



**THE DATASHEET OF  
SP-2U1+**





**SURFACE MOUNT**

# Power Splitter/Combiner

## SP-2U1+

2 Way-0° 50Ω

2300 to 2500 MHz

### FEATURES

- Low insertion loss, 0.5 dB typ.
- Good isolation, 22 dB typ.
- Good output VSWR, 1.2:1 typ.
- Excellent power handling, 1.5W
- Small size
- Aqueous washable



Generic photo used for illustration purposes only

CASE STYLE: CA531

### APPLICATIONS

- Bluetooth
- WCDMA
- IEEE 802.11b, g
- Wi-Fi
- ISM

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

### ELECTRICAL SPECIFICATIONS AT 25°C

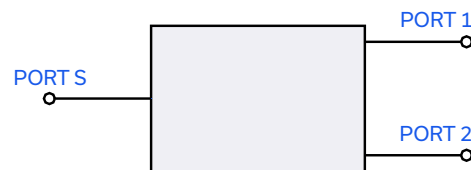
Parameter	Frequency (MHz)	Min.	Typ.	Max.	Units
Frequency Range		2300		2500	MHz
Insertion Loss (above 3.0 dB)	2300-2500	—	0.5	0.9	dB
Isolation	2300-2500	16	22	—	dB
Amplitude Unbalance	2300-2500	—	—	0.2	dB
Phase Unbalance	2300-2500	—	—	3	deg.
VSWR (Port S)	2300-2500	—	1.35	—	:1
VSWR (Port 1)	2300-2500	—	1.2	—	:1
VSWR (Port 2)	2300-2500	—	1.2	—	:1

### MAXIMUM RATINGS

Parameter	Ratings
Operating Temperature	-40 °C to +85 °C
Storage Temperature	-65 °C to +150 °C
Input Power (as a splitter)	1.5 W max.
Internal Dissipation	0.75W max.

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

### ELECTRICAL SCHEMATIC





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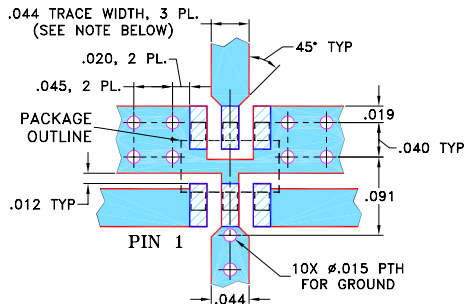
2300 to 2500 MHz

### PIN CONNECTIONS

SUM PORT	5
PORT 1	1
PORT 2	3
GROUND	2,4,6

**PRODUCT MARKING:** N/A

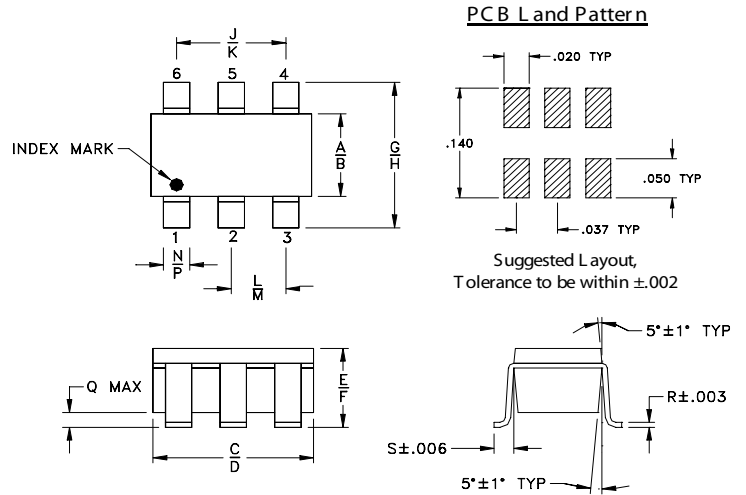
**DEMOBOARD MCL P/N:** TB-374  
**SUGGESTED PCB LAYOUT (PL-232)**



- NOTES:**
- TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS  $.020'' \pm .0015''$ ; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
  - 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



### OUTLINE DIMENSIONS (Inch/mm)

A	B	C	D	E	F	G	H	J
.052	.067	.106	.122	.035	.064	.087	.118	.067
1.32	1.70	2.69	3.10	0.89	1.63	2.21	3.00	1.70
K	L	M	N	P	Q	R	S	wt
.083	.033	.042	.012	.020	.012	.006	.018	grams
2.11	0.84	1.07	0.30	0.51	0.30	0.15	0.46	0.020

**TAPE & REEL INFORMATION: F31**



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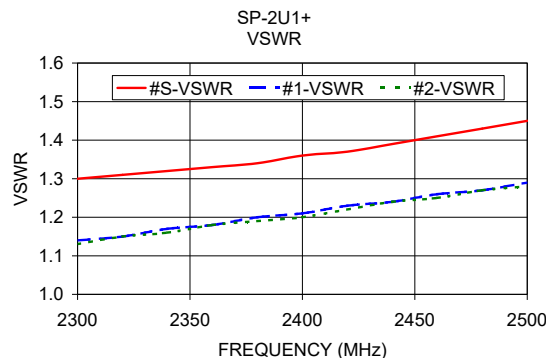
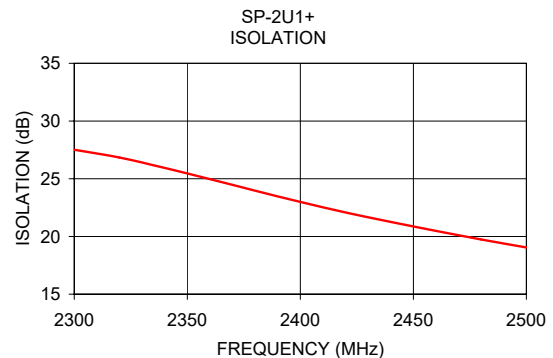
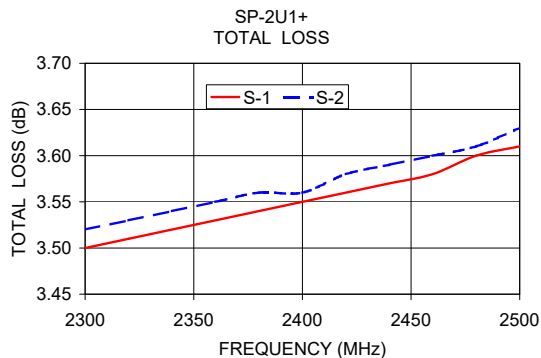
2 Way-0° 50Ω

2300 to 2500 MHz

### TYPICAL PERFORMANCE DATA AND CHARTS

Frequency (MHz)	Total Loss <sup>1</sup> (dB)		Amplitude Unbalance (dB)	Isolation (dB)	Phase Unbalance (deg.)	VSWR (:1)		
	S-1	S-2				S	1	2
2300.00	3.50	3.52	0.02	27.51	0.73	1.30	1.14	1.13
2320.00	3.51	3.53	0.02	26.84	0.74	1.31	1.15	1.15
2340.00	3.52	3.54	0.02	25.94	0.74	1.32	1.17	1.16
2360.00	3.53	3.55	0.02	24.97	0.74	1.33	1.18	1.18
2380.00	3.54	3.56	0.02	23.97	0.74	1.34	1.20	1.19
2400.00	3.55	3.56	0.01	22.99	0.75	1.36	1.21	1.20
2420.00	3.56	3.58	0.02	22.08	0.77	1.37	1.23	1.22
2440.00	3.57	3.59	0.02	21.26	0.80	1.39	1.24	1.24
2460.00	3.58	3.60	0.02	20.48	0.81	1.41	1.26	1.25
2480.00	3.60	3.61	0.02	19.74	0.83	1.43	1.27	1.27
2500.00	3.61	3.63	0.02	19.05	0.83	1.45	1.29	1.28

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



#### ESD Rating

Human Body Model (HBM): Class 1A (250 v to <500 v) in accordance with ANSI/ESD STM 5.1 - 2001  
Machine Model (MM): Class M1 (< 100 v) in accordance with ANSI/ESD STM 5.2 - 1999 (pass 50V)



#### 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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