

COAXIAL ISOLATORS AND CIRCULATORS

SECTION II

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APPLICATION NOTES FOR COAXIAL DEVICES

DORADO coaxial isolators and circulators are designed for a wide range of high performance applications at competitive prices. These devices operate at frequencies from 50MHz to 43.5GHz.

- **Features.**
 - Custom design
 - Wide Range of standard products
 - High Performance
 - SMA, N-Type, 2.4mm and K-type connectors
- **Frequency range.**
 - Standard frequency range of 40MHz to 40GHz
 - Other frequency ranges available
- **Temperature range.**
 - Standard temperature range –30 to 65°C
 - Electrical parameters perform at the standard operating temperature range.
 - Other temperature ranges are available (Please contact DORADO)
- **Mechanical mounting.**
 - Compatible with 50-ohm adjacent devices
- **Custom features.**
 - DORADO has the ability to provide a wide range of solutions to meet most applications

SPECIAL AND CUSTOM DESIGN COAXIAL DEVICES

- **Cryogenic Coaxial Isolators**
 - Dorado offers a series of Isolators that operate over the frequency range of 1 to 18GHz with up to 2:1 bandwidth. The operating temperature range will be from -269°C to +50°C. The standard connector is SMA type and type N and type K are also available. The maximum insertion loss will be between 0.2 and 0.5dB depending on Bandwidth
- **High Power Coaxial Isolators and Circulators**
 - For operating frequencies up to 1.0GHz coaxial isolators and circulators are available that can handle power up to 3500 watts with bandwidth up to 30% of the center frequency. Dorado circulators Model: 3CCH15-1 covers 1.0 to 2.0GHz and Model 3CCH30-1 for 2.0 to 4.0GHz can handle an average power of 1.0kW and a peak power of 15.0kW.

The power handling of isolators and circulators above 4.0GHz up to 18GHz are usually limited by the power handling capability of the appropriate connectors.

NARROW BAND COAXIAL LOW POWER ISOLATORS & CIRCULATORS (48MHz to 40GHz)

FREQUENCY RANGE (GHz)	BANDWIDTH GHz	ISOLATOR MODEL	CIRCULATOR MODEL	INS. LOSS dB (max)	ISOLATION dB (min)	VSWR (max)	OPERATING TEMP. RANGE
NARROW BAND COAXIAL ISOLATORS AND CIRCULATORS (0.05-18 GHz) WITH SMA CONNECTORS							
0.048-0.066	Full	1ICS57-2		1.30	15	1.60	-10 to +60° C
0.076-0.100	Full	1ICS88-1		1.20	15	1.60	-10 to +60° C
0.088-0.108	Full	1ICS98-1		1.20	17	1.40	-10 to +60° C
0.100-0.150	Full	2ICS12-1		1.20	15	1.60	-40 to +70° C
0.120-0.180	Full	2ICS15-1		1.20	15	1.60	-40 to +70° C
0.150-0.225	Full	2ICS19-1		1.20	15	1.60	-40 to +70° C
0.180-0.270	Full	2ICS23-1		1.20	15	1.60	-40 to +70° C
0.220-0.330	Full	2ICS28-1		1.00	15	1.60	-40 to +70° C
0.270-0.405	Full	2ICS35-1		1.00	15	1.60	-40 to +70° C
0.330-0.495	Full	2ICS41-1		1.00	15	1.60	-40 to +70° C
0.400-0.600	Full	2ICS50-1		1.00	15	1.60	-40 to +70° C
0.500-0.750	Full	2ICS62-1		1.00	15	1.60	-40 to +70° C
0.650-0.975	Full	2ICS81-1	2CCS81-1	1.00	13	1.50	-60 to +85° C
0.685-1.030	Full	2ICS85-1	2CCS85-1	0.80	14	1.50	-60 to +85° C
0.940-1.410	Full	3ICS12-1	3CCS12-1	0.90	14	1.50	-60 to +85° C
1.350-2.050	Full	3ICS17-2	3CCS17-2	1.00	13	1.50	-60 to +85° C
2.600-3.900	Full	3ICS33-1	3CCS33-1	0.40	15	1.40	-60 to +85° C
3.200-4.800	Full	3ICS40-1	3CCS40-1	0.30	18	1.30	-60 to +85° C
4.600-8.800	Full	3ICS67-1	3CCS67-1	0.30	18	1.30	-60 to +85° C
8.000-12.40	Full	3ICS10-1	3CCS10-1	0.50	18	1.30	-60 to +85° C
12.000-18.00	Full	3ICS15-1	3CCS15-1	0.50	18	1.35	-60 to +85° C
NARROW BAND COAXIAL ISOLATORS AND CIRCULATORS (0.07-23.6 GHz) WITH K OR 2.4MM CONNECTORS							
19.00-34.00	2GHz	4ICS(xx)-1X		1.10	20	1.35	-10 to +60° C
34.00-40.00	2GHz	4ICS(xx)-1X		1.30	20	1.45	-10 to +60° C

NOTES:

1. (xx) IDENTIFIES THE CENTER FREQUENCY OF THE DEVICE IN GHz
2. MODIFIED VERSIONS OF ALL DEVICES ARE AVAILABLE
3. CIRCULATION IS CLOCKWISE UNLESS OTHERWISE SPECIFIED
4. MAXIMUM POWER 1.0 WATT

COAXIAL MEDIUM POWER & BROADBAND ISOLATORS & CIRCULATORS (400MHz to 40GHz)

FREQUENCY RANGE (GHz)	ISOLATOR MODEL	CIRCULATOR MODEL	INS. LOSS dB (max)	ISOLATION dB (min)	VSWR (max)	AVG. POWER (W)	OPERATING TEMP. RANGE	CONNECTORS
MEDIUM POWER COAXIAL CIRCULATORS (0.04-18 GHz) WITH TYPE "N" CONNECTORS								
0.40-0.65		2CCM52-1	1.2	12	1.70	250	-60° to +85° C	N-type
0.47-0.56		2CCM51-2	0.2	23	1.15	600	-10° to +50° C	N-type
0.55-0.66		2CCM60-1	0.2	23	1.15	600	-10° to +50° C	N-type
0.65-1.00		2CCM83-1	1.0	13	1.60	250	-60° to +85° C	N-type
0.75-0.86		2CCM81-2	0.2	23	1.15	600	-10° to +50° C	N-type
1.00-2.00		3CCM15-1	0.8	14	1.60	250	-60° to +55° C	N-type
2.00-4.00		3CCM30-1	0.6	15	1.45	250	-60° to +70° C	N-type
3.00-6.00		3CCM45-1	0.6	15	1.45	150	-60° to +70° C	N-type
4.00-8.00		3CCM60-1	0.6	15	1.45	150	-60° to +70° C	N-type
4.00-12.00		3CCM80-1	1.3	12	1.70	150	-60° to +70° C	N-type
6.00-12.00		3CCM90-1	0.8	15	1.45	150	-60° to +70° C	N-type
8.00-18.0		4CCM13-1	0.9	13	1.60	150	-60° to +70° C	N-type
9.00-18.0		4CCM14-1	0.8	14	1.60	150	-60° to +70° C	N-type
BROADBAND COAXIAL ISOLATORS & CIRCULATORS (0.8-40 GHz)								
0.80-2.00	3ICB14-2	3CCB14-2	1.2	10	1.70	75	+10° to +40° C	SMA
1.00-2.00	3ICB15-1	3CCB15-1	1.0	15	1.50	75	+1° to +70° C	SMA
1.07-2.14	3ICB16-1	3CCB16-1	0.7	16	1.40	75	+1° to +50° C	SMA
2.00-4.00	3ICB30-1	3CCB30-1	0.6	16	1.40	50	-25° to +85° C	SMA
2.00-6.00	3ICB40-1	3CCB40-1	1.2	13	1.60	10	-40° to +85° C	SMA
3.00-6.00	3ICB45-1	3CCB45-1	0.6	16	1.40	35	-60° to +85° C	SMA
4.00-8.00	3ICB60-1	3CCB60-1	0.6	16	1.40	25	-60° to +85° C	SMA
6.00-12.00	3ICB90-1	3CCB90-1	0.6	16	1.40	25	-60° to +85° C	SMA
6.00-18.00	4ICB12-1	3CCB12-1	1.3	12	1.67	1	-60° to +85° C	SMA
9.00-18.00	4ICB13-1	3CCB13-1	0.8	15	1.50	25	-60° to +85° C	SMA
18.00-26.50	4ICB22-3		1.2	18	1.55	1.0	+15° to +35° C	K-type
18.00-26.50		4CCB22-3	1.2	18	1.55	2.0	+15° to +35° C	K-type
26.50-40.00	4ICB33-3		1.2	17	1.55	1.0	+15° to +35° C	K-type
26.50-40.00		4CCB33-3	1.2	17	1.55	2.0	+15° to +35° C	K-type
COAXIAL PERIPHERAL MODE ISOLATORS (1.0-18 GHz) WITH SMA CONNECTORS								
1.00-4.30	3ICP27-1		3.5	13	1.60	1.0	-10° to +60° C	SMA
2.00-8.20	3ICP51-1		1.8	17	1.60	1.0	-10° to +60° C	SMA
3.20-8.30	3ICP58-1		1.2	20	1.50	1.0	-10° to +60° C	SMA
8.00-18.00	4ICP13-1		1.1	20	1.50	1.0	-10° to +60° C	SMA

NOTES:

1. MODIFIED VERSIONS OF ALL DEVICES ARE AVAILABLE