



**ATF-13484**  
1-16 GHz Low Noise  
Gallium Arsenide FET

**Features**

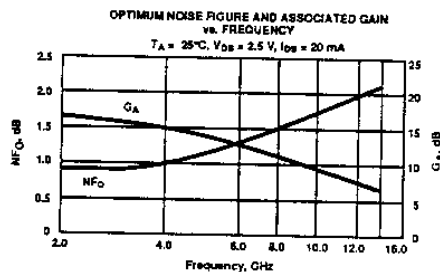
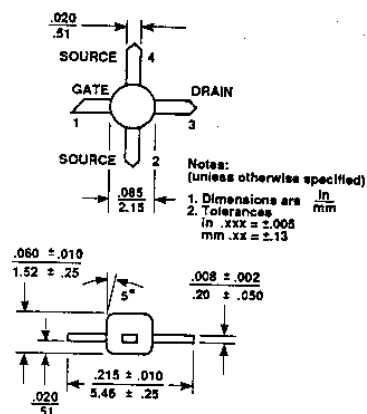
- Low Noise Figure: 1.0 dB typical at 4 GHz
- High Associated Gain: 14.0 dB typical at 4 GHz
- High Output Power: 18.0 dBm typical  $P_1$  dB at 4 GHz
- Low Cost Plastic Package
- Tape-and-Reel Packaging Option Available<sup>1</sup>

**Description**

Avantek's ATF-13484 is a high performance gallium arsenide Schottky-barrier-gate field effect transistor housed in a low cost plastic package. Its low noise figure makes this device appropriate for use in the first or second stages of low noise amplifiers operating in the 1-16 GHz frequency range.

This GaAs FET device has a nominal 0.3 micron gate length with a total gate periphery of 250 microns. Proven gold based metalization systems and nitride passivation assure a rugged, reliable device.

**Avantek 84 Plastic Package**



**Noise Parameters:  $V_{DS} = 2.5$  V,  $I_{DS} = 20$  mA**

| Freq. GHz | NF0 dB | Gamma Opt Mag | Ang  | $R_n/50$ |
|-----------|--------|---------------|------|----------|
| 1.0       | 0.8    | .92           | 14   | 1.3      |
| 2.0       | 0.8    | .85           | 28   | 1.1      |
| 4.0       | 1.0    | .76           | 61   | 0.9      |
| 8.0       | 1.5    | .60           | 152  | 0.2      |
| 12.0      | 2.0    | .55           | -104 | 0.2      |

**Electrical Specifications,  $T_A = 25^\circ\text{C}$**

| Symbol    | Parameters and Test Conditions                                         | Units | Min. | Typ. | Max. |
|-----------|------------------------------------------------------------------------|-------|------|------|------|
| NF0       | Optimum Noise Figure: $V_{DS} = 2.5$ V, $I_{DS} = 15 - 30$ mA          | dB    |      | 1.0  | 1.2  |
| GA        | Gain @ NF0: $V_{DS} = 2.5$ V, $I_{DS} = 15 - 30$ mA                    | dB    |      | 2.0  |      |
| $P_1$ dB  | Output Power @ 1 dB Gain Compression: $V_{DS} = 4$ V, $I_{DS} = 40$ mA | dBm   |      | 18.0 |      |
| $G_1$ dB  | 1dB Compressed Gain: $V_{DS} = 4$ V, $I_{DS} = 40$ mA                  | dB    |      | 14.5 |      |
| gm        | Transconductance: $V_{DS} = 2.5$ V, $V_{GS} = 0$ V                     | mmho  | 25   | 55   |      |
| $I_{DSS}$ | Saturated Drain Current: $V_{DS} = 2.5$ V, $V_{GS} = 0$ V              | mA    | 20   | 50   | 100  |
| $V_p$     | Pinchoff Voltage: $V_{DS} = 2.5$ V, $I_{DS} = 1$ mA                    | V     | -4.0 | -1.5 | -0.5 |

Note: 1. Refer to PACKAGING section "Tape-and-Reel Packaging for Surface Mount Semiconductors".