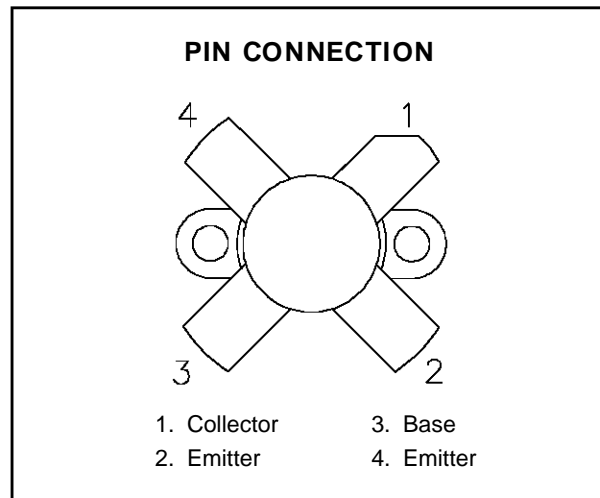
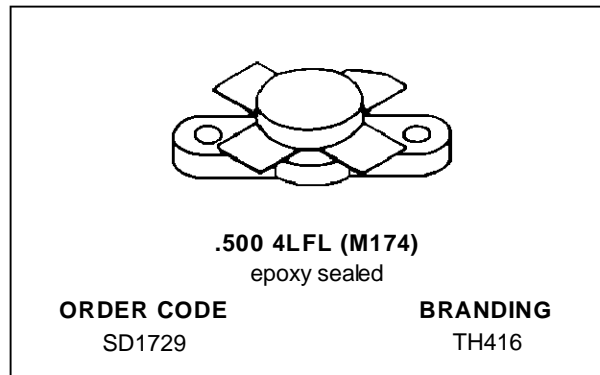


RF & MICROWAVE TRANSISTORS HF SSB APPLICATIONS

- OPTIMIZED FOR SSB
- 30 MHz
- 28 VOLTS
- IMD -30 dB
- COMMON EMITTER
- GOLD METALLIZATION
- P_{OUT} = 130 W PEP WITH 12 dB GAIN



DESCRIPTION

The SD1729 is a Class AB 28 V epitaxial silicon NPN planar transistor designed primarily for SSB communications. This device utilizes emitter ballasting to achieve extreme ruggedness under severe operating conditions.

ABSOLUTE MAXIMUM RATINGS (T_{case} = 25°C)

| Symbol | Parameter | Value | Unit |
|-------------------|---------------------------|--------------|------|
| V _{CBO} | Collector-Base Voltage | 70 | V |
| V _{CEO} | Collector-Emitter Voltage | 35 | V |
| V _{EBO} | Emitter-Base Voltage | 4.0 | V |
| I _C | Device Current | 12 | A |
| P _{DISS} | Power Dissipation | 175 | 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 | 1.0 | °C/W |
|----------------------|----------------------------------|-----|------|

SD1729 (TH416)

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

STATIC

| Symbol | Test Conditions | | Value | | | Unit |
|-------------------|---------------------------------|-------------------------------|-------|------|------|------|
| | | | Min. | Typ. | Max. | |
| BV_{CES} | $I_{\text{C}} = 50 \text{ mA}$ | $V_{\text{BE}} = 0 \text{ V}$ | 70 | — | — | V |
| BV_{CEO} | $I_{\text{C}} = 100 \text{ mA}$ | $I_{\text{B}} = 0 \text{ mA}$ | 35 | — | — | V |
| BV_{EBO} | $I_{\text{E}} = 20 \text{ mA}$ | $I_{\text{C}} = 0 \text{ mA}$ | 4.0 | — | — | V |
| I_{CES} | $V_{\text{CE}} = 35 \text{ V}$ | $I_{\text{E}} = 0 \text{ mA}$ | — | — | 20 | mA |
| h_{FE} | $V_{\text{CE}} = 5 \text{ V}$ | $I_{\text{C}} = 7 \text{ A}$ | 18 | — | 50 | — |

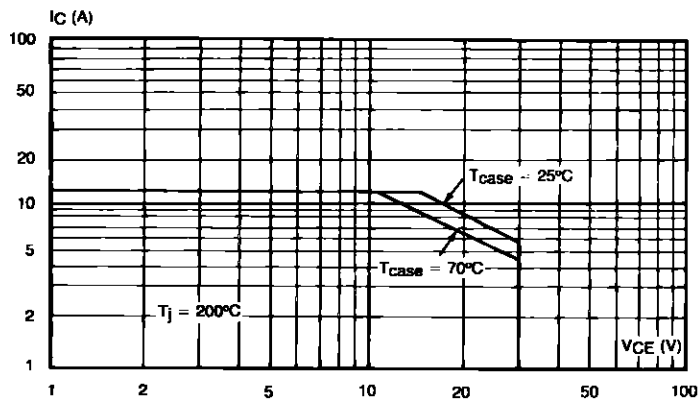
DYNAMIC

| Symbol | Test Conditions | | | Value | | | Unit |
|-------------------|--------------------------------------|--------------------------------|----------------------------------|-------|------|------|------|
| | | | | Min. | Typ. | Max. | |
| P_{OUT} | $f = 30 \text{ MHz}$ | $V_{\text{CE}} = 28 \text{ V}$ | $I_{\text{CQ}} = 150 \text{ mA}$ | 130 | — | — | W |
| G_{P} | $P_{\text{OUT}} = 130 \text{ W PEP}$ | $V_{\text{CE}} = 28 \text{ V}$ | $I_{\text{CQ}} = 150 \text{ mA}$ | 12 | — | — | dB |
| IMD* | $P_{\text{OUT}} = 130 \text{ W PEP}$ | $V_{\text{CE}} = 28 \text{ V}$ | $I_{\text{CQ}} = 150 \text{ mA}$ | — | — | -30 | dBc |
| η_{C} | $P_{\text{OUT}} = 130 \text{ W PEP}$ | $V_{\text{CE}} = 28 \text{ V}$ | $I_{\text{CQ}} = 150 \text{ mA}$ | 37 | — | — | % |
| C_{OB} | $f = 1 \text{ MHz}$ | $V_{\text{CB}} = 28 \text{ V}$ | | — | 220 | — | pF |

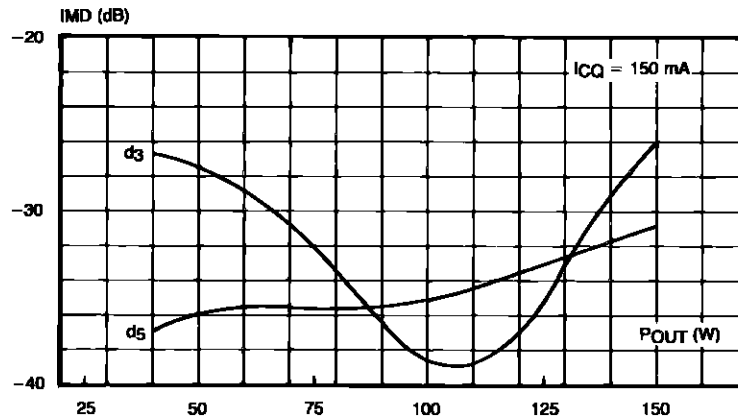
Note: * $f_1 = 30.00 \text{ MHz}$, $f_2 = 30.001 \text{ MHz}$

TYPICAL PERFORMANCE

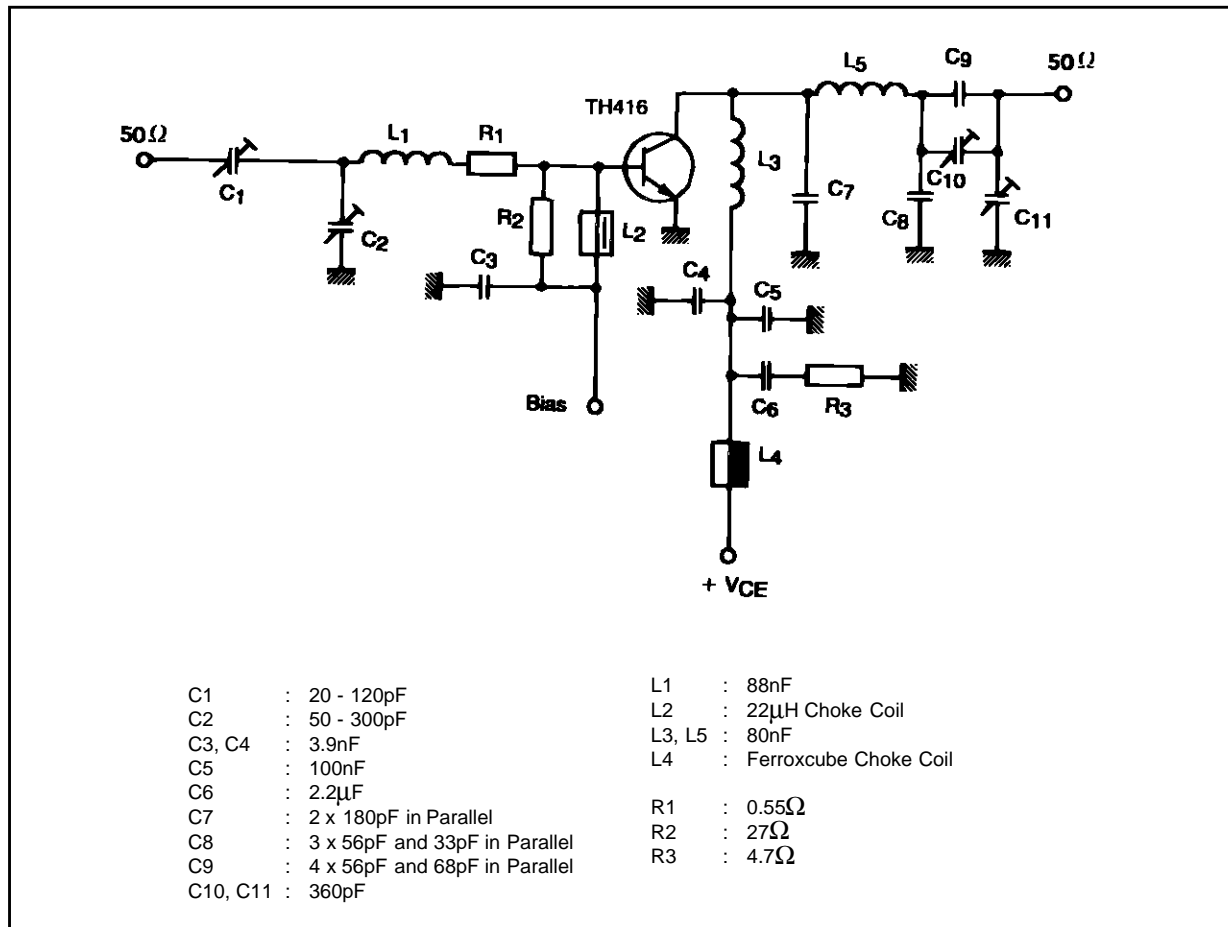
SAFE OPERATING AREA



TYPICAL PERFORMANCE (cont'd)

INTERMODULATION DISTORTION vs
POWER OUTPUT

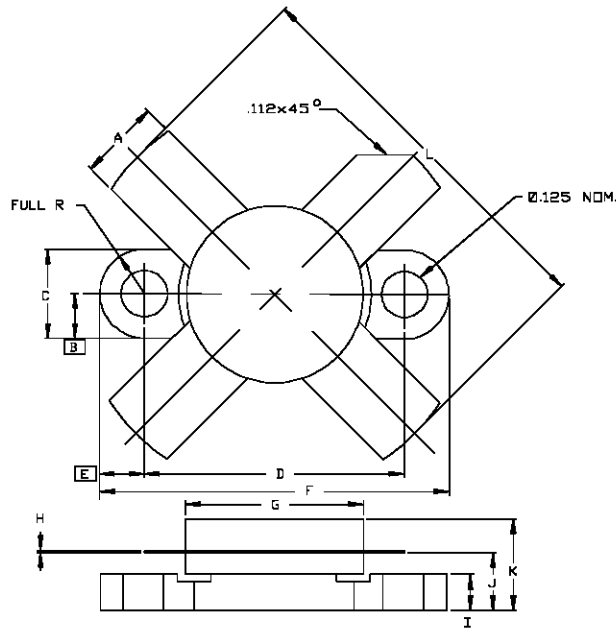
TEST CIRCUIT



SD1729 (TH416)

PACKAGE MECHANICAL DATA

Ref.: Dwg. No.12-0174



| SGS-THOMSON MICROELECTRONICS | | CONT'D | | | |
|------------------------------|----------------------|----------------------|---|----------------------|----------------------|
| | MINIMUM Inches/mm | MAXIMUM Inches/mm | | MINIMUM Inches/mm | MAXIMUM Inches/mm |
| A | .220/5,59 | .230/5,84 | K | | .280/7,11 |
| B | .125/3,18 | | L | | 1.050/26,67 |
| C | .245/6,22 | .255/6,48 | | | |
| D | .720/18,28 | .730/18,54 | | | |
| E | .125/3,18 | | | | |
| F | .970/24,64 | .980/24,89 | | | |
| G | .495/12,57 | .505/12,83 | | | |
| H | .003/0,08 | .007/0,18 | | | |
| I | .090/2,29 | .110/2,79 | | | |
| J | .160/4,06 | .175/4,45 | | | |

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