



Mini-Circuits®

ULTRA-SMALL CERAMIC

Power Splitter/Combiner

QCN-27D+

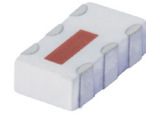
2 Way-90° 50Ω 1700 to 2700 MHz

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

APPLICATIONS

- Balanced amplifiers
- Modulators
- PCS/DCS
- MMDS
- ISM



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

ELECTRICAL SPECIFICATIONS AT +25°C

Parameter	Frequency (MHz)	Min.	Typ.	Max.	Unit
Frequency Range		1700		2700	MHz
Average Insertion Loss, above 3.0 dB	1700 - 1800		0.4	0.7	dB
	1800 - 2000		0.4	0.7	
	2000 - 2400		0.4	0.7	
	2400 - 2700		0.5	0.9	
Isolation	1700 - 1800	18	21		dB
	1800 - 2000	18	22		
	2000 - 2400	20	30		
	2400 - 2700	20	30		
Phase Unbalance	1700 - 1800		3	6	Degree
	1800 - 2000		2	6	
	2000 - 2400		3	6	
	2400 - 2700		3	6	
Amplitude Unbalance	1700 - 1800		0.5	1.0	dB
	1800 - 2000		0.3	0.8	
	2000 - 2400		0.2	0.8	
	2400 - 2700		0.6	1.0	
VSWR	1700 - 1800		1.2		:1
	1800 - 2000		1.2		
	2000 - 2400		1.2		
	2400 - 2700		1.2		

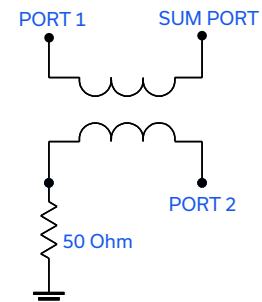
1. For applications requiring DC voltage to be applied to the RF ports. DC resistance to ground is 100 Mohms min.

MAXIMUM RATINGS

Parameter	Ratings
Operating Temperature	-55°C to +100°C
Storage Temperature	-55°C to +100°C
Power Input (as a splitter)	15 W* max.

* Derate linearly to 7 W at +100°C ambient.
Permanent damage may occur if any of these limits are exceeded.

ELECTRICAL SCHEMATIC (NOTE 1)



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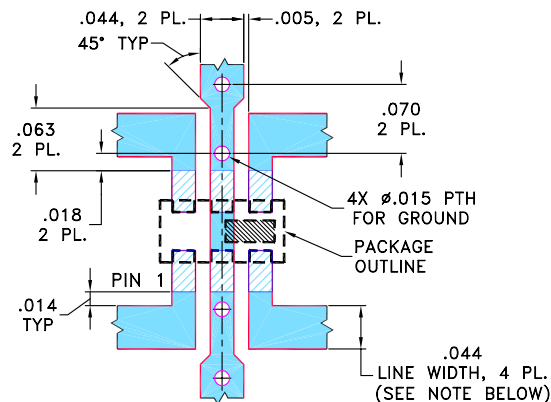
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PIN CONNECTIONS

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

PRODUCT MARKING: P4

DEMO BOARD MCL P/N: TB-QCN-27D+
SUGGESTED PCB LAYOUT (PL-131)

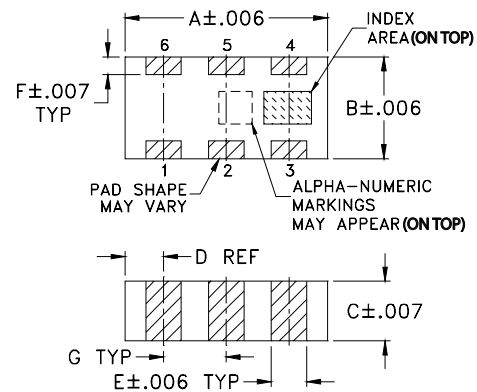


NOTES: 1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS $0.020" \pm 0.0015"$; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.

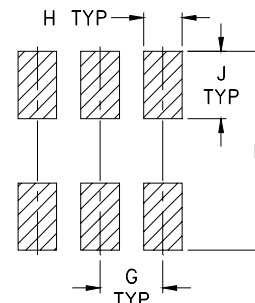
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

-  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 ± 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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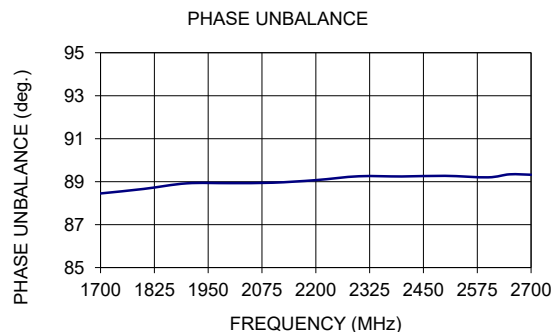
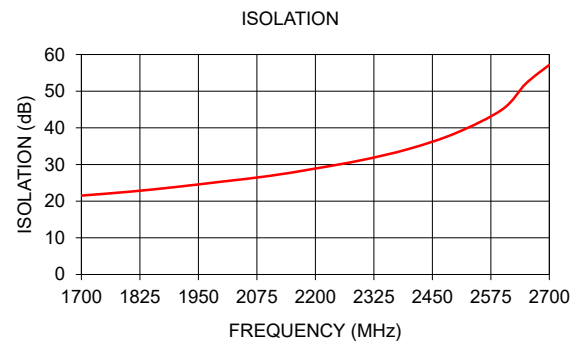
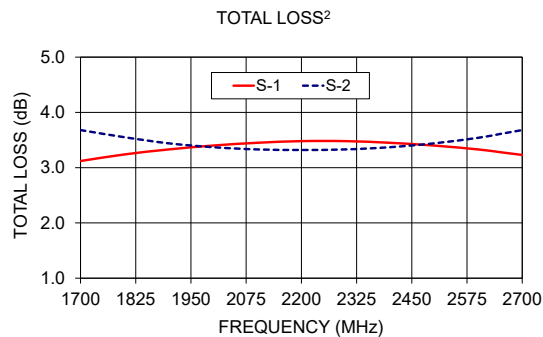
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TYPICAL PERFORMANCE DATA

Frequency (MHz)	Total Loss ² (dB)		Amplitude Unbalance (dB)	Isolation (dB)	Phase Unbalance (deg.)	VSWR (:1)		
	S-1	S-2				S	1	2
1700.00	3.12	3.68	0.56	21.52	88.45	1.23	1.26	1.19
1800.00	3.24	3.55	0.31	22.55	88.66	1.21	1.24	1.17
1900.00	3.33	3.44	0.12	23.84	88.92	1.18	1.23	1.14
2000.00	3.40	3.37	0.03	25.33	88.93	1.16	1.21	1.12
2100.00	3.45	3.33	0.12	26.85	88.95	1.14	1.20	1.10
2200.00	3.48	3.32	0.16	28.90	89.07	1.12	1.19	1.09
2300.00	3.48	3.33	0.15	31.22	89.25	1.10	1.18	1.09
2400.00	3.45	3.37	0.08	34.26	89.24	1.08	1.17	1.10
2500.00	3.40	3.44	0.04	38.56	89.27	1.06	1.17	1.11
2600.00	3.33	3.54	0.22	45.07	89.20	1.04	1.16	1.12
2650.00	3.28	3.61	0.33	52.09	89.34	1.03	1.16	1.13
2700.00	3.23	3.68	0.45	57.17	89.32	1.01	1.16	1.14

2. 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

