



**THE DATASHEET OF  
QCN-12A+**





ULTRA-SMALL CERAMIC

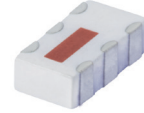
# Power Splitter/Combiner

## QCN-12A+

2 Way-90° 50Ω 800 to 1250 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
- 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		1250	MHz
Insertion Loss, above 3.0 dB	800-1000		0.3	0.6	dB
	1000-1250		0.4	0.7	
Isolation	800-1000	15	17		dB
	1000-1250	13	16		
Phase Unbalance	800-1000		2.5	5.0	Degree
	1000-1250		2.5	5.0	
Amplitude Unbalance	800-1000		0.2	0.8	dB
	1000-1250		0.5	0.8	
VSWR	800-1000		1.2		(:1)
	1000-1250		1.2		

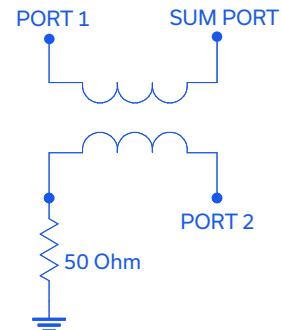
1. For applications requiring DC voltage to be applied to the RF ports, add suffix letter "D" to part no. DC resistance to ground is 100 Mohms min.

### 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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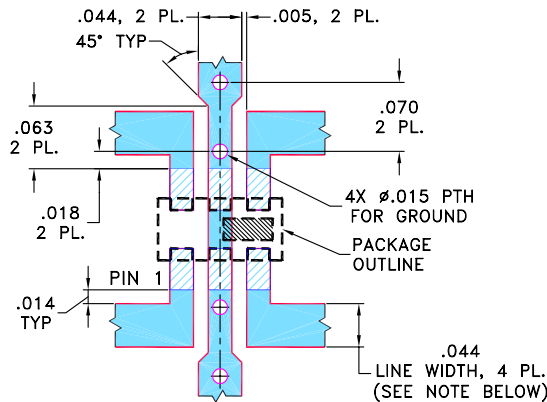
2 Way-90° 50Ω 800 to 1250 MHz

**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**

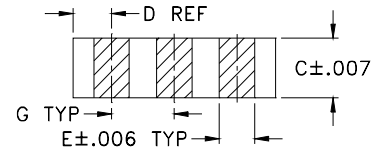
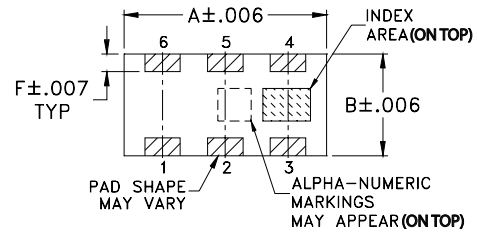
**DEMO BOARD MCL P/N: TB-255  
SUGGESTED PCB LAYOUT (PL-131)**



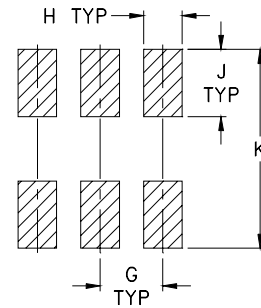
NOTES: 1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS 0.020" ± 0.0015"; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.  
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

- 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 ±.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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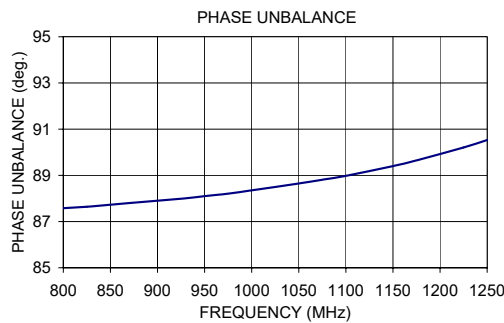
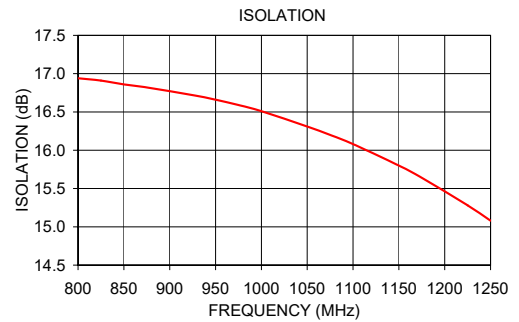
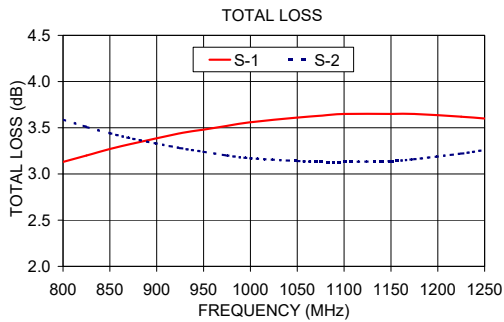
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### TYPICAL PERFORMANCE DATA

Frequency (MHz)	Total Loss <sup>1</sup> (dB)		Amplitude Unbalance (dB)	Isolation (dB)	Phase Unbalance (deg.)	VSWR (:1)		
	S-1	S-2				S	1	2
800.00	3.13	3.59	0.46	16.94	87.58	1.27	1.20	1.11
825.00	3.20	3.51	0.31	16.91	87.64	1.27	1.20	1.10
850.00	3.27	3.44	0.18	16.86	87.73	1.27	1.19	1.10
875.00	3.33	3.38	0.05	16.82	87.82	1.27	1.18	1.09
925.00	3.44	3.28	0.16	16.72	87.99	1.27	1.16	1.08
950.00	3.48	3.24	0.25	16.66	88.10	1.27	1.15	1.07
975.00	3.52	3.20	0.32	16.59	88.21	1.27	1.14	1.07
1000.00	3.56	3.17	0.39	16.51	88.35	1.27	1.13	1.07
1050.00	3.61	3.14	0.48	16.31	88.65	1.27	1.10	1.07
1075.00	3.63	3.13	0.50	16.20	88.81	1.28	1.09	1.07
1100.00	3.65	3.13	0.52	16.08	88.98	1.28	1.07	1.07
1150.00	3.65	3.14	0.51	15.80	89.40	1.29	1.05	1.09
1175.00	3.65	3.16	0.49	15.64	89.65	1.29	1.03	1.10
1225.00	3.62	3.22	0.40	15.28	90.21	1.30	1.01	1.12
1250.00	3.60	3.26	0.34	15.08	90.53	1.31	1.03	1.14

1. 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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