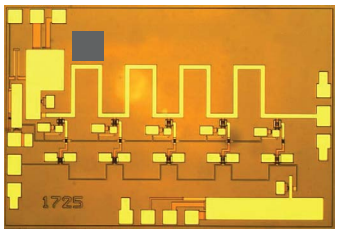
# EMD1725-D Low Noise Amplifier

## DC-33 GHz GaAs PHEMT MMIC Distributed Amplifier




Eclipse Microdevices EMD1725 is a 40 GHz GaAs MMIC PHEMPT Distributed general purpose Low Noise Amplifier. This LNA has a Small signal gain of 15 dB and is ideal for applications that requires a typical P1dB output power of +15 dBm at 36 GHz, while requiring only 110mA from a + 8 Volt supply. The EMD1725 has a slightly positive gain slope above 15 GHz which is ideal for most commercial and industrial applications. The device comes in a small die size of 2.3mm X 1.55mm X 0.1mm thick. The 1725 requires an off chip choke & blocking caps for broadband operation.

**Technical Characteristics**

| Product Features |
|---|
| 13.4 dB Gain @ 33 GHz |
| 12.5 dB Gain +18.0 dBm P1dB Output Power @ 33 GHz in @ 10 GHz |
| +8.0V @ 110 mA typical supply voltage |
| Excellent Input & Output VSWR |
| Small size die: .090 [2.3] X 0.060 [1.5] -inch [mm] |

| Max. Ratings | |
|---|---|
| RF Input Power: | +18.0 dBm |
| Drain Voltage (Vdd): | +10.0 VDC |
| Gate Voltage (Vgg): | -2.0 to 0 VDC |
| Max. $T_J$ 85° C: | +110°C |
| Storage Temperature: | -55 to +150° |
| Operating Temperature: | -40 to +85° |

## Electrical Specifications @ +25°C, Vdd= 8.0, Ids= 108 mA

| Parameters | Freq. (GHz) | Min. | Typical | Max. | Units |
|---|---|---|---|---|---|
| Gain | 2.0<br>15.0<br>15.0<br>33.0 | | 12.1<br>12.5<br>13.5<br>13.4 | | dB<br>dB<br>dB<br>dB |
| Gain Flatness | DC to 20.0 GHz<br>20.0 to 33.0 | | +/- 0.20<br>+/- 1.00 | +/- 0.40<br>+/- 1.50 | dB<br>dB |
| Gain Variation Over Temperature | | | | .02 | dB/°C |
| Noise Figure | 2.0<br>15.0<br>25.0<br>33.0 | | 4.8<br>3.5<br>4.7<br>5.0 | | dB |
| Input Return Loss | | | 11.0 | | dB |
| Output Return Loss | | | 10.0 | | dB |
| 1dB Compression Point | 2.0<br>15.0<br>25.0<br>33.0 | | 19.0<br>19.0<br>20.5<br>18.0 | | dBm<br>dBm<br>dBm<br>dBm |
| Saturated Output Power | 2.0<br>15.0<br>25.0<br>33.0 | | 20.0<br>21.0<br>23.0<br>19.0 | | dBm<br>dBm<br>dBm<br>dBm |
| 3rd Order Intercept Point | | | 33.0 | | dBm |

About EclipseMDI

ECLIPSE MDI is located in San Jose, California. ECLIPSE has been developing high performance analog semiconductors for use in wireless radio frequency (RF), microwave, and millimeter wave for commercial and industrial applications. ECLIPSE has formed a strategic alliances - with foundries that feature leading state-of-the-art process technologies and with manufacturing facilities for high-volume production of innovative RFIC's.

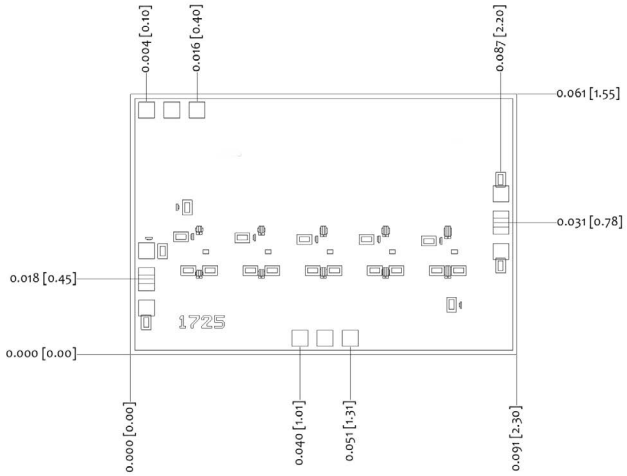




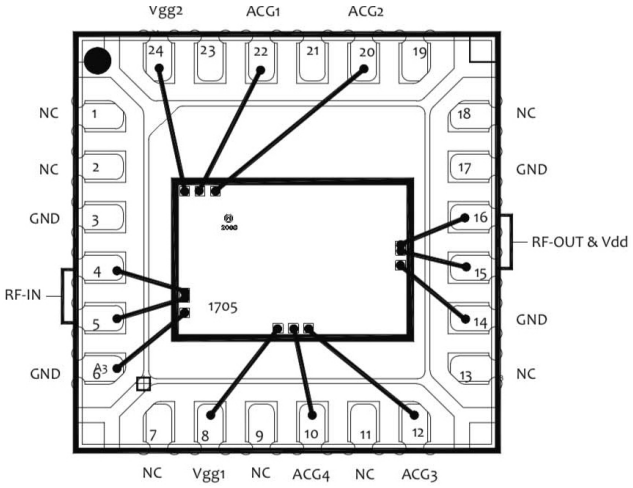
www.eclipseMDI.com
1.408.526.1100

EclipseMDI
sales@eclipsemdi.com

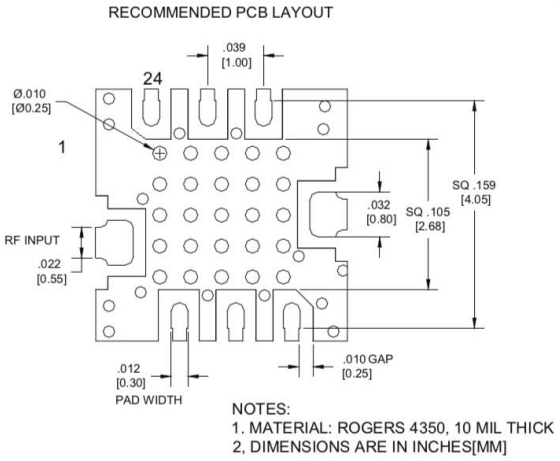
## Outline Drawing



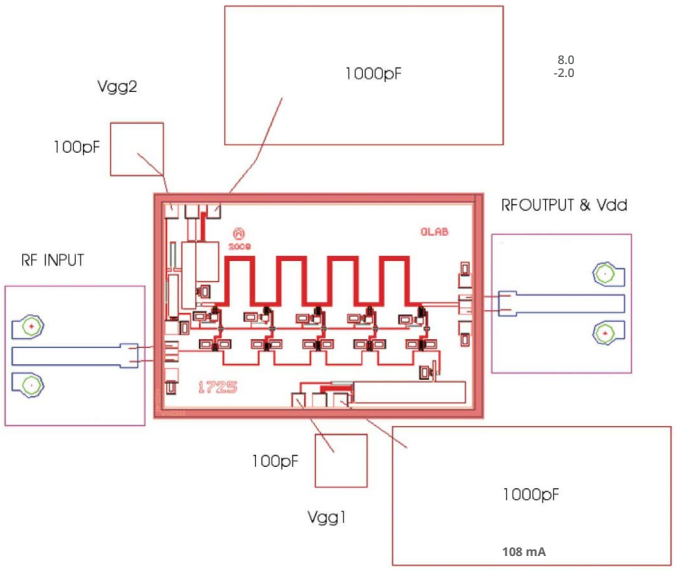

## Functional block diagram




## Recommended PCB layout




## Application Circuit





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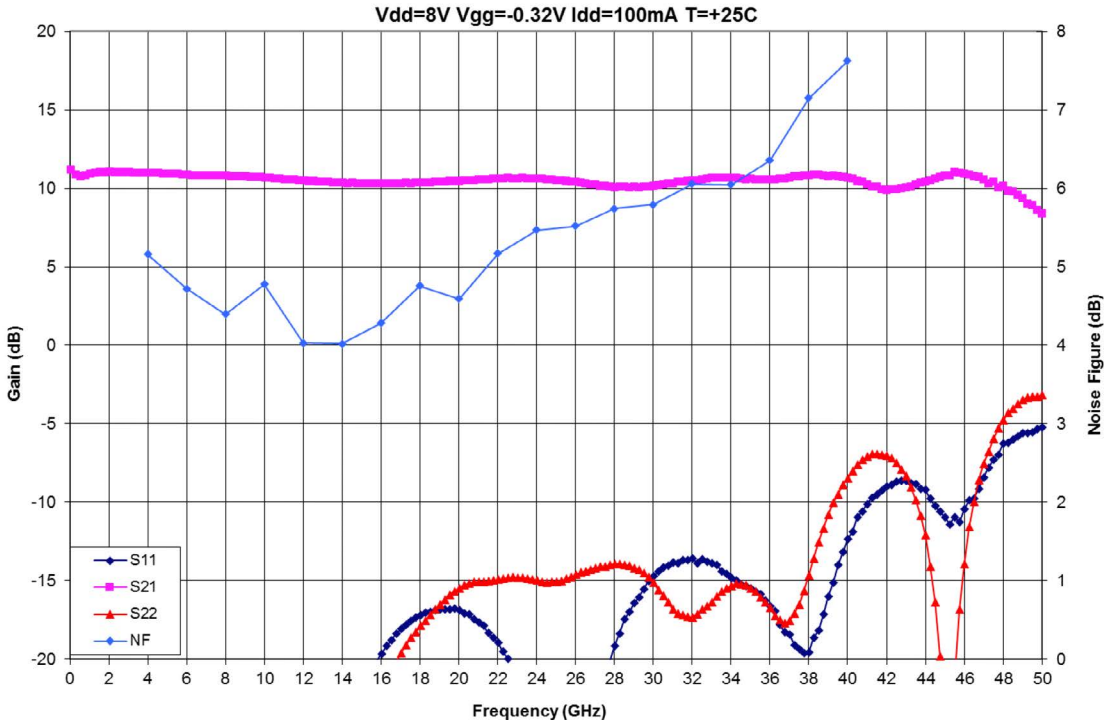
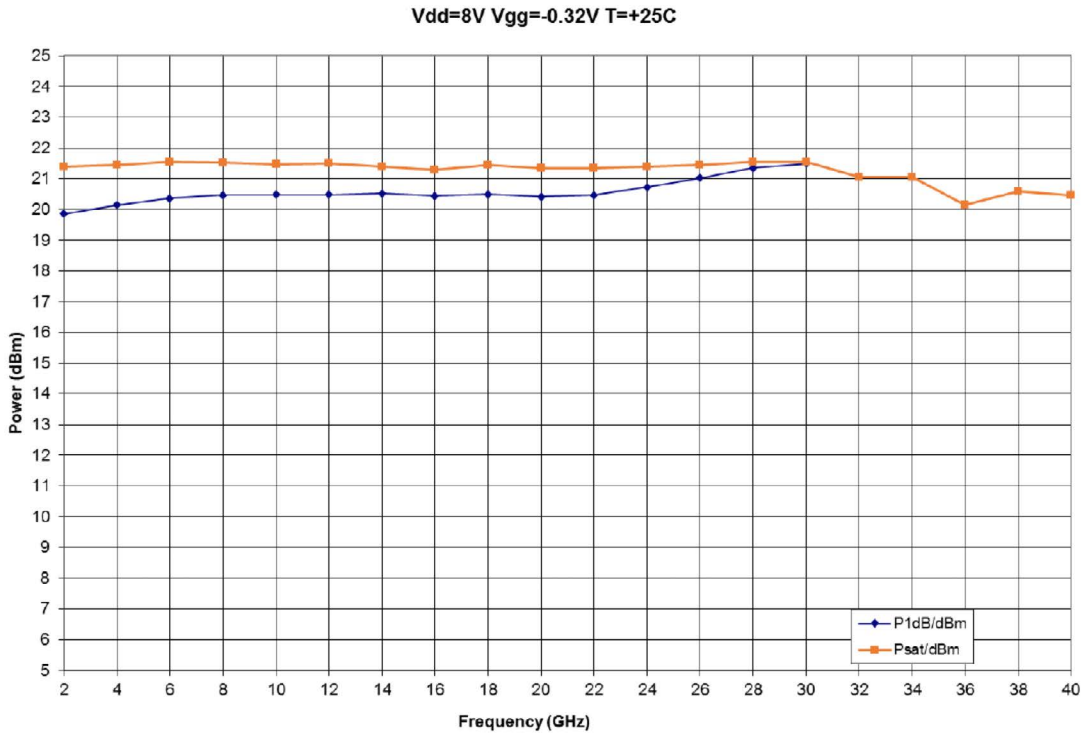
### S-parameters/Noise Figure




### Power Out





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