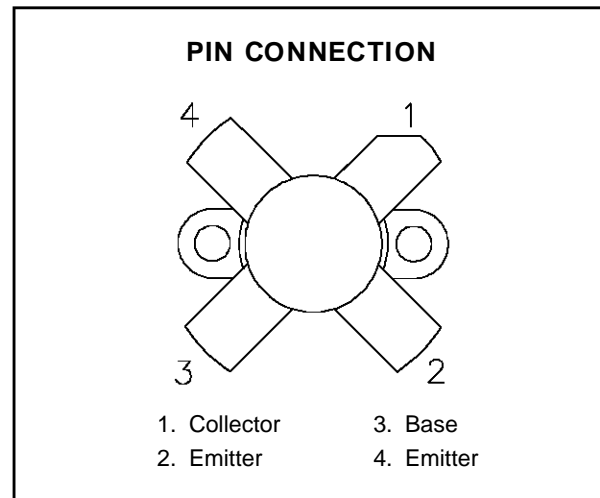
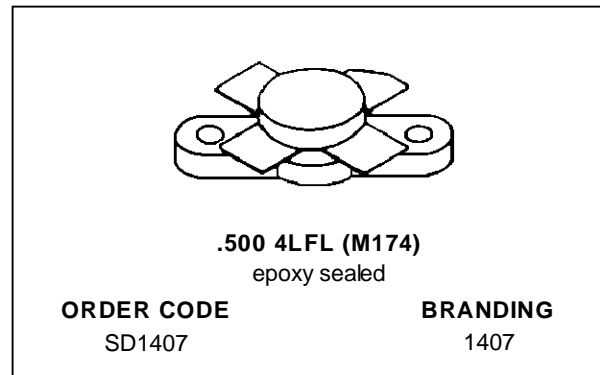


**RF & MICROWAVE TRANSISTORS
HF SSB APPLICATIONS**

- 30 MHz
- 28 VOLTS
- IMD -30 dB
- COMMON EMITTER
- GOLD METALLIZATION
- P_{OUT} = 125 W MIN. WITH 15 dB GAIN


DESCRIPTION

The SD1407 is a 28 V epitaxial silicon NPN planar transistor designed primarily for SSB communications. This device utilizes state-of-the-art diffused emitter ballasting for improved ruggedness and reliability.

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

| Symbol | Parameter | Value | Unit |
|-------------------|---------------------------|--------------|------|
| V _{CB0} | Collector-Base Voltage | 65 | V |
| V _{CEO} | Collector-Emitter Voltage | 36 | V |
| V _{EBO} | Emitter-Base Voltage | 4.0 | V |
| I _c | Device Current | 20 | A |
| P _{DISS} | Power Dissipation | 270 | 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 | 0.65 | °C/W |
|----------------------|----------------------------------|------|------|

SD1407

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

STATIC

| Symbol | Test Conditions | | Value | | | Unit |
|-------------------|-------------------------------|-----------------------------|-------|------|------|------|
| | | | Min. | Typ. | Max. | |
| BV_{CBO} | $I_{\text{C}} = 100\text{mA}$ | $I_{\text{E}} = 0\text{mA}$ | 65 | — | — | V |
| BV_{CES} | $I_{\text{C}} = 100\text{mA}$ | $V_{\text{BE}} = 0\text{V}$ | 65 | — | — | V |
| BV_{CEO} | $I_{\text{C}} = 100\text{mA}$ | $I_{\text{B}} = 0\text{mA}$ | 35 | — | — | V |
| BV_{EBO} | $I_{\text{E}} = 10\text{mA}$ | $I_{\text{C}} = 0\text{mA}$ | 4.0 | — | — | V |
| I_{CES} | $V_{\text{CE}} = 30\text{V}$ | $I_{\text{E}} = 0\text{mA}$ | — | — | 15 | mA |
| h_{FE} | $V_{\text{CE}} = 5\text{V}$ | $I_{\text{C}} = 5\text{A}$ | 10 | — | 200 | — |

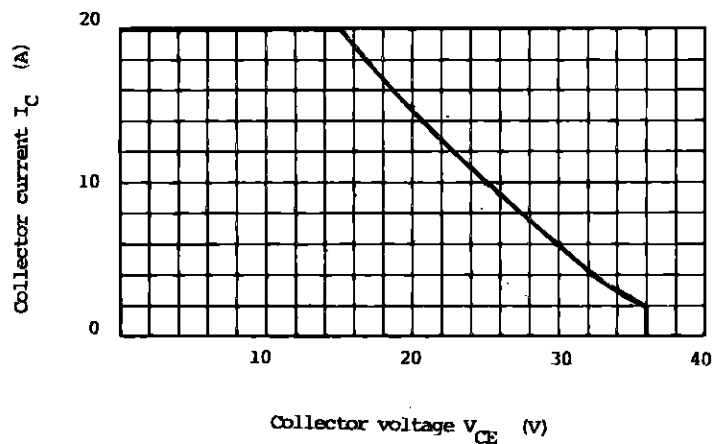
DYNAMIC

| Symbol | Test Conditions | | | Value | | | Unit |
|------------------|---------------------|---------------------------------|---------------------------------|-------|------|------|------|
| | | | | Min. | Typ. | Max. | |
| P_{OUT} | $f = 30\text{ MHz}$ | $P_{\text{IN}} = 3.95\text{ W}$ | $V_{\text{CE}} = 28\text{ V}$ | 125 | — | — | W |
| G_{P} | $f = 30\text{ MHz}$ | $P_{\text{IN}} = 3.95\text{ W}$ | $V_{\text{CE}} = 28\text{ V}$ | 15 | 16 | — | dB |
| IMD* | $f = 30\text{ MHz}$ | $V_{\text{CE}} = 28\text{ V}$ | $I_{\text{CQ}} = 100\text{ mA}$ | — | -34 | -30 | dB |
| C_{OB} | $f = 1\text{ MHz}$ | $V_{\text{CB}} = 30\text{ V}$ | | — | 250 | — | pF |

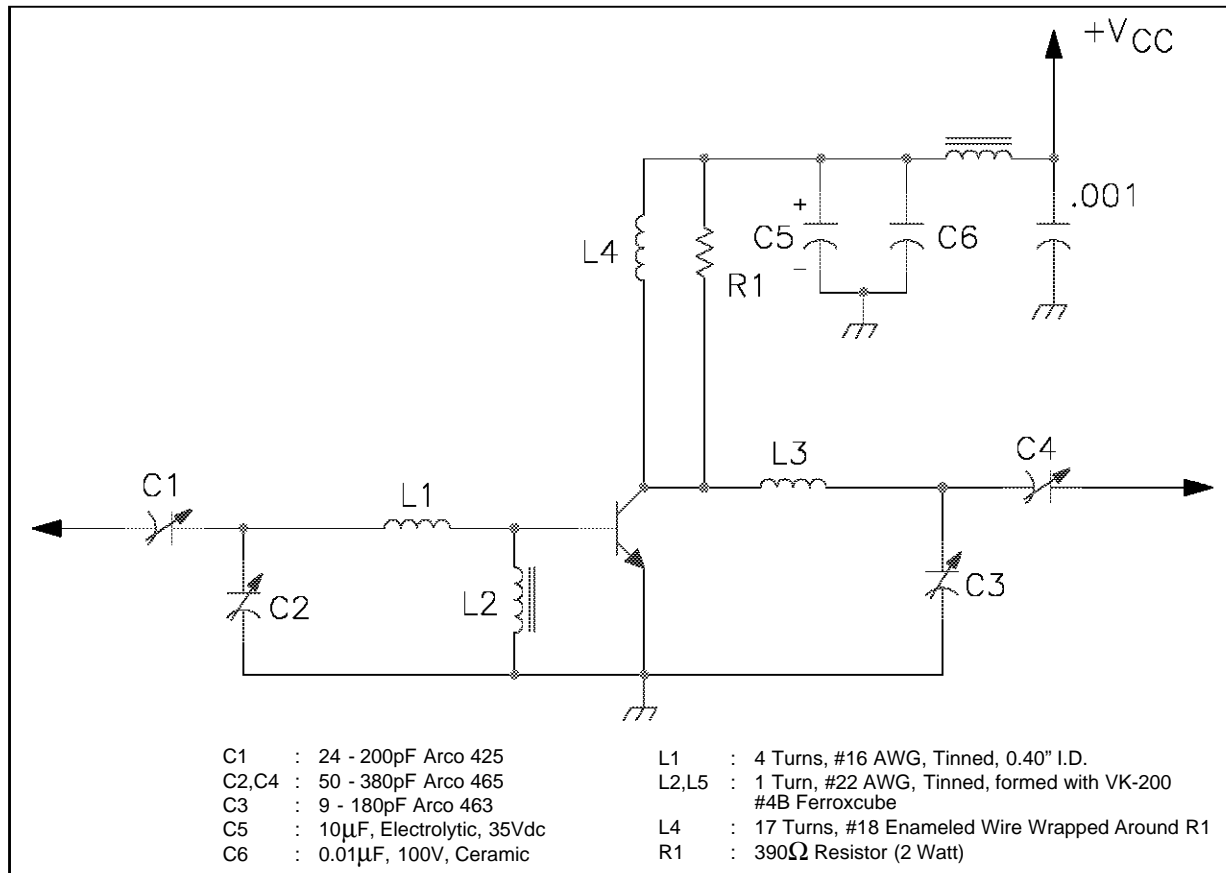
Note: * $P_{\text{OUT}} = 100\text{W PEP}$, $f_{\text{O}} = 30 + 30.001\text{ MHz}$

TYPICAL PERFORMANCE

SAFE OPERATING AREA

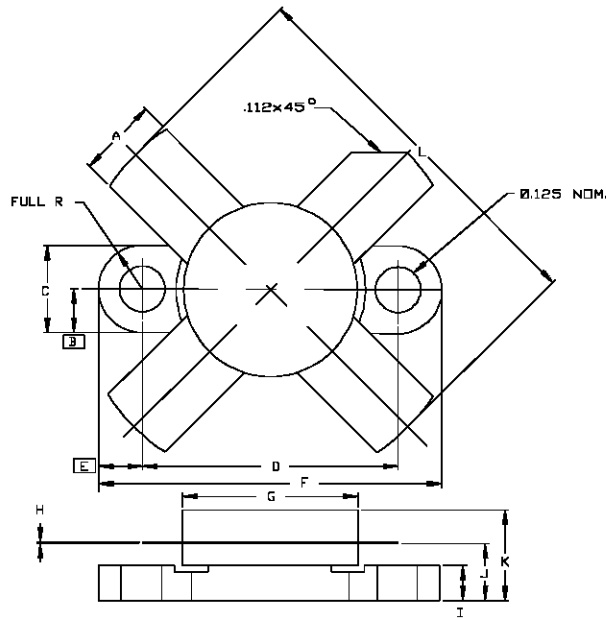


TEST CIRCUIT



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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