



ULTRA-SMALL CERAMIC

# Power Splitter/Combiner

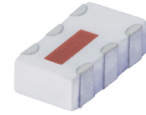
## QCN-8+

Mini-Circuits

2 Way-90° 50Ω 450 to 750 MHz

### FEATURES

- Low insertion loss, 0.6 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

- Balanced amplifiers
- Modulators
- UHF
- Point to point radio

**+RoHS Compliant**

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

### ELECTRICAL SPECIFICATIONS AT 25°C

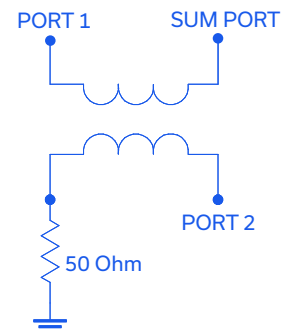
Parameter	Frequency (MHz)	Min.	Typ.	Max.	Unit
Frequency Range		450		750	MHz
Insertion Loss, above 3.0 dB	450-750		0.6	0.9	dB
	470-700		0.5	0.8	
Isolation	450-750	13	16		dB
	470-700	13	16		
Phase Unbalance	450-750		5	8	Degree
	470-700		5	8	
Amplitude Unbalance	450-750		0.5	1.0	dB
	470-700		0.3	0.8	
VSWR	450-750		1.4		(:1)
	470-700		1.4		

### 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



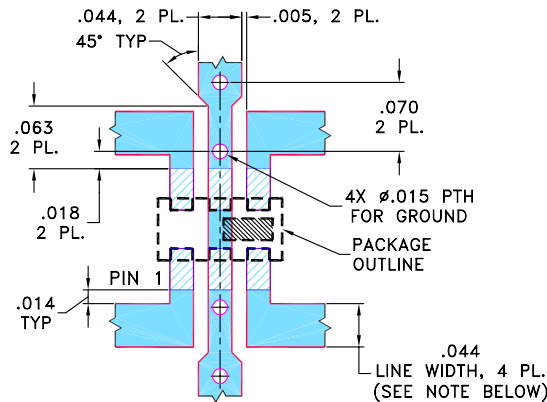


### PIN CONNECTIONS

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)

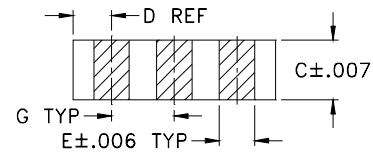
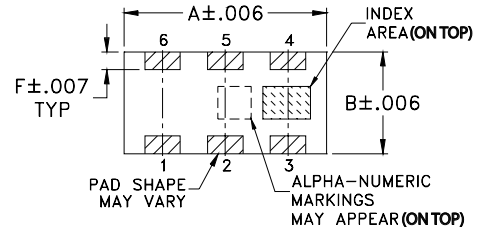


NOTES: 1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS  $0.020" \pm 0.0015"$ ; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.

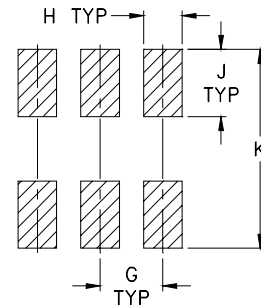
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

- 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  $\pm 0.002$

### 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	

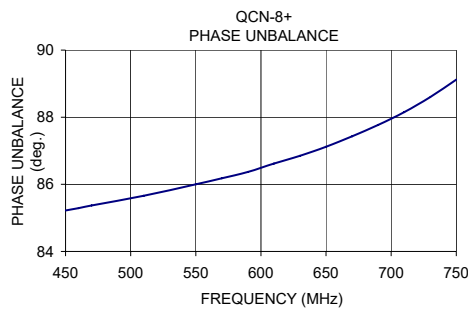
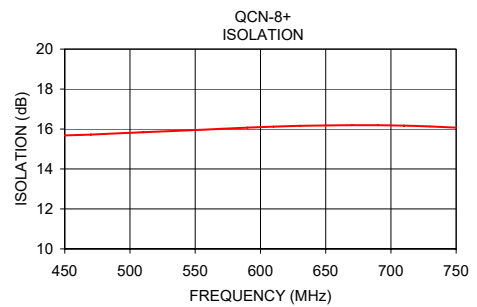
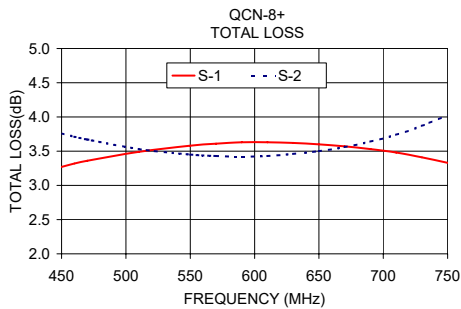
TAPE & REEL INFORMATION: F75



### 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
450.00	3.27	3.76	0.49	15.68	85.22	1.41	1.41	1.38
460.00	3.32	3.71	0.40	15.70	85.29	1.40	1.41	1.38
470.00	3.36	3.67	0.31	15.72	85.37	1.40	1.41	1.37
510.00	3.49	3.53	0.04	15.84	85.66	1.39	1.40	1.36
550.00	3.58	3.45	0.13	15.95	86.00	1.37	1.40	1.36
570.00	3.61	3.43	0.18	16.01	86.18	1.37	1.40	1.36
590.00	3.63	3.42	0.20	16.07	86.37	1.36	1.40	1.36
610.00	3.63	3.43	0.20	16.12	86.62	1.36	1.40	1.36
630.00	3.62	3.46	0.17	16.16	86.85	1.36	1.40	1.37
650.00	3.60	3.50	0.11	16.18	87.12	1.36	1.41	1.38
670.00	3.57	3.56	0.01	16.19	87.43	1.37	1.41	1.39
690.00	3.53	3.64	0.11	16.19	87.77	1.37	1.43	1.40
710.00	3.48	3.74	0.27	16.17	88.15	1.38	1.44	1.42
730.00	3.41	3.87	0.46	16.13	88.60	1.40	1.46	1.45
750.00	3.33	4.03	0.70	16.07	89.12	1.41	1.48	1.48

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.
  - C. 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](http://www.minicircuits.com/MCLStore/terms.jsp)

