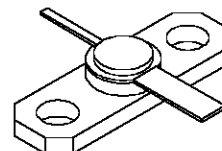


## RF & MICROWAVE TRANSISTORS GENERAL PURPOSE LINEAR APPLICATIONS

- 2.0 GHz
- 20 VOLTS
- CLASS A
- OVERLAY GEOMETRY
- GOLD METALLIZED DIE
- COMMON EMITTER CONFIGURATION
- $P_{OUT} = 2.5W$  MIN. WITH 6.0 dB GAIN



**.230 2LFL (M151)**  
hermetically sealed

**ORDER CODE**

SD1855

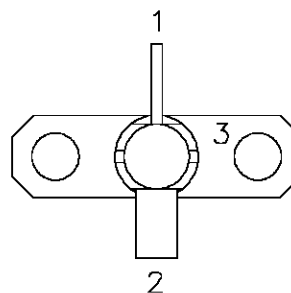
**BRANDING**

TCC20L25

### DESCRIPTION

The SD1855 is a silicon NPN planar transistor designed for high gain linear performance at 2.0 GHz. This part uses gold metallized die and polysilicon site ballasting to achieve high reliability and ruggedness. The SD1855 can be used for applications such as telecommunications, radar, ECM, space and other commercial and military systems.

### PIN CONNECTION



1. Collector

2. Base

3. Emitter

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

| Symbol     | Parameter                 | Value        | Unit        |
|------------|---------------------------|--------------|-------------|
| $V_{CBO}$  | Collector-Base Voltage    | 40           | V           |
| $V_{CES}$  | Collector-Emitter Voltage | 25           | V           |
| $V_{EBO}$  | Emitter-Base Voltage      | 3.5          | V           |
| $I_C$      | Device Current            | 0.5          | A           |
| $P_{DISS}$ | Power Dissipation         | 20.6         | W           |
| $T_J$      | Junction Temperature      | +200         | $^{\circ}C$ |
| $T_{STG}$  | Storage Temperature       | - 65 to +150 | $^{\circ}C$ |

### THERMAL DATA

|               |                                  |     |               |
|---------------|----------------------------------|-----|---------------|
| $R_{TH(j-c)}$ | Junction-Case Thermal Resistance | 8.5 | $^{\circ}C/W$ |
|---------------|----------------------------------|-----|---------------|

## SD1855 (TCC20L25)

---

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

#### STATIC

| Symbol            | Test Conditions             |                               | Value |      |      | Unit |
|-------------------|-----------------------------|-------------------------------|-------|------|------|------|
|                   |                             |                               | Min.  | Typ. | Max. |      |
| $BV_{\text{CBO}}$ | $I_{\text{C}} = 2\text{mA}$ | $I_{\text{E}} = 0\text{mA}$   | 40    | —    | —    | V    |
| $BV_{\text{CEO}}$ | $I_{\text{C}} = 5\text{mA}$ | $I_{\text{B}} = 0\text{mA}$   | 25    | —    | —    | V    |
| $BV_{\text{EBO}}$ | $I_{\text{E}} = 2\text{mA}$ | $I_{\text{C}} = 0\text{mA}$   | 3.5   | —    | —    | V    |
| $h_{\text{FE}}$   | $V_{\text{CE}} = 5\text{V}$ | $I_{\text{C}} = 400\text{mA}$ | 15    | —    | 150  | —    |

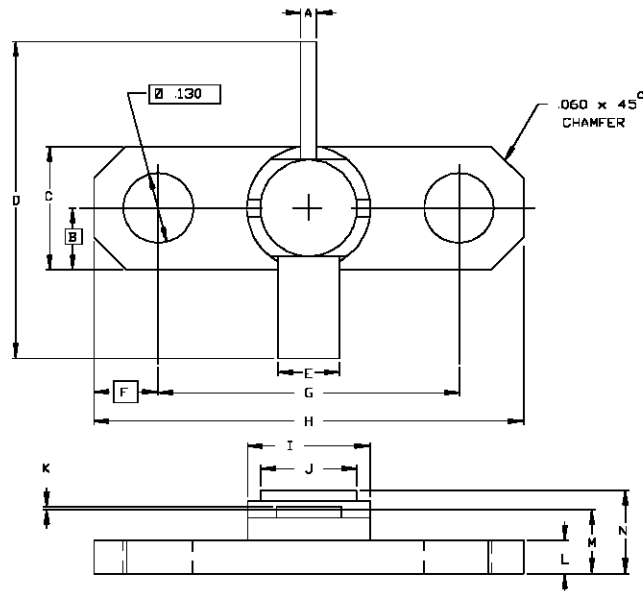
#### DYNAMIC

| Symbol             | Test Conditions      |                               |                                 | Value |      |      | Unit |
|--------------------|----------------------|-------------------------------|---------------------------------|-------|------|------|------|
|                    |                      |                               |                                 | Min.  | Typ. | Max. |      |
| $P_{\text{OUT}}^*$ | $f = 2.0\text{ GHz}$ | $V_{\text{CE}} = 20\text{ V}$ | $I_{\text{CQ}} = 440\text{ mA}$ | 2.5   | —    | —    | W    |
| $G_{\text{P}}^*$   | $f = 2.0\text{ GHz}$ | $V_{\text{CE}} = 20\text{ V}$ | $I_{\text{CQ}} = 440\text{ mA}$ | 6.0   | —    | —    | dB   |

Note: \* 1dB Compression

## PACKAGE MECHANICAL DATA

Ref.: Dwg. No.12-0151



| SGS-THOMSON MICROELECTRONICS |                      |                      | CONT'D |                      |                      |
|------------------------------|----------------------|----------------------|--------|----------------------|----------------------|
|                              | MINIMUM<br>Inches/mm | MAXIMUM<br>Inches/mm |        | MINIMUM<br>Inches/mm | MAXIMUM<br>Inches/mm |
| A                            | .025/0,64            | .035/0,89            | K      | .003/0,08            | .007/0,18            |
| B                            | .115/2,92            | NDM.                 | L      | .055/1,40            | .067/1,70            |
| C                            | .225/5,72            | .235/5,97            | M      | .120/3,18            | .140/3,56            |
| D                            | .710/18,03           | .750/19,05           | N      |                      | .170/4,32            |
| E                            | .110/2,79            | .120/3,05            |        |                      |                      |
| F                            | .120/3,05            | NDM.                 |        |                      |                      |
| G                            | .555/14,10           | .565/14,35           |        |                      |                      |
| H                            | .795/20,19           | .805/20,45           |        |                      |                      |
| I                            | .222/5,64            | .236/5,99            |        |                      |                      |
| J                            | .165/4,19            | .185/4,70            |        |                      |                      |

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