



CERAMIC

# Power Splitter / Combiner

## SCG-3-752+

3 Way-0° 50Ω 4500 to 7500 MHz

### THE BIG DEAL

- Isolation Resistor, External 150Ω
- Low Insertion Loss, 1.3 dB Typ.
- Excellent Phase Unbalance, 5 Deg. Typ.
- Wrap Around Terminations for Excellent Solderability



Generic photo used for illustration purposes only

CASE STYLE: GE0805C-1

### APPLICATIONS

- WIFI6
- 5G Sub 6 GHz

#### +RoHS Compliant

The +Suffix identifies RoHS Compliance. See our website for methodologies and qualifications

### PRODUCT OVERVIEW

The Mini-Circuits' SCG-3-752+ is a compact, high-performance 3-way power splitter operating from 4.5 to 7.5 GHz. Built using advanced Low-Temperature Co-fired Ceramic (LTCC) technology, this device delivers an exceptional balance of size and performance.

### KEY FEATURES

Features	Advantages
Small Size	Offered in the package size, SCG-3-752+ offers an industry leading combination of size, power handling, and frequency. The small footprint allows for reduced parasitics in systems with improved performance and simplified layout.
Wrap-Around Terminations	Provides excellent solderability and easy visual inspection.
LTCC Construction	Provides repeatable performance in the rugged, ceramic package well suited for tough environments such as high humidity and temperature extremes.

REV. A  
ECO-015153  
SCG-3-752+  
MCL NY  
250701





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### ELECTRICAL SPECIFICATIONS<sup>1</sup> AT +25°C

Parameter	Frequency (MHz)	Min.	Typ.	Max.	Unit
Frequency Range		4500		7500	MHz
Average Insertion Loss, Above 4.8 dB	4500-7500		1.3	2.1	dB
Isolation	4500-7500	11	14		dB
Phase Unbalance	4500-7500		5	10	Degree
Amplitude Unbalance	4500-7500		0.8	1.2	dB
Return Loss (Input)	4500-7500		10		dB
Return Loss (Output)	4500-7500		10		dB

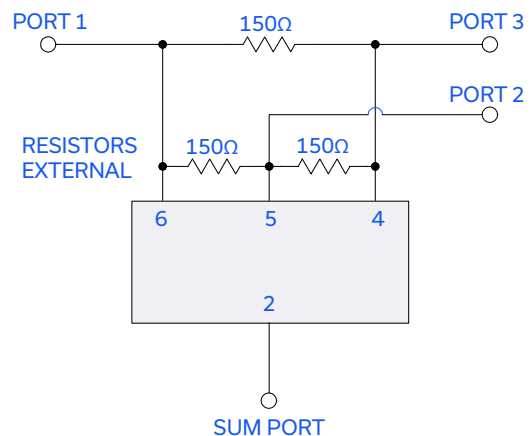
1. Tested on TB-SCG-3-752+. Evaluation Board losses have been de-embedded.

### ABSOLUTE MAXIMUM RATINGS

Parameter	Ratings
Operating Temperature	-55°C to +125°C
Storage Temperature	-55°C to +125°C
Input Power	2 W <sup>2</sup> max.

2. Power input as combiner is limited by rating of external resistors. Permanent damage may occur if any of these limits are exceeded.  
\*Power input as combiner is limited by rating of external resistors

### ELECTRICAL SCHEMATIC





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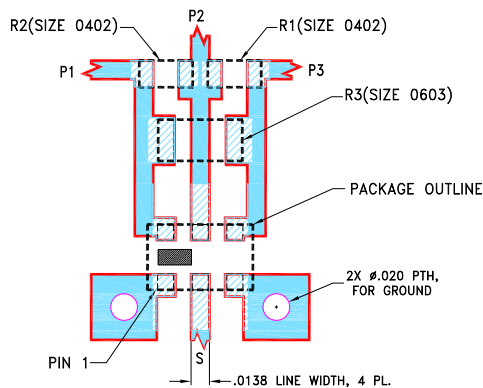
3 Way-0° 50Ω 4500 to 7500 MHz

## PAD CONNECTIONS

SUM PORT	2
PORT 1	6
PORT 2	5
PORT 3	4
GROUND	1,3
PORT 1-2, 2-3, 1-3	Resistor external 150Ω

PRODUCT MARKING: PT

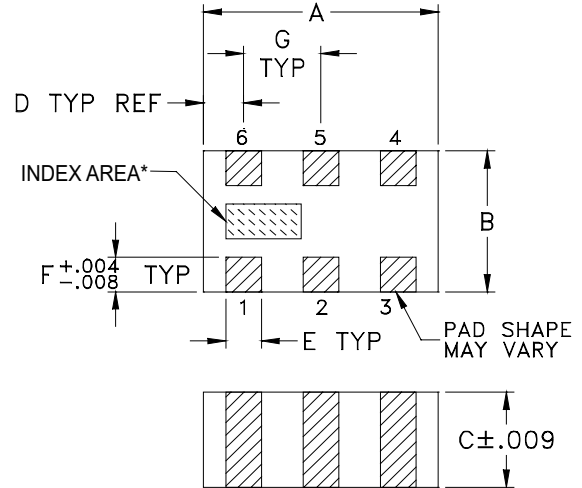
## DEMO BOARD MCL P/N: TB-SCG-3-752+ SUGGESTED PCB LAYOUT (PL-621)



**NOTES:**

1. LINE WIDTH IS SHOWN FOR ROGERS R04350B WITH DIELECTRIC THICKNESS .0066±.0007. COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS LINE WIDTH MAY NEED TO BE MODIFIED.
  2. UNIT FOOT PRINT IS OPTIMIZED FOR PERFORMANCE AND IS DIFFERENT FROM CASE STYLE GE0805C-1 RECOMMENDATIONS.
  3. CHIP COMPONENT FOOT PRINT IS SHOWN FOR REFERENCE. FOR COMPONENT VALUE REFER TO TB-1018+.
  4. 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



\*Shape of index marking may vary

## OUTLINE DIMENSIONS (Inch/mm)

A	B	C	D	E	F	G	wt
.079	.049	.033	.014	.012	.012	.026	grams
2.01	1.24	0.84	0.36	0.30	0.30	0.65	.008



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## SCG-3-752+

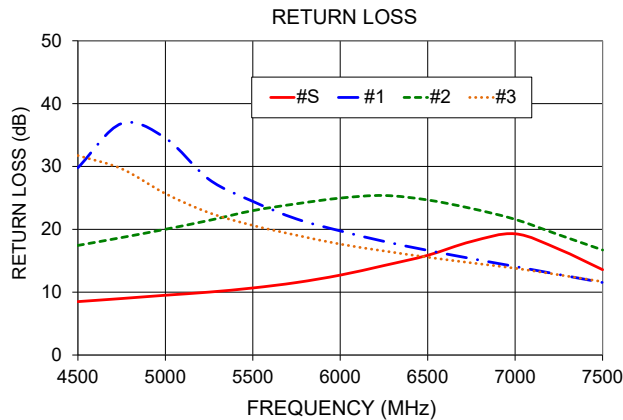
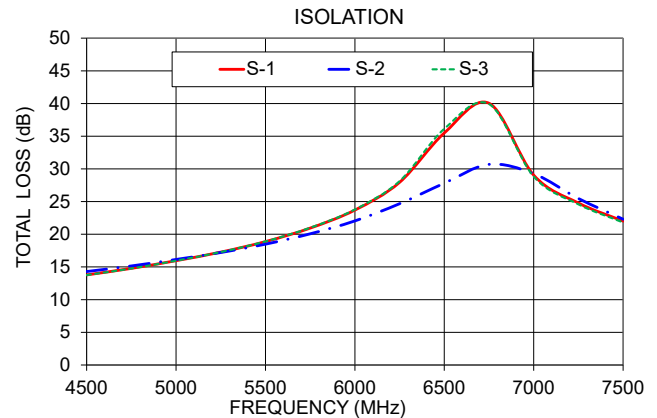
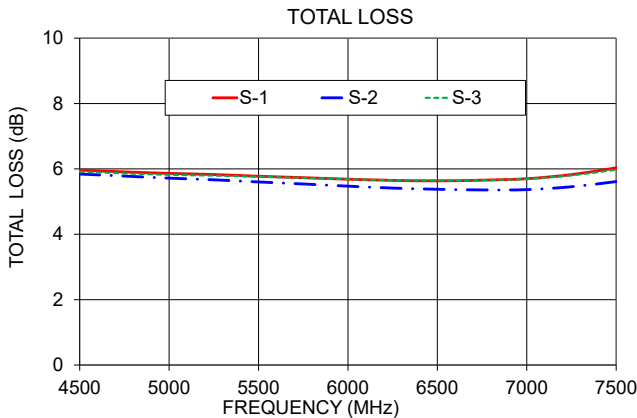
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### TYPICAL PERFORMANCE DATA AND CHARTS

Frequency (MHz)	Total Loss <sup>3</sup> (dB)			Amplitude Unbalance (dB)	Isolation (dB)			Phase Unbalance (deg.)	Return Loss (dB)			
	S-1	S-2	S-3		1-2	1-3	2-3		S	1	2	3
4500	5.96	5.84	5.91	0.12	13.78	14.30	13.75	2.77	8.50	29.80	17.44	31.74
4750	5.91	5.78	5.86	0.13	14.78	15.15	14.76	2.89	8.99	36.84	18.69	29.64
5000	5.86	5.72	5.82	0.15	15.96	16.14	15.95	2.95	9.51	34.52	20.01	25.68
5250	5.83	5.67	5.80	0.16	17.27	17.21	17.28	3.18	10.01	27.93	21.42	22.64
5500	5.77	5.60	5.76	0.17	18.88	18.49	18.90	3.40	10.67	24.45	22.98	20.62
5750	5.73	5.54	5.72	0.19	20.94	20.07	21.00	3.59	11.54	21.65	24.06	19.06
6000	5.68	5.47	5.68	0.21	23.70	22.04	23.79	3.85	12.72	19.75	24.97	17.65
6250	5.65	5.41	5.66	0.24	27.94	24.67	28.13	4.13	14.24	18.08	25.38	16.56
6500	5.63	5.38	5.65	0.27	35.49	27.81	36.13	4.38	15.87	16.65	24.67	15.56
6750	5.65	5.36	5.65	0.30	40.04	30.69	39.93	4.61	18.07	15.34	23.32	14.66
7000	5.70	5.37	5.69	0.33	29.04	29.26	28.83	4.85	19.29	14.08	21.59	13.81
7250	5.82	5.45	5.80	0.37	24.78	25.47	24.58	4.95	16.84	12.81	19.13	12.76
7500	6.03	5.61	5.97	0.42	22.01	22.30	21.80	5.11	13.58	11.54	16.71	11.67

3. Total Loss = Insertion Loss + 4.8 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)



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