Ducommun

Narrow Band Ferrite Junction Isolators and Circulators
Bulletin No. FIW & FCW

FEATURES
- High quality and volume production
- Compact size, light weight
- High performance
- Wide operation temperature range
- Common communication and Radar frequency bands

APPLICATIONS
- Cavity oscillators
- Amplifiers
- Transceiver subsystems

DESCRIPTION
FIW and FCW series narrow band junction isolators and circulators cover common communication and Radar frequency bands from 8.2 to 110 GHz in eleven waveguide bands. The isolator is an ideal device where the port isolation is required, while the circulator is commonly used as a duplexer for transceiver subsystems where the transmitter and receiver ports share a single antenna port. The FIW and FCW series isolators and circulators offer very compact size that can be easily inserted into the sub-assembly with minimum size increase. While the standard specifications are shown below, the custom ones with up to full waveguide bandwidth and higher isolation are available.

SPECIFICATIONS

<table>
<thead>
<tr>
<th>Waveguide Band</th>
<th>Frequency (GHz)</th>
<th>Bandwidth (GHz, Min)</th>
<th>Insertion Loss (dB, Max)</th>
<th>Isolation (dB, Min)</th>
<th>VSWR (Typ)</th>
<th>Power (W, Min)</th>
<th>Outline (Isolator)</th>
<th>Outline (Circulator)</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>8.2 to 12.4</td>
<td>1.0</td>
<td>0.3</td>
<td>23.0</td>
<td>1.3:1</td>
<td>5.0</td>
<td>Consult Factory</td>
<td></td>
</tr>
<tr>
<td>WR-75</td>
<td>10.0 to 15.0</td>
<td>1.2</td>
<td>0.3</td>
<td>23.0</td>
<td>1.3:1</td>
<td>4.0</td>
<td>Consult Factory</td>
<td></td>
</tr>
<tr>
<td>Ku</td>
<td>12.4 to 18.0</td>
<td>1.5</td>
<td>0.3</td>
<td>23.0</td>
<td>1.3:1</td>
<td>3.0</td>
<td>Consult Factory</td>
<td></td>
</tr>
<tr>
<td>K</td>
<td>18.0 to 26.5</td>
<td>2.0</td>
<td>0.3</td>
<td>22.0</td>
<td>1.3:1</td>
<td>2.0</td>
<td>WT-D-5</td>
<td>WT-D-6</td>
</tr>
<tr>
<td>WR-34</td>
<td>22.0 to 33.0</td>
<td>2.0</td>
<td>0.4</td>
<td>20.0</td>
<td>1.3:1</td>
<td>1.0</td>
<td>WT-D-5</td>
<td>WT-D-6</td>
</tr>
<tr>
<td>Ka</td>
<td>26.5 to 40.0</td>
<td>3.0</td>
<td>0.4</td>
<td>20.0</td>
<td>1.3:1</td>
<td>1.0</td>
<td>WT-D-5</td>
<td>WT-D-6</td>
</tr>
<tr>
<td>Q</td>
<td>33.0 to 50.0</td>
<td>3.0</td>
<td>0.5</td>
<td>18.0</td>
<td>1.3:1</td>
<td>1.0</td>
<td>WT-D-5</td>
<td>WT-D-6</td>
</tr>
<tr>
<td>U</td>
<td>40.0 to 60.0</td>
<td>3.0</td>
<td>0.5</td>
<td>18.0</td>
<td>1.3:1</td>
<td>1.0</td>
<td>WT-D-5</td>
<td>WT-D-6</td>
</tr>
<tr>
<td>V</td>
<td>50.0 to 75.0</td>
<td>2.0</td>
<td>0.6</td>
<td>18.0</td>
<td>1.3:1</td>
<td>1.0</td>
<td>WT-D-5</td>
<td>WT-D-6</td>
</tr>
<tr>
<td>E</td>
<td>60.0 to 90.0</td>
<td>2.0</td>
<td>0.7</td>
<td>18.0</td>
<td>1.3:1</td>
<td>1.0</td>
<td>WT-D-5</td>
<td>WT-D-6</td>
</tr>
<tr>
<td>W</td>
<td>75.0 to 110</td>
<td>2.0</td>
<td>0.8</td>
<td>18.0</td>
<td>1.3:1</td>
<td>1.0</td>
<td>WT-D-5</td>
<td>WT-D-6</td>
</tr>
</tbody>
</table>

Temperature Range: 0 to +50°C

HOW TO ORDER
Specify Model Number

Example: To order a center frequency 24.0 GHz isolator with 2 GHz bandwidth, 20 dB minimum isolation and WR-42 waveguide interface, specify FIW-42242020-XX.

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7. Passive Components

- Multi-Hole Directional Couplers
- Crossguide Directional Couplers
- Matched Hybrid Tees (Magic Tees)
- Coax Power Dividers
- Waveguide Bandpass Filters
- Waveguide Low Pass Filters
- Waveguide Highpass Filters
- Waveguide Diplexers
- Waveguide Transitions
- Waveguide Flange and Bulkhead Adapters
- Waveguide to Coax Adapters
- Waveguide Sections, Bends, Twists and Loads
- Waveguide Jack
- Passive Component Outline Drawings #1
- Passive Component Outline Drawings #2

Ferrite Device Outline Drawings

**WT-D-1**
Drop-in Isolator

**WT-D-2**
Drop-in Circulator

**WT-D-3**
Coaxial Isolator

**WT-D-4**
Coaxial Circulator

**WT-D-5**
Junction Isolator

**WT-D-6**
Junction Circulator

The flange pattern shown is for illustration purpose. Refer to Technical Reference Section for flange pattern details. The outline drawings shown are standard versions. Contact factory for your specific package requirements.