Diplexers

A diplexer is a 3-port Radio Frequency (RF) filter component which is used in multiband systems. It enables the sharing of a common antenna between two distinct frequency bands in which each band encompasses both transmit and receive functions. This differs from a duplexer which combines the uplink and downlink portions of a single band.

CTS has a number of different diplexing technologies. For diplexing of widely separated bands, in which a true low-pass filter (LPF) / high-pass filter (HPF) is required, we have our XCBC family of cross-band combiners. The XCBC products have low insertion loss in a small size, but with power handling up to 6W average / 60W peak power per band. For diplexing of very closely spaced bands, we have our DPX family of diplexers which offer multiplexing of bands which are very difficult to frequency combine. For High Power/High Performance applications such as antenna systems, we have the CDX family based on ClearPlex technology which delivers low PIM and low IL comparable to Air-Cavity filters but with an order-of-magnitude smaller size.

We offer numerous challenging band combinations while sharing a universal footprint. The DPX family supports power handling up to 3W average / 20W peak power per band. These two families (XCBC and DPX) can flexibly be used together to create 3-way and 4-way multiplexers. For high performance diplexers, which in the past would have used air cavity filters, ClearPlex products can be tailored for use in systems requiring up to 50W average / 500W peak input power where smaller size and PCB surface mounting is desired.
Narrowband Diplexers

» High-reliability, surface-mounted ceramic filters
» Combines closely spaced neighboring frequency bands
» Enables antenna sharing in multi-band small cells, DAS and repeater systems.

Wideband Combiners

» Complements DPX with wideband combining
» Enables high-power antenna sharing in multi-band small cells, DAS and repeater systems.
A diplexer is a 3-port Radio Frequency (RF) filter component which is used in multiband systems. It enables the sharing of a common antenna between two distinct frequency bands in which each band encompasses both transmit and receive functions. This differs from a duplexer which combines the uplink and downlink portions of a single band.

CTS has a number of different diplexing technologies. For diplexing of widely separated bands, in which a true low-pass filter (LPF) / high-pass filter (HPF) is required, we have our XCBC family of cross-band combiners. The XCBC products have low insertion loss in a small size, but with power handling up to 60W average / 600W peak power per band. For diplexing of very closely spaced bands, we have our DPX family of diplexers which offer multiplexing of bands which are very difficult to frequency combine. For High Power/High Performance applications such as antennas systems, we have the CDFM family based on ClearPlex technology which delivers low PIM and low IL compared to Air-Cavity filters but with an order-of-magnitude smaller size.

We offer numerous challenging band combinations while sharing a universal footprint. The DPX family supports power handling up to 5W average / 50W peak power per band. These two families (XCBC and DPX) can flexibly be used together to create 3-way and 4-way multiplexers. For high performance diplexers, which are needed in systems requiring up to 50W average / 500W peak input power where a small size and PCB surface mounting is desired. A diplexer is designed for use in systems requiring up to 50W average / 500W peak input power where smaller size and PCB surface mounting is desired.

### CDX / DPX: Narrowband Diplexers

**Features**
- **Model**: Various models with different power ratings and frequency bands.
- **Power Rating [W]**: Various peak input power ratings up to 500W.
- **Frequency Bands**:
  - **Frequency Band #1**: Various bands, e.g., 698-787 MHz, 2000-2400 MHz.
  - **Frequency Band #2**: Various bands, e.g., 790-862 MHz.
- **IL**: Various IL values, e.g., <2.0 dB, >20 dB.
- **Max Size (L x W x H)**: Various dimensions, e.g., 15 x 5 x 5 mm.

**Note:** *In the stages of early development.*

### XHPC / XCBC: Wideband Combiners

**Features**
- **Model**: Various models with different filter technologies.
- **Input Power**: Various input power ratings up to 60W peak.
- **Return Loss**: Various return loss values, e.g., < 0.4 dB.
- **Stopband Atten**: Various stopband attenuation values, e.g., > 40 dB.
- **Insertion Loss (5MHz avg)**: Various IL values, e.g., < 0.4 dB.
- **Temperature Range**: Various temperature ranges, e.g., -40°C to +85°C.

**Note:** *In the stages of early development.*

### Diplexer & Combiner Specifications

<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>DPX6640A</td>
<td>High-Performance Diplexer with Universal footprint</td>
<td>2x 60W Peak</td>
<td>814-894</td>
<td>&lt;0.4</td>
<td>&gt;30 db</td>
<td>&lt;2.0</td>
<td>-40°C to +85°C</td>
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<tr>
<td>DPX6625A</td>
<td>High-Performance Diplexer with Universal footprint</td>
<td>2x 25W Peak</td>
<td>2000-2400</td>
<td>&lt;0.4</td>
<td>&gt;40 db</td>
<td>&gt;20</td>
<td>-40°C to +85°C</td>
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<tr>
<td>DPX6615A</td>
<td>High-Performance Diplexer with Universal footprint</td>
<td>1x 25W Peak</td>
<td>790-862</td>
<td>&lt;0.4</td>
<td>&gt;40 db</td>
<td>&gt;20</td>
<td>-40°C to +85°C</td>
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<tr>
<td>DPX6608A</td>
<td>High-Performance Diplexer with Universal footprint</td>
<td>1x 10W Peak</td>
<td>790-862</td>
<td>&lt;0.4</td>
<td>&gt;40 db</td>
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<tr>
<td>DPX6605A</td>
<td>High-Performance Diplexer with Universal footprint</td>
<td>1x 5W Peak</td>
<td>790-862</td>
<td>&lt;0.4</td>
<td>&gt;40 db</td>
<td>&gt;20</td>
<td>-40°C to +85°C</td>
</tr>
<tr>
<td>DPX6603A</td>
<td>High-Performance Diplexer with Universal footprint</td>
<td>1x 1W Peak</td>
<td>790-862</td>
<td>&lt;0.4</td>
<td>&gt;40 db</td>
<td>&gt;20</td>
<td>-40°C to +85°C</td>
</tr>
</tbody>
</table>

**Note:** *In the stages of early development.*

### Filter Technology

- **CTD**: Ceramic Technology
- **ClearPlex**: ClearPlex Technology
- **Cavity Waveguide**: Cavity Waveguide Technology
- **Monoblock**: Monoblock Technology
- **Cavity**: Cavity Technology

**Contact us for other diplexer frequency band combinations or performance/power handling requirements.**
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