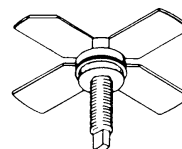


## RF & MICROWAVE TRANSISTORS 800-900 MHz BASE STATION APPLICATIONS

- 860 - 960 MHz
- 24 VOLTS
- COMMON EMITTER
- GOLD METALLIZATION
- CLASS A LINEAR OPERATION
- $P_{OUT} = 2.1 \text{ W MIN. WITH } 9.0 \text{ dB GAIN}$



**.280 4L STUD (M122)**

epoxy sealed

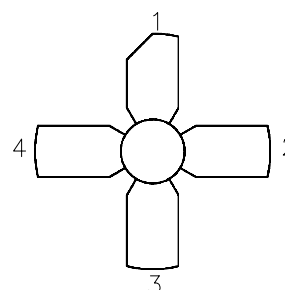
**ORDER CODE**

SD1420

**BRANDING**

SD1420

### PIN CONNECTION



1. Collector

3. Base

2. Emitter

4. Emitter

### DESCRIPTION

The SD1420 is a gold metallized epitaxial silicon NPN planar transistor designed for high linearity Class A operation Cellular Base Station applications. The SD1420 is also available in a studless package as the SD1420-01.

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

| Symbol     | Parameter                 | Value        | Unit               |
|------------|---------------------------|--------------|--------------------|
| $V_{CBO}$  | Collector-Base Voltage    | 40           | V                  |
| $V_{CEO}$  | Collector-Emitter Voltage | 28           | V                  |
| $V_{EBO}$  | Emitter-Base Voltage      | 3.5          | V                  |
| $I_C$      | Device Current            | .250         | A                  |
| $P_{DISS}$ | Power Dissipation         | 8.75         | W                  |
| $T_J$      | Junction Temperature      | +200         | $^{\circ}\text{C}$ |
| $T_{STG}$  | Storage Temperature       | - 55 to +150 | $^{\circ}\text{C}$ |

### THERMAL DATA

|               |                                  |    |                      |
|---------------|----------------------------------|----|----------------------|
| $R_{TH(j-c)}$ | Junction-Case Thermal Resistance | 20 | $^{\circ}\text{C/W}$ |
|---------------|----------------------------------|----|----------------------|

## SD1420

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

#### STATIC

| Symbol            | Test Conditions                |                                 | Value |      |      | Unit |
|-------------------|--------------------------------|---------------------------------|-------|------|------|------|
|                   |                                |                                 | Min.  | Typ. | Max. |      |
| $BV_{\text{CBO}}$ | $I_{\text{C}} = 1 \text{ mA}$  | $I_{\text{E}} = 0 \text{ mA}$   | 40    | —    | —    | V    |
| $BV_{\text{CEO}}$ | $I_{\text{C}} = 1 \text{ mA}$  | $I_{\text{B}} = 0 \text{ mA}$   | 28    | —    | —    | V    |
| $BV_{\text{EBO}}$ | $I_{\text{E}} = 1 \text{ mA}$  | $I_{\text{C}} = 0 \text{ mA}$   | 3.5   | —    | —    | V    |
| $I_{\text{CBO}}$  | $V_{\text{CB}} = 24 \text{ V}$ | $I_{\text{E}} = 0 \text{ mA}$   | —     | —    | .5   | mA   |
| $h_{\text{FE}}$   | $V_{\text{CE}} = 5 \text{ V}$  | $I_{\text{C}} = 100 \text{ mA}$ | 20    | —    | 120  | —    |

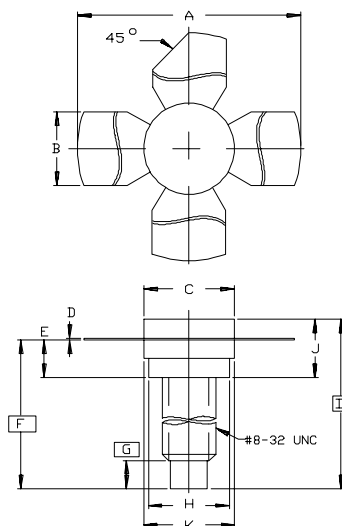
#### DYNAMIC

| Symbol           | Test Conditions       |                                |                                  | Value |      |      | Unit |
|------------------|-----------------------|--------------------------------|----------------------------------|-------|------|------|------|
|                  |                       |                                |                                  | Min.  | Typ. | Max. |      |
| $P_{\text{OUT}}$ | $f = 960 \text{ MHz}$ | $V_{\text{CE}} = 24 \text{ V}$ | $I_{\text{CQ}} = 200 \text{ mA}$ | 2.1   | —    | —    | W    |
| $P_{\text{G}}$   | $f = 960 \text{ MHz}$ | $V_{\text{CE}} = 24 \text{ V}$ | $I_{\text{CQ}} = 200 \text{ mA}$ | 8.9   | 9.0  | —    | dB   |
| $C_{\text{OB}}$  | $f = 1 \text{ MHz}$   | $V_{\text{CB}} = 28 \text{ V}$ |                                  | —     | —    | 5    | pF   |

Note: \* $P_{\text{IN}} = 0.27 \text{ W}$

## PACKAGE MECHANICAL DATA

Ref.: Dwg. No.12-0122 rev. B



| SGS-THOMSON MICROELECTRONICS |                      |                      |
|------------------------------|----------------------|----------------------|
|                              | MINIMUM<br>Inches/mm | MAXIMUM<br>Inches/mm |
| A                            | 1.010/25,65          | 1.055/26,80          |
| B                            | .220/5,59            | .230/5,84            |
| C                            | .270/6,86            | .285/7,24            |
| D                            | .003/0,08            | .007/0,18            |
| E                            | .117/2,97            | .137/3,48            |
| F                            | .572/14,53           |                      |
| G                            | .130/3,30            |                      |
| H                            | .245/6,22            | .255/6,48            |
| I                            | .640/16,26           |                      |
| J                            | .175/4,45            | .217/5,51            |
| K                            | .275/6,99            | .285/7,24            |

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.