

top hat[®]
Surface Mount
Power Splitter/Combiner

TCP-2-10X+

2 Way-0° 50Ω 5 to 1000 MHz



Generic photo used for illustration purposes only

CASE STYLE: DB1627

+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

Features

- low insertion, 0.5 dB typ.
- excellent amplitude unbalance, 0.1 dB typ.
- very good phase unbalance, 1.0 deg. typ.
- external resistor & capacitor required
- aqueous washable
- leads for excellent solderability
- low cost

Applications

- cellular
- VHF/UHF
- communications systems

Electrical Specifications at 25°C

Parameter	Frequency (MHz)	Min.	Typ.	Max.	Unit
Frequency Range		5		1000	MHz
Insertion Loss, above 3.0 dB	5 - 50	—	0.3	0.9	dB
	50 - 500	—	0.5	0.9	
	500 - 1000	—	0.5	1.4	
Isolation	5 - 50	17	25	—	dB
	50 - 500	16	25	—	
	500 - 1000	16	21	—	
Phase Unbalance	5 - 50	—	—	4.0	Degree
	50 - 500	—	—	4.0	
	500 - 1000	—	—	6.0	
Amplitude Unbalance	5 - 50	—	—	0.6	dB
	50 - 500	—	—	0.6	
	500 - 1000	—	—	0.3	

Maximum Ratings

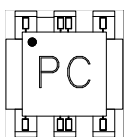
Parameter	Ratings
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
Power Input (as a splitter)	0.5W max.

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

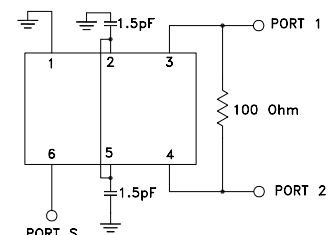
Pin Connections

Function	Pin Number
SUM PORT	6
PORT 1	3
PORT 2	4
GROUND	1
CONNECT	2,5
EXT. RESISTOR 100Ω	3,4
EXT. CAPACITOR 1.5pF	2 to GND
	5 to GND

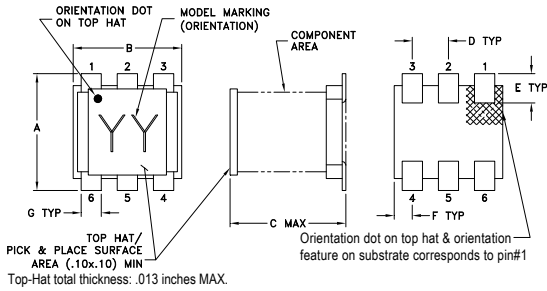
Product Marking



Electrical Schematic



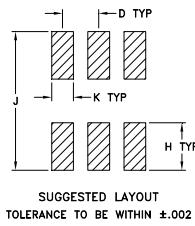
Outline Drawing



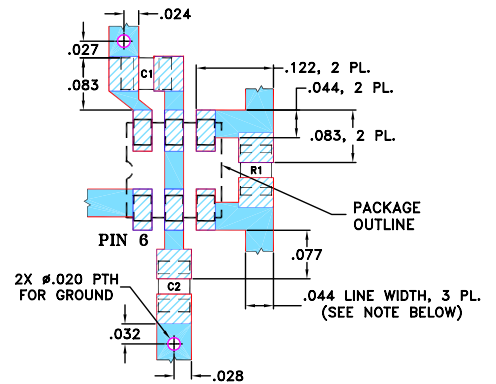
Outline Dimensions (inch/mm)

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	

PCB Land Pattern



Demo Board MCL P/N: TB-232 Suggested PCB Layout (PL-001)



RESISTOR R1: 100 Ohm, 0805 SIZE

CAPACITORS C1 & C2: 1.5 pF, 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.

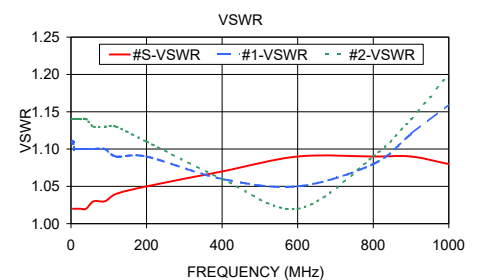
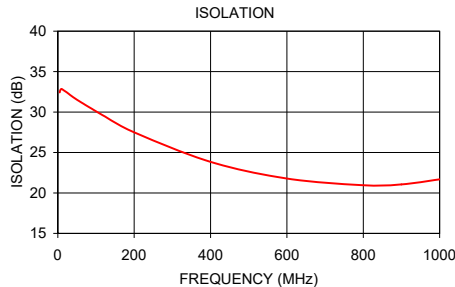
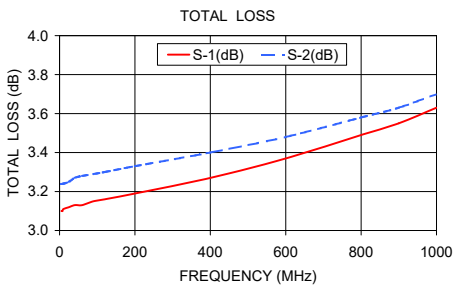
■ DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)

■ DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

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						
5.00	3.10	3.24	0.14	32.43	0.15	1.02	1.11	1.14
6.00	3.10	3.24	0.14	32.64	0.15	1.02	1.11	1.14
8.00	3.10	3.24	0.14	32.81	0.09	1.02	1.10	1.14
10.00	3.11	3.24	0.13	32.85	0.09	1.02	1.10	1.14
25.00	3.12	3.25	0.14	32.38	0.01	1.02	1.10	1.14
40.00	3.13	3.27	0.14	31.84	0.06	1.02	1.10	1.14
60.00	3.13	3.28	0.14	31.23	0.09	1.03	1.10	1.13
90.00	3.15	3.29	0.14	30.38	0.10	1.03	1.10	1.13
120.00	3.16	3.30	0.14	29.54	0.11	1.04	1.09	1.13
200.00	3.19	3.33	0.14	27.50	0.24	1.05	1.09	1.11
400.00	3.27	3.40	0.13	23.84	0.45	1.07	1.06	1.06
600.00	3.37	3.48	0.11	21.78	0.71	1.09	1.05	1.02
800.00	3.49	3.58	0.09	20.95	0.98	1.09	1.08	1.09
900.00	3.55	3.63	0.08	21.06	1.15	1.09	1.12	1.14
1000.00	3.63	3.70	0.07	21.68	1.29	1.08	1.16	1.20

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



Additional Notes

- 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.
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