Diplexers

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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

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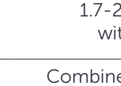
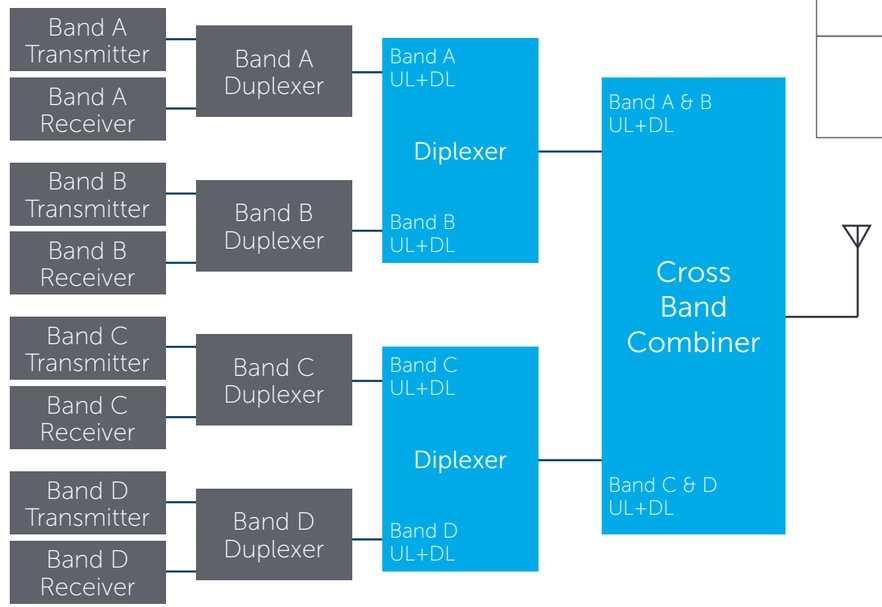
CDX / DPX: Narrowband Diplexers

	*CDX	DPX
Insertion Loss (5MHz avg)	< 0.6 dB	< 2.0 dB
Stopband Atten	> 40 dB	>20 dB
Return Loss	>18 dB	>10 dB
Input Power	2x 50W Avg 2x 500W Peak	2x 3W Avg 2x 20W Peak
Max Size (L x W x H)	varies < 95 x 55 mm	34 x 9.5 mm

XHPC / XCBC: Wideband Combiners



	*XHPC	XCBC
Insertion Loss (5MHz avg)	< 0.8 dB	< 0.5 dB
Stopband Atten	>30 dB	>20 dB
Return Loss	>18 dB	>18 dB
Input Power	2x 25W Avg 2x 250W Peak	2x 6W Avg 2x 60W Peak
Max Size (L x W x H)	15 x 5 mm	10 x 5 mm



» Temperature Range: -40°C to +85°C

Model	Features	Freq Band # Port 1	Freq Range Port 1 [MHz]	Freq Band # Port 2	Freq Range Port 2 [MHz]	IL (typ/max) [dB]	Attenuation [dB]	Average Input Power Rating [W]	Peak Input Power Rating [W]	Size (L x W x H) [mm]	Filter Technology
*CDX0740A	B40 vs B7/38/41 High-power, High-performance Low-IL, Low-PIM Diplexer in Compact Size	40	2300 - 2400	7, 38, 41	2496 - 2690	< 0.4 / < 0.6	> 40	50	500	50 x 30 x 13	ClearPlex Ceramic Cavity Waveguide
*CDX1025A	B4/10+ vs B2/25 High-power, High-performance Low-IL, Low-PIM Diplexer in Compact Size	4, 10+	1710 - 1780 + 2110 - 2180	2, 25	1850 - 1995	< 0.4 / < 0.6	> 40	50	500	95 x 55 x 15	ClearPlex Ceramic Cavity Waveguide
*CDX6640A	1.7-2.2GHz vs 2.3-2.7GHz High-power, High-performance Low-IL, Low-PIM Diplexer in Compact Size	1, 2, 3, 4, 9, 10, 15L, 16L, 23, 25, 33-37, 39, 66	1710 - 2200	7, 15H, 16H, 30, 38, 40, 41, 2.4GHz WiFi	2300 - 2690	< 0.4 / < 0.6	> 40	50	500	75 x 35 x 15	ClearPlex Ceramic Cavity Waveguide
DPX0103A	B1 vs B3 Diplexer with 34mm Universal footprint	1	1920 - 2170	3	1710 - 1880	< 1.0 / < 1.6	> 18	3.0	20	34.0 x 5.8 x 6.6	High-Perf Ceramic Monoblock
DPX0528A	B5/19 vs B12/13/14/17/28 Diplexer with 34mm Universal footprint	5, 19	824 - 894	12, 13, 14, 17, 28	698 - 803	< 1.4 / < 1.8	> 20	3.0	20	31.7 x 8.1 x 7.6	High-Perf Ceramic Monoblock
DPX0820A	B8 vs B20 Diplexer with 34mm Universal footprint	8	880 - 960	20	791 - 862	< 1.4 / < 1.7	> 20	3.0	20	34.0 x 10 x 8	High-Perf Ceramic Monoblock
DPX1326A	B12/13/17 vs B5/18/19/26 Diplexer with 34mm Universal footprint	5, 18, 19, 26	814 - 894	12, 13, 17	698 - 787	EST < 1.0 / < 1.8	> 20	3.0	20	34.0 x 9.2 x 7.6	High-Perf Ceramic Monoblock
DPX2541A	B25 vs B41 Diplexer with 34mm Universal footprint	2, 25	1850 - 1995	7, 38, 41	2496 - 2690	EST < 0.9 / < 1.0	> 20	3.0	20	EST 34 x 10 x 8	High-Perf Ceramic Monoblock
DPX6625A	B4/10+/66 vs B2/25 Diplexer with 34mm Universal footprint	4, 10+, 66	1710 - 1780 + 2110 - 2200	2, 25	1850 - 1995	< 1.6 / < 2.0	> 24	3.0	20	30.0 x 11.0 x 9.8	High-Perf Ceramic Monoblock
DPX6640A	1.7-2.2GHz vs 2.3-2.7GHz Diplexer with 34mm Universal footprint	1, 2, 3, 4, 9, 10, 15L, 16L, 23, 25, 33-37, 39, 66	1710 - 2200	7, 15H, 16H, 30, 38, 40, 41, 2.4GHz WiFi	2300 - 2690	< 0.9 / < 1.0	> 18	3.0	20	EST 34 x 10 x 8	High-Perf Ceramic Monoblock
XCBC0822A	Combines < 1GHz with > 1.7GHz Medium-power, Low-IL Diplexer in miniature size		380-960		1710 - 2690	< 0.3 / < 0.5	> 20	6.0	60	10.2 x 5.1 x 1.8	RF Laminate
XCBC2246A	Combines < 2.7GHz with > 3.3GHz Medium-power, Low-IL Diplexer in miniature size		380-2200		3300 - 6000	< 0.3 / < 0.5 < 0.4 / < 0.7	> 20	6.0	60	10.2 x 5.1 x 1.8	RF Laminate

*In the stages of early development.

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

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