

Surface Mount

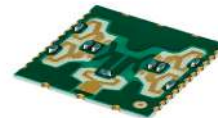
# Power Splitter/Combiner

SEPS-8-153+

8 Way-0° 50Ω 6 to 15 GHz DC Pass

## The Big Deal

- >2 octave bandwidth, 6 to 15 GHz
- Low insertion loss, 1.6 dB at 12.5 GHz
- High power handling, 4W as a splitter
- High isolation, 25 dB typ.
- Small size, 0.63 x 0.65 x 0.02"



CASE STYLE: RS1539

## Product Overview

Mini-Circuits' SEPS-8-153+ is a 50Ω 8-way 0° surface mount splitter/combiner covering the 6 to 15 GHz frequency range, supporting a wide variety of applications. This model can handle up to 4W RF input power as a splitter and provides low insertion loss, low amplitude unbalance, and good isolation. It comes housed mounted on a miniature, printed laminate (0.63 x 0.65 x 0.02") with wrap-around terminations for excellent solderability.

## Key Features

Feature	Advantages
Wideband, 6 to 15 GHz	>2 octave bandwidth supports a wide range of broadband applications.
Low insertion loss, 1.6 dB at 12.5 GHz	The combination of 4W power handling and low insertion loss makes this model a suitable candidate for distributing signals while maintaining signal power.
High power handling, 4W as a splitter	Supports a wide range of power requirements.
Low amplitude unbalance, 0.3 dB typ.	SEPS-8-153+ produces nearly equal output signals, ideal for parallel path / multichannel systems.
Good isolation, 25 dB	Minimizes interference between input ports.
Small size, 0.63 x 0.65 x 0.02"	Saves space in crowded PCB layouts.

### Notes

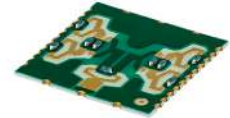
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## SEPS-8-153+

8 Way-0° 50Ω 6 to 15 GHz DC Pass



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### Maximum Ratings

Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
Power Input (as a splitter)	4W max.
Internal Dissipation	0.875W max.
DC Current	560 (70 mA each port)

Permanent damage may occur if any of these limits are exceeded.

### Pad Connections

SUM PORT	27	PORT 5	17
PORT 1	4	PORT 6	18
PORT 2	5	PORT 7	21
PORT 3	8	PORT 8	22
PORT 4	9	GROUND	all other

### Features

- wideband, 6 to 15 GHz
- good isolation, 25 dB typ.
- aqueous washable
- model can be rated to 5 GHz

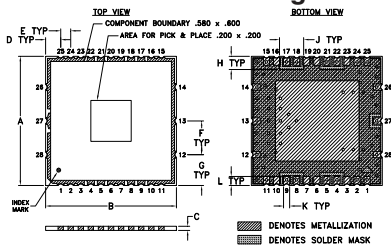
### Applications

- WiMAX
- ISM
- instrumentation
- radar
- WLAN
- LTE

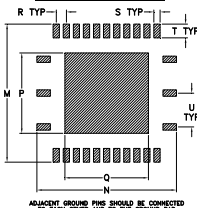
**+RoHS Compliant**  
The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications

Available Tape and Reel at no extra cost  
Reel Size: 13" Devices/Reel: 250

### Outline Drawing



#### PCB Land Pattern

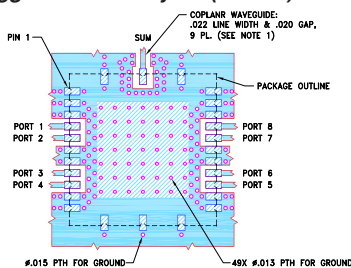


Suggested Layout, Tolerance to be within ±0.02

### Outline Dimensions (inch/mm)

A	B	C	D	E	F	G	H	J	K	L
.630	.650	.020	.075	.050	.165	.150	.064	.120	.030	.044
16.00	16.51	0.51	1.91	1.27	4.19	3.81	1.63	3.05	0.76	1.12
M	N	P	Q	R	S	T	U	V	wt	
.673	.693	.392	.415	.050	.031	.067	.165	--	grams	
17.09	17.60	9.96	10.54	1.27	0.79	1.70	4.19	--	0.35	

### Demo Board MCL P/N: TB-590+ Suggested PCB Layout (PL-534)



- NOTE:**
1. COPLANAR WAVEGUIDE PARAMETERS ARE SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS .010±.001", COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH & 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

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### Electrical Specifications at 25°C

Parameter	Frequency (GHz)	Min.	Typ.	Max.	Unit
<b>Frequency Range</b>		6		15	GHz
<b>Insertion Loss</b> (above theoretical 9.0 dB)	6 - 9	—	0.9	1.8	
	9 - 12.5	—	1.6	2.8	dB
	12.5 - 15	—	3.5	4.8	
<b>Isolation</b>	6 - 9	10	16	—	
	9 - 12.5	16	25	—	dB
	12.5 - 15	15	22	—	
<b>Phase Unbalance</b>	6-15	—	—	—	Degree
<b>Amplitude Unbalance</b>	6 - 9	—	0.2	0.8	
	9 - 12.5	—	0.3	1.2	dB
	12.5 - 15	—	1.1	1.9	
<b>VSWR (Port S)</b>	6 - 9	—	1.5	—	
	9 - 12.5	—	1.6	—	:1
	12.5 - 15	—	1.9	—	
<b>VSWR (Port 1-8)</b>	6 - 9	—	1.4	—	
	9 - 12.5	—	1.6	—	:1
	12.5 - 15	—	2.3	—	

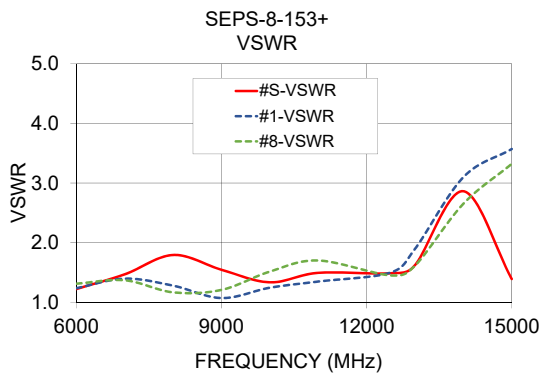
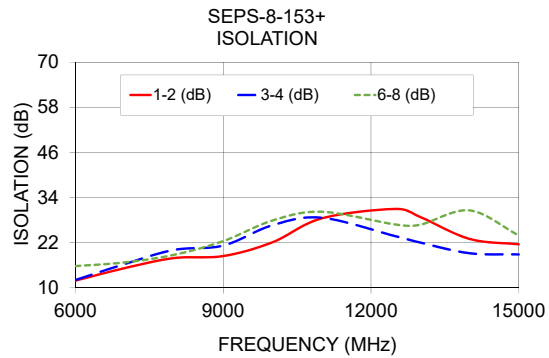
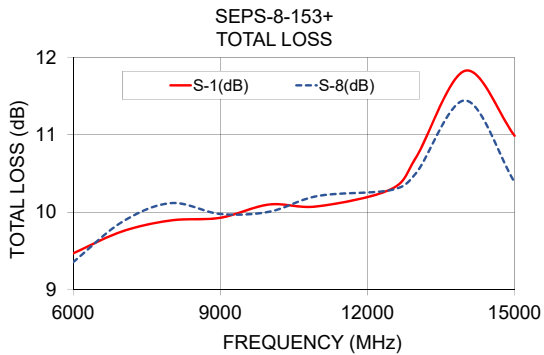
### Electrical Schematic



## Typical Performance Data

Freq. (MHz)	Total Loss <sup>1</sup> (dB)						Ampl. Unbl. (dB)	Isolation (dB)				VSWR S	VSWR 1	VSWR 8
	S-1	S-2	S-3	S-4	S-6	S-8		1-2	1-3	3-4	6-8			
6000	9.47	9.17	9.67	9.84	9.49	9.35	0.30	11.89	15.79	12.05	15.75	1.22	1.24	1.31
7000	9.75	9.46	9.62	9.68	9.59	9.87	0.29	15.21	16.62	16.30	16.73	1.47	1.40	1.37
8000	9.89	9.71	9.95	9.84	9.95	10.12	0.18	17.88	18.61	20.05	18.74	1.79	1.28	1.17
9000	9.93	9.86	9.99	9.94	9.84	9.98	0.07	18.42	22.25	21.21	22.39	1.54	1.07	1.21
10000	10.10	10.06	9.96	10.12	9.75	10.01	0.03	22.08	27.84	26.62	27.87	1.33	1.24	1.51
11000	10.08	10.14	10.48	10.50	10.10	10.21	0.06	28.44	30.78	28.62	30.20	1.49	1.35	1.70
12500	10.30	10.53	10.47	10.19	10.19	10.29	0.23	30.96	27.62	23.69	26.81	1.49	1.50	1.45
13000	10.72	10.88	10.48	10.14	10.24	10.51	0.16	28.82	27.59	22.02	26.75	1.62	1.90	1.61
14000	11.83	12.08	11.50	11.00	11.38	11.44	0.25	22.98	31.06	19.18	30.57	2.86	3.10	2.65
15000	10.99	12.11	10.87	9.87	10.55	10.39	1.12	21.53	24.65	18.85	23.92	1.39	3.57	3.32

1. Total Loss = Insertion Loss + 9dB splitter theoretical loss.



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