Surface Mount top hat™

Power Splitter/Combiner

TCP-2-33W+

2 Way-0° 50Ω 50 to 3000 MHz

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

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

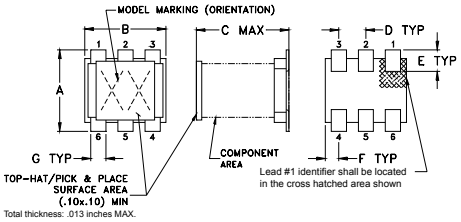
Applications

- cellular
- PCN
- GPS

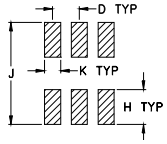
Available Tape and Reel at no extra cost

Reel Size	Devices/Reel
7"	20, 50, 100, 200, 500
13"	1000, 2000

Outline Drawing



PCB Land Pattern



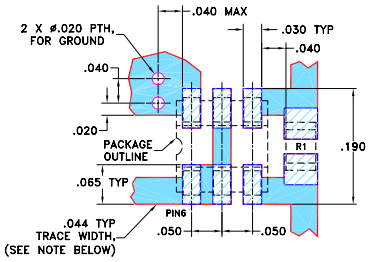
Suggested Layout,
Tolerance to be within ±.002

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 RO4350B 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.

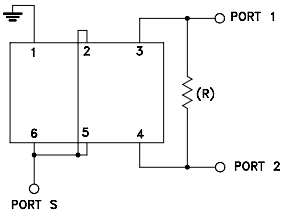
DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)

DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

Electrical 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	dB
	500-1500	—	0.9	1.3	
	1500-3000	—	1.3	2.1	
Isolation	50-500	20	30	—	dB
	500-1500	16	21	—	
	1500-3000	8	11	—	
Phase Unbalance	50-500	—	0.7	2	Degree
	500-1500	—	1.6	5	
	1500-3000	—	6.5	10	
Amplitude Unbalance	50-500	—	0.06	0.2	dB
	500-1500	—	0.4	0.6	
	1500-3000	—	0.8	1.3	
VSWR (Port-S)	50-500	—	1.9	2.2	:1
	500-1500	—	1.9	2.2	
	1500-3000	—	1.8	2.1	
VSWR (Port 1-2)	50-500	—	1.9	2.2	:1
	500-1500	—	2.2	2.5	
	1500-3000	—	2.6	2.9	

Electrical Schematic



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

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

Typical Performance Data

Frequency (MHz)	Total Loss[1] (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.