

# NPN SILICON RF POWER TRANSISTOR

**DESCRIPTION:**

The **ASI 2001** is Designed for General Purpose Class C Power Amplifier Applications up to 2300 MHz.

**FEATURES:**

- $P_G = 10$  dB min. at 1.0 W/ 2,000 MHz
- Hermetic Microstrip Package
- **Omnigold™** Metalization System

**MAXIMUM RATINGS**

|               |                                 |
|---------------|---------------------------------|
| $I_C$         | 200 mA                          |
| $V_{CC}$      | 35 V                            |
| $P_{DISS}$    | 7.0 W @ $T_C = 25^\circ C$      |
| $T_J$         | $-65^\circ C$ to $+200^\circ C$ |
| $T_{STG}$     | $-65^\circ C$ to $+200^\circ C$ |
| $\theta_{JC}$ | $25^\circ C/W$                  |

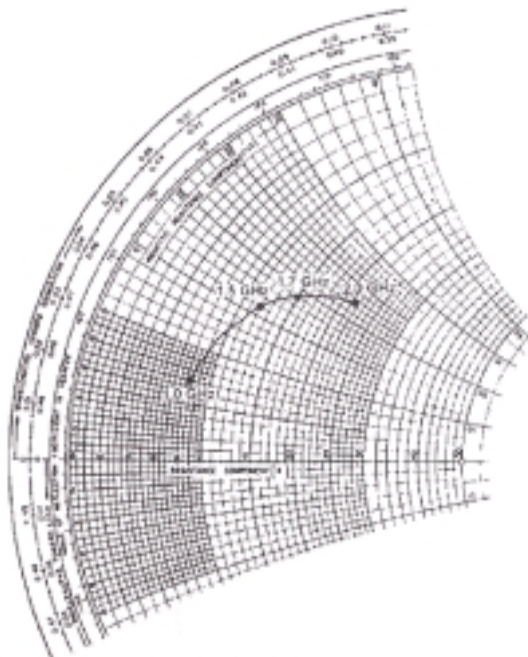
| PACKAGE STYLE .250 2L FLG   |                        |                        |
|-----------------------------|------------------------|------------------------|
|                             |                        |                        |
| DIM                         | MINIMUM<br>inches / mm | MAXIMUM<br>inches / mm |
| A                           | .028 / 0.71            | .032 / 0.81            |
| B                           | .740 / 18.80           |                        |
| C                           | .245 / 6.22            | .255 / 6.48            |
| D                           | .128 / 3.25            | .132 / 3.35            |
| E                           |                        | .125 / 3.18            |
| F                           | .110 / 2.79            | .117 / 2.97            |
| G                           |                        | .117 / 2.97            |
| H                           | .560 / 14.22           | .570 / 14.48           |
| I                           | .790 / 20.07           | .810 / 20.57           |
| J                           | .225 / 5.72            | .235 / 5.97            |
| K                           | .165 / 4.19            | .185 / 4.70            |
| L                           | .003 / 0.08            | .007 / 0.18            |
| M                           | .058 / 1.47            | .068 / 1.73            |
| N                           | .119 / 3.02            | .135 / 3.43            |
| P                           | .149 / 3.78            | .187 / 4.75            |
| <b>ORDER CODE: ASI10527</b> |                        |                        |

**CHARACTERISTICS**  $T_C = 25^\circ C$ 

| SYMBOL     | TEST CONDITIONS                                 | MINIMUM | TYPICAL | MAXIMUM | UNITS |
|------------|---|---------|---------|---------|-------|
| $BV_{CBO}$ | $I_C = 1.0$ mA                                  | 45      |         |         | V     |
| $BV_{CER}$ | $I_C = 5.0$ mA $R_{BE} = 10 \Omega$             | 45      |         |         | V     |
| $BV_{EBO}$ | $I_E = 1.0$ mA                                  | 3.5     |         |         | V     |
| $I_{CBO}$  | $V_{CB} = 28$ V                                 |         |         | 0.5     | mA    |
| $h_{FE}$   | $V_{CE} = 5.0$ V $I_C = 100$ mA                 | 15      |         | 120     | ---   |
| $C_{ob}$   | $V_{CB} = 28$ V $f = 1.0$ MHz                   |         |         | 2.5     | pF    |
| $P_G$      | $V_{CC} = 28$ V $P_{OUT} = 1.0$ W $f = 2.0$ GHz | 10      |         |         | dB    |
| $\eta_C$   |   | 35      |         |         | %     |

**TYPICAL INPUT  
IMPEDANCE**

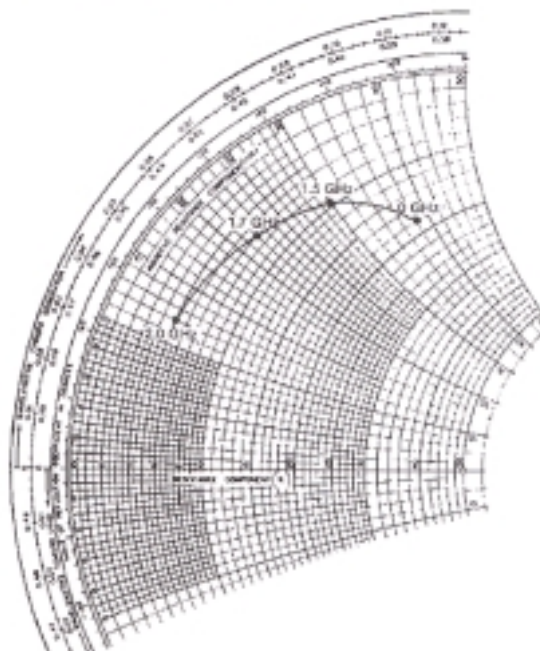

$P_{IN} = 0.2 \text{ W}$   
 $V_{CC} = 28 \text{ V}$   
 Normalized to 50 ohms

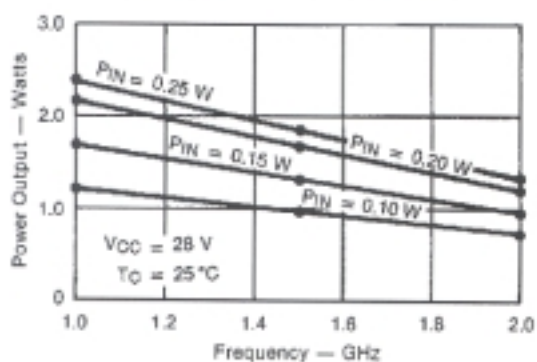
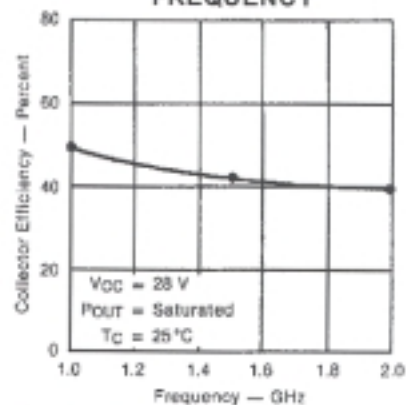
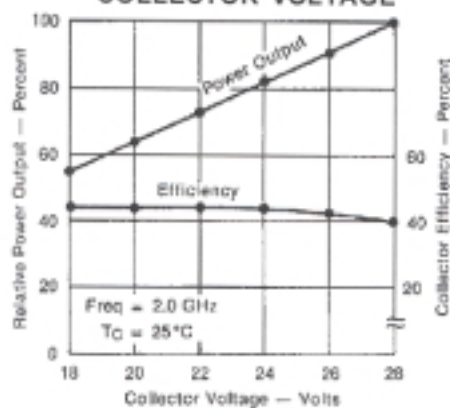


| FREQ.   | $Z_{IN} (\Omega)$ | $Z_{CL} (\Omega)$ |
|---------|-------------------|-------------------|
| 1.0 GHz | $8.3 + j 7.0$     | $18.0 + j 38.0$   |
| 1.5 GHz | $12.0 + j 16.0$   | $9.6 + j 30.0$    |
| 1.7 GHz | $15.0 + j 14.0$   | $7.0 + j 22.0$    |
| 2.0 GHz | $21.5 + j 22.5$   | $5.0 + j 12.0$    |

**TYPICAL COLLECTOR  
LOAD IMPEDANCE**

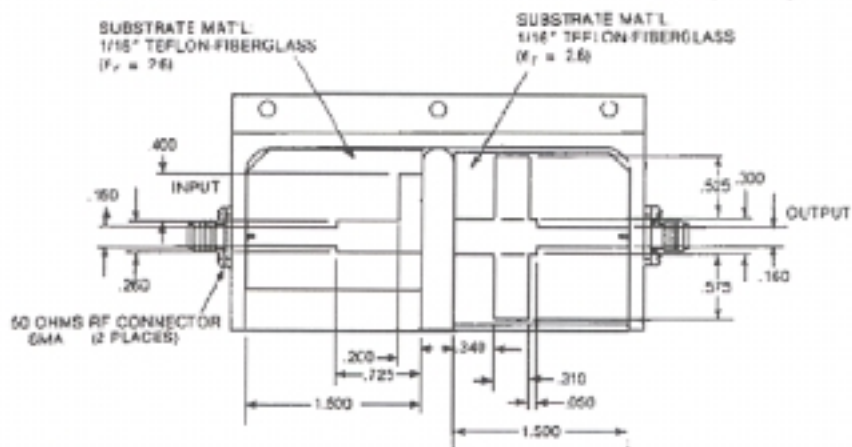

$P_{OUT} = \text{Saturated}$   
 $V_{CC} = 28 \text{ V}$   
 Normalized to 50 ohms



**TYPICAL PERFORMANCE**
**POWER OUTPUT vs FREQUENCY**

**COLLECTOR EFFICIENCY vs FREQUENCY**

**RELATIVE POWER OUTPUT vs COLLECTOR VOLTAGE**


### TEST CIRCUIT

All dimensions are in inches.  
Frequency 2.0 GHz



### RF Amplifier Power Output Test

