



ULTRA-SMALL CERAMIC

# Power Splitter/Combiner

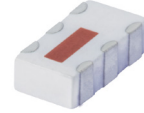
## QCN-12D+

Mini-Circuits

2 Way-90° 50Ω 800 to 1375 MHz

### FEATURES

- Low insertion loss, 0.4 dB typ.
- Wrap-around terminal for excellent solderability
- Ultra small, 0.12"X0.06"X0.035"



Generic photo used for illustration purposes only

CASE STYLE: FV1206-1

### APPLICATIONS

- Cellular
- Satellite distribution
- GSM
- Balanced amplifiers
- Modulators

**+RoHS Compliant**

The +Suffix identifies RoHS Compliance. See our website for methodologies and qualifications

### ELECTRICAL SPECIFICATIONS AT +25°C

Parameter	Frequency (MHz)	Min.	Typ.	Max.	Unit
Frequency Range		800		1375	MHz
Average Insertion Loss, above 3.0 dB	800-1000		0.4	0.8	dB
	1000-1375		0.6	1.0	
Isolation	800-1000	14	19		dB
	1000-1375	14	19		
Phase Unbalance	800-1000		9	12	Degree
	1000-1375		9	13	
Amplitude Unbalance	800-1000		0.4	0.9	dB
	1000-1375		0.7	1.0	
VSWR	800-1000		1.3		(:1)
	1000-1375		1.5		

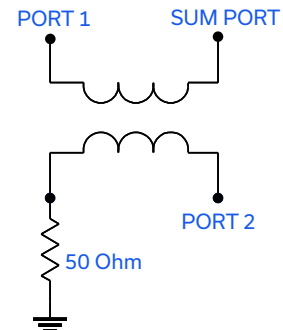
1. For applications requiring DC voltage to be applied to the RF ports. DC resistance to ground is 100 Mohms min.

### ABSOLUTE MAXIMUM RATINGS

Parameter	Ratings
Operating Temperature	-55°C to +100°C
Storage Temperature	-55°C to +100°C
Power Input (as a splitter)	15 W* max.

\* Derate linearly to 7 W at +100°C ambient. Permanent damage may occur if any of these limits are exceeded.

### ELECTRICAL SCHEMATIC (NOTE 1)



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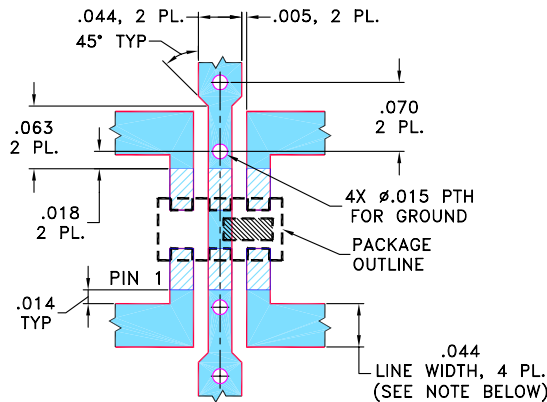
2 Way-90° 50Ω 800 to 1375 MHz

## PIN CONNECTIONS

SUM PORT	1
PORT 1 (0°)	4
PORT 2 (+90°)	6
GROUND	2,5
50 OHM TERM EXTERNAL	3

PRODUCT MARKING: N/A

DEMO BOARD MCL P/N: TB-QCN-12D+  
SUGGESTED PCB LAYOUT (PL-131)

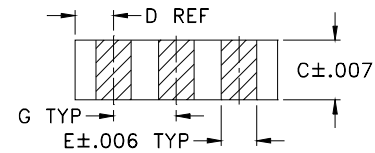
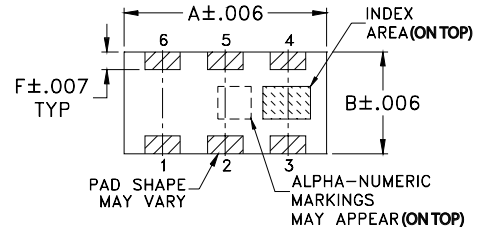


NOTES: 1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS  $0.020" \pm 0.0015"$ ; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.

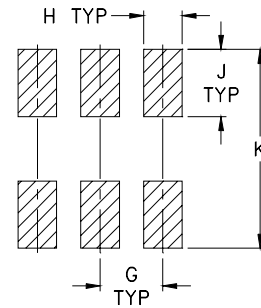
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

- DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)
- DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

## OUTLINE DRAWING



## PCB Land Pattern



Suggested Layout,  
Tolerance to be within  $\pm 0.002$

## OUTLINE DIMENSIONS (Inches/mm)

A	B	C	D	E	F
.126	.063	.035	.024	.022	.011
3.20	1.60	0.89	0.61	0.56	0.28
G	H	J	K	wt	
.039	.024	.042	.123	grams	
0.99	0.61	1.07	3.12	.020	

TAPE & REEL INFORMATION: F75





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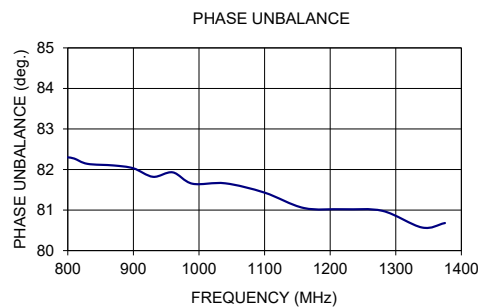
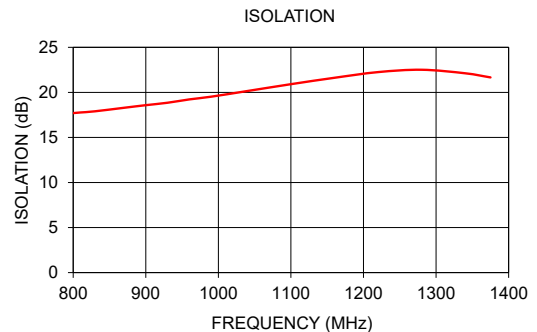
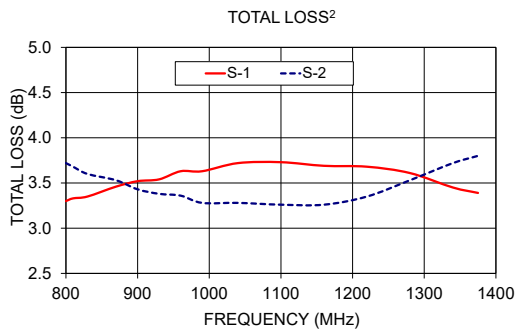
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### TYPICAL PERFORMANCE DATA

Frequency (MHz)	Total Loss <sup>2</sup> (dB)		Amplitude Unbalance (dB)	Isolation (dB)	Phase Unbalance (deg.)	VSWR (:1)		
	S-1	S-2				S	1	2
800	3.30	3.72	0.42	17.70	82.30	1.26	1.31	1.31
810	3.33	3.68	0.35	17.77	82.27	1.26	1.31	1.31
830	3.35	3.60	0.24	17.90	82.14	1.25	1.31	1.31
870	3.46	3.53	0.07	18.29	82.10	1.24	1.30	1.31
900	3.52	3.43	0.08	18.58	82.03	1.22	1.29	1.31
930	3.54	3.38	0.16	18.85	81.82	1.21	1.29	1.30
960	3.63	3.36	0.27	19.22	81.93	1.20	1.28	1.30
990	3.63	3.28	0.35	19.52	81.65	1.19	1.28	1.31
1040	3.72	3.28	0.44	20.15	81.66	1.17	1.27	1.31
1100	3.73	3.26	0.46	20.91	81.43	1.15	1.27	1.32
1160	3.69	3.26	0.44	21.62	81.05	1.13	1.27	1.33
1220	3.68	3.35	0.33	22.25	81.02	1.12	1.28	1.36
1280	3.61	3.53	0.08	22.51	80.98	1.12	1.29	1.39
1340	3.45	3.72	0.27	22.12	80.57	1.14	1.31	1.44
1375	3.39	3.8	0.42	21.66	80.68	1.17	1.33	1.47

2. Total Loss = Insertion Loss + 3 dB splitter loss.





- NOTES**
- A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
  - B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
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