



### Features

- 0.32 GHz to 330 GHz
- Industry Leading Performance
- Low VSWR over full waveguide range
- Sealed, 15 psi(g) Standard
- Models to up 10 kW Applications
- System Dummy Loads
- HPA Testing



18101-500 UBR140

### General Specifications

- Maximum Power is Mean/CW Non shedding ceramic elements
- Non shedding ceramic elements
- Low out-gassing (load element total mass loss < 1.0%, collected volatile condensable materials <0.10%)

### Natural Convection

Terminations incorporating heat sinks orientation sensitive due to the direction of air flow over the heat sink. Flann model number includes a 'V' or 'H' code to differentiate which is the recommended orientation. It should be noted that the waveguide broad wall should be vertical in the 'H' configuration.

### Forced Air

Where stated, the standard natural convection design can be used at 1.5 times its rated power with forced air cooling; 3 m/s velocity over all heatsink surfaces.

#### Natural Convection Ratings

Natural Convection specified power rating @ +20°C ambient – no direct sunlight.

Ambient power rating adjustment is -/+5% W per +/-10°C

Vertical design rating is with flange mounted below heatsink – or derate 25%

Vertical design mounted horizontally derate 35%

Horizontal design mounted vertically derate 30%

Horizontal design mounted horizontally but axis through 90° derate 15%

Natural Convection is increased by 50% if used with Forced Air cooling at 3 m/s.

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All terminations have been designed to give high durability and reliability using ceramic elements encapsulated in aluminium body.

Multipaction and COMSOL (heat transfer) analysis can be carried out on request.

**Microwave Specifications**

| Model  | Frequency Range (GHz) | Waveguide |      |       | Natural Convection CW/Mean Power Maximum (W)                      | VSWR (better than)           |
|--------|-----------------------|-----------|------|-------|---|------------------------------|
|        |                       | WG        | R    | WR    |   |                              |
| 08101  | 1.72 – 2.61           | 8         | 22   | 430   | 400, 500, 750, 1000   | 1.08 ≤ 400W<br>1.12 > 400W   |
| 09A101 | 2.17 – 3.30           | 9A        | 26   | 340   | 250, 750, 1000  | 1.08 ≤ 750W<br>1.22 > 750W   |
| 10101  | 2.60 – 3.95           | 10        | 32   | 284   | 150, 200, 600, 1200, 2000, 3000, 3800, 4000                       | 1.08 < 1000W<br>1.10 ≥ 1000W |
| 11A101 | 3.22 – 4.90           | 11A       | 40   | 229   | 125, 200, 250, 475, 1000, 1500, 2000, 3000, 4000                  |                              |
| 12101  | 3.94 – 5.99           | 12        | 48   | 187   | 100, 175, 300, 400, 1000, 1250, 2000, 2500, 3800                  |                              |
| 13101  | 4.64 – 7.05           | 13        | 58   | 159   | 75, 150, 250, 350, 1000, 1500, 2000, 2500, 3000, 3700             |                              |
| 14101  | 5.38 – 8.18           | 14        | 70   | 137   | 55, 150, 175, 3000, 500, 650, 1000, 1500, 2000, 2500, 3000, 3600  | 1.08                         |
| 15101  | 6.58 – 10.0           | 15        | 84   | 112   | 40, 100, 250, 500, 1000, 1500, 2000, 2500, 3000, 3400             | 1.08*                        |
| 16101  | 8.20 – 12.5           | 16        | 100  | 90    | 27, 75, 175, 200, 240, 500, 1000, 1250, 1500, 2000, 2500, 3200    | * Some units 1.10            |
| 17101  | 9.84 – 15.0           | 17        | 120  | 75    | 19, 60, 75, 160, 240, 300, 500, 1000, 1250, 1500, 2000, 2900      | 1.08 ≤ 1250W<br>1.07 > 1250W |
| 18101  | 11.9 – 18.0           | 18        | 140  | 62    | 18, 60, 75, 150, 160, 250, 275, 500, 1000, 1250, 1500, 2000, 2700 | 1.08 < 1250W<br>1.07 ≥ 1250W |
| 19101  | 14.5 – 22.0           | 19        | 180  | 51    | 14, 60, 140, 250, 275, 500, 1000, 1500, 2000, 2500                | 1.08 ≤ 100W<br>1.10 > 100W   |
| 20101  | 17.6 – 26.7           | 20        | 220  | 42    | 16, 30, 60, 70, 100, 160, 240, 250, 500, 1000                     |                              |
| 21101  | 21.7 – 33.0           | 21        | 260  | 34    | 9, 25, 60, 75, 160, 240, 250, 500, 1000                           |                              |
| 22101  | 26.4 – 40.1           | 22        | 320  | 28    | 7, 20, 50, 125, 250, 500, 1000                                    |                              |
| 23101  | 33.0 – 50.1           | 23        | 400  | 22    | 6, 40, 125, 250, 500, 1000  | 1.10 ≤ 40W<br>1.12 > 40W     |
| 24101  | 39.3 – 59.7           | 24        | 500  | 19    | 25, 75, 100, 130, 150   | 1.10                         |
| 25101  | 49.9 – 75.8           | 25        | 620  | 15    | 20, 50, 100, 120, 150   |                              |
| 26101  | 60.5 – 92.0           | 26        | 740  | 12    | 15, 50, 75, 100, 120  |                              |
| 27101  | 73.8 – 112            | 27        | 900  | 10    | 15, 50, 100   |                              |
| 28101  | 92.3 – 140            | 28        | 1200 | 8     | 10  | 1.12                         |
| 29101  | 114 – 173             | 29        | 1400 | 6     | 10  | 1.15                         |
| 30101  | 145 – 220             | 30        | 1800 | 5     | 10  | 1.2                          |
| 31101  | 172 – 261             | 31        | 2200 | 4     | 10  | 1.25                         |
| 32101  | 217 – 330             | 32        | 2600 | 3     | 10  | 1.32                         |
| 710101 | 260 – 400             | -         | -    | '2.8' | Specifications available on request                               |                              |
| 570101 | 330 – 500             | -         | -    | '2.2' |   |                              |



**Custom Design**

Custom built units can be supplied; please contact the sales team for more information.

**Options**

- Fan assisted version
- Liquid cooled version (water, oil or glycol)
- Thermal plate version

**Environmental Specifications**

Natural Convection specified power rating @ +20°C ambient with no direct sunlight.  
Ambient power rating adjustment is ±10°C.

**Ordering Information**

Please specify the following:

|              |        |   |               |   |  |   |   |             |               |
|--------------|--------|---|---------------|---|--|---|---|-------------|---------------|
| WG           | Series | - | Max Power (W) | - | Cooling Style  | Orientation                             | Heat Sink Style   | Options     | Flange        |
| WG08 - WM570 | 101    |   | 20W – 7.5KW   |   | C: Convection<br>F: Integral Fan<br>L: Liquid<br>P: Plate/Heatpipe | N: None<br>H: Horizontal<br>V: Vertical | 0: No Heat Sinks<br>1: Single<br>2: Double<br>3: Triple | 0: Standard | See flann.com |

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