2 Way-90° Power Splitter QCV-151+

50Ω 90 to 150 MHz

CASE STYLE: JV1210C-1

The Big Deal

- High Power handling (10W)
- Low Unbalance, 0.5 dB & 4 deg. typ.
- Industry leading combination of size/bandwidth

Product Overview

Mini-Circuits new 90° Power Splitter, model QCV-151+, offers an industry leading combination of operating bandwidth and size; supporting nearly an octave band in a miniature EIA-1210 form factor. The outstanding phase and amplitude unbalance make this component a versatile building block for use in a variety of systems and sub-system designs.

Key Features

Feature	Advantages
Small Size	Offered in the EIA-1210 package size, the QCV-151+ offers an industry leading combination of size, bandwidth and frequency. The small footprint (3.2mm x 2.0mm) allows for reduced parasitics in systems with improved performance and simplified layout.
Low Phase and Amplitude Unbalance	Supporting 4 deg. and 0.5 dB unbalance make this 90° hybrid applicable for use in higher level integrated components such as image reject mixers, single sideband modulators, phase shifters, variable attenuators, and balance amplifiers.
High Power Handling	Capable of operating up to 10W, the LTCC construction of the QCV-151+ makes this 90° hybrid a robust, rugged product that can be used effectively in either the transmit or receive paths.

Surface Mount

Power Splitter/Combiner

QCV-151+

2 Way-90° 50Ω 90 to 150 MHz

CASE STYLE: JV1210C-1
PRICE: $6.95 ea. QTY (20)

+ RoHS compliant in accordance with EU Directive (2002/95/EC)

The +Suffix has been added in order to identify RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications.

Available Tape and Reel at no extra cost

Reel Size	Devices/Reel
7"	20, 50, 100, 200, 500,1000, 2000

Maximum Ratings

Operating Temperature	-55°C to 100°C
Storage Temperature	-55°C to 100°C
Power Input (as a splitter)	10W* max.

* Derate linearly to 3W at 100°C ambient.
Permanent damage may occur if any of these limits are exceeded.

Pin Connections

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

Product Marking: CB

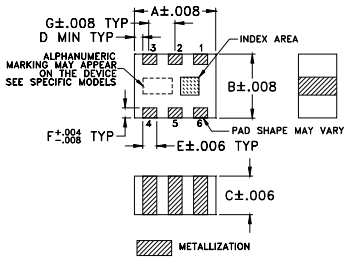
Features

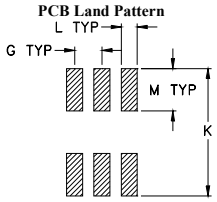
- low insertion loss, 0.4 dB typ.
- high isolation, 20 dB typ.
- ultra small size, 0.12x0.10x.059"
- wrap-around terminal for excellent solderability

Applications

- I&Q modulators
- image reject mixers
- balanced amplifiers
- avionics

Outline Drawing





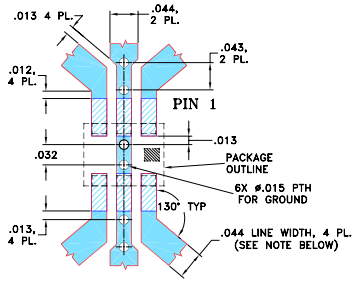
Suggested Layout,
Tolerance to be within ±.002

Outline Dimensions (inch / mm)

A	B	C	D	E	F	G
.126	.098	.059	.004	.022	.016	.039
3.2	2.5	1.50	0.1	0.56	0.4	1.0

H	J	K	L	M	wt
-	-	.177	.024	.059	grams
-	-	4.5	0.6	1.5	0.03

Demo Board MCL P/N: TB-610+
Suggested PCB Layout (PL-340)

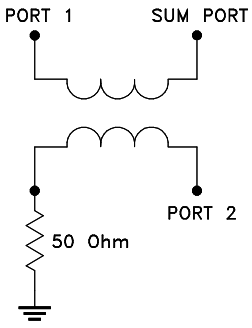


NOTES: 1.TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS 0.020" ± 0.0015"; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
2.BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.
DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER).
DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK.

Electrical Specifications at 25°C

Parameter	Frequency (MHz)	Min.	Typ.	Max.	Unit
Frequency Range		90		150	MHz
Insertion Loss (Avg. of coupled outputs above 3 dB)	90-118	—	0.5	0.7	dB
	118-138	—	0.6	0.8	
	138-150	—	0.9	1.1	
Isolation	90-118	18	20	—	dB
	118-138	15	17	—	
	138-150	11	15	—	
Phase Unbalance	90-118	—	3.0	4.0	Degree
	118-138	—	2.8	4.0	
	138-150	—	4.0	7.0	
Amplitude Unbalance	90-118	—	1.1	1.6	dB
	118-138	—	0.3	0.5	
	138-150	—	0.9	1.6	
VSWR (Port S)	90-118	—	1.2	1.4	:1
	118-138	—	1.3	1.5	
	138-150	—	1.45	1.6	
VSWR (Port 1-2)	90-118	—	1.2	1.4	:1
	118-138	—	1.3	1.5	
	138-150	—	1.5	1.6	

Electrical Schematic



Typical Performance Data

Frequency (MHz)	Total Loss[1] (dB)		Amplitude Unbalance (dB)	Isolation (dB)	Phase Unbalance (deg.)	VSWR S	VSWR 1	VSWR 2
	S-1	S-2						
90.00	2.92	3.91	0.99	26.73	88.22	1.13	1.13	1.15
95.00	3.05	3.77	0.72	25.92	88.29	1.14	1.14	1.16
100.00	3.17	3.66	0.49	25.10	88.39	1.15	1.15	1.17
105.00	3.27	3.58	0.30	24.27	88.52	1.16	1.16	1.18
110.00	3.36	3.52	0.15	23.42	88.70	1.18	1.17	1.20
115.00	3.43	3.48	0.05	22.56	88.93	1.19	1.19	1.22
120.00	3.49	3.48	0.01	21.66	89.23	1.21	1.20	1.24
125.00	3.53	3.50	0.03	20.73	89.60	1.24	1.23	1.27
130.00	3.55	3.55	0.01	19.77	90.09	1.27	1.26	1.29
135.00	3.55	3.64	0.09	18.77	90.71	1.30	1.29	1.33
140.00	3.54	3.77	0.24	17.76	91.54	1.34	1.33	1.37
145.00	3.51	3.96	0.45	16.73	92.64	1.38	1.37	1.42
150.00	3.48	4.20	0.73	15.68	94.11	1.44	1.43	1.48

1. Total Loss = Insertion Loss + 3 dB splitter loss.