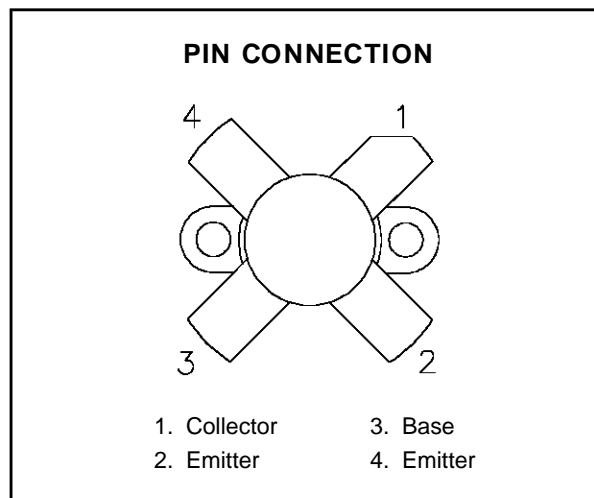
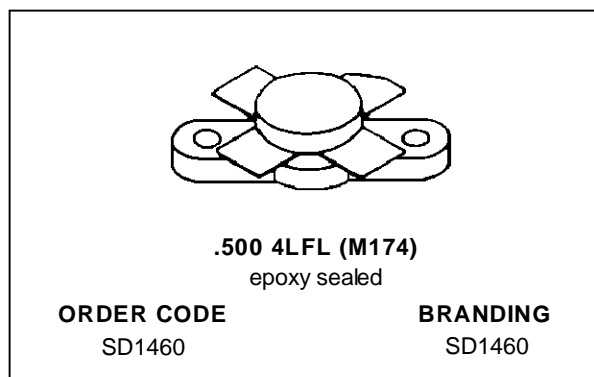


**RF & MICROWAVE TRANSISTORS  
FM BROADCAST APPLICATIONS**

- 108 MHz
- 28 VOLTS
- EFFICIENCY 75%
- COMMON EMITTER
- GOLD METALLIZATION
- P<sub>OUT</sub> = 150 W MIN. WITH 9.2 dB GAIN


**DESCRIPTION**

The SD1143 is a 28 V gold metallized epitaxial silicon NPN planar transistor designed for VHF FM 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    | 60           | V    |
| V <sub>CEO</sub>  | Collector-Emitter Voltage | 25           | 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            | 16           | A    |
| P <sub>DISS</sub> | Power Dissipation         | 230          | 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 | 0.75 | °C/W |
|----------------------|----------------------------------|------|------|

# SD1460

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

### STATIC

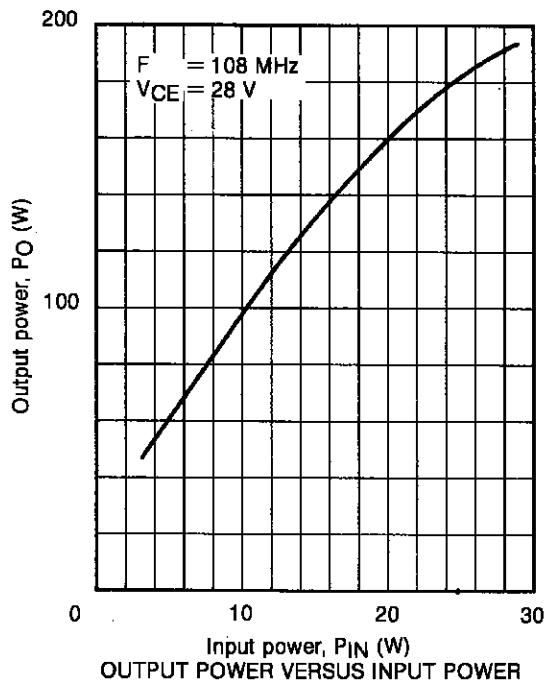
| Symbol            | Test Conditions        |                       | Value |      |      | Unit |
|-------------------|------------------------|-----------------------|-------|------|------|------|
|                   |                        |                       | Min.  | Typ. | Max. |      |
| BV <sub>CBO</sub> | I <sub>C</sub> = 100mA | I <sub>E</sub> = 0mA  | 60    | —    | —    | V    |
| BV <sub>CER</sub> | I <sub>C</sub> = 100mA | R <sub>BE</sub> = 10Ω | 55    | —    | —    | V    |
| BV <sub>CEO</sub> | I <sub>C</sub> = 100mA | I <sub>B</sub> = 0mA  | 25    | —    | —    | V    |
| BV <sub>EBO</sub> | I <sub>E</sub> = 20mA  | 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

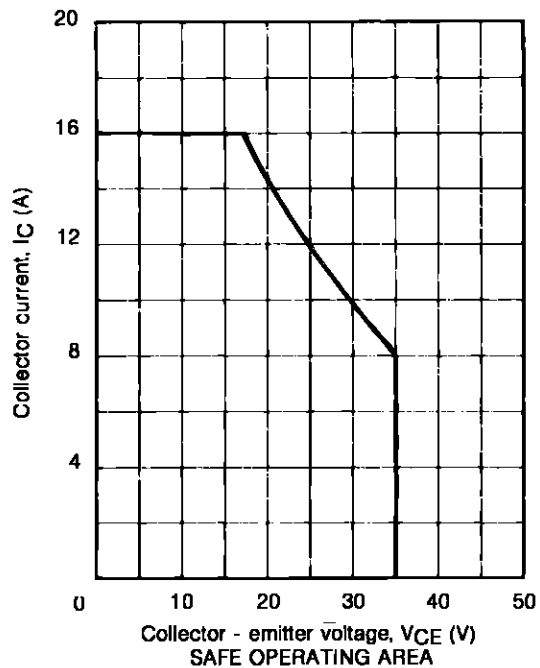
| Symbol           | Test Conditions |                        |                        | Value |      |      | Unit |
|------------------|-----------------|------------------------|------------------------|-------|------|------|------|
|                  |                 |                        |                        | Min.  | Typ. | Max. |      |
| P <sub>OUT</sub> | f = 108 MHz     | P <sub>IN</sub> = 18 W | V <sub>CE</sub> = 28 V | 150   | —    | —    | W    |
| G <sub>P</sub>   | f = 108 MHz     | P <sub>IN</sub> = 18 W | V <sub>CE</sub> = 28 V | 9.2   | —    | —    | dB   |
| η <sub>c</sub>   | f = 108 MHz     | P <sub>IN</sub> = 18 W | V <sub>CE</sub> = 28 V | 70    | —    | —    | %    |
| C <sub>OB</sub>  | f = 1 MHz       | V <sub>CB</sub> = 28 V |                        | —     | —    | 150  | pF   |

### TYPICAL PERFORMANCE

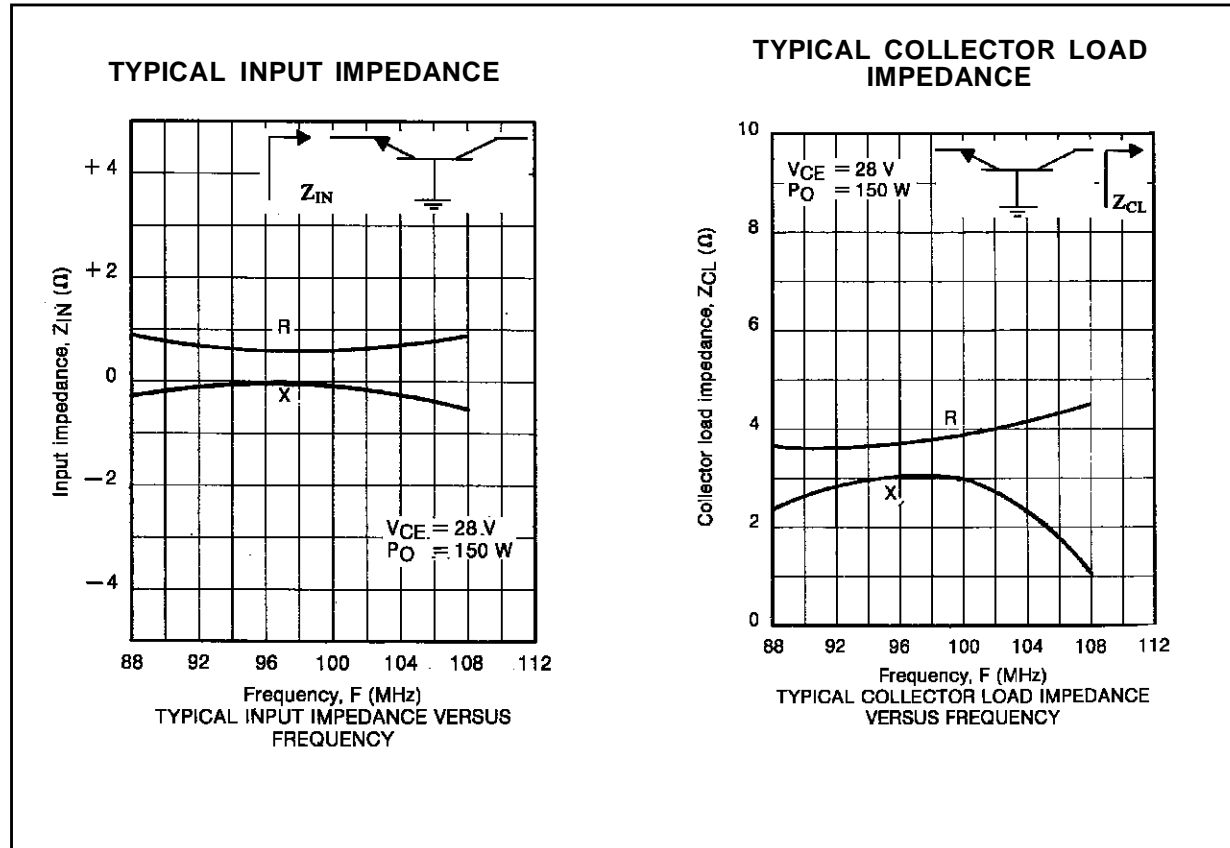
POWER OUTPUT vs POWER INPUT



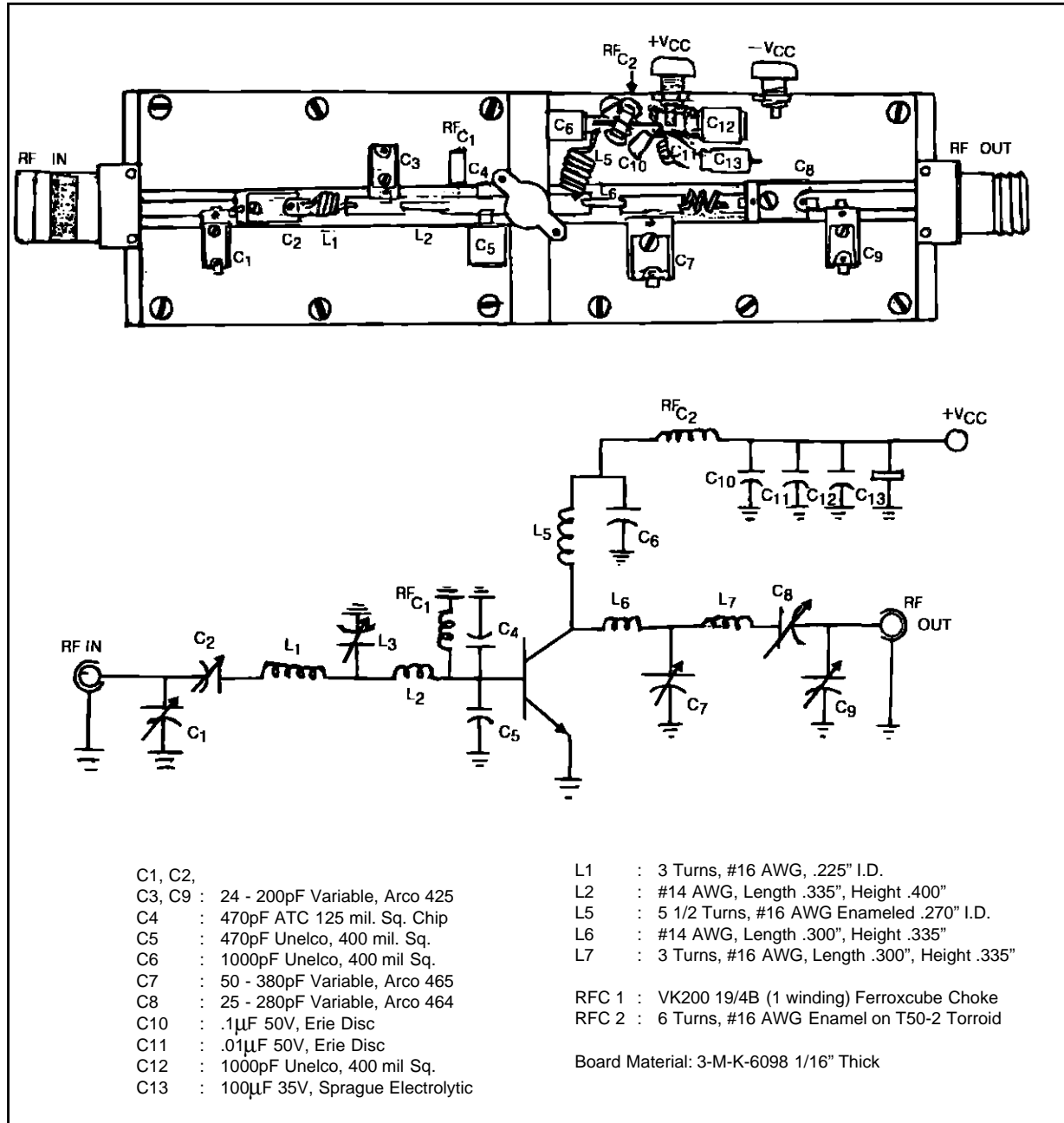
SAFE OPERATING AREA



## IMPEDANCE DATA

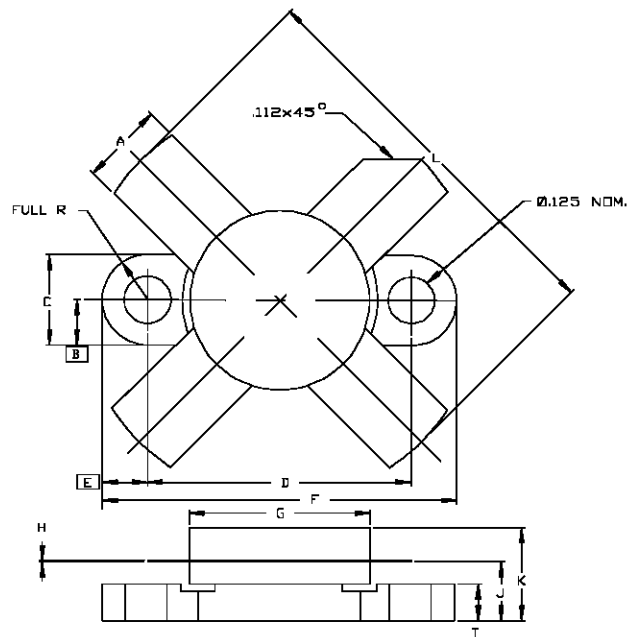


## TEST CIRCUIT



## 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            |        |                      |                      |

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