

# LTCC Coupler

50Ω 2400 to 2500 MHz 21dB Coupling

## CPJC-21-252R+



CASE STYLE: JC0603C

**+RoHS Compliant**

The +Suffix identifies 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, 4000

### Maximum Ratings

Operating Temperature -55°C to 100°C

Storage Temperature\* -55°C to 100°C

\*Refer to product storage temperature after installation.  
Suggestion for T&R unused product storage condition: +5--+35°C, Humidity 45-75%RH, 12 Month max.  
Permanent damage may occur if any of these limits are exceeded.

### Pad Connections

Input	1
GND	2
Coupled Out	3
Termination	4
GND	5
Main Out	6

### Features

- miniature size 0603 (0.063"[1.6mm]) x 0.031"[0.8mm] x 0.024"[0.6mm])
- low cost
- aqueous washable

### Applications

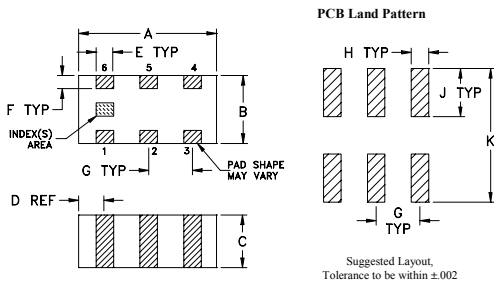
- ISM Band
- WLAN
- Bluetooth
- Zigbee

### Electrical Specifications at 25°C

Parameter	Frequency (MHz)	Min.	Typ.	Max.	Unit
<b>Frequency Range</b>		2400		2500	MHz
<b>Mainline Loss</b>	2400 - 2500	—	0.3	0.4	dB
<b>Coupling</b>	2400 - 2500	19.5	21	22.5	dB
<b>Directivity</b>	2400 - 2500	12.5	19	—	dB
<b>Return Loss (Input)</b>	2400 - 2500	14.7	26	—	dB
<b>Return Loss (Output)</b>	2400 - 2500	14.7	27	—	dB
<b>Input Power<sup>1</sup></b>	2400 - 2500	—	—	2	W

1. Derate linearly to 1W at 100°C

### Outline Drawing

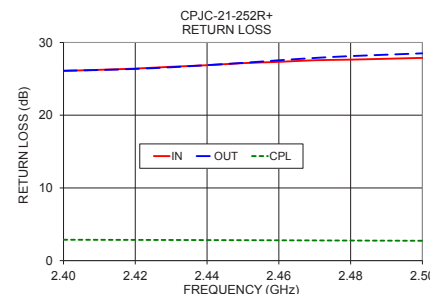
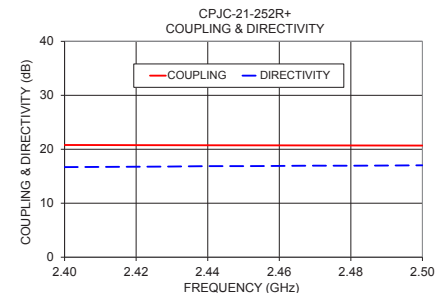
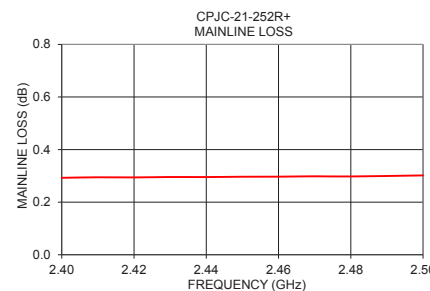


### Outline Dimensions (inch/mm)

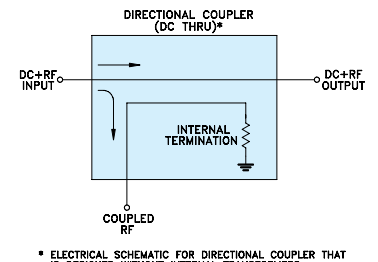
A	B	C	D	E	F	
.063	.031	.024	.012	.008	.006	
1.60	0.79	0.61	0.30	0.20	0.15	
G	H	J	K			wt
.020	.010	.022	.053			grams
0.51	0.25	0.56	1.35			0.005

### Typical Performance Data

Frequency (GHz)	Mainline Loss (dB) In-Out	Coupling (dB) In-Cpl	Directivity (dB)	Return Loss (dB)		
				In	Out	Cpl
2.40	0.29	20.79	16.70	26.10	26.11	2.87
2.41	0.29	20.78	16.73	26.24	26.21	2.86
2.42	0.29	20.77	16.77	26.41	26.37	2.85
2.43	0.30	20.76	16.80	26.66	26.59	2.84
2.44	0.30	20.74	16.88	26.87	26.89	2.83
2.45	0.30	20.73	16.88	27.16	27.19	2.81
2.46	0.30	20.72	16.91	27.33	27.55	2.80
2.47	0.30	20.71	16.96	27.56	27.87	2.78
2.48	0.30	20.71	16.95	27.64	28.13	2.76
2.49	0.30	20.70	16.99	27.77	28.33	2.75
2.50	0.30	20.69	17.03	27.88	28.51	2.73

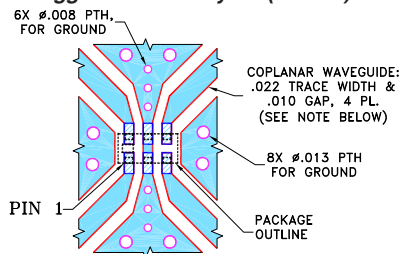


### Electrical Schematic



\* ELECTRICAL SCHEMATIC FOR DIRECTIONAL COUPLER THAT IS DESIGNED WITHOUT INTERNAL TRANSFORMERS.

### Evaluation Board MCL P/N: TB-CPJC21-252R+ Suggested PCB Layout (PL-440)



- NOTES:**
1. COPLANAR WAVEGUIDE IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS .010" ± .001". COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH AND GAP 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.

### Notes

- 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.
- Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
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