



ULTRA-SMALL CERAMIC

# Power Splitter/Combiner

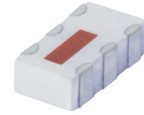
## SCN-3-28+

Mini-Circuits

3 Way-0° 50Ω 1600 to 2800 MHz

### FEATURES

- Isolation resistor, external
- Low insertion loss, 0.8 dB typ.
- Excellent amplitude unbalance, 0.2 dB typ.
- Very good phase unbalance, 5 deg. typ.
- High isolation, 12 dB typ.
- Excellent power handling, 15W as splitter
- Small size, 0.12"X0.06"X0.035"
- ESD non-sensitive
- Temperature stable LTCC technology
- Wrap around terminations for excellent solderability
- Low cost



Generic photo used for illustration purposes only

CASE STYLE: FV1206-1

**+RoHS Compliant**

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

### APPLICATIONS

- DSS
- PSC, DECT
- WLAN
- Satellite communication
- Defense applications
- Line of sight communications
- WLL
- ISM applications

### ELECTRICAL SPECIFICATIONS AT 25°C

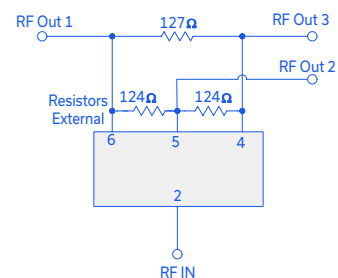
Parameter	Frequency (MHz)	Min.	Typ.	Max.	Unit
Frequency Range		1600		2800	MHz
Insertion Loss, above 4.8 dB	1600-2800		0.8	1.2	dB
	1800-2000		0.8	1.2	
	2000-2200		0.8	1.2	
	2400-2500		0.8	1.2	
Isolation	1600-2800	10	12		dB
	1800-2000	12	14		
	2000-2200	13	16		
	2400-2500	17	20		
Phase Unbalance	1600-2800		5.0	8.0	Degree
	1800-2000		5.0	8.0	
	2000-2200		5.0	8.0	
	2400-2500		5.0	8.0	
Amplitude Unbalance	1600-2800		0.2	0.6	dB
	1800-2000		0.2	0.6	
	2000-2200		0.2	0.5	
	2400-2500		0.2	0.5	
Return Loss (Input)	1600-2800		10		dB
	1800-2000		10		
	2000-2200		11		
	2400-2500		11		
Return Loss (Output)	1600-2800		12		dB
	1800-2000		13		
	2000-2200		12		
	2400-2500		12		

### MAXIMUM RATINGS

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

\* Derate linearly to 6W at 100°C ambient. Permanent damage may occur if any of these limits are exceeded.

### ELECTRICAL SCHEMATIC



Mini-Circuits

www.minicircuits.com P.O. Box 350166, Brooklyn, NY 11235-0003 (718) 934-4500 sales@minicircuits.com

REV. H  
ECO-010748  
SCN-3-28+  
AD/TD/CP/AM  
220929  
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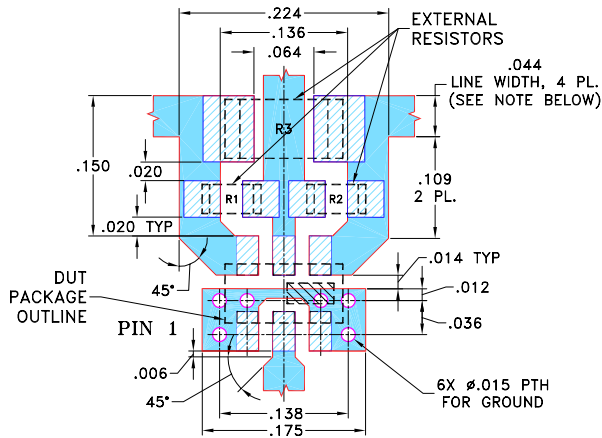


### PIN CONNECTIONS

SUM PORT	2
PORT 1	6
PORT 2	5
PORT 3	4
GROUND	1,3
PORT 1-2, 2-3	resistor external 124 ohms
PORT 1-3	resistor external 127 ohms

PRODUCT MARKING: N/A

### DEMO BOARD MCL P/N: TB-303 SUGGESTED PCB LAYOUT (PL-171)



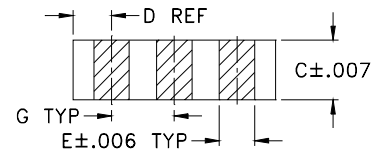
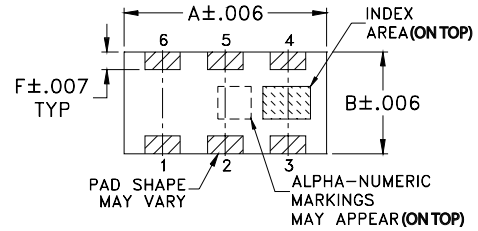
RESISTORS: R1-R2: 124 Ohm, 0603 SIZE; R3: 127 Ohm, 1206 SIZE.

**NOTE:**

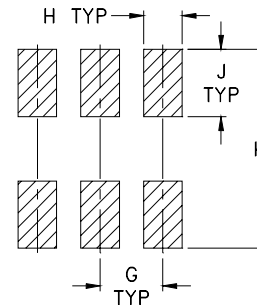
1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350 WITH DIELECTRIC THICKNESS: .020 ± .0015; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
2. RESISTOR LAND PATTERNS ARE SHOWN AS PER IPC-SM-782A.
3. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

- DENOTES PCB COPPER LAYOUT
- DENOTES COPPER LAND PATTERN FREE OF SOLDERMASK

### OUTLINE DRAWING



### PCB Land Pattern



Suggested Layout,  
Tolerance to be within ±.002

### OUTLINE DIMENSIONS (Inches/mm)

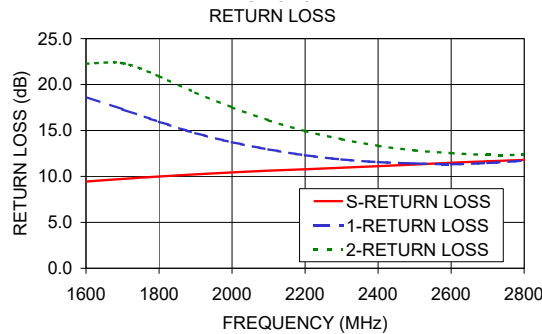
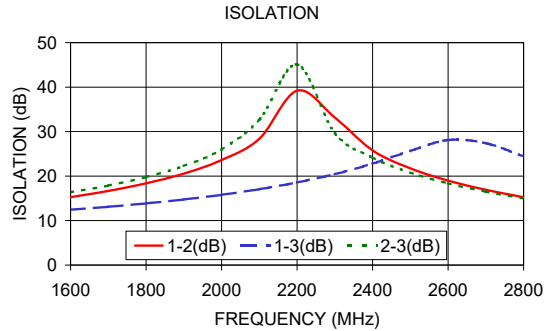
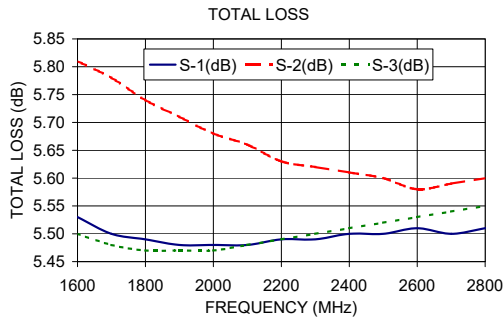
A	B	C	D	E	F	
.126	.063	.035	.024	.022	.011	
3.20	1.60	0.89	0.61	0.56	0.28	
G	H	J	K			wt
.039	.024	.042	.123			grams
0.99	0.61	1.07	3.12			.020



TYPICAL PERFORMANCE DATA

Frequency (MHz)	Total Loss <sup>1</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
1600.00	5.53	5.81	5.50	0.31	15.27	12.43	16.36	3.29	9.44	18.66	22.27
1700.00	5.50	5.78	5.48	0.29	16.66	13.09	17.87	3.64	9.73	17.30	22.33
1800.00	5.49	5.74	5.47	0.27	18.38	13.86	19.78	3.99	9.99	15.95	20.89
1900.00	5.48	5.71	5.47	0.24	20.57	14.75	22.29	4.31	10.23	14.71	19.12
2000.00	5.48	5.68	5.47	0.21	23.60	15.80	25.98	4.62	10.44	13.73	17.52
2100.00	5.48	5.66	5.48	0.18	28.40	17.05	32.67	4.79	10.63	12.94	16.11
2200.00	5.49	5.63	5.49	0.15	39.20	18.57	45.10	4.99	10.78	12.30	14.93
2300.00	5.49	5.62	5.50	0.12	33.16	20.43	29.60	5.06	10.95	11.85	14.05
2400.00	5.50	5.61	5.51	0.11	25.77	22.80	24.16	5.14	11.12	11.56	13.33
2500.00	5.50	5.60	5.52	0.09	21.75	25.66	20.80	5.14	11.30	11.41	12.83
2600.00	5.51	5.58	5.53	0.08	18.99	28.11	18.37	5.02	11.49	11.33	12.54
2700.00	5.50	5.59	5.54	0.08	16.91	27.40	16.50	4.88	11.65	11.46	12.34
2800.00	5.51	5.60	5.55	0.09	15.25	24.44	14.98	4.68	11.79	11.72	12.35

1. 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.
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