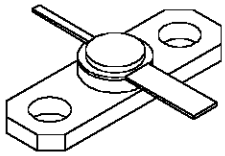
SGS-THOMSON MICROELECTRONICS

# SD1855 (TCC20L25)

## RF & MICROWAVE TRANSISTORS GENERAL PURPOSE LINEAR APPLICATIONS

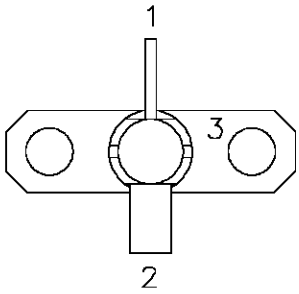
- 2.0 GHz
- 20 VOLTS
- CLASS A
- OVERLAY GEOMETRY
- GOLD METALLIZED DIE
- COMMON EMITTER CONFIGURATION
- $P_{OUT}$ = 2.5W MIN. WITH 6.0 dB GAIN



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

| ORDER CODE | BRANDING |
|---|---|
| SD1855 | TCC20L25 |

**PIN CONNECTION**




1. Collector
2. Base
3. Emitter

### 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 poly-silicon site ballasting to achieve high reliability and ruggedness. The SD1855 can be used for applications sucha as telecommunications, radar, ECM, space and other commercial and military systems.

### ABSOLUTE MAXIMUM RATINGS ($T_{case}$ = 25°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 | °C |
| $T_{STG}$ | Storage Temperature | – 65 to +150 | °C |

### THERMAL DATA

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

## ELECTRICAL SPECIFICATIONS ($T_{case}$ = 25°C)

STATIC

| Symbol | Test Conditions | | Value | | | Unit |
|---|---|---|---|---|---|---|
| | | | Min. | Typ. | Max. | |
| $BV_{CBO}$ | $I_C$ = 2mA | $I_E$ = 0mA | 40 | — | — | V |
| $BV_{CEO}$ | $I_C$ = 5mA | $I_B$ = 0mA | 25 | — | — | V |
| $BV_{EBO}$ | $I_E$ = 2mA | $I_C$ = 0mA | 3.5 | — | — | V |
| $h_{FE}$ | $V_{CE}$ = 5V | $I_C$ = 400mA | 15 | — | 150 | — |

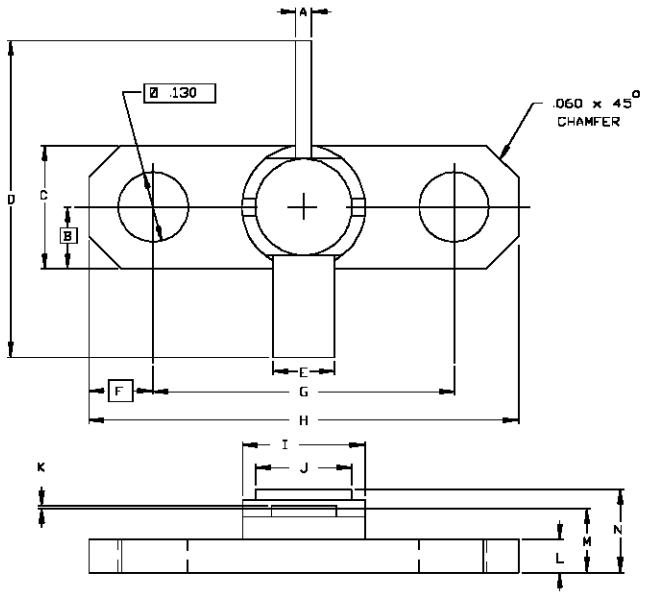
DYNAMIC

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

Note: * 1dB Compression

## PACKAGE MECHANICAL DATA

Ref.: Dwg. No.12-0151




| SGS-THOMSON MICROELECTRONICS | | | CONT'D | | |
|---|---|---|---|---|---|
| | MINIMUM Inches/mm | MAXIMUM Inches/mm | | MINIMUM Inches/mm | MAXIMUM Inches/mm |
| A | .025/0,64 | .035/0,89 | K | .003/0,08 | .007/0,18 |
| B | .115/2,92 NOM. | | 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 NOM. | | | | |
| 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 | | | |