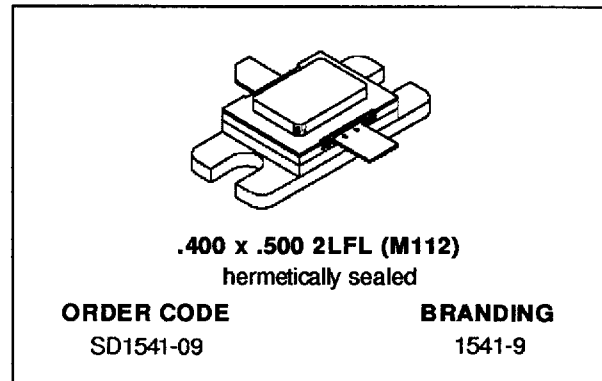
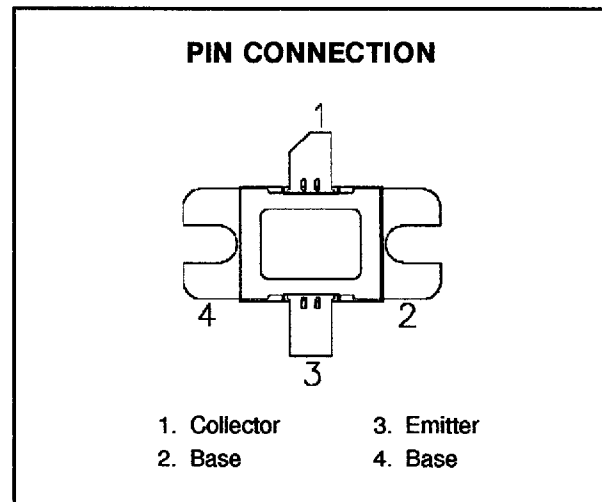


**RF & MICROWAVE TRANSISTORS
AVIONICS APPLICATIONS**

- DESIGNED FOR HIGH POWER PULSED IFF APPLICATIONS
- 450 WATTS (min.) IFF 1030/1090 MHz
- 7.0 dB MIN. GAIN
- REFRACTORY GOLD METALLIZATION
- BALLASTING AND LOW THERMAL RESISTANCE FOR RELIABILITY AND RUGGEDNESS
- 30:1 LOAD VSWR CAPABILITY AT SPECIFIED OPERATING CONDITIONS
- INPUT MATCHED, COMMON BASE CONFIGURATION


DESCRIPTION

The SD1541-09 is a gold metallized silicon NPN planar transistor. The SD1541-09 is designed for applications requiring high peak and low duty cycles such as IFF. The SD1541-09 is packaged in a metal/ceramic package with internal input matching, resulting in improved broadband performance and a low thermal resistance.


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

| Symbol | Parameter | Value | Unit |
|-------------------|---------------------------|--------------|------|
| V _{CBO} | Collector-Base Voltage | 65 | V |
| V _{CEO} | Collector-Emitter Voltage | 65 | V |
| V _{EBO} | Emitter-Base Voltage | 3.5 | V |
| I _C | Device Current | 22 | A |
| P _{DISS} | Power Dissipation | 1458 | 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 | 0.12 | °C/W |
|----------------------|----------------------------------|------|------|

SD1541-09

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

STATIC

| Symbol | Test Conditions | | Value | | | Unit |
|-------------------|-----------------------|-----------------------|-------|------|------|------|
| | | | Min. | Typ. | Max. | |
| BV _{CBO} | I _C = 25mA | I _E = 0mA | 65 | — | — | V |
| BV _{CES} | I _C = 50mA | I _B = 0mA | 65 | — | — | V |
| BV _{EBO} | I _E = 10mA | I _C = 0mA | 3.5 | — | — | V |
| I _{CES} | V _{CE} = 50V | I _E = 0mA | — | — | 25 | mA |
| h _{FE} | V _{CE} = 5V | I _C = .25A | 5 | — | 200 | — |

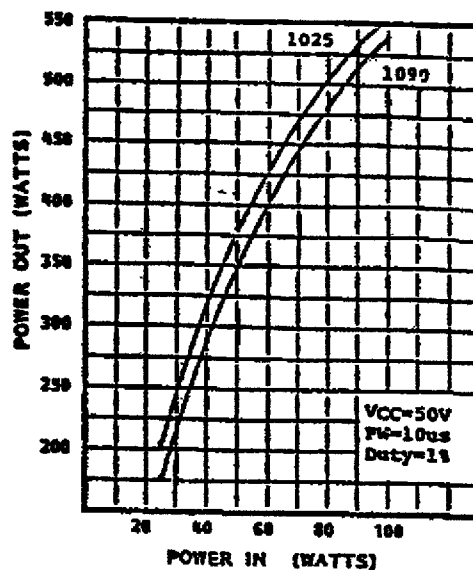
DYNAMIC

| Symbol | Test Conditions | | | Value | | | Unit |
|------------------|-----------------|------------------------|------------------------|-------|------|------|------|
| | | | | Min. | Typ. | Max. | |
| P _{OUT} | f = 1090 MHz | P _{IN} = 90 W | V _{CE} = 50 V | 450 | — | — | W |
| G _p | f = 1090 MHz | P _{IN} = 90 W | V _{CE} = 50 V | 7.0 | — | — | dB |

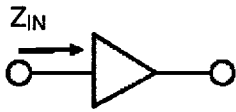
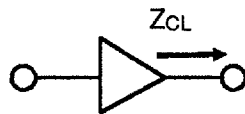
Note: Pulse Width = 10μSec, Duty Cycle = 1%

TYPICAL PERFORMANCE

POWER OUTPUT vs POWER INPUT



IMPEDANCE DATA

TYPICAL INPUT
IMPEDANCETYPICAL COLLECTOR
LOAD IMPEDANCE

| FREQ. | Z _{IN} (Ω) | Z _{CL} (Ω) |
|----------|---------------------|---------------------|
| 1030 MHz | 1.6 + j 5.1 | 1.1 - j 2.0 |
| 1090 MHz | 2.5 + j 4.7 | 1.2 - j 1.2 |

TEST CIRCUIT LAYOUT

