

SYPJ-2-13+



CASE STYLE F·TTT166

Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
Power Input (as a splitter)	0.5W max.
Internal Dissipation	0.125W max.
Permanent damage may occur if any of these limits are exceeded	

SUM PORT	3
PORT 1 (0°)	1
PORT 2 (180°)	2
GROUND	4.5.6

A	B	C	D	E	F	G	H	J	
.38	.50	.15	.020	.075	.250	.425	.187	.050	
9.65	12.70	3.81	0.51	1.91	6.35	10.80	4.75	1.27	
K	L	M	N	P	Q	R	S	T	wt.
.050	.070	.270	.540	.060	.095	.445	.208	.415	grams
1.27	1.78	6.86	13.72	1.52	2.41	11.30	5.28	10.54	0.8

Figure 1: Package Outline. A detailed technical drawing of a square integrated circuit package. The package has a square body with a central square pad. Dimensions include a total width of .440, a central pad width of .130, and a pin pitch of .050. There are 26 pins, each with a diameter of .020. The package is labeled "PIN 1" and "PACKAGE OUTLINE". A note indicates ".066 TRACE WIDTH, 3 PL. (SEE NOTE BELOW)".

1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS .030" $\pm$.002"; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.

2. THE USE OF SOLDER MASK OVER THE GROUND AREA UNDER THE UNIT TO BE MOUNTED IS RECOMMENDED TO PREVENT SOLDERING. IF USER CHOOSES TO EXPOSE METAL UNDER THE ENTIRE UNIT GROUND PADS FOR IMPROVED GROUNDING, IT IS RECOMMENDED TO USE GOLDEN MASK OVER EACH PAD AND EACH PAD TO ENDS OF FILLET AND CONNECTION AT GROUND PADS.

3. BOTTOM SIDE OF THE BOARD IS CONTINUOUS GROUND PLANE.

4. BOTTOM SIDES PCB COUPON LAYOUT FOR SMD (SOLDER MASK OVER BARE COPPER), SEE NOTE 2.

5. DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

- wideband, 10 to 1000 MHz
- good isolation, 22 dB typ.
- excellent amplitude unbalance, 0.3 dB typ.

- VHF/UHF
- cellular
- communication systems

Parameter	Frequency (MHz)	Min.	Typ.	Max.	Unit
Frequency		10		1000	MHz
Insertion Loss (above theoretical 3.0 dB)	10-100	—	1.2	1.7	dB
	100-500	—	1.3	1.8	
	500-1000	—	1.7	2.3	
Isolation	10-100	20	24	—	dB
	100-500	18	22	—	
	500-1000	18	21	—	
Phase Unbalance	10-100	—	1.0	4.0	Degree
	100-500	—	4.0	8.0	
	500-1000	—	6.0	12.0	
Amplitude Unbalance	10-100	—	0.2	0.5	dB
	100-500	—	0.25	0.5	
	500-1000	—	0.3	0.7	
VSWR (Port S)	10-100	—	1.1	—	:1
	100-500	—	1.3	—	
	500-1000	—	1.6	—	
VSWR (Port 1-2)	10-100	—	1.4	—	:1
	100-500	—	1.5	—	
	500-1000	—	1.7	—	

Frequency (MHz)	Total Loss¹ (dB)		Amplitude Unbalance (dB)	Isolation (dB)	Phase Unbalance (deg.)	VSWR S	VSWR 1	VSWR 2
	S-1	S-2						
10	3.98	4.14	0.15	24.59	180.00	1.08	1.34	1.37
100	3.98	4.13	0.15	23.65	179.19	1.09	1.29	1.33
200	3.99	4.15	0.16	23.27	178.46	1.15	1.27	1.36
300	4.02	4.17	0.15	22.74	177.82	1.21	1.26	1.41
400	4.07	4.20	0.13	22.30	177.27	1.26	1.25	1.47
500	4.14	4.22	0.09	21.90	176.79	1.32	1.25	1.52
600	4.22	4.25	0.03	21.63	176.33	1.37	1.26	1.58
700	4.34	4.29	0.05	21.48	175.82	1.43	1.30	1.63
800	4.48	4.35	0.13	21.52	175.23	1.48	1.36	1.68
1000	4.77	4.58	0.20	22.33	173.64	1.61	1.54	1.81

SYPJ-2-13+ TOTAL LOSS

1. Total Loss = Insertion Loss

The graph plots Total Loss (dB) on the y-axis (ranging from 2.0 to 6.0) against Frequency (MHz) on the x-axis (ranging from 0 to 1000). Two data series are shown: S-1 (dB) as a solid red line and S-2 (dB) as a dashed blue line. S-1 starts at approximately 3.9 dB at 0 MHz and increases to about 4.7 dB at 1000 MHz. S-2 starts at approximately 4.1 dB at 0 MHz, remains relatively flat until 600 MHz, and then decreases to about 4.6 dB at 1000 MHz.

FREQUENCY (MHz)	S-1 (dB)	S-2 (dB)
0	3.9	4.1
200	4.0	4.1
400	4.1	4.1
600	4.2	4.2
800	4.5	4.4
1000	4.7	4.6

Frequency (MHz)	Isolation (dB)
0	25.0
200	23.5
400	22.5
600	21.8
750	21.5
1000	22.5

Graph of VSWR vs Frequency (MHz) for SYPJ-2-13+ antenna. The graph shows three curves: #S-VSWR (solid red line), #1-VSWR (dashed blue line), and #2-VSWR (dotted green line). The frequency range is 0 to 1000 MHz, and the VSWR range is 1.0 to 2.2. The #S-VSWR curve starts at ~1.4, dips to ~1.35 at 100 MHz, and rises to ~1.8 at 1000 MHz. The #1-VSWR and #2-VSWR curves are nearly flat at ~1.4.

A block diagram of a 2-to-2 multiplexer. It consists of a central square block. On the left side, there is an input labeled "PORT S". On the right side, there are two outputs labeled "PORT 1" (top) and "PORT 2" (bottom).

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.

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