



ULTRA-SMALL CERAMIC

# Power Splitter/Combiner

## QCN-34D+

2 Way-90° 50Ω 2500 to 3400 MHz

### FEATURES

- Low insertion loss, 0.4 dB typ.
- High isolation, 30 dB typ.
- Wrap-around terminal for excellent solderability
- Ultra small, 0.12"X0.06"X0.035"
- Patent pending



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
- MMDS
- Defense communications

### ELECTRICAL SPECIFICATIONS AT 25°C

Parameter	Frequency (MHz)	Min.	Typ.	Max.	Unit
Frequency Range		2500		3400	MHz
Insertion Loss, above 3.0 dB	2500-2800		0.4	0.6	dB
	2800-3400		0.5	0.7	
Isolation	2500-2800	23	32		dB
	2800-3400	20	26		
Phase Unbalance	2500-2800		1	3	Degree
	2800-3400		1	4	
Amplitude Unbalance	2500-2800		0.4	0.9	dB
	2800-3400		0.5	1.2	
VSWR	2500-2800		1.15		(:1)
	2800-3400		1.15		

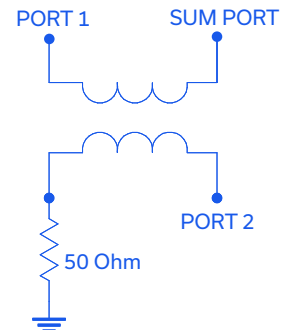
1. For applications requiring DC voltage to be applied to the RF ports. DC resistance to ground is 100 Mohms min.

### 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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**QCN-34D+**

Mini-Circuits

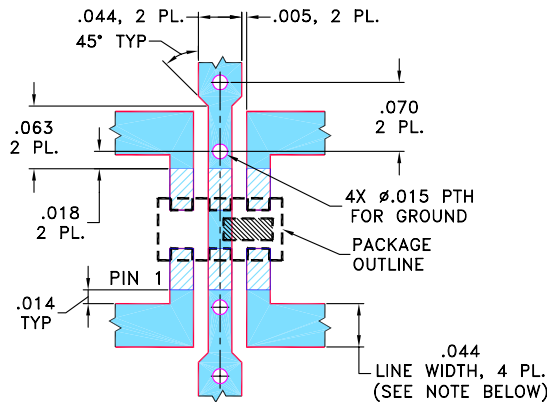
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## PIN CONNECTIONS

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

PRODUCT MARKING: N/A

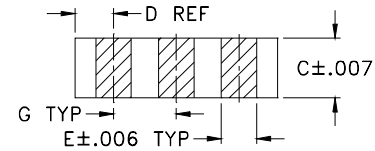
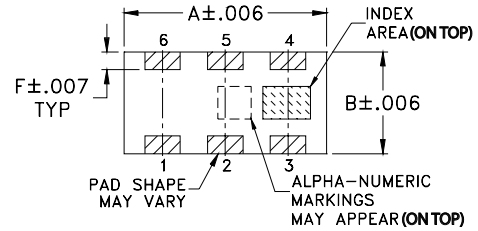
DEMO BOARD MCL P/N: TB-255  
SUGGESTED PCB LAYOUT (PL-131)



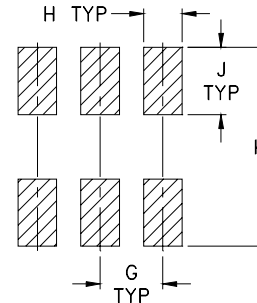
NOTES: 1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS  $0.020" \pm 0.0015"$ ; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.  
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

- 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





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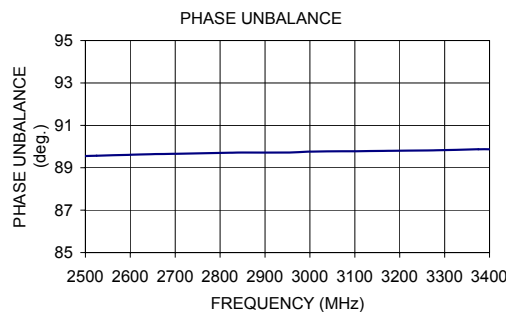
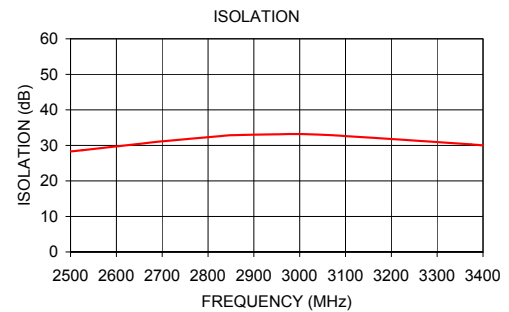
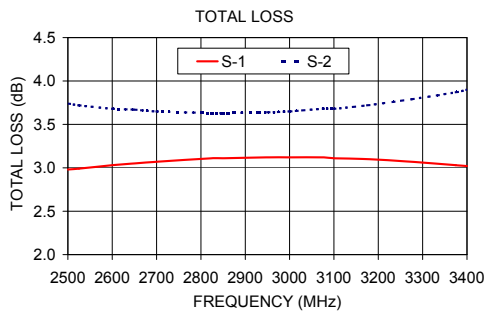
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### TYPICAL PERFORMANCE DATA

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
2500.00	2.98	3.74	0.76	28.30	89.55	1.07	1.08	1.07
2525.00	2.99	3.72	0.73	28.62	89.57	1.07	1.08	1.07
2600.00	3.03	3.68	0.65	29.72	89.61	1.06	1.07	1.05
2650.00	3.05	3.67	0.61	30.42	89.64	1.05	1.06	1.04
2700.00	3.07	3.65	0.58	31.14	89.66	1.04	1.06	1.03
2825.00	3.11	3.63	0.52	32.59	89.71	1.03	1.05	1.02
2850.00	3.11	3.63	0.52	32.87	89.72	1.03	1.05	1.02
2950.00	3.12	3.64	0.52	33.11	89.72	1.02	1.04	1.03
3000.00	3.12	3.65	0.53	33.20	89.76	1.02	1.04	1.03
3075.00	3.12	3.68	0.56	32.83	89.78	1.02	1.03	1.04
3100.00	3.11	3.68	0.57	32.62	89.78	1.02	1.03	1.05
3175.00	3.10	3.72	0.62	32.01	89.80	1.03	1.02	1.05
3275.00	3.07	3.79	0.72	31.16	89.82	1.04	1.02	1.06
3375.00	3.03	3.87	0.84	30.26	89.87	1.05	1.01	1.07
3400.00	3.02	3.90	0.88	29.99	89.87	1.05	1.01	1.08

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)

