

# Surface Mount Power Splitter/Combiner

2 Way-0° 50Ω 50 to 3000 MHz

## TCP-2-33W+



CASE STYLE: DB1627  
PRICE: \$2.99 ea. QTY. (20)

**+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
13"	1000, 2000

### Maximum Ratings

Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
Power Input (as a splitter)	0.5W max.

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

### Pin Connections

SUM PORT	2,5,6
PORT 1	3
PORT 2	4
GROUND	1
EXT. RESISTOR 475Ω	3,4

### Features

- wide frequency band, 50 to 3000 MHz
- low insertion, 1.0 dB typ.
- external resistor required
- aqueous washable
- leads for excellent solderability
- low cost

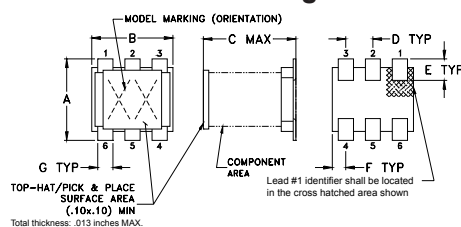
### Applications

- cellular
- PCN
- GPS

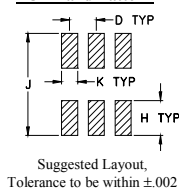
### Electrical Specifications at 25°C

Parameter	Frequency (MHz)	Min.	Typ.	Max.	Unit
Frequency Range		50		3000	MHz
Insertion Loss Above 3.0 dB	50-500	—	0.6	0.9	
	500-1500	—	0.9	1.3	dB
	1500-3000	—	1.3	2.1	
Isolation	50-500	20	30	—	
	500-1500	16	21	—	dB
	1500-3000	8	11	—	
Phase Unbalance	50-500	—	0.7	2	
	500-1500	—	1.6	5	Degree
	1500-3000	—	6.5	10	
Amplitude Unbalance	50-500	—	0.06	0.2	
	500-1500	—	0.4	0.6	dB
	1500-3000	—	0.8	1.3	
VSWR (Port-S)	50-500	—	1.9	2.2	
	500-1500	—	1.9	2.2	:1
	1500-3000	—	1.8	2.1	
VSWR (Port 1-2)	50-500	—	1.9	2.2	
	500-1500	—	2.2	2.5	:1
	1500-3000	—	2.6	2.9	

### Outline Drawing



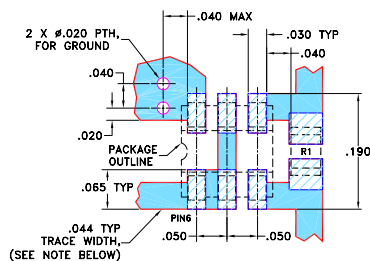
### PCB Land Pattern





### Outline Dimensions (inch/mm)

A	B	C	D	E	F
.160	.150	.160	.050	.040	.025
4.06	3.81	4.06	1.27	1.02	0.64
G	H	J	K		wt
.028	.065	.190	.030		grams
0.71	1.65	4.83	0.76		0.15

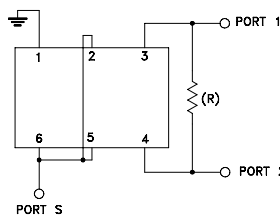
### Demo Board MCL P/N: TB-86+ Suggested PCB Layout (PL-008)



RESISTOR R1: 475 ± 1% Ohm, 0805 SIZE

- NOTES: 1. TRACE WIDTH IS SHOWN FOR ROGERS R04350B WITH DIELECTRIC THICKNESS 0.020" ± 0.0015"; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH 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

### Electrical Schematic



MODEL	R (Ohm)
TCP-2-25	475
TCP-2-33	200
TCP-2-33W+	475
TCP-2-272+	475

**Mini-Circuits**  
ISO 9001 ISO 14001 AS 9100 CERTIFIED  
IF/RF MICROWAVE COMPONENTS

For detailed performance specs & shopping online see web site

P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661 The Design Engineers Search Engine  Provides ACTUAL Data Instantly at [minicircuits.com](http://minicircuits.com)

Notes: 1. Performance and quality attributes and conditions not expressly stated in this specification sheet are intended to be excluded and do not form a part of this specification sheet. 2. Electrical specifications and performance data contained herein are based on Mini-Circuit's applicable established test performance criteria and measurement instructions. 3. The parts covered by this specification sheet 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/MCLStore/terms.jsp](http://www.minicircuits.com/MCLStore/terms.jsp).

REV. OR  
M131116  
TCP-2-33W+  
ED-14199  
HY/CP/AM  
130114

## Typical Performance Data

Frequency (MHz)	Total Loss <sup>1</sup> (dB)		Amplitude Unbalance (dB)	Isolation (dB)	Phase Unbalance (deg.)	VSWR S	VSWR 1	VSWR 2
	S-1	S-2						
50.00	3.55	3.55	0.00	32.87	0.06	1.98	1.91	1.91
200.00	3.59	3.60	0.01	31.65	0.23	1.96	1.90	1.90
400.00	3.61	3.65	0.03	34.27	0.44	1.94	1.92	1.93
600.00	3.62	3.69	0.07	42.24	0.63	1.92	1.92	1.95
800.00	3.61	3.73	0.12	46.22	0.82	1.90	1.93	1.99
1000.00	3.59	3.76	0.17	34.55	0.96	1.87	1.96	2.03
1400.00	3.54	3.83	0.29	24.63	1.24	1.76	1.99	2.12
1600.00	3.51	3.86	0.35	21.75	1.38	1.69	2.01	2.17
1800.00	3.47	3.87	0.40	19.39	1.56	1.60	2.01	2.20
2000.00	3.44	3.89	0.45	17.42	1.84	1.50	2.01	2.22
2200.00	3.42	3.92	0.50	15.78	2.21	1.39	2.00	2.23
2400.00	3.42	3.95	0.53	14.40	2.62	1.27	1.99	2.24
2600.00	3.43	3.97	0.54	13.12	3.15	1.16	1.97	2.23
2800.00	3.48	4.03	0.55	11.95	3.88	1.06	1.95	2.21
3000.00	3.54	4.10	0.56	10.91	4.84	1.04	1.92	2.18

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

