



ULTRA-SMALL CERAMIC

# Power Splitter/Combiner

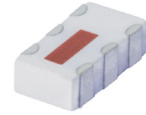
## QCN-7+

Mini-Circuits

2 Way-90° 50Ω 425 to 675 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

**+RoHS Compliant**

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

### APPLICATIONS

- Balanced amplifiers
- Modulators
- UHF

### ELECTRICAL SPECIFICATIONS AT 25°C

Parameter	Frequency (MHz)	Min.	Typ.	Max.	Unit
Frequency Range		425		675	MHz
Insertion Loss, above 3.0 dB	425-550		0.4	0.7	dB
	550-675		0.6	1.1	
Isolation	425-550	13	17		dB
	550-675	11	17		
Phase Unbalance	425-550		2	8	Degree
	550-675		4	8	
Amplitude Unbalance	425-550		0.5	1.0	dB
	550-675		0.5	1.0	
VSWR	425-550		1.3		(:1)
	550-675		1.4		

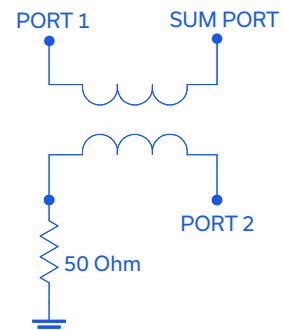
1. For applications requiring DC voltage to be applied to the RF ports, add suffix letter "D" to part no. DC resistance to ground is 100 Mohms min.

### 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)



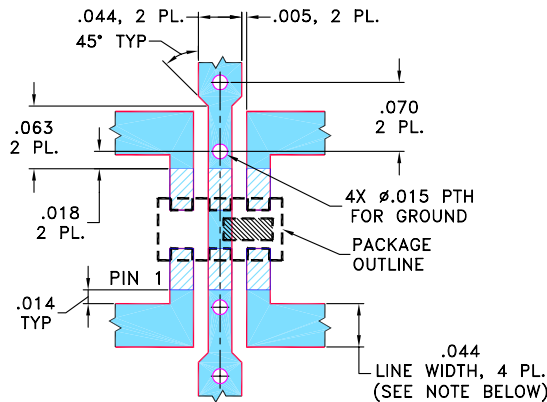


### PIN CONNECTIONS

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

### PRODUCT MARKING: D

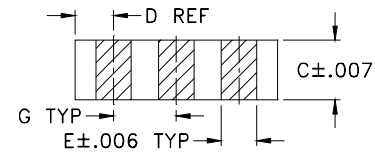
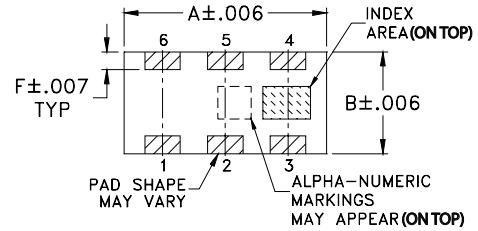
### DEMO BOARD MCL P/N: TB-255 SUGGESTED PCB LAYOUT (PL-131)



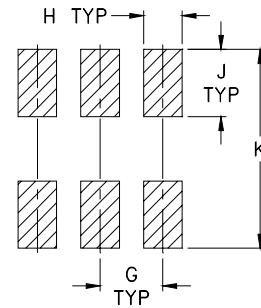
NOTES: 1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS  $0.020" \pm 0.0015"$ ; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.  
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

- 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	

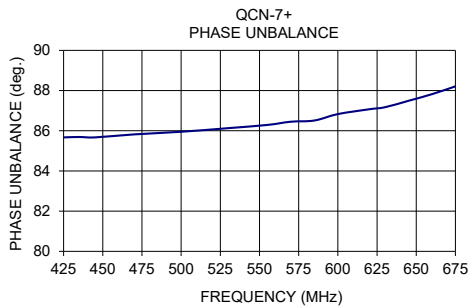
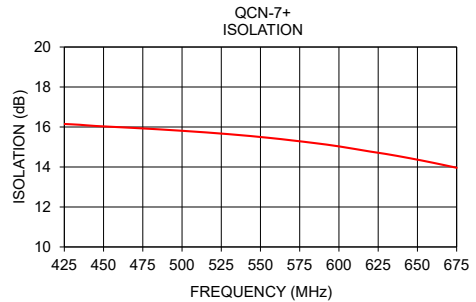
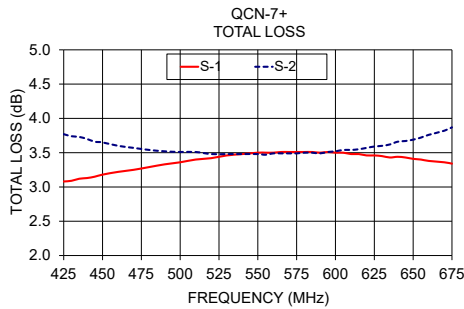
### TAPE & REEL INFORMATION: F75



### 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
425.00	3.08	3.77	0.69	16.15	85.67	1.32	1.30	1.26
435.00	3.12	3.73	0.60	16.11	85.69	1.32	1.30	1.26
445.00	3.15	3.66	0.51	16.05	85.67	1.32	1.29	1.26
470.00	3.25	3.57	0.31	15.95	85.82	1.32	1.29	1.26
500.00	3.36	3.51	0.15	15.81	85.95	1.32	1.28	1.26
530.00	3.46	3.48	0.02	15.64	86.13	1.32	1.28	1.26
555.00	3.50	3.47	0.03	15.46	86.29	1.33	1.29	1.27
570.00	3.51	3.49	0.02	15.33	86.45	1.34	1.29	1.27
585.00	3.51	3.50	0.00	15.19	86.51	1.35	1.29	1.28
600.00	3.50	3.52	0.02	15.03	86.83	1.35	1.30	1.29
620.00	3.46	3.57	0.11	14.77	87.07	1.37	1.31	1.30
630.00	3.45	3.60	0.15	14.65	87.17	1.38	1.32	1.31
645.00	3.43	3.67	0.24	14.44	87.49	1.40	1.33	1.33
660.00	3.38	3.76	0.38	14.21	87.82	1.42	1.34	1.35
675.00	3.34	3.87	0.53	13.96	88.21	1.44	1.36	1.37

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)

