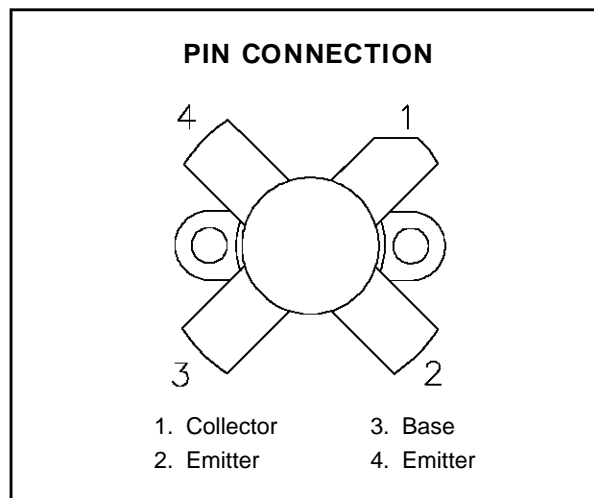
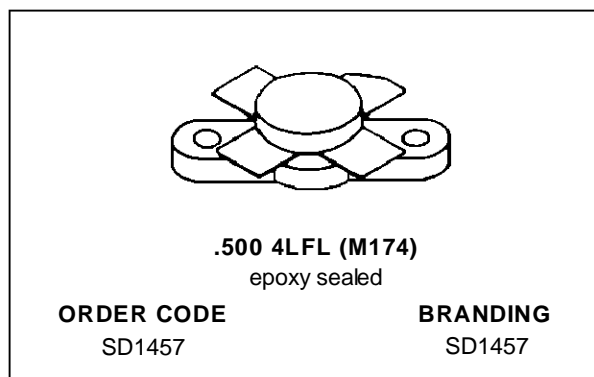


**RF & MICROWAVE TRANSISTORS  
FM BROADCAST APPLICATIONS**

- 108 MHz
- 28 VOLTS
- EFFICIENCY 75%
- COMMON EMITTER
- GOLD METALLIZATION
- P<sub>OUT</sub> = 75 W MIN. WITH 10.0 dB GAIN


**DESCRIPTION**

The SD1457 is a 28 V gold metallized epitaxial silicon NPN planar transistor designed for FM VHF broadcast transmitters.

This device utilizes diffused emitter resistors to achieve infinite VSWR at rated operating conditions.

**ABSOLUTE MAXIMUM RATINGS (T<sub>case</sub> = 25°C)**

| Symbol            | Parameter                 | Value        | Unit |
|-------------------|---------------------------|--------------|------|
| V <sub>CB0</sub>  | Collector-Base Voltage    | 65           | V    |
| V <sub>CEO</sub>  | Collector-Emitter Voltage | 30           | V    |
| V <sub>CES</sub>  | Collector-Emitter Voltage | 60           | V    |
| V <sub>EBO</sub>  | Emitter-Base Voltage      | 4.0          | V    |
| I <sub>c</sub>    | Device Current            | 10           | A    |
| P <sub>DISS</sub> | Power Dissipation         | 100          | W    |
| T <sub>J</sub>    | Junction Temperature      | +200         | °C   |
| T <sub>STG</sub>  | Storage Temperature       | - 65 to +150 | °C   |

**THERMAL DATA**

|                      |                                  |     |      |
|----------------------|----------------------------------|-----|------|
| R <sub>TH(j-c)</sub> | Junction-Case Thermal Resistance | 1.5 | °C/W |
|----------------------|----------------------------------|-----|------|

# SD1457

## ELECTRICAL SPECIFICATIONS (T<sub>case</sub> = 25°C)

### STATIC

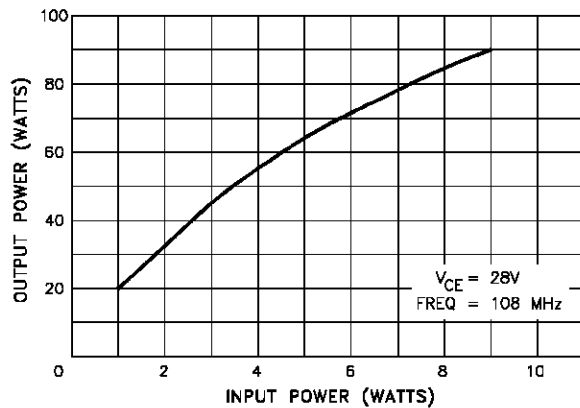
| Symbol            | Test Conditions       |                       | Value |      |      | Unit |
|-------------------|-----------------------|-----------------------|-------|------|------|------|
|                   |                       |                       | Min.  | Typ. | Max. |      |
| BV <sub>CBO</sub> | I <sub>C</sub> = 50mA | I <sub>E</sub> = 0mA  | 65    | —    | —    | V    |
| BV <sub>CER</sub> | I <sub>C</sub> = 50mA | R <sub>BE</sub> = 10Ω | 60    | —    | —    | V    |
| BV <sub>CEO</sub> | I <sub>C</sub> = 50mA | I <sub>B</sub> = 0mA  | 30    | —    | —    | V    |
| BV <sub>EBO</sub> | I <sub>E</sub> = 10mA | I <sub>C</sub> = 0mA  | 4.0   | —    | —    | V    |
| h <sub>FE</sub>   | V <sub>CE</sub> = 5V  | I <sub>C</sub> = 1A   | 20    | —    | 150  | —    |

### DYNAMIC

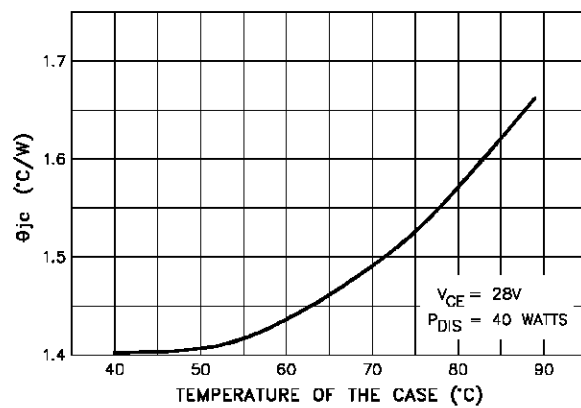
| Symbol           | Test Conditions |                         |                        | Value |      |      | Unit |
|------------------|-----------------|-------------------------|------------------------|-------|------|------|------|
|                  |                 |                         |                        | Min.  | Typ. | Max. |      |
| P <sub>OUT</sub> | f = 108 MHz     | P <sub>IN</sub> = 7.5 W | V <sub>CE</sub> = 28 V | 75    | —    | —    | W    |
| G <sub>P</sub>   | f = 108 MHz     | P <sub>IN</sub> = 7.5 W | V <sub>CE</sub> = 28 V | 10    | —    | —    | dB   |
| η <sub>C</sub>   | f = 108 MHz     | P <sub>IN</sub> = 7.5 W | V <sub>CE</sub> = 28 V | 70    | —    | —    | %    |
| C <sub>OB</sub>  | f = 1 MHz       | V <sub>CB</sub> = 30 V  |                        | —     | —    | 85   | pF   |

## TYPICAL PERFORMANCE

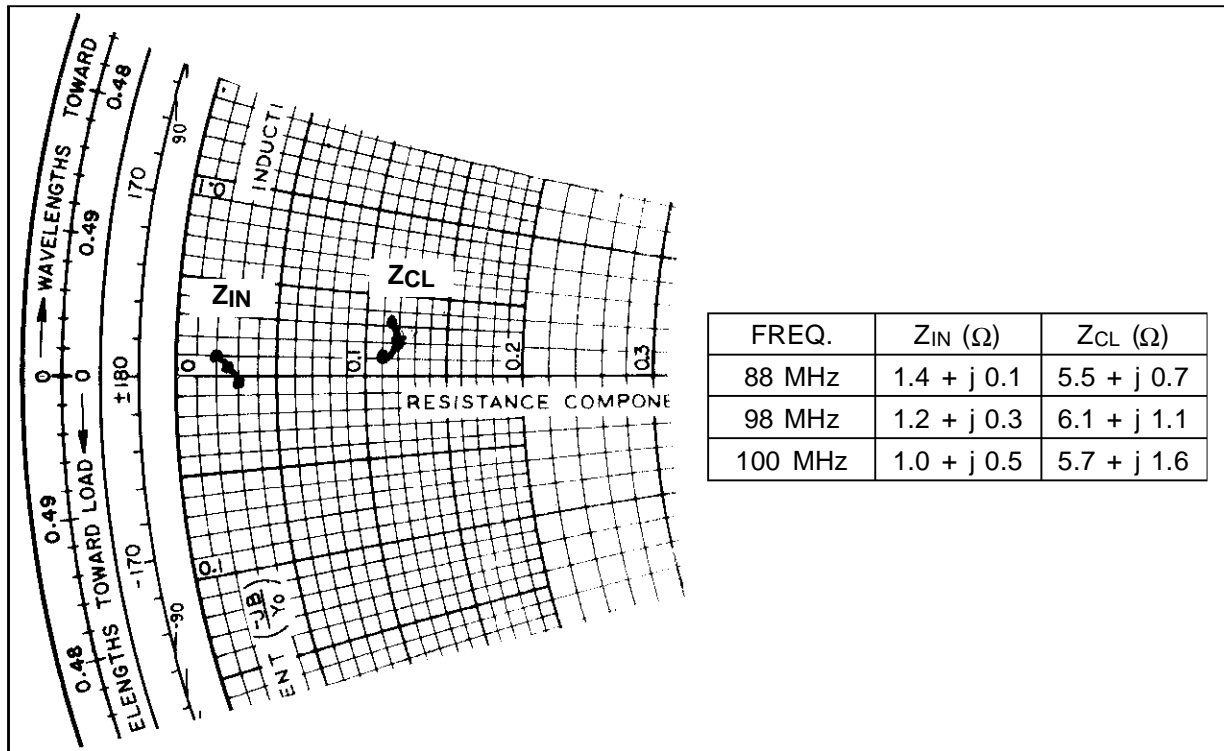
**POWER OUTPUT vs POWER INPUT**



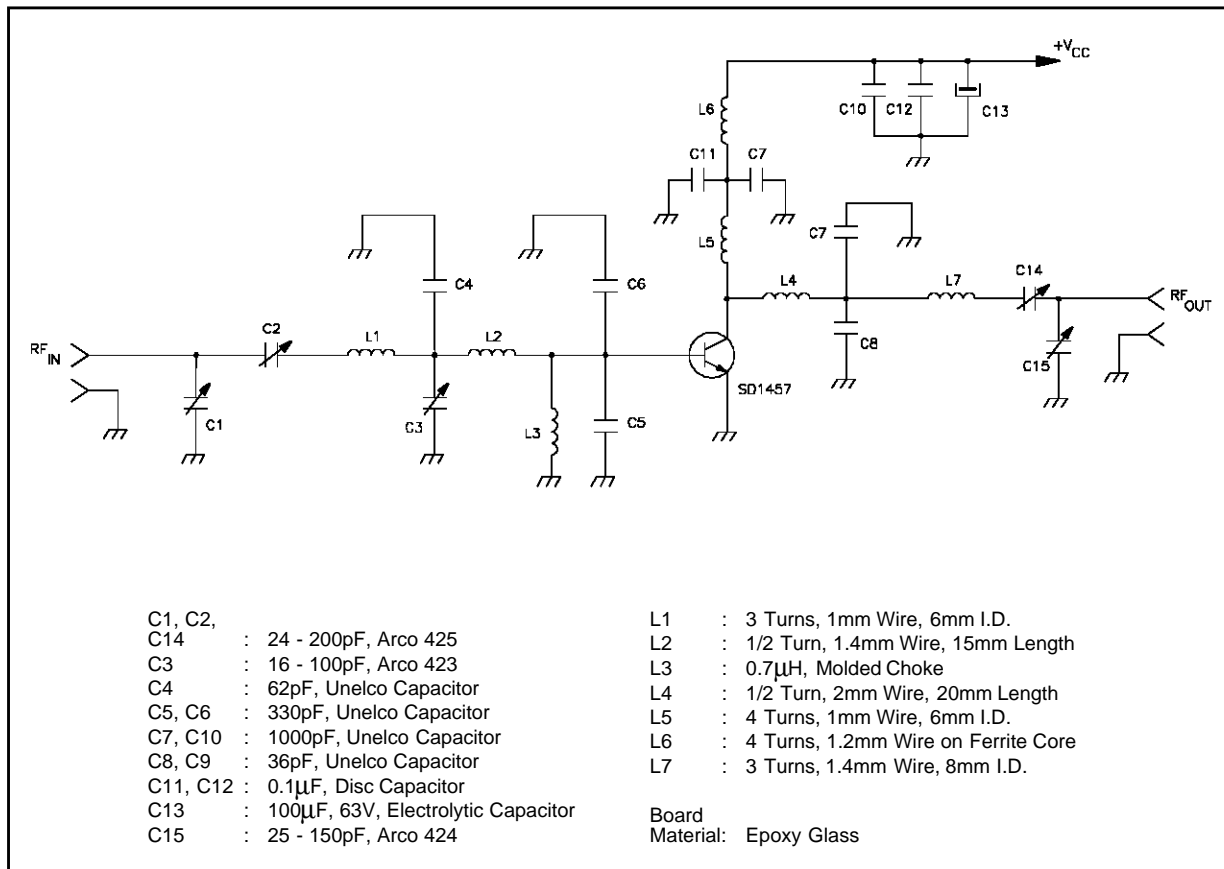
**THERMAL RESISTANCE vs CASE TEMPERATURE**



## IMPEDANCE DATA

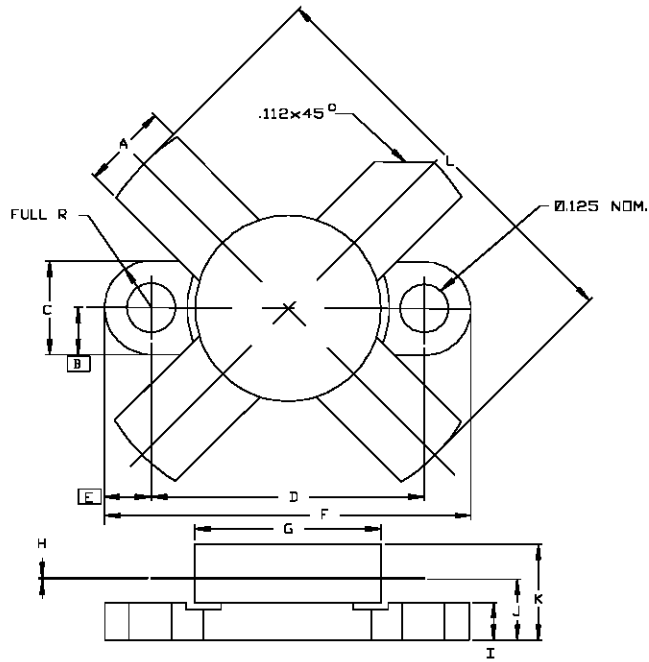


## TEST CIRCUIT



PACKAGE MECHANICAL DATA

Ref.: Dwg. No.12-0174



| SGS-THOMSON MICROELECTRONICS |                      |                      | CONT'D |                      |                      |
|------------------------------|----------------------|----------------------|--------|----------------------|----------------------|
|                              | MINIMUM<br>Inches/mm | MAXIMUM<br>Inches/mm |        | MINIMUM<br>Inches/mm | MAXIMUM<br>Inches/mm |
| A                            | .220/5,59            | .230/5,84            | K      |                      | .280/7,11            |
| B                            | .125/3,18            |                      | L      |                      | 1.050/26,67          |
| C                            | .245/6,22            | .255/6,48            |        |                      |                      |
| D                            | .720/18,28           | .730/18,54           |        |                      |                      |
| E                            | .125/3,18            |                      |        |                      |                      |
| F                            | .970/24,64           | .980/24,89           |        |                      |                      |
| G                            | .495/12,57           | .505/12,83           |        |                      |                      |
| H                            | .003/0,08            | .007/0,18            |        |                      |                      |
| I                            | .090/2,29            | .110/2,79            |        |                      |                      |
| J                            | .160/4,06            | .175/4,45            |        |                      |                      |

Information furnished is believed to be accurate and reliable. However, SGS-THOMSON Microelectronics assumes no responsibility for the consequences of use of such information nor for any infringement of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of SGS-THOMSON Microelectronics. Specifications mentioned in this publication are subject to change without notice. This publication supersedes and replaces all information previously supplied. SGS-THOMSON Microelectronics products are not authorized for use as critical components in life support devices or systems without express written approval of SGS-THOMSON Microelectronics.

© 1994 SGS-THOMSON Microelectronics - All Rights Reserved

SGS-THOMSON Microelectronics GROUP OF COMPANIES

Australia - Brazil - France - Germany - Hong Kong - Italy - Japan - Korea - Malaysia - Malta - Morocco - The Netherlands -  
Singapore - Spain - Sweden - Switzerland - Taiwan - Thailand - United Kingdom - U.S.A