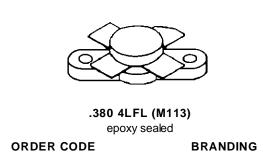


# SD1275-01

# RF & MICROWAVE TRANSISTORS VHF MOBILE APPLICATIONS

- 160 MHz
- 13.6 VOLTS
- COMMON EMITTER
- Pout = 40 W MIN. WITH 9.0 dB GAIN



SD1275-01

SD1275-1

# PIN CONNECTION 1. Collector 3. Base 2. Emitter 4. Emitter

#### **DESCRIPTION**

The SD1275-01 is a 13.6 V Class C epitaxial silicon NPN planar transistor designed primarily for VHF communications. The SD1275-01 utilizes an emitter ballasted die geometry to withstand severe load mismatch conditions.

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

| Symbol            | Parameter                            | Value | Unit |
|-------------------|--------------------------------------|-------|------|
| V <sub>CBO</sub>  | Collector-Base Voltage               | 36    | V    |
| V <sub>CEO</sub>  | Collector-Emitter Voltage            | 16    | V    |
| V <sub>CES</sub>  | Collector-Emitter Voltage            | 36    | V    |
| VEBO              | Emitter-Base Voltage                 | 4.0   | V    |
| Ic                | Device Current                       | 8.0   | А    |
| P <sub>DISS</sub> | P <sub>DISS</sub> Power Dissipation  |       | W    |
| TJ                | T <sub>J</sub> Junction Temperature  |       | °C   |
| T <sub>STG</sub>  | T <sub>STG</sub> Storage Temperature |       | °C   |

#### THERMAL DATA

| R <sub>TH(j-c)</sub> Junction-Case Thermal Resistance | 1.2 | °C/W |
|---|-----|------|
|---|-----|------|

1/4 June 1993

# SD1275-01

## **ELECTRICAL SPECIFICATIONS** $(T_{case} = 25^{\circ}C)$

#### **STATIC**

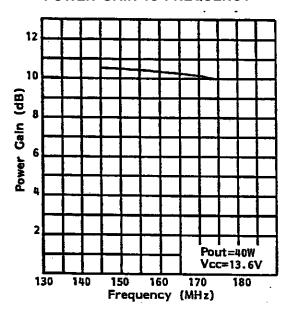
| Symbol                 | Test Conditions       | Value                  |  |      | Unit |      |    |
|------------------------|-----------------------|------------------------|--|------|------|------|----|
| Symbol Test Conditions |                       | rest conditions        |  | Min. | Тур. | Max. |    |
| BVces                  | I <sub>C</sub> = 15mA | $V_{BE} = 0mA$         |  | 36   |      | _    | V  |
| BVCEO                  | I <sub>C</sub> = 50mA | $I_B = 0mA$            |  | 16   | _    | _    | V  |
| BV <sub>EBO</sub>      | I <sub>E</sub> = 5mA  | $I_C = 0mA$            |  | 4.0  | _    | _    | V  |
| I <sub>CBO</sub>       | $V_{CB} = 15V$        | $I_E = 0mA$            |  | _    | _    | 5    | mA |
| h <sub>FE</sub>        | V <sub>CE</sub> = 5V  | I <sub>C</sub> = 250mA |  | 20   |      | _    | _  |

#### **DYNAMIC**

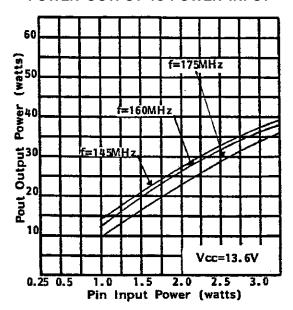
| Symbol         | Symbol Test Conditions |                        | Value                     |    |      | Unit |       |
|----------------|------------------------|------------------------|---------------------------|----|------|------|-------|
| Symbol         |                        | rest Conditions        |                           |    | Тур. | Max. | Oiiit |
| Pout           | f = 160 MHz            | $P_{IN} = 5.0 W$       | $V_{CE} = 13.6 \text{ V}$ | 40 | _    |      | W     |
| G <sub>P</sub> | f = 160 MHz            | $P_{IN} = 5.0 W$       | $V_{CE} = 13.6 \text{ V}$ | 9  | _    |      | dB    |
| Сов            | f = 1 MHz              | V <sub>CB</sub> = 15 V |                           | _  | 95   | _    | pF    |

#### TYPICAL PERFORMANCE

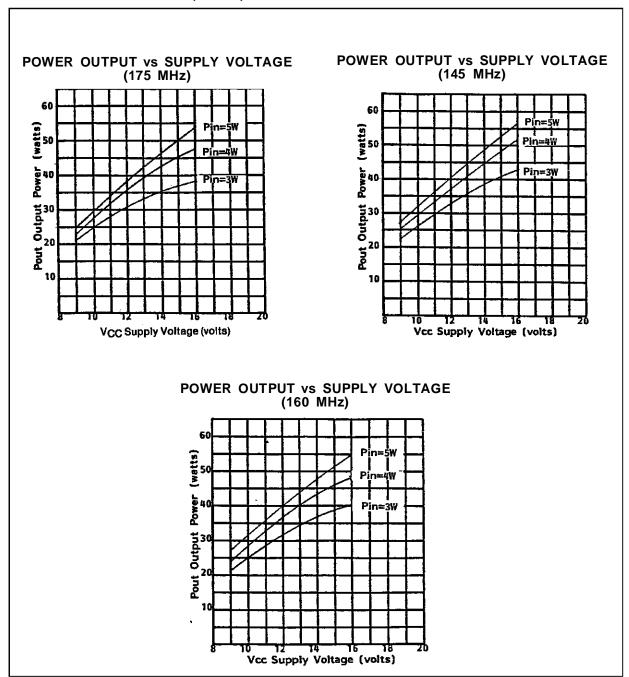
#### **POWER GAIN vs FREQUENCY**



#### **POWER OUTPUT vs POWER INPUT**



## TYPICAL PERFORMANCE (cont'd)

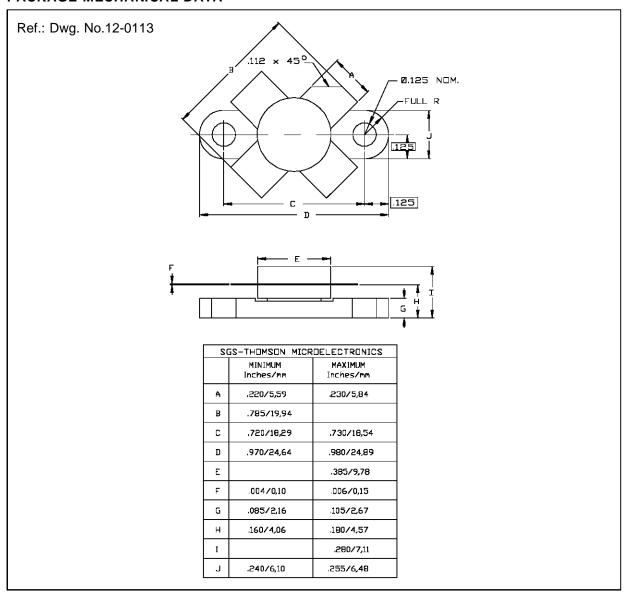


#### **IMPEDANCE DATA**

| FREQ.   | Z <sub>IN</sub> (Ω) | Z <sub>CL</sub> (Ω) |
|---------|---------------------|---------------------|
| 160 MHz | 1.0 + j 0.4         | 2.3 + j 0.1         |

 $P_{IN} = 3.0 \text{ W}$  $V_{CE} = 12.5 \text{ V}$ 

#### PACKAGE MECHANICAL DATA



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