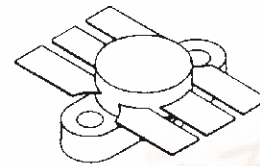


**SD1434**

## RF & MICROWAVE TRANSISTORS UHF MOBILE APPLICATIONS

- 470 MHz
- 12.5 VOLTS
- COMMON EMITTER
- $P_{OUT} = 45 \text{ W MIN. WITH } 5.0 \text{ dB GAIN}$

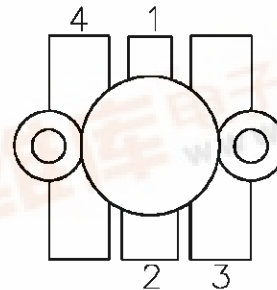


**.500 6LFL (M111)**  
epoxy sealed

**ORDER CODE**  
SD1434

**BRANDING**  
SD1434

### PIN CONNECTION



- |              |            |
|--------------|------------|
| 1. Collector | 3. Emitter |
| 2. Base      | 4. Emitter |

### DESCRIPTION

The SD1434 is a 12.5 V Class C epitaxial silicon NPN planar transistor designed primarily for UHF communications. This device utilizes diffused emitter resistors to achieve infinite VSWR under operating conditions.

### 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 | 16           | V                  |
| $V_{CES}$  | Collector-Emitter Voltage | 36           | V                  |
| $V_{EBO}$  | Emitter-Base Voltage      | 4.0          | V                  |
| $I_C$      | Device Current            | 10.0         | A                  |
| $P_{DISS}$ | Power Dissipation         | 175          | W                  |
| $T_J$      | Junction Temperature      | +200         | $^{\circ}\text{C}$ |
| $T_{STG}$  | Storage Temperature       | - 65 to +150 | $^{\circ}\text{C}$ |

### THERMAL DATA

|                   |                                  |     |                      |
|-------------------|----------------------------------|-----|----------------------|
| $R_{\theta(j-c)}$ | Junction-Case Thermal Resistance | 1.0 | $^{\circ}\text{C/W}$ |
|-------------------|----------------------------------|-----|----------------------|



SD1434

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

STATIC

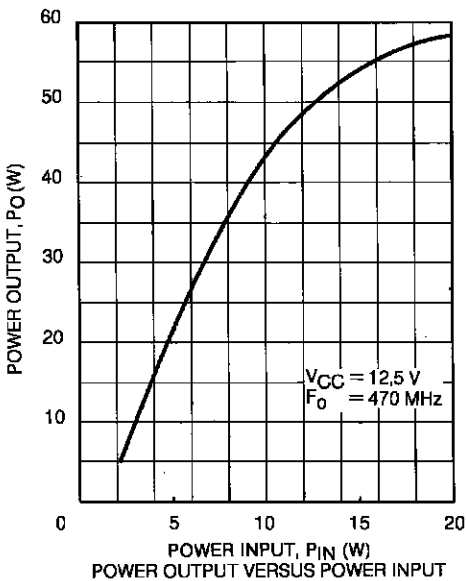
| Symbol            | Test Conditions       |                      | Value |      |      | Unit |
|-------------------|-----------------------|----------------------|-------|------|------|------|
|                   |                       |                      | Min.  | Typ. | Max. |      |
| BV <sub>CBO</sub> | I <sub>C</sub> = 5mA  | I <sub>E</sub> = 0mA | 36    | —    | —    | V    |
| BV <sub>CES</sub> | I <sub>C</sub> = 20mA | V <sub>BE</sub> = 0V | 36    | —    | —    | V    |
| BV <sub>CEO</sub> | I <sub>C</sub> = 50mA | I <sub>B</sub> = 0mA | 16    | —    | —    | V    |
| BV <sub>EBO</sub> | I <sub>E</sub> = 5mA  | I <sub>C</sub> = 0mA | 4.0   | —    | —    | V    |
| I <sub>CES</sub>  | V <sub>CE</sub> = 22V | I <sub>E</sub> = 0mA | —     | —    | 5    | mA   |
| I <sub>CBO</sub>  | V <sub>CB</sub> = 15V | I <sub>E</sub> = 0mA | —     | —    | 5    | mA   |
| h <sub>FE</sub>   | V <sub>CE</sub> = 5V  | I <sub>C</sub> = 1A  | 20    | —    | 200  | —    |

DYNAMIC

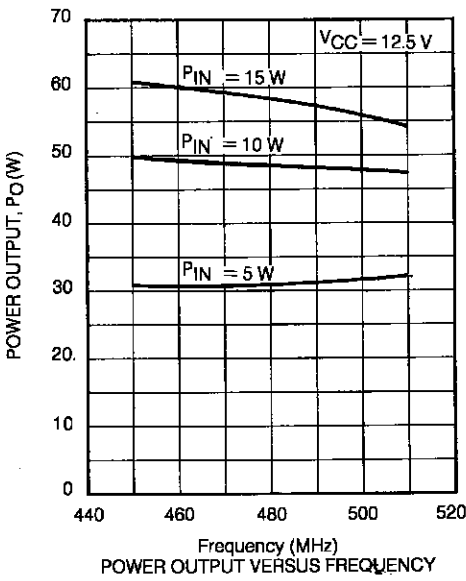
| Symbol           | Test Conditions |                          |                          | Value |      |      | Unit |
|------------------|-----------------|--------------------------|--------------------------|-------|------|------|------|
|                  |                 |                          |                          | Min.  | Typ. | Max. |      |
| P <sub>OUT</sub> | f = 470 MHz     | P <sub>IN</sub> = 14 W   | V <sub>CE</sub> = 12.5 V | 45    | —    | —    | W    |
| G <sub>P</sub>   | f = 470 MHz     | P <sub>IN</sub> = 14 W   | V <sub>CE</sub> = 12.5 V | 5     | —    | —    | dB   |
| C <sub>OB</sub>  | f = 1 MHz       | V <sub>CB</sub> = 12.5 V |                          | —     | 130  | —    | pF   |

TYPICAL PERFORMANCE

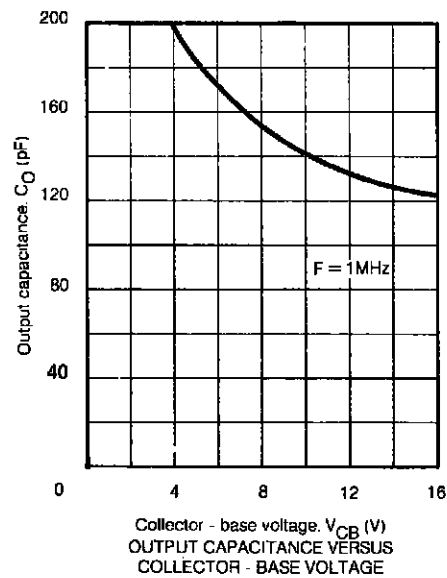
POWER OUTPUT vs POWER INPUT



POWER OUTPUT vs FREQUENCY

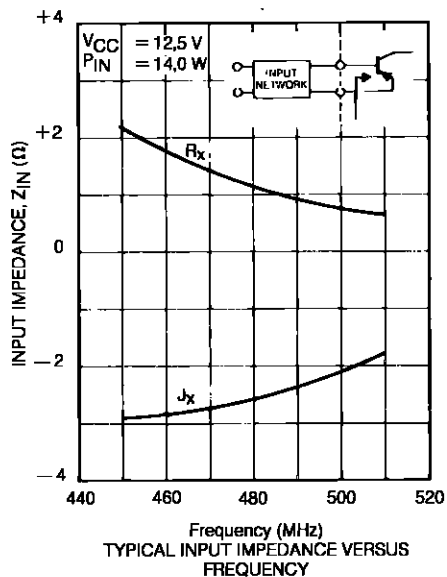
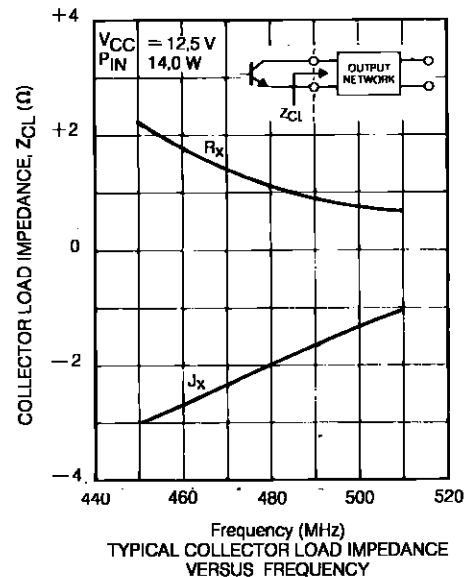


## TYPICAL PERFORMANCE (cont'd)

OUTPUT CAPACITANCE vs COLLECTOR  
BASE VOLTAGE

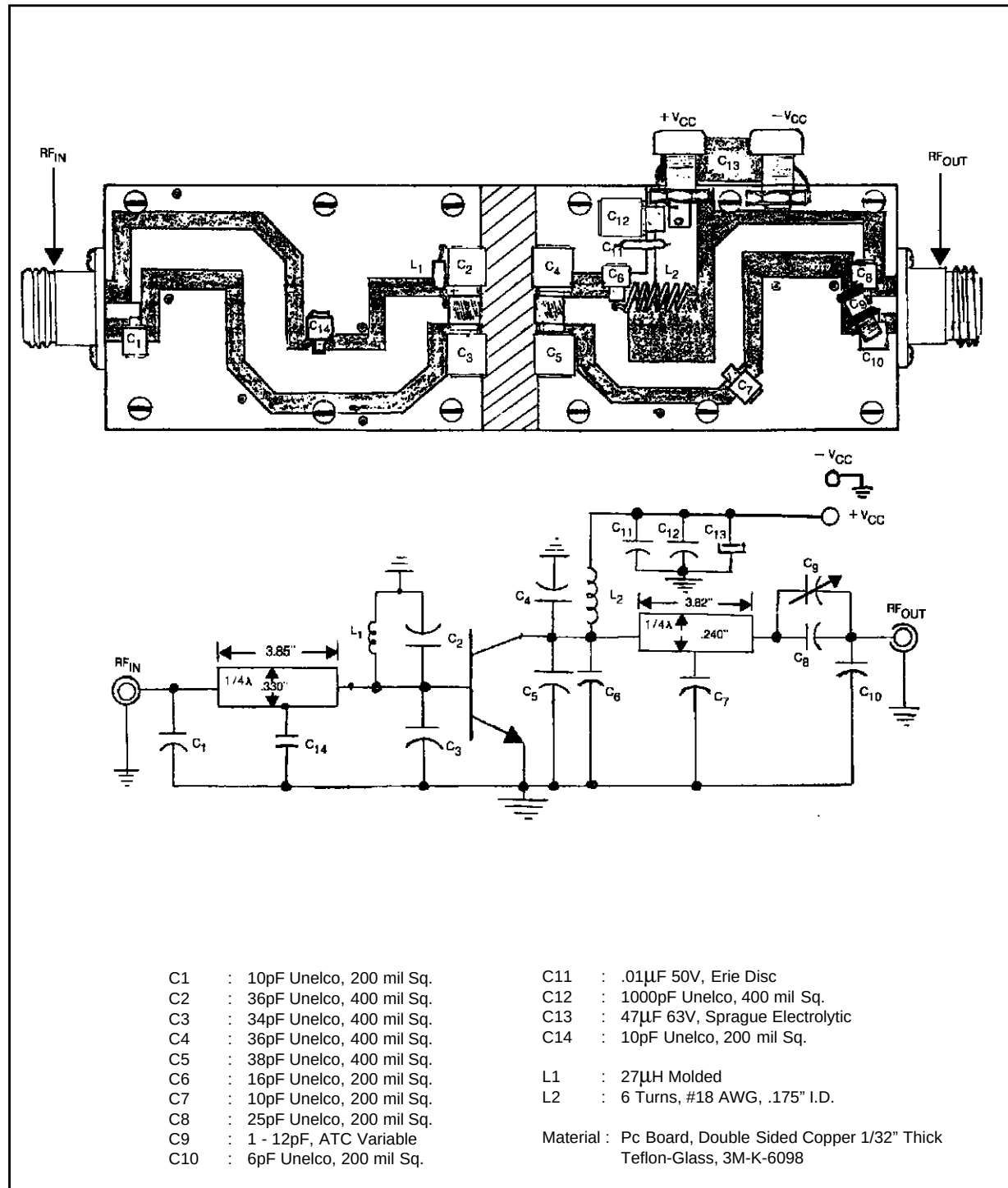
## IMPEDANCE DATA

## TYPICAL INPUT IMPEDANCE

TYPICAL COLLECTOR LOAD  
IMPEDANCE

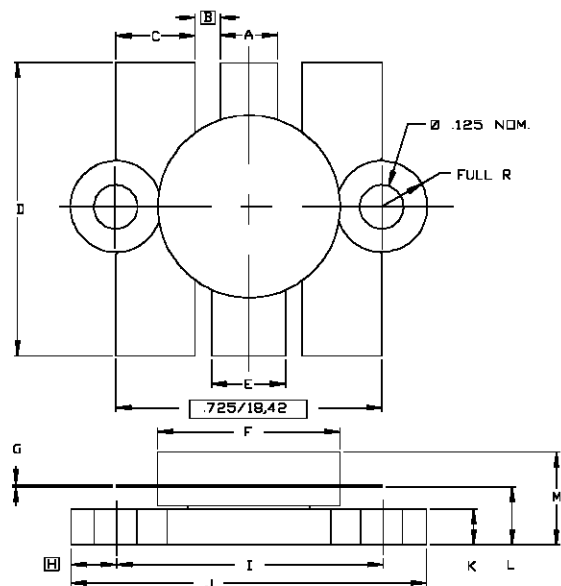
## SD1434

### TEST CIRCUIT



## PACKAGE MECHANICAL DATA

Ref.: Dwg. No.12-0111



| SGS-THOMSON MICROELECTRONICS |                      |                      | CONT'D |                      |                      |
|------------------------------|----------------------|----------------------|--------|----------------------|----------------------|
|                              | MINIMUM<br>Inches/mm | MAXIMUM<br>Inches/mm |        | MINIMUM<br>Inches/mm | MAXIMUM<br>Inches/mm |
| A                            | .150/3,43            | .160/4,06            | K      | .095/2,41            | .105/2,67            |
| B                            | .045/1,14            |                      | L      | .150/3,81            | .170/4,32            |
| C                            | .210/5,33            | .220/5,59            | M      |                      | .280/7,11            |
| D                            | .835/21,21           | .865/21,97           |        |                      |                      |
| E                            | .200/5,08            | .210/5,33            |        |                      |                      |
| F                            | .490/12,45           | .510/12,95           |        |                      |                      |
| G                            | .003/0,08            | .007/0,18            |        |                      |                      |
| H                            | .125/3,18            |                      |        |                      |                      |
| I                            | .720/18,29           | .730/18,54           |        |                      |                      |
| J                            | .970/24,64           | .980/24,89           |        |                      |                      |

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 results 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