

# Ultra-Small Ceramic Power Splitter/Combiner

## QCN-3+

2 Way-90° 50Ω 220 to 470 MHz



CASE STYLE: FV1206-1

### Maximum 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.

### Pin Connections

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

### Features

- low insertion loss, 0.4 dB typ.
- high isolation, 25 dB typ.
- wrap-around terminal for excellent solderability
- ultra small, 0.12"X0.06"X0.035"

### Applications

- balanced amplifiers
- modulators
- VHF
- defense communication

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

Available Tape and Reel at no extra cost  
Reel Size Devices/Reel  
7" 20, 50, 100, 200, 500, 1000, 3000

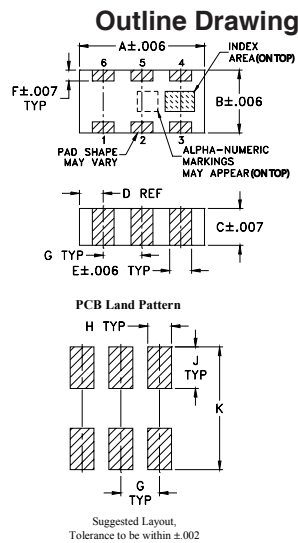
### Electrical Specifications

FREQ. RANGE (MHz)	ISOLATION (dB)		INSERTION LOSS (dB) Avg. of Coupled Outputs ABOVE 3 dB		PHASE UNBALANCE (Degrees)		AMPLITUDE UNBALANCE (dB)		VSWR (:1)
	Typ.	Min.	Typ.	Max.	Typ.	Max.	Typ.	Max.	Typ.
220-470	24	18	0.6	0.8	1	8	0.5	1.7	1.2
270-350	25	18	0.4	0.7	3	5	0.7	1.0	1.2
350-450	30	20	0.6	0.8	5	8	0.5	1.0	1.2

### Typical Performance Data

Frequency (MHz)	Total Loss <sup>1</sup> (dB)		Amplitude Unbalance (dB)	Isolation (dB)	Phase Unbalance (deg.)	VSWR S	VSWR 1	VSWR 2
	S-1	S-2						
220.00	3.91	3.00	0.91	23.23	90.40	1.07	1.12	1.07
230.00	3.77	3.11	0.67	23.41	90.55	1.06	1.12	1.06
250.00	3.55	3.31	0.23	23.85	90.86	1.05	1.11	1.06
260.00	3.45	3.41	0.05	24.11	91.02	1.05	1.11	1.05
270.00	3.37	3.49	0.12	24.37	91.18	1.04	1.10	1.05
290.00	3.24	3.64	0.39	24.96	91.53	1.04	1.10	1.04
310.00	3.16	3.76	0.60	25.67	91.88	1.03	1.09	1.03
330.00	3.12	3.83	0.72	26.46	92.26	1.03	1.08	1.03
350.00	3.11	3.88	0.77	27.38	92.67	1.04	1.08	1.02
370.00	3.14	3.88	0.74	28.47	93.12	1.05	1.07	1.02
390.00	3.22	3.85	0.63	29.82	93.63	1.07	1.07	1.02
410.00	3.35	3.78	0.42	31.55	94.16	1.09	1.07	1.01
430.00	3.55	3.66	0.11	33.99	94.80	1.11	1.07	1.01
450.00	3.82	3.50	0.32	37.16	95.56	1.14	1.07	1.02
470.00	4.19	3.29	0.90	38.74	96.48	1.17	1.08	1.02

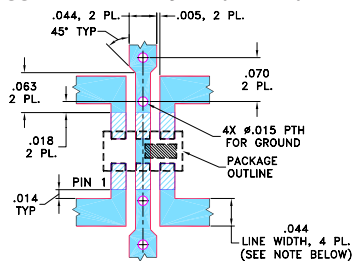
1. Total Loss = Insertion Loss + 3dB splitter loss.



### Outline Dimensions (inch/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

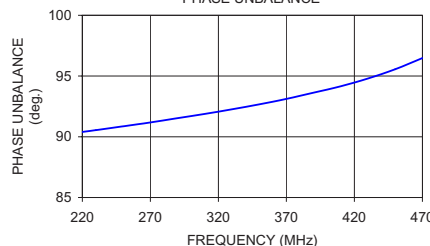
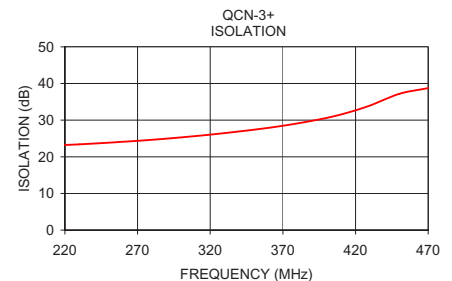
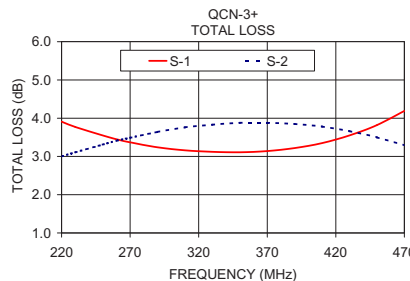
### Demo Board MCL P/N: TB-255+ Suggested PCB Layout (PL-131)



- 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

### 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-Circuit's 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-Circuit's website at [www.minicircuits.com/MCLStore/terms.jsp](http://www.minicircuits.com/MCLStore/terms.jsp)



### electrical schematic

