



ULTRA-SMALL CERAMIC

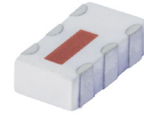
# Power Splitter/Combiner

QCN-5+

2 Way-90° 50Ω 330 to 580 MHz

## FEATURES

- Low insertion loss, 0.4 dB typ.
- High isolation, 22 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 website for methodologies and qualifications

## APPLICATIONS

- Balanced amplifiers
- Modulators
- VHF
- Defense communication

## ELECTRICAL SPECIFICATIONS AT 25°C

Parameter	Frequency (MHz)	Min.	Typ.	Max.	Unit
Frequency Range		330		580	MHz
Insertion Loss, above 3.0 dB	330-400		0.4	0.6	dB
	400-525		0.55	0.8	
	525-580		0.9	1.3	
Isolation	330-400	18	20		dB
	400-525	15	20		
	525-580	12	16		
Phase Unbalance	330-400		2.5	5	Degree
	400-525		2.5	4	
	525-580		3.0	6	
Amplitude Unbalance	330-400		0.6	1.1	dB
	400-525		0.5	0.9	
	525-580		1.4	1.8	
VSWR	330-400		1.2		(:1)
	400-525		1.3		
	525-580		1.5		

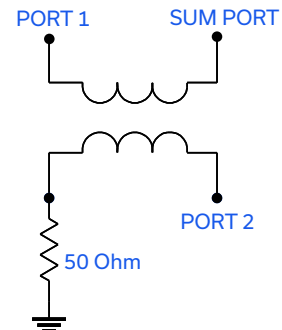
1. For applications requiring DC voltage to be applied to the RF ports, add suffix letter "D+" to part no.  
DC resistance to ground is 100 Mohms min.

## 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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Mini-Circuits

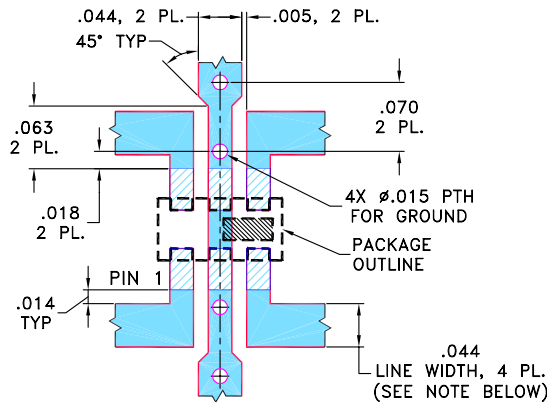
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## PIN CONNECTIONS

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

PRODUCT MARKING: PL

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

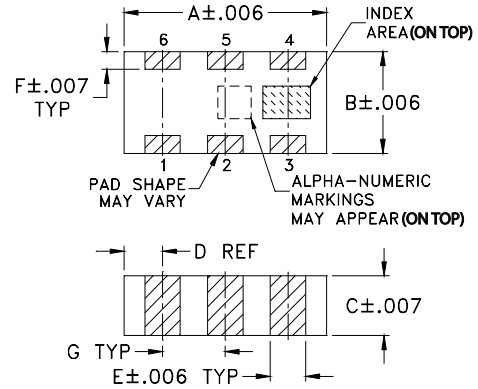


NOTES: 1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS  $0.020" \pm 0.0015"$ ; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.

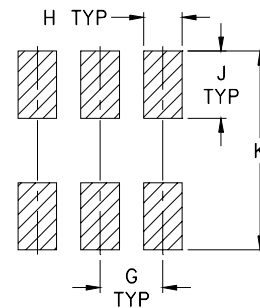
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

- 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





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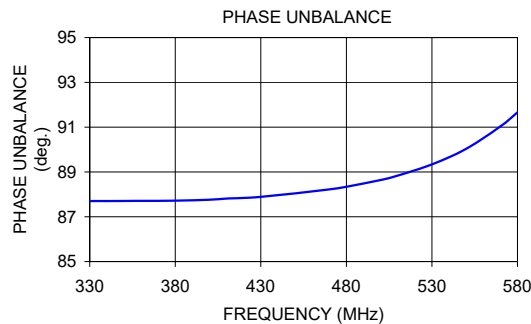
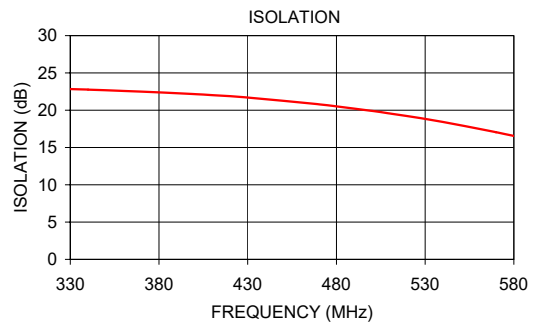
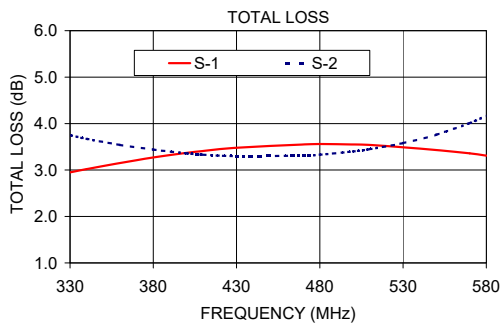
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### TYPICAL PERFORMANCE DATA

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
330.00	2.95	3.75	0.81	22.84	87.70	1.15	1.20	1.13
340.00	3.02	3.67	0.66	22.76	87.70	1.15	1.20	1.14
360.00	3.15	3.54	0.39	22.58	87.71	1.15	1.20	1.14
380.00	3.27	3.44	0.17	22.39	87.72	1.15	1.21	1.15
400.00	3.37	3.36	0.01	22.16	87.76	1.15	1.22	1.16
410.00	3.41	3.33	0.08	22.02	87.81	1.15	1.22	1.17
430.00	3.48	3.30	0.18	21.70	87.89	1.16	1.23	1.19
470.00	3.55	3.31	0.24	20.79	88.22	1.17	1.26	1.23
480.00	3.56	3.33	0.22	20.51	88.34	1.18	1.27	1.24
500.00	3.55	3.40	0.15	19.91	88.64	1.20	1.30	1.28
510.00	3.54	3.45	0.08	19.57	88.84	1.21	1.31	1.30
530.00	3.49	3.58	0.09	18.83	89.34	1.23	1.34	1.34
550.00	3.43	3.76	0.33	17.98	90.03	1.26	1.39	1.39
570.00	3.36	4.01	0.66	17.04	91.03	1.31	1.44	1.46
580.00	3.31	4.17	0.85	16.55	91.66	1.33	1.48	1.50

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/terms/viewterm.html](http://www.minicircuits.com/terms/viewterm.html)

