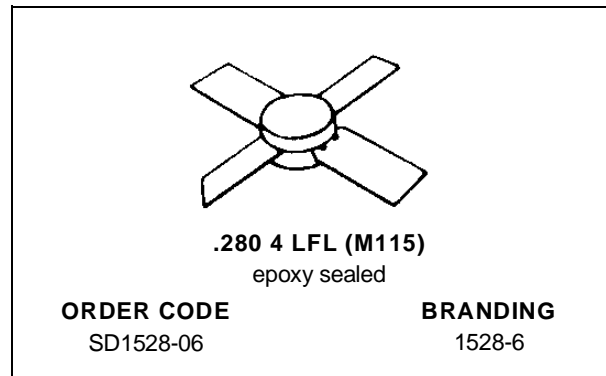
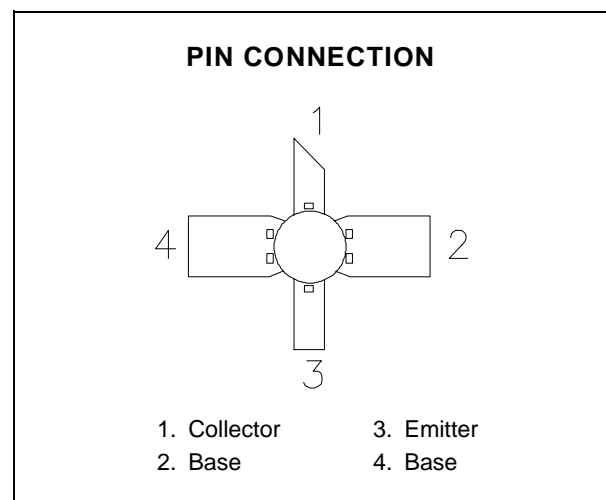


**RF & MICROWAVE TRANSISTORS  
AVIONICS APPLICATIONS**

- DESIGNED FOR HIGH POWER PULSED IFF, DME, TACAN APPLICATIONS
- 20 W (typ.) IFF 1030 - 1090 MHz
- 15 W (min.) DME 1025 - 1150 MHz
- 15 W (typ.) TACAN 960 - 1215 MHz
- REFRACTORY GOLD METALLIZATION
- EMITTER BALLASTED AND LOW THERMAL RESISTANCE FOR RELIABILITY AND RUGGEDNESS
- 20:1 LOAD VSWR CAPABILITY @ SPECIFIED OPERATING CONDITIONS
- INPUT MATCHED, COMMON BASE CONFIGURATION


**DESCRIPTION**

The SD1528-06 is a gold metallized epitaxial silicon NPN power transistor. The SD1528-06 is designed for applications requiring high peak power and low duty cycles such as IFF, DME and TACAN. The SD1528-06 is packaged in the .280" input matched stripline package, resulting in improved broadband performance and low thermal resistance.


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

| Symbol     | Parameter                 | Value        | Unit        |
|------------|---------------------------|--------------|-------------|
| $V_{CBO}$  | Collector-Base Voltage    | 65           | V           |
| $V_{CES}$  | Collector-Emitter Voltage | 65           | V           |
| $V_{EBO}$  | Emitter-Base Voltage      | 3.5          | V           |
| $I_C$      | Device Current            | 1.5          | A           |
| $P_{DISS}$ | Power Dissipation         | 87.5         | 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 | 2.0 | $^{\circ}C/W$ |
|---------------|----------------------------------|-----|---------------|

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

STATIC

| Symbol     | Test Conditions |               | Value |      |      | Unit |
|------------|-----------------|---------------|-------|------|------|------|
|            |                 |               | Min.  | Typ. | Max. |      |
| $BV_{CBO}$ | $I_C = 10mA$    | $I_E = 0mA$   | 65    | —    | —    | V    |
| $BV_{CES}$ | $I_C = 25mA$    | $V_{BE} = 0V$ | 65    | —    | —    | V    |
| $BV_{EBO}$ | $I_E = 1mA$     | $I_C = 0mA$   | 3.5   | —    | —    | V    |
| $I_{CES}$  | $V_{CE} = 50V$  | $I_E = 0mA$   | —     | —    | 2    | mA   |
| $h_{FE}$   | $V_{CE} = 5V$   | $I_C = .1A$   | 10    | —    | 200  | —    |

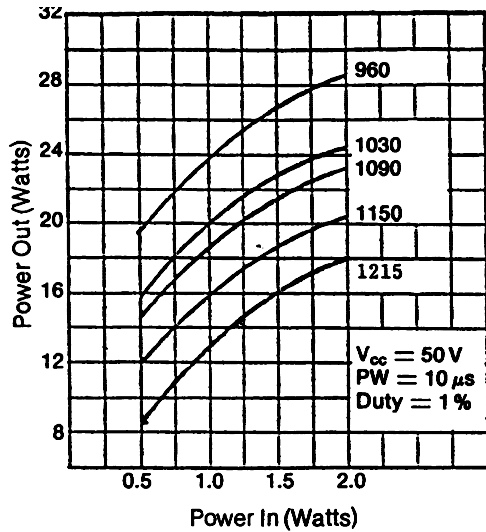
DYNAMIC

| Symbol    | Test Conditions      |                                  | Value |      |      | Unit |
|-----------|----------------------|----------------------------------|-------|------|------|------|
|           |                      |                                  | Min.  | Typ. | Max. |      |
| $P_{OUT}$ | $f = 1025 - 1150MHz$ | $P_{IN} = 1.5 W$ $V_{CE} = 50 V$ | 15    | —    | —    | W    |
| $G_P$     | $f = 1025 - 1150MHz$ | $P_{IN} = 1.5 W$ $V_{CE} = 50 V$ | 10    | —    | —    | dB   |
| $\eta_c$  | $f = 1025 - 1150MHz$ | $P_{IN} = 1.5 W$ $V_{CE} = 50 V$ | 30    | —    | —    | %    |

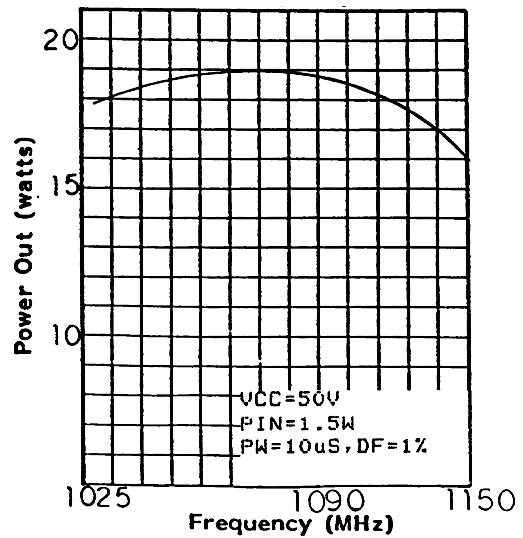
Note: Pulse Width = 10 $\mu$ sec, Duty Cycle = 1%

**TYPICAL PERFORMANCE**

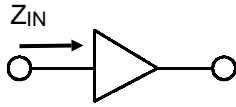
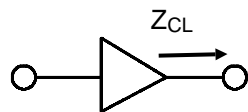
**POWER OUTPUT vs POWER INPUT**



**POWER OUTPUT vs FREQUENCY**



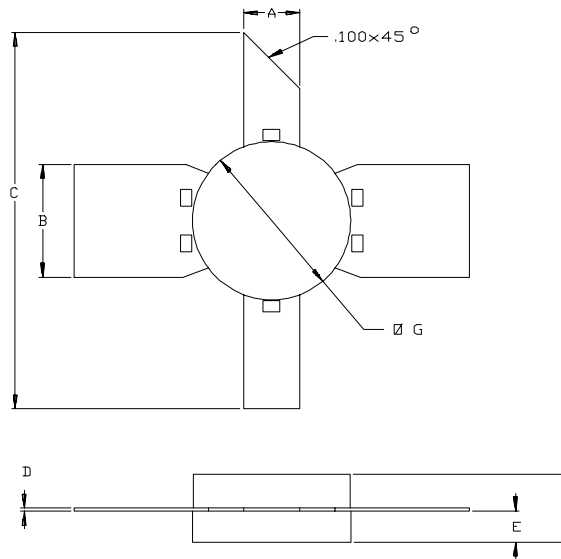
## IMPEDANCE DATA

TYPICAL INPUT  
IMPEDANCETYPICAL COLLECTOR  
LOAD IMPEDANCE

| FREQ.    | $Z_{IN}$ ( $\Omega$ ) | $Z_{CL}$ ( $\Omega$ ) |
|----------|-----------------------|-----------------------|
| 960 MHz  | $2.5 + j 12.5$        | $17.0 + j 15.5$       |
| 1030 MHz | $3.5 + j 12.5$        | $17.0 + j 14.5$       |
| 1090 MHz | $3.0 + j 13.5$        | $19.5 + j 12.5$       |
| 1150 MHz | $3.5 + j 14.0$        | $18.0 + j 12.0$       |
| 1215 MHz | $5.0 + j 17.0$        | $16.0 + j 12.0$       |

PACKAGE MECHANICAL DATA

Ref.: Dwg. No.12-0115



| SGS-THOMSON MICROELECTRONICS |                      |                      |
|------------------------------|----------------------|----------------------|
|                              | MINIMUM<br>Inches/mm | MAXIMUM<br>Inches/mm |
| A                            | .095/2,41            | .105/2,67            |
| B                            | .195/4,95            | .205/5,21            |
| C                            | 1.000/25,40          |                      |
| D                            | .004/0,10            | .007/0,18            |
| E                            | .050/1,27            | .065/1,65            |
| F                            |                      | .145/3,68            |
| G                            | .275/6,99            | .285/7,21            |
|                              |                      |                      |
|                              |                      |                      |

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