

90° HYBRIDS



Click Package
To View Outline
Drawing

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LEADLESS SURFACE MOUNT

FREQUENCY RANGE (MHz)	INSERTION LOSS (dB) TYP/MAX	AMPLITUDE UNBALANCE (dB) TYP/MAX	PHASE UNBALANCE (Degrees) TYP/MAX	ISOLATION (dB) TYP/MIN	VSWR TYP	PACKAGE	PIN-OUT (See Below)	MODEL
0.5 - 1	0.3/0.6	0.4/0.75	1.0/3.0	25/17	1.1:1	129	1	SMQ-C31
7 - 14	0.3/0.6	0.4/0.75	1.0/3.0	25/17	1.1:1	129	1	SMQ-CB1
7 - 21	0.3/0.6	0.6/1.0	1.0/3.0	23/20	1.2:1	129	1	SMQ-C08
10 - 20	0.3/0.6	0.4/0.75	1.0/3.0	25/17	1.1:1	129	1	SMQ-C06
10.2-11.2	0.1/0.3	0.5/0.8	1.0/3.0	25/20	1.1:1	129	2	SMQ-C51
14 - 42	0.3/0.6	0.4/0.75	1.0/3.0	25/17	1.1:1	129	1	SMQ-C09
19 - 21	0.2/0.3	0.5/0.8	1.0/3.0	25/20	1.1:1	129	2	SMQ-C57
20 - 40	0.3/0.6	0.4/0.75	1.0/3.0	25/20	1.1:1	129	1	SMQ-C01
20.3 - 22.5	0.2/0.3	0.5/0.8	1.0/3.0	25/20	1.1:1	129	2	SMQ-C52
28.5 - 31.5	0.2/0.3	0.5/0.8	1.0/3.0	25/20	1.1:1	129	2	SMQ-C53
38 - 42	0.2/0.3	0.5/0.8	1.0/3.0	25/20	1.1:1	129	2	SMQ-C58
40 - 80	0.3/0.6	0.4/0.75	1.0/3.0	25/20	1.1:1	129	1	SMQ-C02
50 - 100	0.3/0.6	0.4/0.75	1.0/3.0	25/17	1.1:1	129	1	SMQ-C10
52 - 88	0.3/0.6	0.2/0.6	1.0/2.5	25/17	1.1:1	129	1	SMQ-C20
55 - 90	0.3/0.7	0.6/1.2	1.0/3.0	30/17	1.2:1	129	1	SMQ-C23
57 - 63	0.2/0.3	0.5/0.8	1.0/3.0	25/20	1.1:1	129	2	SMQ-C54
60 - 80	0.2/0.6	0.2/0.6	1.0/2.5	30/17	1.1:1	129	1	SMQ-C22
66.5 - 73.5	0.2/0.3	0.5/0.8	1.0/3.0	25/20	1.1:1	129	2	SMQ-C56
76 - 84	0.2/0.3	0.5/0.8	1.0/3.0	25/20	1.1:1	129	2	SMQ-C61
80 - 160	0.4/0.75	0.5/1.0	1.0/3.0	25/17	1.3:1	129	1	SMQ-C03
95 - 105	0.2/0.3	0.2/0.6	1.0/3.0	25/17	1.1:1	129	2	SMQ-C62
100 - 200	0.4/0.75	0.5/1.0	1.0/3.0	25/18	1.1:1	129	1	SMQ-C04
100 - 230	0.6/0.9	0.8/1.2	2.0/4.0	23/17	1.3:1	129	1	SMQ-C11
104 - 176	0.3/0.6	0.2/0.6	1.0/2.5	25/17	1.3:1	129	1	SMQ-C21
114 - 126	0.2/0.3	0.5/0.8	1.0/3.0	25/17	1.1:1	129	2	SMQ-C66
133 - 147	0.2/0.3	0.5/0.8	1.0/3.0	25/17	1.1:1	129	2	SMQ-C63
150 - 300	0.4/0.75	0.5/1.0	1.0/3.0	25/17	1.3:1	129	1	SMQ-C05
190 - 210	0.2/0.4	0.5/0.8	1.0/3.0	25/17	1.2:1	129	2	SMQ-C64
200 - 400	0.4/0.75	1.0/1.5	2.0/4.0	25/17	1.3:1	129	1	SMQ-C07
285 - 315	0.2/0.4	0.5/0.8	2.0/3.0	25/17	1.2:1	129	2	SMQ-C65
350 - 450	0.5/0.8	0.6/1.0	2.0/4.0	25/17	1.3:1	129	1	SMQ-C13
428 - 473	0.2/0.4	0.5/0.9	1.0/3.0	25/17	1.3:1	129	2	SMQ-C67
475 - 525	0.2/0.4	0.5/0.9	1.0/3.0	25/17	1.3:1	129	2	SMQ-C74
570 - 630	0.2/0.3	0.5/0.7	1.0/3.0	25/17	1.2:1	129	2	SMQ-C68



SYNSTRIPTM SURFACE MOUNT

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FREQUENCY RANGE (MHz)	INSERTION LOSS (dB) TYP/MAX	AMPLITUDE UNBALANCE (dB) +/- TYP/MAX	PHASE UNBALANCE (Degrees) TYP/MAX	ISOLATION (dB) TYP/MIN	VSWR TYP/MAX	PACKAGE	PIN-OUT (See Below)	MODEL
800 - 1200	0.2/0.30	0.3/0.4	2.0/3.0	22/18	1.20:1/1.25:1	241	3	MSQ-8012**
900 - 1200	0.2/0.25	0.3/0.4	2.0/3.0	22/18	1.20:1/1.25:1	227	3	MSQ-A02*
1500 - 2100	0.2/0.30	0.3/0.4	2.0/3.0	22/18	1.20:1/1.25:1	230	3	MSQ-1521***
1600 - 2400	0.2/0.25	0.3/0.4	2.0/3.0	22/18	1.20:1/1.25:1	241	3	MSQ-1624*
1800 - 2500	0.2/0.25	0.3/0.4	2.0/3.0	22/18	1.20:1/1.25:1	228	3	MSQ-1825*
1800 - 2500	0.2/0.30	0.3/0.4	2.0/3.0	22/18	1.20:1/1.25:1	227	3	MSQ-A01*
2000 - 2300	0.2/0.25	0.3/0.4	2.0/3.0	22/18	1.20:1/1.25:1	230	3	MXQ-2023*

PIN-OUT TABLE

	INPUT	+90° OUTPUT	0° OUTPUT	ISOLATED*	GROUND**	NO CONN.
#1	5	1	2	6	7,8,9,10	3,4
#2	1	6	3	4	7,8,9,10	2,5
#3	1	3	4	2	--	--

*Terminate isolated port with 50 ohms externally

**GROUND = Ground externally

Power Rating: 1 Watt, max.

* 100 Avg. Watts

** 150 Avg. Watts

*** 60 Avg. Watts

All specifications assume 50 ohms impedance of all ports
For pin location and package outline drawings, see back pages.



90° HYBRIDS



LEADED SURFACE-MOUNT

FREQUENCY RANGE (MHz)	INSERTION LOSS (dB) TYP/MAX	AMPLITUDE UNBALANCE (dB) TYP/MAX	PHASE UNBALANCE (Degrees) TYP/MAX	ISOLATION (dB) TYP/MIN	VSWR TYP	PACKAGE	MODEL
5.5-16.5	0.3/0.5	0.8/1.0	1.0/3.0	23/20	1.2:1	159	SLQ-301
10.2-11.2	0.1/0.3	0.5/0.8	1.0/3.0	25/20	1.1:1	159	SLQ-51
19 - 21	0.2/0.3	0.5/0.8	1.0/3.0	25/20	1.1:1	159	SLQ-57
20 - 40	0.3/0.6	0.4/0.75	1.0/3.0	25/20	1.1:1	159	SLQ-K01
20 - 60	0.3/0.5	0.8/1.0	1.0/3.0	23/20	1.2:1	159	SLQ-302
20.3 - 22.5	0.2/0.3	0.5/0.8	1.0/3.0	25/20	1.1:1	159	SLQ-52
25 - 50	0.3/0.6	0.4/0.75	1.0/3.0	25/20	1.2:1	159	SLQ-KF1
28.5 - 31.5	0.2/0.3	0.5/0.8	1.0/3.0	25/20	1.1:1	159	SLQ-53
30 - 60	0.3/0.6	0.4/0.75	1.0/3.0	25/20	1.2:1	159	SLQ-KH1
30 - 90	0.3/0.6	0.8/1.2	1.0/3.0	23/18	1.2:1	159	SLQ-303
38 - 42	0.2/0.3	0.5/0.8	1.0/3.0	25/20	1.1:1	159	SLQ-58
40 - 80	0.3/0.6	0.4/0.75	1.0/3.0	25/20	1.2:1	159	SLQ-K02
40 - 120	0.3/0.6	0.8/1.2	2.0/4.0	23/17	1.3:1	159	SLQ-305
50 - 100	0.4/0.75	0.5/1.0	1.0/3.0	25/20	1.2:1	159	SLQ-K20
57 - 63	0.2/0.3	0.5/0.8	1.0/3.0	25/20	1.1:1	159	SLQ-54
60 - 120	0.4/0.75	0.5/1.0	1.0/3.0	25/20	1.2:1	159	SLQ-KA2
66.5 - 73.5	0.2/0.3	0.5/0.8	1.0/3.0	25/20	1.1:1	159	SLQ-56
70 - 140	0.4/0.75	0.5/1.0	1.0/3.0	25/20	1.2:1	159	SLQ-KA3
76 - 84	0.2/0.3	0.5/0.8	1.0/3.0	25/20	1.1:1	159	SLQ-61
80 - 160	0.4/0.75	0.5/1.0	1.0/3.0	25/20	1.2:1	159	SLQ-KA4
90 - 270	0.4/0.7	0.8/1.3	2.0/4.0	23/17	1.3:1	159	SLQ-304
95 - 105	0.2/0.3	0.5/0.8	1.0/3.0	25/17	1.1:1	159	SLQ-62
100 - 200	0.4/0.75	0.5/1.0	1.0/3.0	25/18	1.2:1	159	SLQ-K04
115 - 345	0.5/0.8	0.8/1.4	2.0/4.0	23/17	1.3:1	159	SLQ-310
114 - 126	0.2/0.3	0.5/0.8	1.0/3.0	25/17	1.1:1	159	SLQ-66
133 - 147	0.2/0.3	0.5/0.8	1.0/3.0	25/17	1.1:1	159	SLQ-63
150 - 300	0.4/0.75	0.5/1.0	1.0/3.0	25/17	1.3:1	159	SLQ-K05
190 - 210	0.2/0.4	0.5/0.8	1.0/3.0	25/17	1.2:1	159	SLQ-64
225 - 400	0.4/0.75	0.6/1.2	2.0/4.0	25/17	1.3:1	159	SLQ-K07
240-720	0.7/1.0	1.2/1.8	3.0/5.0	23/15	1.35:1	159	SLQ-330
250 - 500	0.5/0.8	0.6/1.2	2.0/4.0	25/15	1.3:1	159	SLQ-K08
285 - 315	0.2/0.4	0.5/0.8	2.0/3.0	25/17	1.2:1	159	SLQ-65
300 - 600	0.5/0.8	0.6/1.2	3.0/6.0	25/15	1.3:1	159	SLQ-K09
428 - 473	0.2/0.4	0.5/0.9	1.0/3.0	25/17	1.3:1	159	SLQ-67
500-1000	0.6/0.9	1.0/1.5	4.0/8.0	20/13	1.5:1	159	SLQ-K10
736 - 814	0.2/0.4	0.5/0.9	2.0/4.0	25/15	1.3:1	159	SLQ-78
779 - 861	0.2/0.5	0.5/0.9	2.0/4.0	25/15	1.3:1	159	SLQ-68
836 - 924	0.2/0.5	0.5/0.9	2.0/4.0	25/15	1.3:1	159	SLQ-69
900 - 994	0.2/0.5	0.5/0.9	2.0/4.0	25/15	1.3:1	159	SLQ-70
1420 - 1570	0.3/0.6	0.7/1.0	3.0/5.0	17/13	1.3:1	159	SLQ-71
1496 - 1654	0.3/0.6	0.7/1.0	3.0/5.0	17/13	1.3:1	159	SLQ-72
1748 - 1932	0.3/0.6	0.7/1.0	3.0/5.0	17/13	1.3:1	159	SLQ-73

Power Rating: 1 Watt, max.
All specifications assume 50 ohms impedance of all ports
For pin location and package outline drawings, see back pages.

PIN-OUT TABLE

INPUT	+90° OUTPUT	0° OUTPUT	ISOLATED*	GROUND**
6	1	2	5	3,4

*Terminate isolated port with 50 ohms externally

**GROUND = Ground externally

90° HYBRIDS



WIDEBAND SURFACE- MOUNT (8 Pin-Relay Header)

FREQUENCY RANGE (MHz)	INSERTION LOSS (dB) TYP/MAX	AMPLITUDE UNBALANCE (dB) TYP/MAX	PHASE UNBALANCE (Degrees) TYP/MAX	ISOLATION (dB) TYP/MIN	VSWR TYP	PACKAGE	MODEL
3-32	1.0/1.5	0.9/1.2	2.0/3.0	25/20	1.3:1	102S	DQS-3-32
5-50	1.0/1.5	0.9/1.2	2.0/3.0	25/20	1.3:1	102S	DQS-5-50
10-50	0.8/1.0	0.5/0.9	1.5/3.0	30/20	1.3:1	102S	DQS-10-50
10-100	1.0/1.5	0.9/1.2	2.0/3.0	25/20	1.3:1	102S	DQS-10-100
15-150	1.2/1.7	0.9/1.2	2.5/4.0	25/17	1.3:1	102S	DQS-15-150
20-100	0.8/1.0	0.5/0.8	1.5/3.0	30/20	1.3:1	102S	DQS-20-100
20-200	1.3/1.8	0.9/1.2	2.5/4.0	25/17	1.3:1	102S	DQS-20-200
25-250	1.5/2.0	0.9/1.2	2.5/4.0	25/17	1.3:1	102S	DQS-25-250
30-150	0.8/1.0	0.5/0.9	1.5/3.0	30/20	1.3:1	102S	DQS-30-150
30-300	1.5/2.0	1.0/1.4	3.0/5.0	25/16	1.3:1	102S	DQS-30-300
40-200	0.9/1.0	0.5/1.0	2.0/4.0	30/18	1.3:1	102S	DQS-40-200
40-400	1.7/2.2	1.0/1.5	3.0/5.0	25/16	1.3:1	102S	DQS-40-400
45-450	1.7/2.2	1.0/1.4	3.0/5.0	25/15	1.3:1	102S	DQS-45-450
50-250	0.9/1.0	0.5/1.0	2.0/4.0	30/18	1.3:1	102S	DQS-50-250
50-500	1.7/2.2	1.0/1.5	3.0/5.0	23/13	1.3:1	102S	DQS-50-500
60-300	0.9/1.0	0.6/1.0	2.0/4.0	30/18	1.3:1	102S	DQS-60-300
70-350	1.1/1.5	0.6/1.2	2.5/5.0	28/16	1.4:1	102S	DQS-70-350
80-400	1.2/1.5	0.6/1.25	3.0/5.0	25/16	1.4:1	102S	DQS-80-400
90-450	1.2/1.5	0.7/1.25	3.0/5.0	23/16	1.4:1	102S	DQS-90-450
100-500	1.2/1.5	0.8/1.25	3.0/5.0	25/16	1.4:1	102S	DQS-100-500

Power Rating: 1 Watt, max.

All specifications assume 50 ohms impedance of all ports

*Terminate isolated port with 50 ohms externally

**GROUND = Ground externally

For pin location and package outline drawings, see back pages.

PIN-OUT TABLE

INPUT	+90° OUTPUT	0° OUTPUT	ISOLATED*	GROUND**
1	8	7	2	3,4,5,6

90° HYBRIDS

WIDE BANDWIDTH THROUGH HOLE MOUNT



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FREQUENCY RANGE (MHz)	INSERTION LOSS (dB) TYP/MAX	AMPLITUDE UNBALANCE (dB) TYP/MAX	PHASE UNBALANCE (Degrees) TYP/MAX	ISOLATION (dB) TYP/MIN	VSWR TYP	PACKAGE	PIN-OUT (See Below)	MODEL
2-32	0.8/1.0	0.9/1.0	1.0/3.0	23/20	1.2:1	151	4	DQP-2-16
2-250	1.8/2.0	1.1/1.3	4.0/6.0	18/15	1.2:1	151	4	DQP-2-125
3-23	0.6/1.0	0.7/0.9	1.5/2.0	25/20	1.3:1	102	3	DQP-2E2
3-32	1.0/1.5	0.9/1.2	2.0/3.0	25/20	1.3:1	102	3	DQP-3-32
5-50	1.0/1.5	0.9/1.2	2.0/3.0	25/20	1.3:1	102	3	DQP-5-50
5.5-16.5	0.3/0.5	0.8/1.0	1.0/3.0	23/20	1.3:1	102	2	DQP-301
10-20	0.3/0.6	0.4/0.75	1.0/3.0	25/20	1.1:1	102	1	DQP-206
10-50	0.8/1.0	0.5/0.8	1.5/3.0	30/20	1.3:1	102	3	DQP-10-50
10-100	1.0/1.5	0.9/1.2	2.0/3.0	25/20	1.3:1	102	3	DQP-10-100
15-150	1.2/1.7	0.9/1.2	2.5/4.0	25/17	1.3:1	102	3	DQP-15-150
20-40	0.3/0.6	0.4/0.75	1.0/3.0	25/20	1.1:1	102	1	DQP-201
20-60	0.3/0.5	0.8/1.0	1.0/3.0	23/20	1.3:1	102	2	DQP-302
20-100	0.8/1.0	0.5/0.8	1.5/3.0	30/20	1.3:1	102	3	DQP-20-100
20-200	1.3/1.8	0.9/1.2	2.5/4.0	25/17	1.3:1	102	3	DQP-20-200
20-400	2.4/3.0	1.4/1.8	6.0/10	18/15	1.7:1	151	4	DQP-2-200
25-50	0.3/0.7	0.7/1.5	1.0/3.0	30/20	1.1:1	102	1	DQP-2F1
25-250	1.5/2.0	0.9/1.2	2.5/4.0	25/17	1.3:1	102	3	DQP-25-250
30-90	0.3/0.6	0.8/1.0	1.0/3.0	23/20	1.3:1	102	2	DQP-303
30-150	0.8/1.0	0.5/1.0	1.5/3.0	30/20	1.3:1	102	3	DQP-30-150
30-300	1.5/2.0	1.0/1.4	3.0/5.0	25/16	1.3:1	102	3	DQP-30-300
40-70	0.3/0.7	0.4/1.5	1.0/3.0	30/20	1.1:1	102	1	DQP-2H1
40-80	0.3/0.6	0.4/0.75	1.0/3.0	25/20	1.1:1	102	1	DQP-202
40-120	0.3/0.6	0.8/1.2	2.0/4.0	23/17	1.4:1	102	2	DQP-305
40-200	0.9/1.0	0.5/1.0	2.0/4.0	30/18	1.3:1	102	3	DQP-40-200
40-400	1.7/2.2	1.0/1.5	3.0/5.0	25/16	1.3:1	102	3	DQP-40-400
45-450	1.7/2.2	1.0/1.4	3.0/5.0	25/15	1.3:1	102	3	DQP-45-450
50-250	0.9/1.0	0.5/0.8	2.0/4.0	30/18	1.3:1	102	3	DQP-50-250
50-500	1.7/2.2	1.0/1.4	3.0/5.0	23/13	1.3:1	102	3	DQP-50-500
52-88	0.3/0.6	0.2/0.5	1.0/2.5	25/20	1.1:1	102	1	DQP-220
55-90	0.3/0.7	0.6/1.2	1.0/3.0	30/20	1.2:1	102	1	DQP-223
60-80	0.2/0.6	0.2/0.45	1.0/2.5	30/20	1.1:1	102	1	DQP-222
60-300	0.9/1.0	0.6/0.8	2.0/4.0	30/18	1.3:1	102	3	DQP-60-300
70-350	1.1/1.5	0.6/1.0	2.5/5.0	28/16	1.3:1	102	3	DQP-70-350
80-120	0.3/0.7	0.7/1.5	1.0/3.0	25/18	1.1:1	102	1	DQP-2A2
80-160	0.4/0.75	0.5/1.0	1.0/3.0	25/20	1.1:1	102	1	DQP-203
90-270	0.4/0.7	0.8/1.2	2.0/4.0	23/17	1.5:1	102	2	DQP-304
90-450	1.2/1.5	0.7/1.0	3.0/5.0	23/16	1.3:1	102	3	DQP-90-450
100-200	0.4/0.75	0.5/1.0	1.0/3.0	25/20	1.1:1	102	1	DQP-204
100-500	1.2/1.5	0.8/1.0	3.0/5.0	25/16	1.3:1	102	3	DQP-100-500
104-176	0.3/0.6	0.2/0.6	1.0/2.5	25/20	1.1:1	102	1	DQP-221
115-345	0.5/0.8	0.8/1.4	2.0/4.0	20/17	1.5:1	102	2	DQP-310
150-300	0.4/0.75	0.5/1.0	1.0/3.0	25/20	1.1:1	102	1	DQP-205
225-400	0.5/0.8	1.0/1.5	2.0/4.0	22/17	1.2:1	102	1	DQP-207
240-720	0.7/1.0	1.2/1.6	3.0/5.0	20/15	1.5:1	102	2	DQP-330

PIN-OUT TABLE

	INPUT	+90° OUTPUT	0° OUTPUT	ISOLATED*	GROUND**
#1	1	2	5	6	3,4,7,8
#2	1	6	2	5	3,4,7,8
#3	1	8	7	2	3,4,5,6
#4	1	3	4	2	5,6

*Terminate isolated port with 50 ohms externally

**GROUND = Ground externally

Power Rating: 1 Watt, max.

All specifications assume 50 ohm impedance of all ports

For pin location and package outline drawings, see back pages.



90° HYBRIDS

OPTIMIZED BANDWIDTH MINIATURE LEADLESS SURFACE-MOUNT



FREQUENCY RANGE (MHz)	INSERTION LOSS (dB) TYP/MAX	AMPLITUDE UNBALANCE (dB) TYP/MAX	PHASE UNBALANCE (Degrees) TYP/MAX	ISOLATION (dB) TYP/MIN	VSWR TYP	PACKAGE	PIN-OUT (See Below)	MODEL
10.2-11.2	0.2/0.3	0.5-0.7	1.0/3.0	25/20	1.1:1	134	1	SQ-51
19-21	0.2/0.3	0.5/0.7	1.0/3.0	25/20	1.1:1	134	1	SQ-57
20.4 -22.4	0.2/0.3	0.5-0.7	1.0/3.0	25/20	1.1:1	134	1	SQ-52
28.5 -31.5	0.2/0.3	0.5-0.7	1.0/3.0	25/20	1.1:1	134	1	SQ-53
38-42	0.2/0.3	0.5-0.7	1.0/3.0	25/20	1.1:1	134	1	SQ-58
57-63	0.2/0.3	0.5/0.7	1.0/3.0	25/20	1.1:1	134	1	SQ-54
66.5 -73.5	0.2/0.3	0.5/0.7	1.0/3.0	25/20	1.1:1	134	1	SQ-56
76-84	0.2/0.3	0.5/0.7	1.0/3.0	25/20	1.1:1	134	1	SQ-61
95-105	0.2/0.3	0.5/0.7	1.0/3.0	25/20	1.1:1	134	1	SQ-62
114-126	0.2/0.3	0.5/0.7	1.0/3.0	25/20	1.1:1	134	1	SQ-66
133-147	0.2/0.3	0.5/0.7	1.0/3.0	25/20	1.1:1	134	1	SQ-63
190-210	0.2/0.4	0.5/0.7	1.0/3.0	25/20	1.2:1	134	1	SQ-64
285-315	0.2/0.4	0.5/0.7	1.0/3.0	25/20	1.2:1	134	1	SQ-65
427.5-477.5	0.2/0.4	0.5/0.7	1.0/3.0	25/20	1.2:1	134	1	SQ-67
779 - 861	0.2/0.5	0.5/0.9	2.0/4.0	25/15	1.2:1	134	1	SQ-68
836 - 924	0.2/0.5	0.5/0.9	2.0/4.0	25/15	1.2:1	134	1	SQ-69
900 - 994	0.2/0.5	0.5/0.9	2.0/4.0	25/15	1.2:1	134	1	SQ-70



THROUGH HOLE MOUNT (8 Pin-Relay Header)

FREQUENCY RANGE (MHz)	INSERTION LOSS (dB) TYP/MAX	AMPLITUDE UNBALANCE (dB) TYP/MAX	PHASE UNBALANCE (Degrees) TYP/MAX	ISOLATION (dB) TYP/MIN	VSWR TYP	PACKAGE	PIN-OUT (See Below)	MODEL
1.13-1.38	0.4/0.7	0.6/1.2	1.0/3.0	29/25	1.1:1	102	2	DQP-2A1
9-11	0.4/0.7	0.6/1.2	1.0/3.0	25/20	1.1:1	102	2	DQP-2B1
10.2-11.2	0.2/0.3	0.5-0.7	1.0/3.0	25/20	1.1:1	102	2	DQP-251
16-19	0.6/0.7	0.7/1.6	1.0/3.0	28/25	1.1:1	102	2	DQP-2C1
19-21	0.2/0.3	0.5/0.7	1.0/3.0	25/20	1.1:1	102	2	DQP-257
20-23	0.4/0.7	0.6/1.2	1.0/3.0	35/20	1.1:1	102	2	DQP-2E1
20.4 -22.4	0.2/0.3	0.5-0.7	1.0/3.0	25/20	1.1:1	102	2	DQP-252
28.5 -31.4	0.2/0.3	0.5-0.7	1.0/3.0	25/20	1.1:1	102	2	DQP-253
38 -42	0.2/0.3	0.5-0.7	1.0/3.0	25/20	1.1:1	102	2	DQP-258
57-63	0.2/0.3	0.5/0.7	1.0/3.0	25/20	1.1:1	102	2	DQP-254
66.5 -73.5	0.2/0.3	0.5/0.7	1.0/3.0	25/20	1.1:1	102	2	DQP-256
76-84	0.2/0.3	0.5/0.7	1.0/3.0	25/20	1.1:1	102	2	DQP-261
95-105	0.2/0.3	0.5/0.7	1.0/3.0	25/20	1.1:1	102	2	DQP-262
114-126	0.2/0.3	0.5/0.7	1.0/3.0	25/20	1.1:1	102	2	DQP-266
133-147	0.2/0.3	0.5/0.7	1.0/3.0	25/20	1.1:1	102	2	DQP-263
190-210	0.2/0.3	0.5/0.7	1.0/3.0	25/20	1.1:1	102	2	DQP-264
285-315	0.2/0.4	0.5/0.7	1.0/3.0	25/20	1.1:1	102	2	DQP-265
427.5-477.5	0.2/0.4	0.5/0.7	1.0/3.0	25/20	1.1:1	102	2	DQP-267

Power Rating: 1 Watt, max.
All specifications assume 50 ohms impedance of all ports
For pin location and package outline drawings, see back pages.

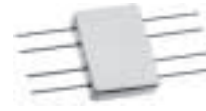
PIN-OUT TABLE

	INPUT	+90° OUTPUT	0° OUTPUT	ISOLATED*	GROUND**
#1	6	1	2	5	3,4
#2	1	2	5	6	3,4,7,8

*Terminate isolated port with 50 ohms externally

**GROUND = Ground externally

90° HYBRIDS



FLAT-PACK

FREQUENCY RANGE (MHz)	INSERTION LOSS (dB) TYP/MAX	AMPLITUDE UNBALANCE (dB) TYP/MAX	PHASE UNBALANCE (Degrees) TYP/MAX	ISOLATION (dB) TYP/MIN	VSWR TYP	PACKAGE	MODEL
5.5-16.5	0.3/0.5	0.8/1.0	1.0/3.0	23/20	1.3:1	101	DQF-301
7-14	0.3/0.6	0.4/0.75	1.0/3.0	25/20	1.1:1	101	DQF-1B1
10-20	0.3/0.6	0.4/0.75	1.0/3.0	25/20	1.1:1	101	DQF-106
10.2 -11.2	0.2/0.3	0.5-0.7	1.0/3.0	25/20	1.1:1	101	DQF-151
19-21	0.2/0.3	0.5-0.7	1.0/3.0	25/20	1.1:1	101	DQF-157
20-40	0.3/0.6	0.4/0.75	1.0/3.0	25/20	1.1:1	101	DQF-101
20-60	0.3/0.5	0.8/1.0	1.0/3.0	23/20	1.3:1	101	DQF-302
20.33-22.47	0.2/0.3	0.5-0.7	1.0/3.0	25/20	1.1:1	101	DQF-152
28.5-31.5	0.2/0.3	0.5/0.7	1.0/3.0	25/20	1.1:1	101	DQF-153
30-90	0.3/0.6	0.8/1.0	1.0/3.0	23/20	1.3:1	101	DQF-303
38-42	0.2/0.3	0.5/0.7	1.0/3.0	25/20	1.1:1	101	DQF-158
40-80	0.3/0.6	0.4/0.75	1.0/3.0	25/20	1.1:1	101	DQF-102
40-120	0.3/0.6	0.8/1.2	2.0/4.0	23/17	1.4:1	101	DQF-305
52-88	0.3/0.6	0.2/0.5	1.0/2.5	25/20	1.1:1	101	DQF-120
55-90	0.3/0.7	0.6/1.2	1.0/3.0	30/20	1.2:1	101	DQF-123
57-63	0.2/0.3	0.5/0.7	1.0/3.0	25/20	1.1:1	101	DQF-154
60-80	0.2/0.6	0.2/0.45	1.0/2.5	30/20	1.1:1	101	DQF-122
66.5-73.5	0.2/0.3	0.5/0.7	1.0/3.0	25/20	1.1:1	101	DQF-156
76-84	0.2/0.3	0.5/0.7	1.0/3.0	25/20	1.1:1	101	DQF-161
80-160	0.4/0.75	0.5/1.0	1.0/3.0	25/20	1.1:1	101	DQF-103
90-270	0.4/0.7	0.8/1.2	2.0/4.0	23/17	1.5:1	101	DQF-304
95-105	0.2/0.3	0.5/0.7	1.0/3.0	25/20	1.1:1	101	DQF-162
100-200	0.4/0.75	0.5/1.0	1.0/3.0	25/20	1.1:1	101	DQF-104
104-176	0.3/0.6	0.2/0.6	1.0/2.5	25/20	1.1:1	101	DQF-121
115-345	0.5/0.8	0.8/1.4	2.0/4.0	20/17	1.5:1	101	DQF-310
114-126	0.2/0.3	0.5/0.7	1.0/3.0	25/20	1.1:1	101	DQF-166
133-147	0.2/0.3	0.5/0.7	1.0/3.0	25/20	1.1:1	101	DQF-163
150-300	0.4/0.75	0.5/1.0	1.0/3.0	25/20	1.1:1	101	DQF-105
190-210	0.2/0.3	0.5/0.7	1.0/3.0	25/20	1.1:1	101	DQF-164
240-720	0.7/1.0	1.2/1.6	3.0/5.0	20/15	1.5:1	101	DQF-330
285-315	0.2/0.3	0.5/0.7	1.0/3.0	25/20	1.1:1	101	DQF-165
430-470	0.2/0.3	0.5/0.7	1.0/3.0	25/20	1.1:1	101	DQF-167

Power Rating: 1 Watt, max.

All specifications assume 50 ohms impedance of all ports

For pin location and package outline drawings, see back pages.

PIN-OUT TABLE

INPUT	+90° OUTPUT	0° OUTPUT	ISOLATED*	GROUND**
1	8	5	4	2,3,6,7

*Terminate isolated port with 50 ohms externally

**GROUND = Ground externally

90° HYBRIDS

OPTIMIZED AND OCTAVE BANDWIDTH COAXIAL CONNECTOR



FREQUENCY RANGE (MHz)	INSERTION LOSS (dB) TYP/MAX	AMPLITUDE UNBALANCE (dB) TYP/MAX	PHASE UNBALANCE (Degrees) TYP/MAX	ISOLATION (dB) TYP/MIN	VSWR TYP	PACKAGE	PIN-OUT (See Below)	MODEL
10.2-10.5	0.2/0.3	0.5/0.7	1.0/3.0	25/20	1.1:1	113	1	DQK-751*
5.5-16.5	0.3/0.5	0.8/1.0	1.0/3.0	23/20	1.3:1	113	2	DQK-301*
10-20	0.3/0.6	0.4/0.75	1.0/3.0	25/20	1.1:1	113	1	DQK-706*
19-21	0.2/0.3	0.5/0.7	1.0/3.0	25/20	1.1:1	113	1	DQK-757*
20-40	0.3/0.6	0.4/0.75	1.0/3.0	25/20	1.1:1	113	1	DQK-701*
20-60	0.3/0.5	0.8/1.0	1.0/3.0	23/20	1.3:1	113	2	DQK-302*
20.35-22.4	0.2/0.3	0.5-0.7	1.0/3.0	25/20	1.1:1	113	1	DQK-752*
28.5-31.5	0.2/0.3	0.5-0.7	1.0/3.0	25/20	1.1:1	113	1	DQK-753*
30-90	0.3/0.6	0.8/1.0	1.0/3.0	23/20	1.3:1	113	2	DQK-303*
38-42	0.2/0.3	0.5-0.7	1.0/3.0	25/20	1.1:1	113	1	DQK-758*
40-80	0.3/0.6	0.4/0.75	1.0/3.0	25/20	1.1:1	113	1	DQK-702*
40-120	0.3/0.6	0.8/1.2	2.0/4.0	23/17	1.4:1	113	2	DQK-305*
52-88	0.3/0.6	0.2/0.5	1.0/2.5	25/20	1.1:1	113	1	DQK-720*
55-90	0.3/0.7	0.6/1.2	1.0/3.0	30/20	1.2:1	113	1	DQK-723*
57-63	0.2/0.3	0.5/0.7	1.0/3.0	25/20	1.1:1	113	1	DQK-754*
60-80	0.2/0.6	0.2/0.45	1.0/2.5	30/20	1.1:1	113	1	DQK-722*
66.5-73.5	0.2/0.3	0.5/0.7	1.0/3.0	25/20	1.1:1	113	1	DQK-756*
76-84	0.2/0.3	0.5/0.7	1.0/3.0	25/20	1.1:1	113	1	DQK-761*
80-160	0.4/0.75	0.5/1.0	1.0/3.0	25/20	1.1:1	113	1	DQK-703*
90-270	0.4/0.7	0.8/1.3	2.0/4.0	23/17	1.5:1	113	2	DQK-304*
95-105	0.2/0.3	0.5/0.7	1.0/3.0	25/20	1.1:1	113	1	DQK-762*
100-200	0.4/0.75	0.5/1.0	1.0/3.0	25/20	1.1:1	113	1	DQK-704*
104-176	0.3/0.6	0.2/0.6	1.0/2.5	25/20	1.1:1	113	1	DQK-721*
115-345	0.5/0.8	0.8/1.4	2.0/4.0	20/17	1.5:1	113	2	DQK-310*
114-126	0.2/0.3	0.5/0.7	1.0/3.0	25/20	1.1:1	113	1	DQK-766*
133-147	0.2/0.3	0.5/0.7	1.0/3.0	25/20	1.1:1	113	1	DQK-763*
150-300	0.4/0.75	0.5/1.0	1.0/3.0	25/20	1.1:1	113	1	DQK-705*
190-210	0.2/0.3	0.5/0.7	1.0/3.0	25/20	1.1:1	113	1	DQK-764*
240-720	0.7/1.0	1.2/1.6	3.0/5.0	20/15	1.5:1	113	2	DQK-330*
285-315	0.2/0.4	0.5/0.7	1.0/3.0	25/20	1.1:1	113	1	DQK-765*
430-470	0.2/0.6	0.5/0.7	1.0/3.0	25/20	1.1:1	113	1	DQK-767*

Power Rating: 1 Watt, max.

All specifications assume 50 ohms impedance of all ports

*Select Connector Suffix: "B" = BNC, "S" = SMA, "N" = TYPE N, "T" = TNC

For pin location and package outline drawings, see back pages.

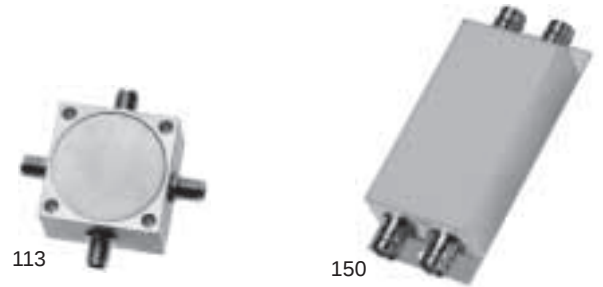
PIN-OUT TABLE

	INPUT	+90° OUTPUT	0° OUTPUT	ISOLATED*
#1	1	2	4	3
#2	1	3	2	4

*Terminate isolated port with 50 ohms externally

90° HYBRIDS

MULTI-OCTAVE BANDWIDTH COAXIAL CONNECTOR MODELS



113

150

FREQUENCY RANGE (MHz)	INSERTION LOSS (dB) TYP/MAX	AMPLITUDE UNBALANCE (dB) TYP/MAX	PHASE UNBALANCE (Degrees) TYP/MAX	ISOLATION (dB) TYP/MIN	VSWR TYP	PACKAGE	PIN-OUT (See Below)	MODEL
2-32	0.8/1.0	0.9/1.0	1.0/3.0	23/20	1.3:1	150	2	DQK-2-16B
2-250	1.8/2.0	1.1/1.3	4.0/6.0	18/15	1.4:1	150	2	DQK-2-125B
3-32	1.0/1.5	0.9/1.2	2.0/3.0	25/20	1.3:1	113	1	DQK-3-32S
5-50	1.0/1.5	0.9/1.2	2.0/3.0	25/20	1.3:1	113	1	DQK-5-50S
10-50	0.8/1.0	0.5/0.8	1.5/3.0	30/20	1.3:1	113	1	DQK-10-50S
10-100	1.0/1.5	0.9/1.2	2.0/3.0	25/20	1.3:1	113	1	DQK-10-100S
15-150	1.2/1.7	0.9/1.2	2.5/4.0	25/17	1.3:1	113	1	DQK-15-150S
20-100	0.8/1.0	0.5/1.0	1.5/3.0	30/20	1.3:1	113	1	DQK-20-100S
20-200	1.3/1.8	0.9/1.2	2.5/4.0	25/17	1.3:1	113	1	DQK-20-200S
20-400	2.4/3.0	1.4/1.8	6.0/10	18/15	1.7:1	150	2	DQK-2-200B
25-250	1.5/2.0	0.9/1.2	2.5/4.0	25/17	1.3:1	113	1	DQK-25-250S
30-150	0.8/1.0	0.5/1.0	1.5/3.0	30/20	1.3:1	113	1	DQK-30-150S
30-300	1.5/2.0	1.0/1.4	3.0/5.0	25/16	1.3:1	113	1	DQK-30-300S
40-200	0.9/1.0	0.5/1.0	2.0/4.0	30/18	1.3:1	113	1	DQK-40-400S
45-450	1.7/2.2	1.0/1.5	3.0/5.0	25/15	1.3:1	113	1	DQK-45-450S
50-250	0.9/1.0	0.5/1.0	2.0/4.0	30/18	1.3:1	113	1	DQK-50-250S
50-500	1.7/2.2	1.0/1.5	3.0/5.0	23/13	1.3:1	113	1	DQK-50-500S
60-300	0.9/1.0	0.6/1.0	2.0/4.0	30/18	1.3:1	113	1	DQK-60-300S
70-350	1.1/1.5	0.6/1.0	2.5/5.0	28/16	1.3:1	113	1	DQK-70-350S
90-450	1.2/1.5	0.7/1.2	3.0/5.0	23/16	1.3:1	113	1	DQK-90-450S
100-500	1.2/1.5	0.8/1.2	3.0/5.0	25/16	1.3:1	113	1	DQK-100-500S

Power Rating (All Models) = 1 Watt, max
Connector Suffix: "B" = BNC, "S" = SMA, (Last letter in Model number)
For pin location and package outline drawings, see back pages.

PIN-OUT TABLE

	INPUT	0° OUTPUT	+90° OUTPUT	*ISOLATED
# 1	1	4	3	2
# 2	1	2	3	4

*Terminate isolated port with 50 ohms externally.