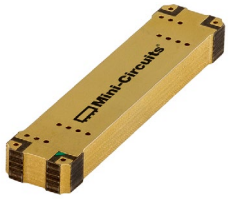
STRIPLINE SURFACE MOUNT

2 Way 90° Power Splitter QCH-272+

50Ω 2 Way-90° 700 to 2700 MHz 200W

KEY FEATURES

- High power handling, up to 200W
- Wide bandwidth
- Excellent Amplitude Unbalance, ±0.1dB

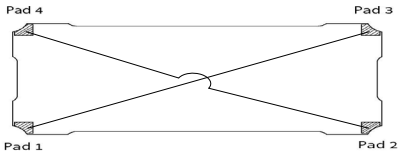


Generic photo used for illustration purposes only

APPLICATIONS

- Balanced Amplifiers
- I & Q Modulators
- Defense and Military

FUNCTIONAL DIAGRAM



PRODUCT OVERVIEW

Mini-Circuits new 2-way 90° power splitter, QCH-272+ capable of handling up to 200W with amplitude unbalance of ±0.1 dB typ and phase unbalance of ±0.9 deg. typ. Operating over a frequency range of 700 to 2700 MHz, the outstanding phase and amplitude unbalance make this component a versatile building block for use in a variety of systems and sub-system designs from balanced amplifiers and antenna feeds to military applications and more. The splitter is fabricated using laminated PCB process (1.8 x 0.4 x 0.19") and includes wrap-around terminations for good solderability and easy visual inspection.

ELECTRICAL SPECIFICATIONS[1,2] AT +25°C

Parameter	Frequency (MHz)	Min.	Typ.	Max.	Units
Frequency Range		700		2700	MHz
Insertion Loss[3]	700-2700	-	0.3	0.5	dB
Isolation	700-2700	17	22	-	dB
Phase Unbalance	700-2700	-	±0.9	±5	deg
Amplitude Unbalance	700-2700	-	±0.1	±1	dB
	700-2700	-	±0.1	±0.6	
Return Loss	700-2700	16.5	23	-	dB
Thermal Resistance[4]	700-2700	-	0.3	-	°C/W

1. Tested on Evaluation Board TB-884+. De-embedded to the device reference plane.
2. Symetrical all ports are interchangable. See Pad Configuration Table and S-Parameters for actual performance.
3. Does not include theoretical loss due to coupling. Nominal theoretical loss is 3 dB.
4. Thermal Resistance is defined as, example (Θjc= (Hot Spot Temperature on DUT - Base Plate Temperature)/Input Power)

ABSOLUTE MAXIMUM RATINGS[5]

Operating Case Temperature[6]		-55 °C to +105 °C
Storage Temperature		-55 °C to +105 °C
Power Input	+85 °C case	200 W
	+95 °C case	170 W
	+105 °C case	140 W

5. Permanent damage may occur if any of these limits are exceeded.
6. Case temperature is defined as temperature on base plate.

REV. A
ECO-021017
RDF-2162
QCH-272+
MCIL
240228

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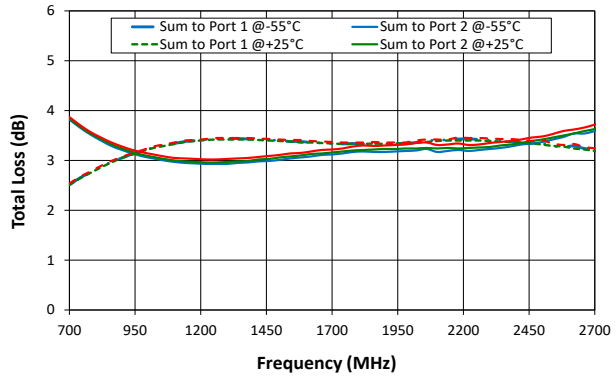
TYPICAL PERFORMANCE GRAPHS

Note : Data corresponds to Configuration A at +25°C unless specified otherwise.

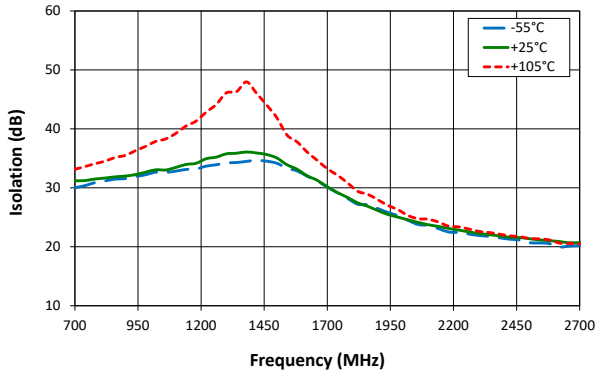
QCH-272+

Total Loss (dB)



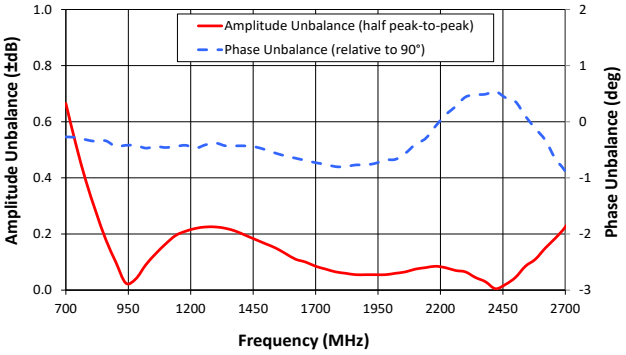
QCH-272+

Isolation (dB)



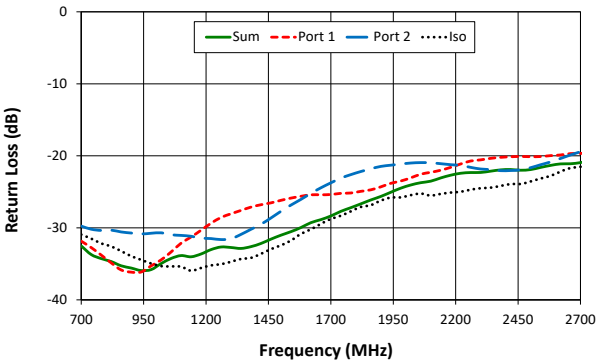
QCH-272+

Amplitude & Phase Unbalance



QCH-272+

Return Loss (dB)



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FUNCTIONAL DIAGRAM

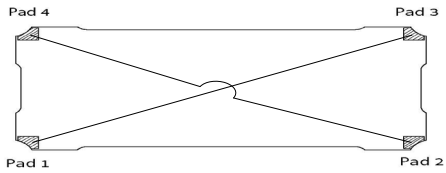


Figure 1. QCH-272+ Functional Diagram

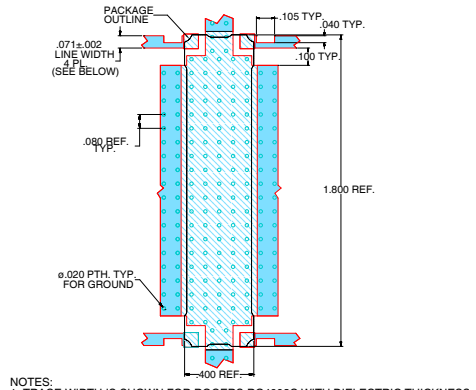
PAD DESCRIPTION/CONFIGURATION[7]

Function	Pad Number	Description
Input	1	Connects to RF Input Port
Output	2	Connects to RF Output Port
Coupled Forward	4	Connects to Coupled Forward Port
Coupled Reverse	3	Connects to Coupled Reverse Port
Ground	5	Connects to Ground

Configuration	Sum	Isolation	Port 1 (0°)	Port 2 (90°)
A	1	2	3	4
B	2	1	4	3
C	3	4	1	2
D	4	3	2	1

7. Model is symmetrical and all ports are interchangeable, see Port Function Description/Configuration table for details and S-Parameters for actual performance.

SUGGESTED PCB LAYOUT (PL-480)



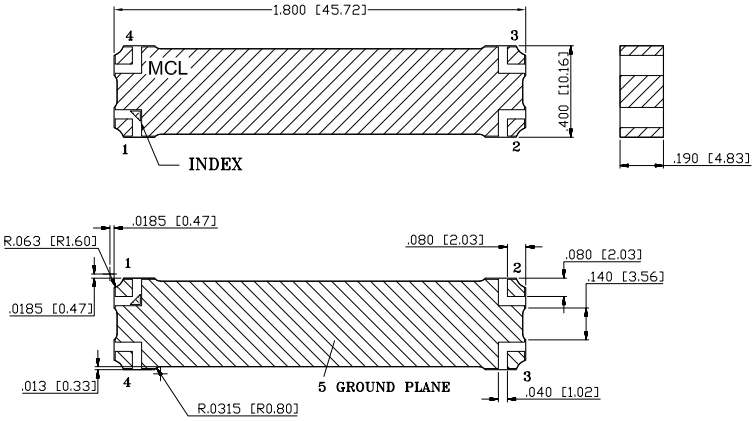
NOTES:
1. TRACE WIDTH IS SHOWN FOR ROGERS RO4003C WITH DIELECTRIC THICKNESS 0.032"±.0015", COPPER: 1 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.
3. CUTOUTS IN RF LINES ARE REQUIRED TO ACHIEVE SPECIFIED ISOLATION.

DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)

DENOTES COPPER LAND PATTERN FREE OF SOLDERMASK

Figure 2. Suggested PCB Layout PL-480

CASE STYLE DRAWING (PQ2181)



NOTES:
1. DIMENSIONS INCH [MM].
2. PIN NUMBERS DO NOT APPEAR ON UNIT, FOR REFERENCE ONLY.

METALLIZATION

SOLDER RESIST

PRODUCT MARKING*: QCH-272+

*Marking may contain other features or characters for internal lot control.

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ADDITIONAL DETAILED INFORMATION IS AVAILABLE ON OUR DASH BOARD. CLICK HERE

Performance Data & Graphs	Data Graphs S-Parameter (S4P Files) Data Set (.zip file) De-embedded to device pads
Case Style	PQ2181 Lead Finish: 2-5 inch (0.05-0.13 microns) Immersion Gold.
RoHS Status	Compliant
Tape and Reel	F120
Suggested Layout for PCB Design	PL-480
Evaluation Board	TB-884+
	Gerber File
Environmental Rating	ENV02T8

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-Circuits' 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

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