



Mini-Circuits®

ULTRA-SMALL CERAMIC

Power Splitter/Combiner

QCN-12D+

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 web site for RoHS Compliance methodologies and qualifications

ELECTRICAL SPECIFICATIONS AT 25°C

Parameter	Frequency (MHz)	Min.	Typ.	Max.	Unit
Frequency Range		800		1375	MHz
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.

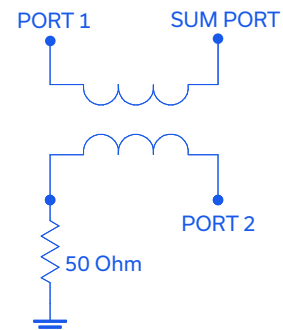
MAXIMUM RATINGS

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

* Derate linearly to 7W at 100°C ambient.

Permanent damage may occur if any of these limits are exceeded.

ELECTRICAL SCHEMATIC (NOTE 1)



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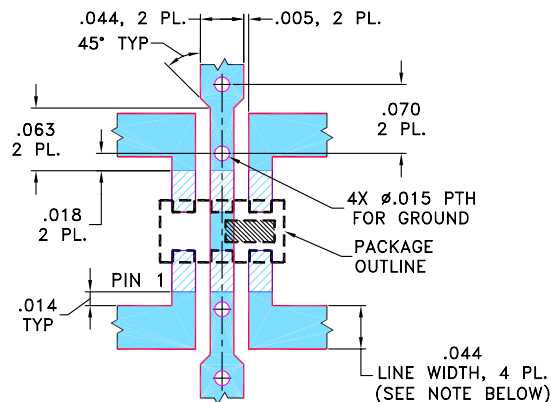
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PIN CONNECTIONS

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-255
SUGGESTED PCB LAYOUT (PL-131)

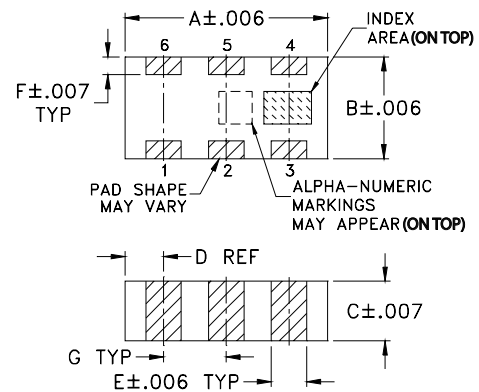


NOTES: 1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS $0.020" \pm 0.0015"$; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.

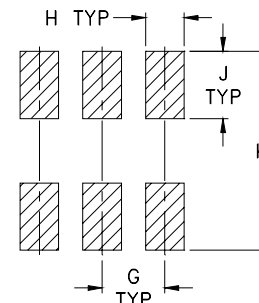
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

-  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 $\pm.002$

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





ULTRA-SMALL CERAMIC

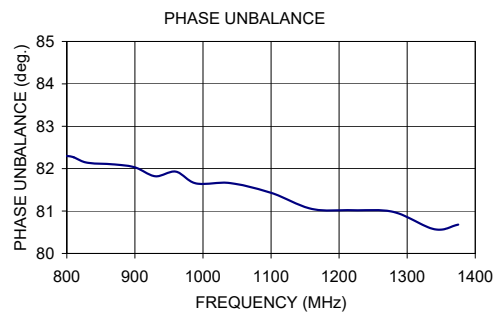
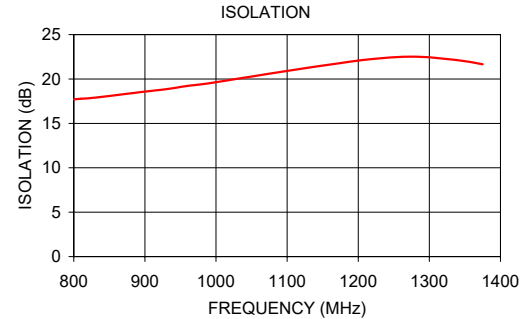
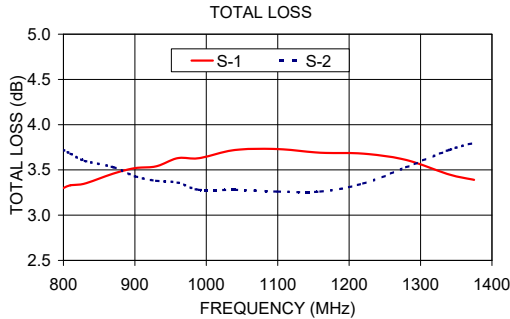
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TYPICAL PERFORMANCE DATA

Frequency (MHz)	Total Loss ¹ (dB)		Amplitude Unbalance (dB)	Isolation (dB)	Phase Unbalance (deg.)	VSWR (:1)		
	S-1	S-2				S	1	2
800.00	3.30	3.72	0.42	17.70	82.30	1.26	1.31	1.31
810.00	3.33	3.68	0.35	17.77	82.27	1.26	1.31	1.31
830.00	3.35	3.60	0.24	17.90	82.14	1.25	1.31	1.31
870.00	3.46	3.53	0.07	18.29	82.10	1.24	1.30	1.31
900.00	3.52	3.43	0.08	18.58	82.03	1.22	1.29	1.31
930.00	3.54	3.38	0.16	18.85	81.82	1.21	1.29	1.30
960.00	3.63	3.36	0.27	19.22	81.93	1.20	1.28	1.30
990.00	3.63	3.28	0.35	19.52	81.65	1.19	1.28	1.31
1040.00	3.72	3.28	0.44	20.15	81.66	1.17	1.27	1.31
1100.00	3.73	3.26	0.46	20.91	81.43	1.15	1.27	1.32
1160.00	3.69	3.26	0.44	21.62	81.05	1.13	1.27	1.33
1220.00	3.68	3.35	0.33	22.25	81.02	1.12	1.28	1.36
1280.00	3.61	3.53	0.08	22.51	80.98	1.12	1.29	1.39
1340.00	3.45	3.72	0.27	22.12	80.57	1.14	1.31	1.44
1375.00	3.39	3.8	0.42	21.66	80.68	1.17	1.33	1.47

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



NOTES

- 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.
- Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
- The parts covered by this specification document are subject to Mini-Circuits standard limited warranty and terms and conditions (collectively, "Standard Terms"); Purchasers of this part are entitled to the rights and benefits contained therein. For a full statement of the standard. Terms and the exclusive rights and remedies thereunder, please visit Mini-Circuits' website at www.minicircuits.com/MCLStore/terms.jsp

