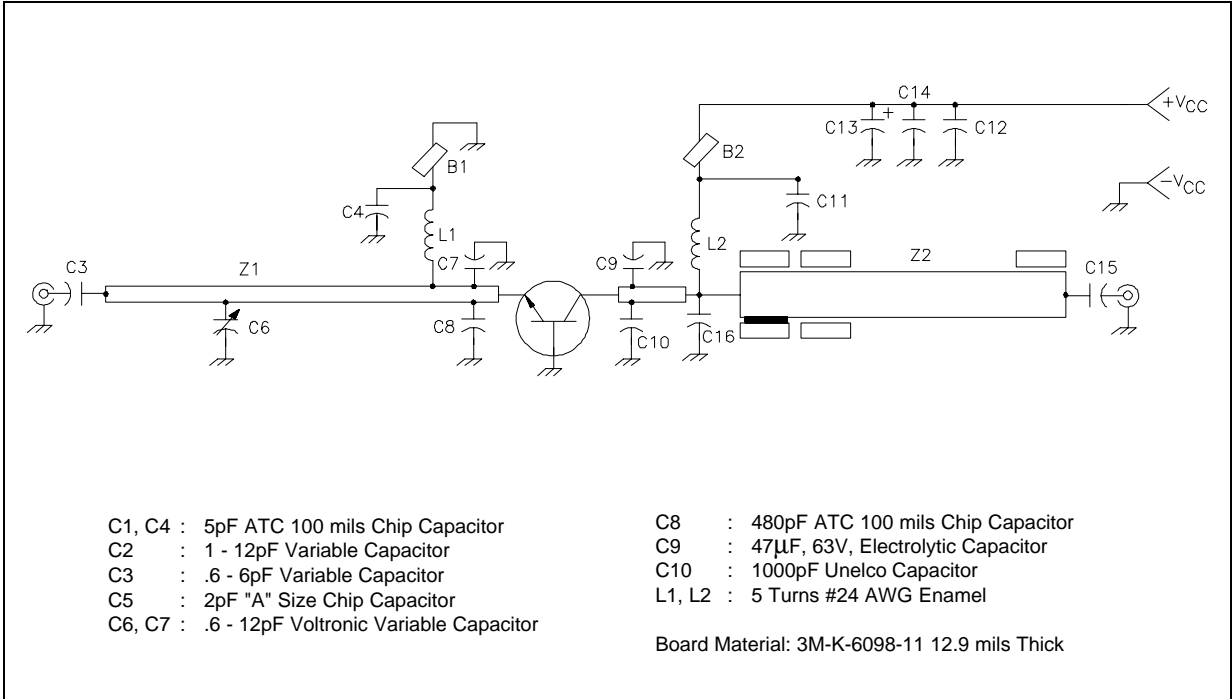
POWER OUTPUT vs FREQUENCY



IMPEDANCE DATA

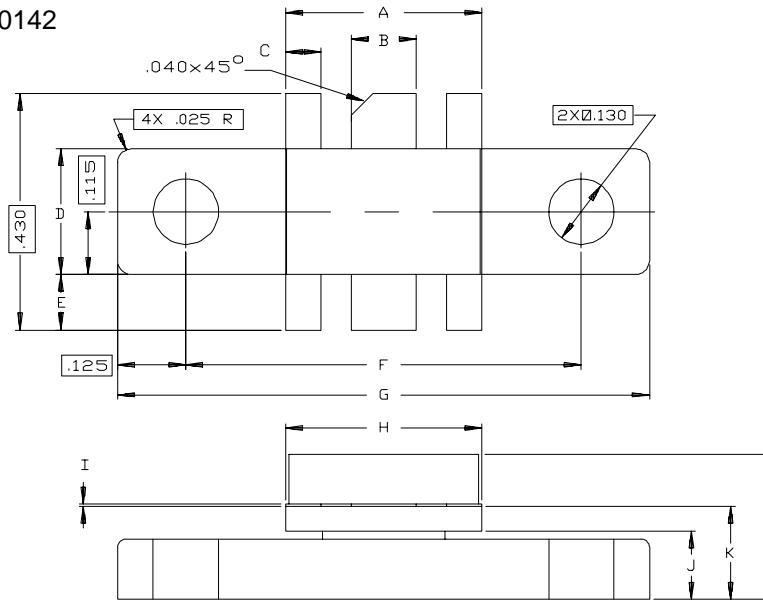


TEST CIRCUIT



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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