Features:

- RF Frequency: 24-30 GHz
- Gain of 20 dB.
- Output P1dB of 23.6 dBm.
- OIP3 is 31.3 dBm.
- Output Saturated Power: 25 dBm
- Noise Figure: 3.4dB
- Wideband Input and Output 50 ohm match.
- Variable Gain with Adjustable Bias.
- Bias: VDD=4V, VGG=0.55V, ID=173 mA.
- 0.1um GaAs pHEMT Technology.

Description:-

RFICDA06 Driver Amplifier operates from 24 – 30GHz and can be used in low power Ka band application or to drive the high power amplifier. The amplifier provides 20dB small signal gain and 24 dBm of Output P1dB. The input and output are matched to 50 ohms with on-chip DC blocking capacitors.

The device is specifically designed for use in 24 - 30 GHz frequency in point-to-point radios for cellular backhaul Application, 5G RF Transceiver & SATCOM. The Technology used to design DA is 0.1um GaAs pHEMT Process.

Pin Configuration:-

<table>
<thead>
<tr>
<th>Pin No.</th>
<th>Pin Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>GND</td>
<td>RF Ground</td>
</tr>
<tr>
<td>2</td>
<td>DRV_IN</td>
<td>RF Input</td>
</tr>
<tr>
<td>3</td>
<td>GND</td>
<td>RF Ground</td>
</tr>
<tr>
<td>4</td>
<td>VDD 1</td>
<td>Drain Bias Voltage 1</td>
</tr>
<tr>
<td>5</td>
<td>VDD 2</td>
<td>Drain Bias Voltage 2</td>
</tr>
<tr>
<td>6</td>
<td>VDD 3</td>
<td>Drain Bias Voltage 3</td>
</tr>
<tr>
<td>7</td>
<td>GND</td>
<td>RF Ground</td>
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<tr>
<td>8</td>
<td>DRV_OUT</td>
<td>RF Output</td>
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<tr>
<td>9</td>
<td>GND</td>
<td>RF Ground</td>
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<tr>
<td>10</td>
<td>VGG 3</td>
<td>Drain Bias Voltage 3</td>
</tr>
<tr>
<td>11</td>
<td>VGG 2</td>
<td>Drain Bias Voltage 2</td>
</tr>
<tr>
<td>12</td>
<td>VGG 1</td>
<td>Drain Bias Voltage 1</td>
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</table>

Application:-

5G RF Transceiver.
Point to point communication system.
Backhaul application.
SATCOM.
IoT
## Electrical Specification:

Freq = 24-30 GHz, VDD=4V, VGG=-0.55V, ID= 173 mA, Zo=50 Ω

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Test Condition</th>
<th>Units</th>
<th>Typ</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gain</strong></td>
<td>24 GHz</td>
<td>dB</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>27 GHz</td>
<td></td>
<td>19</td>
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<tr>
<td></td>
<td>30 GHz</td>
<td></td>
<td>17</td>
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<td><strong>Output P1 dB</strong></td>
<td>24 GHz</td>
<td>dBm</td>
<td>23.6</td>
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<td>23.1</td>
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<tr>
<td></td>
<td>30 GHz</td>
<td></td>
<td>22.5</td>
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<tr>
<td><strong>OIP3</strong></td>
<td>24 GHz</td>
<td></td>
<td>31.3</td>
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<tr>
<td>Pout= 20 dBm</td>
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<td></td>
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<tr>
<td>∆f = 200MHz</td>
<td>27 GHz</td>
<td></td>
<td>31</td>
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<td></td>
<td>30 GHz</td>
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<td>32.7</td>
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<td><strong>Noise Figure</strong></td>
<td>24 GHz</td>
<td>dB</td>
<td>3.2</td>
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<td></td>
<td>27 GHz</td>
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<td>3.4</td>
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<td></td>
<td>30 GHz</td>
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<td>3.7</td>
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<tr>
<td><strong>Input Return Loss</strong></td>
<td>24 GHz</td>
<td>dB</td>
<td>-10.4</td>
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<tr>
<td></td>
<td>27 GHz</td>
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<tr>
<td></td>
<td>30 GHz</td>
<td></td>
<td>-12.2</td>
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<tr>
<td><strong>Output Return Loss</strong></td>
<td>24 GHz</td>
<td>dB</td>
<td>-13.2</td>
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<tr>
<td></td>
<td>27 GHz</td>
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<td></td>
<td>30 GHz</td>
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<td>dB</td>
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<td>27 GHz</td>
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</tr>
<tr>
<td></td>
<td>30 GHz</td>
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</table>

### Operating Bias Conditions

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drain Current (Id)</td>
<td>173 mA</td>
</tr>
<tr>
<td>Drain Voltage (VDD)</td>
<td>4 V</td>
</tr>
<tr>
<td>Gate Voltage (VGG)</td>
<td>-0.55 V</td>
</tr>
</tbody>
</table>
Typical Performance Curves:-

**Gain Vs Freq**

**OIP3 VS Freq@Pout=20dBm**

**Input Return Loss**

**Output Return Loss**
Driver Amplifier

Pout Vs Pin@27GHz

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