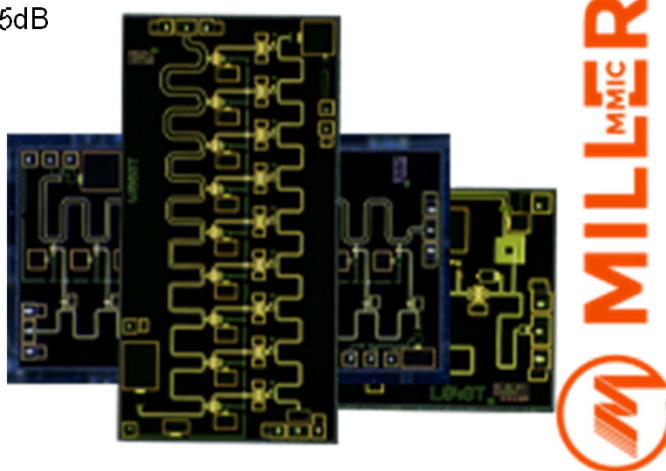


**Features**

- Ultra broadband multi-channel RF attenuator
- Configurable attenuation value by bonding
- Frequency Range: DC - 20GHz
- Attenuation Values: 0 / 0.25 / 0.5 / 1 / 2 / 3.75dB
- Power Handling: 27dBm
- 50Ω Input and Output Impedance
- Return Loss: 20dB
- Bare Die (QFN 3x3mm Available)
- RoHS & REACH Compliant

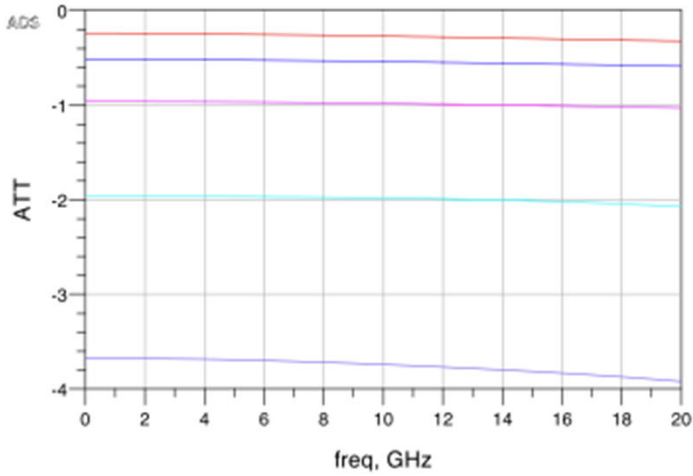

**Typical Applications**

- Test Instrumentation
- Microwave Radio & VSAT
- Military & Space
- Telecom Infrastructure
- General Purpose

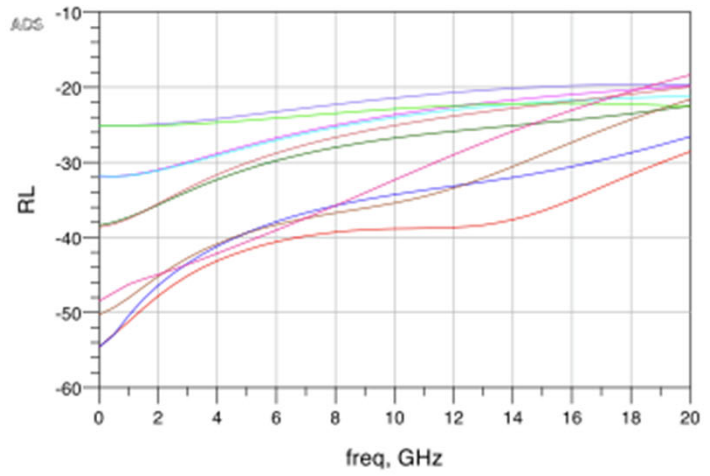
| Part Number | Type                                   | Frequency (GHz) | Attenuator (dB) | Power (dBm) | Return Loss (dB) |
|-------------|--|-----------------|-----------------|-------------|------------------|
| MFA1028     | Multi-Channel Configurable Attenuation | DC-20           | 0               | 27          | 20               |
|             |  |                 | 0.25            |             |                  |
|             |  |                 | 0.5             |             |                  |
|             |  |                 | 1               |             |                  |
|             |  |                 | 2               |             |                  |
|             |  |                 | 3.75            |             |                  |



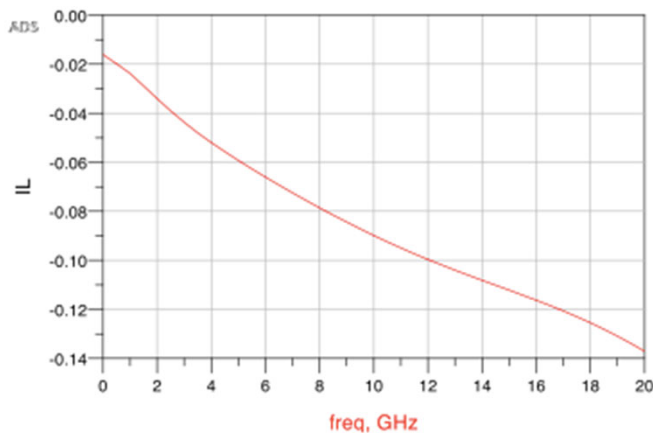
### Attenuation vs. Frequency



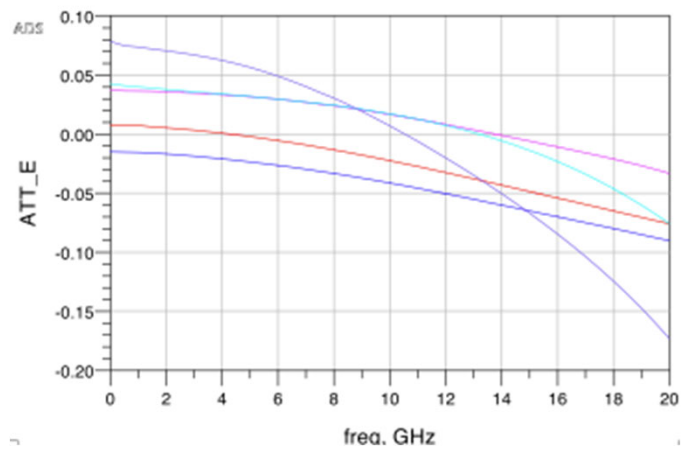
### Return Loss vs. Frequency



### Insertion Loss vs. Frequency



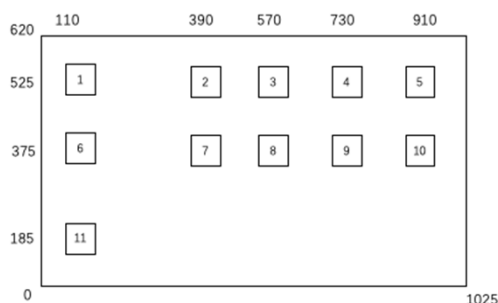
### Attenuation Error vs. Frequency





## Outline Drawing:

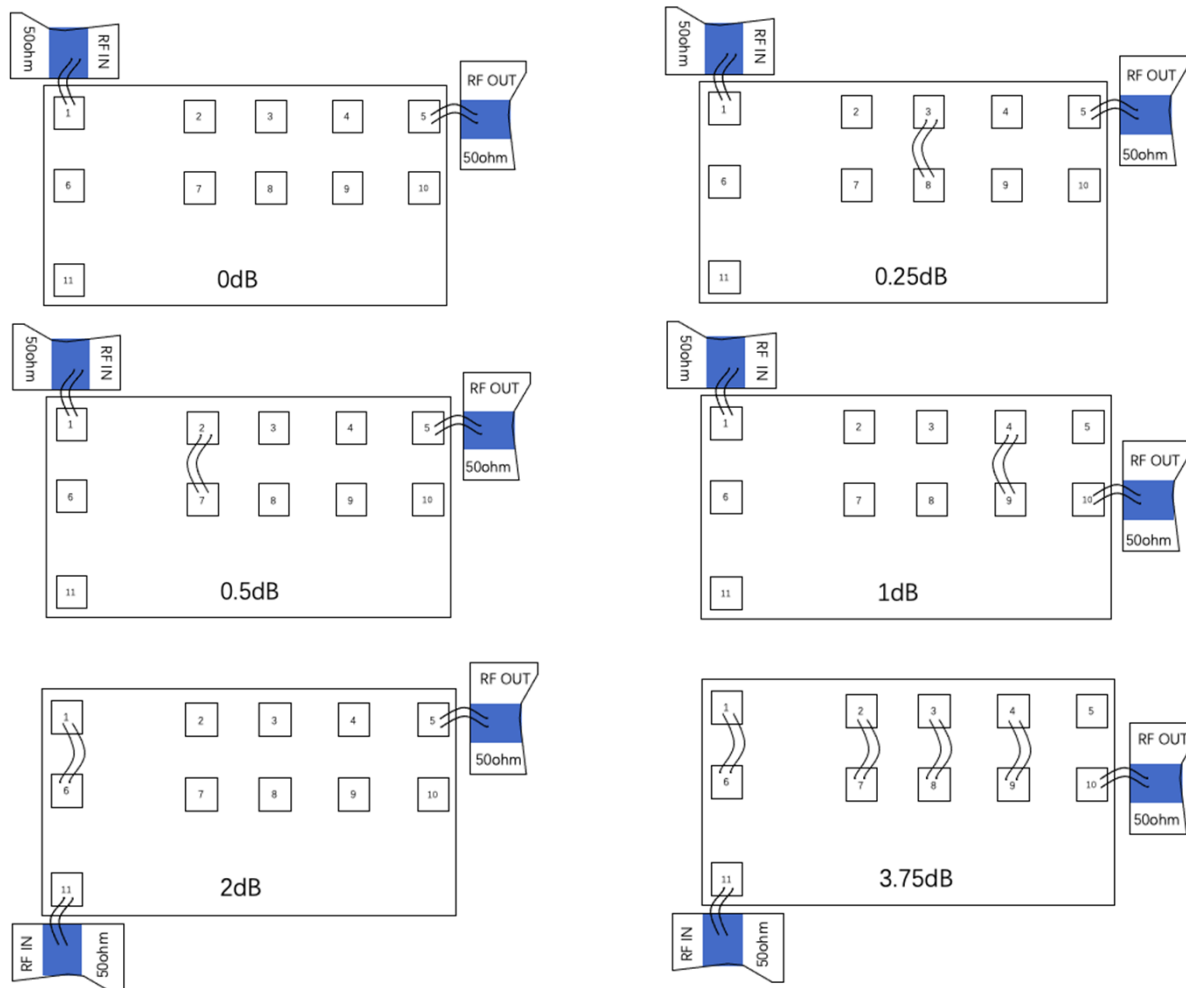
All Dimensions in  $\mu\text{m}$



| Pad                    | Function | Description   |
|------------------------|----------|---|
| 1, 11                  | RF IN    | RF signal input terminal;<br>DC blocking capacitor required.  |
| 5, 10                  | RF OUT   | RF signal output terminal;<br>DC blocking capacitor required. |
| 2, 3, 4,<br>6, 7, 8, 9 | Att.     | See Att. table.   |
| Die Bottom             | GND      | Die bottom must be connected to RF/DC ground.                 |

## Wire Bond Table

| Value | Bonding Mode |                |                    |    |
|-------|--------------|----------------|--------------------|----|
|       | Input Pad    | Connecting Pad | Output Pad         |    |
| Att.  | 0            | 1              | -                  | 5  |
|       | 0.25         | 1              | 3&8                | 5  |
|       | 0.5          | 1              | 2&7                | 5  |
|       | 0.75         | 1              | 3&8, 2&7           | 5  |
|       | 1dB          | 1              | 4&9                | 10 |
|       | 1.25         | 1              | 4&9, 3&8           | 10 |
|       | 1.5          | 1              | 2&7, 4&9           | 10 |
|       | 1.75         | 1              | 2&7, 3&8, 4&9      | 10 |
|       | 2            | 11             | 1&6                | 5  |
|       | 2.25         | 11             | 1&6, 3&8           | 5  |
|       | 2.5          | 11             | 1&6, 2&7           | 5  |
|       | 2.75         | 11             | 1&6, 2&7, 3&8      | 5  |
|       | 3            | 11             | 1&6, 4&9           | 10 |
|       | 3.25         | 11             | 1&6, 4&9, 3&8      | 10 |
|       | 3.5          | 11             | 1&6, 4&9, 2&7      | 10 |
|       | 3.75         | 11             | 1&6, 4&9, 2&7, 3&8 | 10 |



**Notes:**

1. Die thickness: 100µm
2. Typical bond pad is 100\*100 µm<sup>2</sup>
3. Bond pad metalization: Gold
4. Backside metalization: Gold
5. Backside of the die (GND)
6. No connection required for unlabeled bond pads

**Maximum Ratings:**

1. Maximum input power: +27dBm
2. Operating temperature: -55°C to +85°C
3. Storage temperature: -65°C to +150°C

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