Planar Monolithics Industries, Inc.

17GHz to 22GHz, 10-Bit Programmable, 60dB, PIN Diode Attenuator

TECHNICAL Datasheet

PMI Model No. DTA-17G22G-60-10D is a non-reflective, 10-Bit programmable 60dB PIN Diode Attenuator with step resolution as low as 0.06 over the frequency range of 17.0 to 22.0GHz. This model switches in 400ns typical and has less than 8dB insertion loss. This model is offered in a slim line housing measuring only 0.5" high and operates on a single +15VDC supply.

Features
- 17GHz to 22GHz
- 8.0dB Insertion Loss
- 1.0us “On” Time
- Mean Attenuation Range 60dB
- VSWR 2.2:1 Max.
- 0.5us “Off” Time

Applications
- EW Systems
- Radars
- UAVs & UGVs
- Communications
- Test Equipment
- Laboratories

Electrical Specifications
- Frequency Range: 17.0 to 22.0GHz
- Mean Attenuation Range: 60dB
- Insertion Loss: 8.0dB typ
- VSWR: 2.2:1 max
- Attenuation Flatness: ±1.0dB @ 20dB
- ±1.5dB @ 40dB
- ±2.0dB @ 60dB
- Attenuation of Accuracy: ±0.5dB @ 0 to 20dB typ
- ±0.75dB @ 20dB to 40dB typ
- ±1.0dB @ 40dB to 60dB typ
- Repeatability of Attenuation Setting: 2.0dB
- Minimum Attenuation Step: 0.06dB
- Operating Power: 20dBm typ
- Survival Power: 1W Average from -65°C to +25°C
- Switching Time: On Time (60dB to IL) 1.0us max
- Off Time (IL to 60dB) 0.5us max
- DC Power Supply: +15V @ 150mA max
- Connectors: 2 SMA(F) & 15 Pin Micro-D-Female
- (Shipped with Mating Micro-D Male)
- Weight: 3.0oz (85 gm) Approx
- Finish: Painted Blue
- Control Logic: Mounting surface unpainted and gold plated
- Logic’0”(Bit Off) -0.3 to +0.8V
- Logic’1”(Bit On) +2.0 to +5.0V

Environmental Ratings
- Temperature: -40°C to +85°C Operating
- -65 °C to +125°C Non-Operating

West Coast Operation:
4921 Robert J. Mathews Pkwy, Suite 1
El Dorado Hills, CA 95762 USA
Tel: 916-542-1401 Fax: 916-265-2597

ISO9001 REGISTERED
Web: www.pmi-rf.com
Email: sales@pmi-rf.com

East Coast Operation:
7311-F Grove Road
Frederick, MD 21704 USA
Tel: 301-662-5019 Fax: 301-662-1731

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**TECHNICAL Datasheet**

**DTA-17G22G-60-10D**

### Attenuation Accuracy

<table>
<thead>
<tr>
<th>Programed Attenuation (dB)</th>
<th>Attenuation (dB)</th>
<th>Accuracy of Attenuation (dB)</th>
<th>Flatness (dB)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.25</td>
<td>0.25</td>
<td>0.00</td>
<td>0.04</td>
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<tr>
<td>0.50</td>
<td>0.49</td>
<td>0.01</td>
<td>0.05</td>
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<td>1.00</td>
<td>0.99</td>
<td>0.01</td>
<td>0.08</td>
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<tr>
<td>2.00</td>
<td>2.00</td>
<td>0.00</td>
<td>0.14</td>
</tr>
<tr>
<td>4.00</td>
<td>3.98</td>
<td>0.02</td>
<td>0.23</td>
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<tr>
<td>8.00</td>
<td>7.98</td>
<td>0.02</td>
<td>0.34</td>
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<td>0.41</td>
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<td>63.75</td>
<td>63.81</td>
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<table>
<thead>
<tr>
<th>Programed Attenuation (dB)</th>
<th>Attenuation (dB)</th>
<th>Accuracy of Attenuation (dB)</th>
<th>Flatness (dB)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.00</td>
<td>4.85</td>
<td>0.15</td>
<td>0.26</td>
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<tr>
<td>10.00</td>
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<td>0.01</td>
<td>0.38</td>
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<td>15.00</td>
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<td>20.00</td>
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<td>0.44</td>
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<td>28.00</td>
<td>0.00</td>
<td>0.43</td>
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<tr>
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<td>-0.02</td>
<td>0.40</td>
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<tr>
<td>35.00</td>
<td>35.02</td>
<td>-0.02</td>
<td>0.43</td>
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<td>40.00</td>
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<td>45.00</td>
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<td>65.00</td>
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<td>60.00</td>
<td>60.19</td>
<td>-0.19</td>
<td>2.14</td>
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</tbody>
</table>

### Attenuation vs. Frequency

![Graph showing Attenuation vs. Frequency](graph.png)

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TECHNICAL DATASHEET DTA-17G22G-60-10D

Insertion and Return Loss

30dB Attenuation and Return Loss

60dB Attenuation and Return Loss

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Switching Speed

Off Time (0 to 60 dB)

Channel 1 (Violet Trace): RF Output 0 to 60 dB
Channel 2 (Green Trace): TTL Input

Switching Speed

On Time (60 to 0 dB)

Channel 1 (Violet Trace): RF Output 60 to 0 dB
Channel 2 (Green Trace): TTL Input
## TECHNICAL DATASHEET

### DTA-17G22G-60-10D

<table>
<thead>
<tr>
<th>PIN NO</th>
<th>J3 PIN FUNCTIONS</th>
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<tbody>
<tr>
<td>1</td>
<td>2dB</td>
</tr>
<tr>
<td>2</td>
<td>1dB</td>
</tr>
<tr>
<td>3</td>
<td>0.5dB</td>
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<tr>
<td>4</td>
<td>0.25dB</td>
</tr>
<tr>
<td>5</td>
<td>GND</td>
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<tr>
<td>6</td>
<td>0.13 dB</td>
</tr>
<tr>
<td>7</td>
<td>0.06 dB (LSB)</td>
</tr>
<tr>
<td>8</td>
<td>GND</td>
</tr>
<tr>
<td>9</td>
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<td>Not Used</td>
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<tr>
<td>11</td>
<td>+15VDC</td>
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<tr>
<td>12</td>
<td>32dB (MSB)</td>
</tr>
<tr>
<td>13</td>
<td>16dB</td>
</tr>
<tr>
<td>14</td>
<td>8dB</td>
</tr>
<tr>
<td>15</td>
<td>4dB</td>
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![Diagram of DTA-17G22G-60-10D](image)