

2 Way-0° 75Ω 5 to 1000 MHz

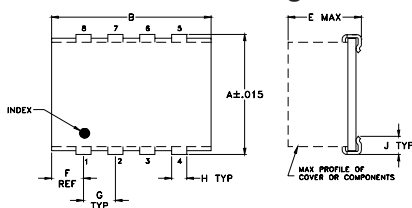
Maximum Ratings

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.	

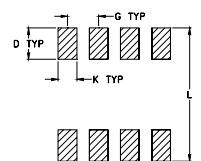
Pin Connections

SUM PORT	1
PORT 1	3
PORT 2	6
GROUND	7,8
NOT USED	2,4,5

Outline Drawing



PCB Land Pattern

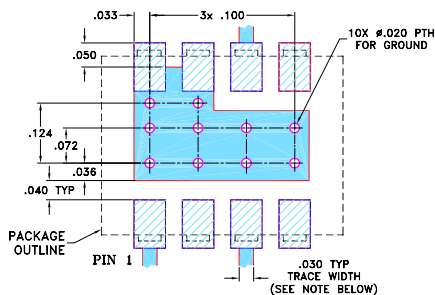
Suggested Layout,
Tolerance to be within ±0.002

Outline Dimensions (inch mm)

A	B	C	D	E	F	G
.395	.500	--	.100	.230	.100	.100
10.03	12.70	--	2.54	5.84	2.54	2.54

H	J	K	L	wt
.047	.065	.065	.425	grams
1.19	1.65	1.65	10.80	0.80

Demo Board MCL P/N: TB-105 Suggested PCB Layout (PL-069)



- Notes:
1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS 0.030" ± 0.002"; 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.
- Legend:
- Blue shaded area: DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)
 - Blue outline: DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

Features

- wideband, 5 to 1000 MHz
- excellent insertion loss 0.4 dB typ.
- good isolation, 25 dB typ.
- excellent VSWR, 1.1:1 typ.

Applications

- cable TV
- VHF/UHF
- communications systems

Generic photo used for illustration purposes only
CASE STYLE: BJ293

+RoHS Compliant

The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications

Electrical Specifications

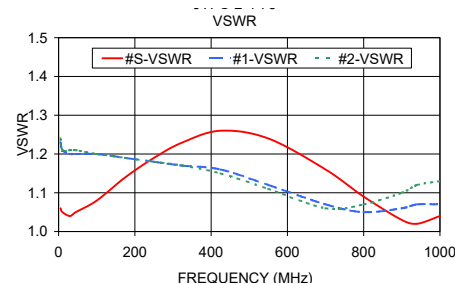
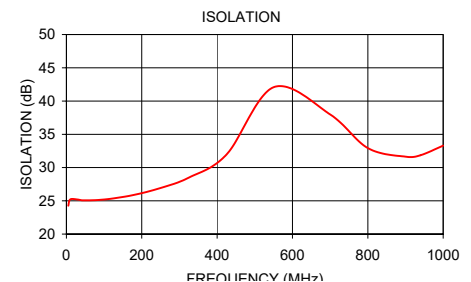
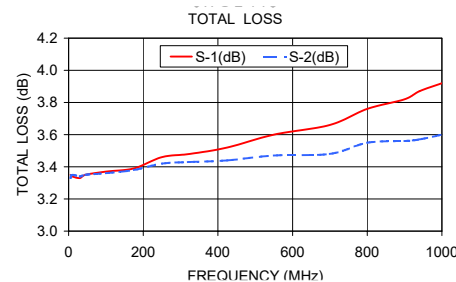
FREQ. RANGE (MHz)	ISOLATION (dB)						INSERTION LOSS (dB) ABOVE 3.0 dB						PHASE UNBALANCE (Degrees)			AMPLITUDE UNBALANCE (dB)		
	L		M		U		L		M		U		L		M		U	
f _L -f _U	Typ.	Min.	Typ.	Min.	Typ.	Min.	Typ.	Max.	Typ.	Max.	Typ.	Max.	Max.	Max.	Max.	Max.	Max.	Max.
5-1000	24	17	25	20	30	18	0.4	0.8	0.4	1.0	0.8	1.5	3.0	4.0	5.0	0.2	0.3	0.4

L = 5-50 MHz M = 50-500 MHz U = 500-1000 MHz

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	3.35	3.33	0.02	24.26	0.03	1.06	1.23	1.24
10.00	3.34	3.35	0.01	25.21	0.01	1.05	1.21	1.21
30.00	3.33	3.34	0.01	25.19	0.05	1.04	1.20	1.21
45.00	3.35	3.35	0.00	25.07	0.08	1.05	1.20	1.21
100.00	3.37	3.36	0.00	25.19	0.16	1.08	1.20	1.20
175.00	3.39	3.38	0.02	25.84	0.34	1.14	1.19	1.19
250.00	3.46	3.42	0.04	26.93	0.46	1.19	1.18	1.18
325.00	3.48	3.43	0.04	28.49	0.61	1.23	1.17	1.17
425.00	3.52	3.44	0.07	31.97	0.73	1.26	1.16	1.15
550.00	3.60	3.47	0.14	42.08	0.86	1.24	1.12	1.11
700.00	3.66	3.48	0.18	37.99	0.84	1.16	1.07	1.06
800.00	3.76	3.55	0.21	32.92	0.84	1.09	1.05	1.07
900.00	3.82	3.56	0.27	31.64	0.59	1.03	1.06	1.10
940.00	3.87	3.57	0.30	31.86	0.42	1.02	1.07	1.12
1000.00	3.92	3.60	0.32	33.30	0.12	1.04	1.07	1.13

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



electrical schematic



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.
- Electrical specifications and performance data contained in this specification document are based on Mini-Circuits' applicable established test performance criteria and measurement instructions.
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2 Way-0° Power Splitter/Combiner

JYPS-2-4-75+

Typical Performance Data

TEST CONDITIONS: INPUT POWER = 0dBm @Temperature = +25°C

FREQ. (MHz)	TOTAL LOSS ¹ (dB)		AMP. UNBAL. (dB)	PHASE UNBAL. (deg.)	ISOLATION (dB)	VSWR		
	S-1	S-2				S	(:1) 1	2
5	3.38	3.38	0.00	0.00	22.50	1.07	1.29	1.29
10	3.37	3.37	0.00	0.03	23.23	1.06	1.26	1.26
20	3.37	3.38	0.01	0.08	23.68	1.05	1.25	1.25
30	3.38	3.38	0.00	0.02	23.73	1.05	1.25	1.24
40	3.38	3.38	0.00	0.04	23.79	1.06	1.24	1.24
50	3.39	3.39	0.00	0.11	23.81	1.06	1.24	1.24
60	3.39	3.39	0.00	0.11	23.87	1.06	1.24	1.24
70	3.40	3.40	0.00	0.10	23.91	1.07	1.24	1.23
80	3.40	3.40	0.00	0.10	24.00	1.08	1.23	1.23
90	3.40	3.40	0.00	0.15	24.08	1.08	1.23	1.23
100	3.41	3.41	0.00	0.12	24.15	1.09	1.23	1.23
150	3.44	3.43	0.01	0.26	24.57	1.13	1.22	1.22
200	3.46	3.45	0.01	0.27	25.06	1.16	1.22	1.21
250	3.50	3.47	0.03	0.33	25.67	1.20	1.21	1.21
300	3.52	3.50	0.02	0.39	26.34	1.24	1.21	1.21
350	3.56	3.52	0.04	0.42	27.11	1.27	1.22	1.21
400	3.60	3.55	0.05	0.51	28.04	1.30	1.22	1.21
450	3.63	3.58	0.05	0.57	29.11	1.32	1.22	1.21
500	3.68	3.60	0.08	0.62	30.18	1.34	1.22	1.20
550	3.72	3.63	0.09	0.67	31.66	1.35	1.21	1.20
600	3.77	3.66	0.11	0.72	33.54	1.35	1.21	1.19
650	3.82	3.68	0.14	0.75	35.67	1.35	1.21	1.19
700	3.88	3.71	0.17	0.75	37.75	1.34	1.20	1.18
750	3.92	3.72	0.20	0.71	39.16	1.32	1.20	1.18
800	3.96	3.75	0.21	0.61	37.46	1.31	1.20	1.18
850	4.01	3.78	0.23	0.58	34.07	1.29	1.20	1.17
900	4.06	3.82	0.25	0.53	31.95	1.27	1.19	1.18
950	4.11	3.84	0.27	0.43	30.65	1.25	1.20	1.18
1000	4.15	3.87	0.28	0.35	29.88	1.23	1.20	1.19
1050	4.21	3.90	0.31	0.22	29.60	1.21	1.21	1.19
1100	4.26	3.93	0.33	0.00	29.27	1.19	1.21	1.20
1150	4.31	3.97	0.34	0.24	28.92	1.18	1.22	1.21
1200	4.37	4.01	0.35	0.47	28.97	1.17	1.23	1.22
1250	4.42	4.05	0.37	0.77	28.24	1.16	1.23	1.23
1300	4.50	4.09	0.41	1.11	26.65	1.16	1.24	1.24
1350	4.58	4.15	0.43	1.53	24.80	1.17	1.25	1.25
1400	4.68	4.21	0.47	2.06	22.66	1.17	1.26	1.26
1450	4.79	4.29	0.50	2.55	20.80	1.18	1.27	1.26
1500	4.92	4.41	0.51	3.04	19.17	1.20	1.28	1.26
1600	5.26	4.74	0.52	3.97	16.29	1.22	1.30	1.26
1700	5.58	5.12	0.45	4.85	14.57	1.25	1.33	1.25
1800	5.83	5.47	0.36	5.25	13.49	1.27	1.36	1.24
1900	5.89	5.71	0.18	6.08	12.56	1.30	1.41	1.22
2000	5.74	5.87	0.13	7.32	11.65	1.31	1.44	1.18

¹Total Loss = Insertion Loss + 3dB Splitter Loss

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2 Way-0° Power Splitter/Combiner

JYPS-2-4-75+

Typical Performance Data

TEST CONDITIONS: INPUT POWER = 0dBm @Temperature = -40°C

FREQ. (MHz)	TOTAL LOSS ¹ (dB)		AMP. UNBAL. (dB)	PHASE UNBAL. (deg.)	ISOLATION (dB) 1-2	VSWR (:1)		
	S-1	S-2				S	1	2
5	3.44	3.45	0.01	0.01	18.63	1.11	1.45	1.45
10	3.36	3.36	0.00	0.03	21.24	1.07	1.32	1.31
20	3.31	3.31	0.00	0.10	24.06	1.03	1.22	1.21
30	3.30	3.30	0.00	0.06	24.93	1.03	1.20	1.18
40	3.30	3.30	0.00	0.11	25.41	1.03	1.19	1.16
50	3.30	3.30	0.00	0.20	25.68	1.03	1.18	1.15
60	3.30	3.30	0.00	0.21	25.87	1.03	1.18	1.14
70	3.31	3.31	0.00	0.22	25.98	1.03	1.17	1.14
80	3.31	3.30	0.01	0.26	26.09	1.03	1.17	1.15
90	3.31	3.30	0.01	0.32	26.19	1.03	1.16	1.15
100	3.32	3.31	0.01	0.32	26.27	1.05	1.16	1.16
150	3.33	3.32	0.01	0.55	26.83	1.11	1.15	1.15
200	3.35	3.33	0.02	0.67	27.44	1.12	1.15	1.15
250	3.38	3.35	0.03	0.85	28.14	1.18	1.16	1.17
300	3.40	3.36	0.04	1.02	28.98	1.21	1.18	1.17
350	3.43	3.38	0.05	1.19	29.89	1.25	1.19	1.19
400	3.46	3.40	0.06	1.37	31.12	1.28	1.21	1.19
450	3.49	3.42	0.07	1.57	32.41	1.32	1.22	1.21
500	3.53	3.44	0.09	1.73	33.66	1.36	1.22	1.22
550	3.56	3.46	0.10	1.91	35.44	1.36	1.23	1.22
600	3.60	3.47	0.13	2.10	37.21	1.37	1.23	1.24
650	3.64	3.48	0.16	2.20	37.36	1.36	1.23	1.21
700	3.69	3.50	0.19	2.32	35.65	1.35	1.23	1.21
750	3.71	3.50	0.21	2.37	34.01	1.33	1.22	1.21
800	3.74	3.53	0.21	2.38	31.69	1.29	1.22	1.20
850	3.78	3.54	0.24	2.49	29.43	1.26	1.21	1.20
900	3.81	3.56	0.25	2.58	27.97	1.22	1.20	1.20
950	3.84	3.58	0.26	2.63	27.19	1.18	1.19	1.19
1000	3.88	3.59	0.29	2.65	26.73	1.15	1.18	1.17
1050	3.93	3.61	0.32	2.61	26.75	1.12	1.18	1.17
1100	3.97	3.63	0.34	2.53	26.80	1.10	1.18	1.18
1150	4.01	3.66	0.35	2.44	26.92	1.10	1.18	1.17
1200	4.05	3.68	0.37	2.35	27.68	1.09	1.18	1.16
1250	4.09	3.70	0.39	2.19	27.91	1.12	1.18	1.17
1300	4.15	3.72	0.43	1.95	26.86	1.15	1.19	1.19
1350	4.20	3.76	0.45	1.70	25.06	1.17	1.21	1.21
1400	4.27	3.79	0.48	1.36	22.67	1.22	1.23	1.23
1450	4.36	3.86	0.50	1.09	20.59	1.29	1.26	1.28
1500	4.49	3.97	0.52	0.81	18.84	1.31	1.29	1.35
1600	4.81	4.30	0.51	0.13	15.83	1.37	1.34	1.38
1700	5.10	4.65	0.44	0.42	14.11	1.33	1.37	1.45
1800	5.28	4.97	0.31	0.49	13.16	1.23	1.36	1.39
1900	5.34	5.19	0.14	0.79	12.38	1.16	1.35	1.40
2000	5.14	5.28	0.14	2.02	11.52	1.27	1.35	1.23

¹Total Loss = Insertion Loss + 3dB Splitter Loss

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Typical Performance Data

TEST CONDITIONS: INPUT POWER = 0dBm @Temperature = +85°C

FREQ. (MHz)	TOTAL LOSS ¹ (dB)		AMP. UNBAL. (dB)	PHASE UNBAL. (deg.)	ISOLATION (dB) 1-2	VSWR (:1)		
	S-1	S-2				S	1	2
5	3.60	3.60	0.00	0.00	20.03	1.11	1.41	1.41
10	3.59	3.59	0.00	0.03	20.23	1.11	1.39	1.40
20	3.60	3.60	0.00	0.09	20.35	1.10	1.38	1.39
30	3.61	3.61	0.00	0.03	20.36	1.11	1.38	1.40
40	3.61	3.62	0.01	0.07	20.40	1.12	1.38	1.41
50	3.61	3.62	0.01	0.12	20.41	1.13	1.38	1.41
60	3.62	3.62	0.00	0.11	20.46	1.13	1.37	1.41
70	3.62	3.63	0.01	0.10	20.50	1.14	1.37	1.40
80	3.63	3.63	0.00	0.10	20.57	1.14	1.37	1.39
90	3.63	3.64	0.01	0.14	20.64	1.14	1.37	1.38
100	3.64	3.64	0.00	0.14	20.71	1.14	1.37	1.36
150	3.66	3.65	0.01	0.28	21.04	1.15	1.35	1.34
200	3.69	3.68	0.01	0.28	21.39	1.21	1.33	1.32
250	3.72	3.70	0.02	0.36	21.82	1.23	1.30	1.28
300	3.75	3.73	0.02	0.40	22.23	1.26	1.28	1.27
350	3.79	3.76	0.03	0.43	22.70	1.30	1.26	1.25
400	3.84	3.79	0.05	0.51	23.26	1.31	1.24	1.23
450	3.88	3.83	0.05	0.58	23.83	1.33	1.23	1.21
500	3.93	3.86	0.07	0.63	24.40	1.34	1.21	1.20
550	3.99	3.89	0.10	0.70	25.18	1.35	1.21	1.18
600	4.04	3.92	0.12	0.77	26.11	1.35	1.20	1.17
650	4.10	3.96	0.14	0.83	27.20	1.36	1.20	1.17
700	4.16	3.99	0.17	0.85	28.55	1.36	1.20	1.16
750	4.22	4.01	0.21	0.84	30.22	1.35	1.20	1.16
800	4.27	4.05	0.22	0.75	32.69	1.35	1.21	1.16
850	4.34	4.09	0.25	0.78	35.97	1.34	1.22	1.17
900	4.40	4.13	0.27	0.72	38.66	1.33	1.23	1.17
950	4.45	4.17	0.28	0.66	39.03	1.32	1.24	1.18
1000	4.51	4.22	0.29	0.57	39.09	1.30	1.25	1.20
1050	4.57	4.26	0.32	0.42	39.18	1.28	1.26	1.21
1100	4.64	4.30	0.34	0.25	37.32	1.27	1.27	1.22
1150	4.70	4.35	0.35	0.01	34.97	1.25	1.28	1.23
1200	4.78	4.41	0.37	0.25	33.14	1.23	1.29	1.23
1250	4.85	4.47	0.38	0.53	30.32	1.21	1.29	1.23
1300	4.96	4.54	0.42	0.89	27.73	1.20	1.29	1.23
1350	5.07	4.61	0.46	1.31	25.45	1.19	1.28	1.22
1400	5.21	4.70	0.51	1.85	23.30	1.18	1.28	1.21
1450	5.36	4.81	0.55	2.40	21.50	1.18	1.27	1.20
1500	5.52	4.95	0.57	2.83	19.96	1.19	1.27	1.18
1600	5.92	5.30	0.62	3.76	17.19	1.24	1.30	1.15
1700	6.27	5.67	0.60	4.55	15.47	1.32	1.37	1.15
1800	6.49	6.00	0.49	4.96	14.28	1.40	1.45	1.18
1900	6.57	6.25	0.32	5.89	13.32	1.47	1.55	1.21
2000	6.44	6.42	0.01	7.24	12.47	1.48	1.60	1.22

¹Total Loss = Insertion Loss + 3dB Splitter Loss

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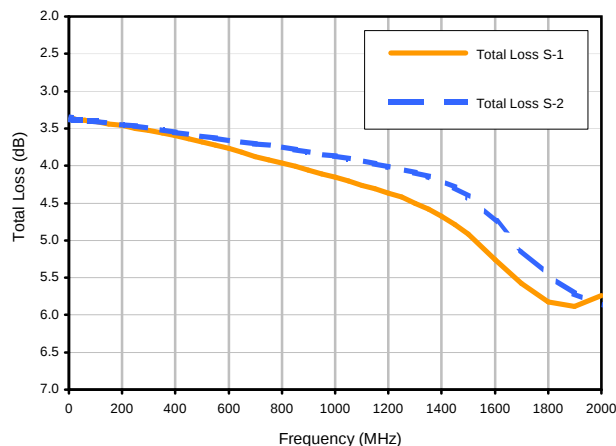


2 Way-0° Power Splitter/Combiner

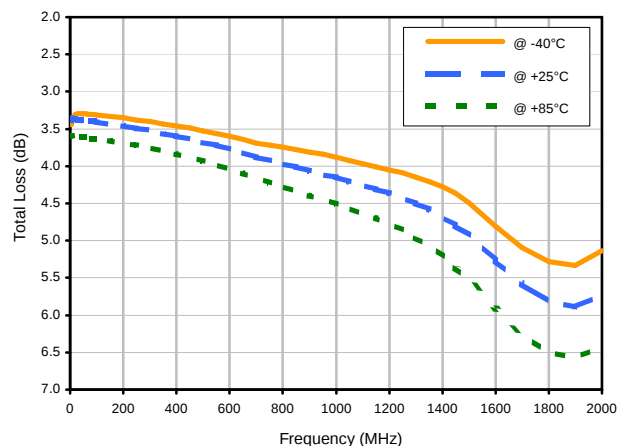
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Typical Performance Curves

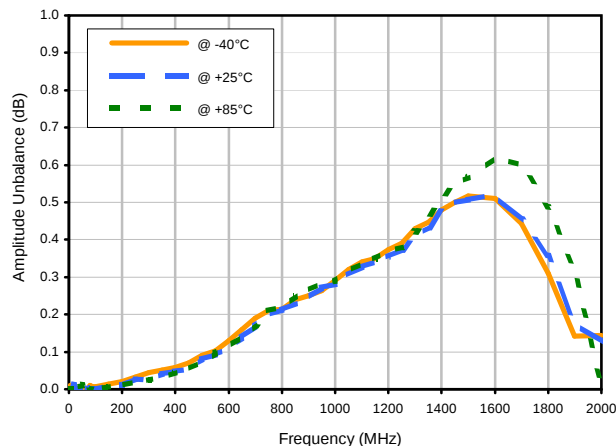
Total Loss



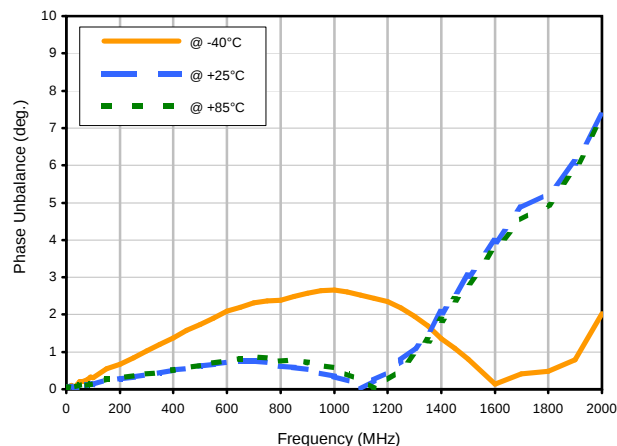
Total Loss S-1 vs. TEMPERATURE



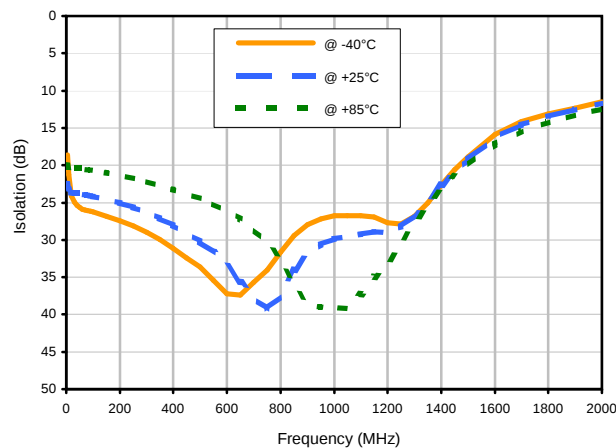
Amplitude Unbalance vs. TEMPERATURE



Phase Unbalance vs. TEMPERATURE



Isolation 1-2 vs. TEMPERATURE



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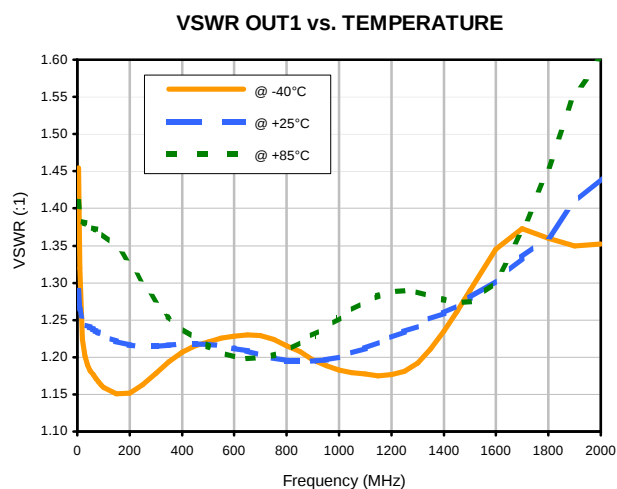
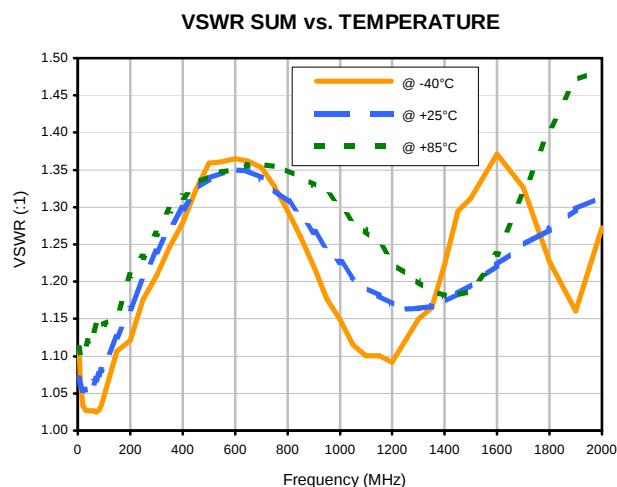
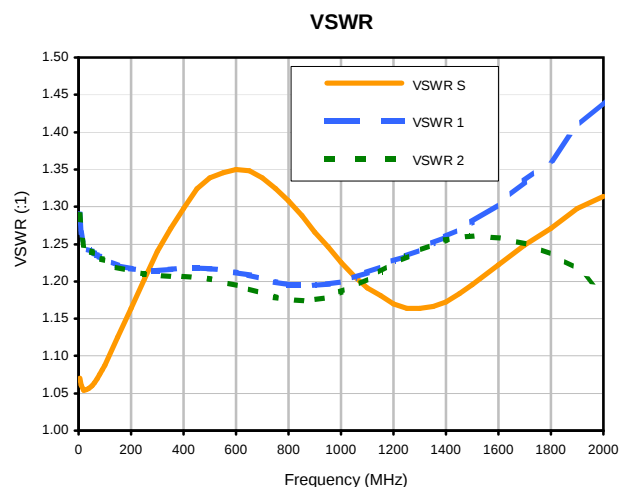
The Design Engineers Search Engine finds the model you need, Instantly • For detailed performance specs & shopping online see



2 Way-0° Power Splitter/Combiner

JYPS-2-4-75+

Typical Performance Curves



REV. X2
JYPS-2-4-75+
100623
Page 2 of 2



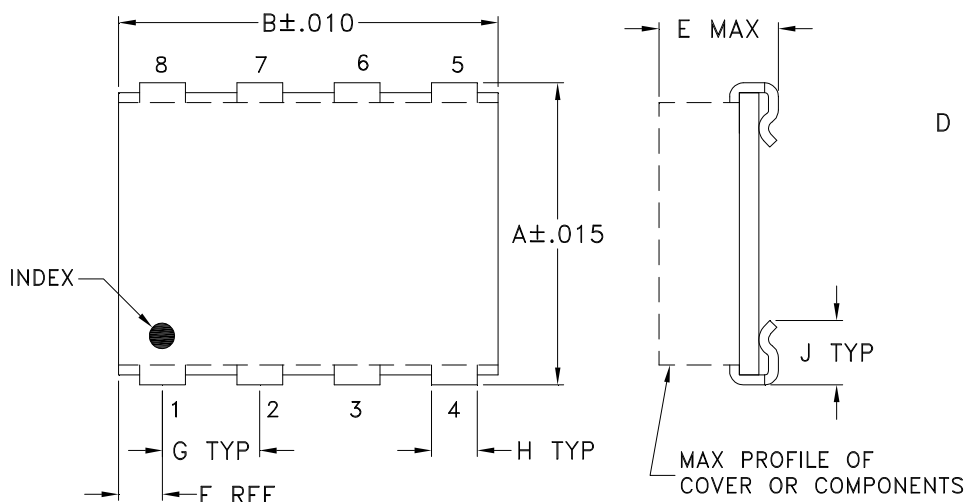
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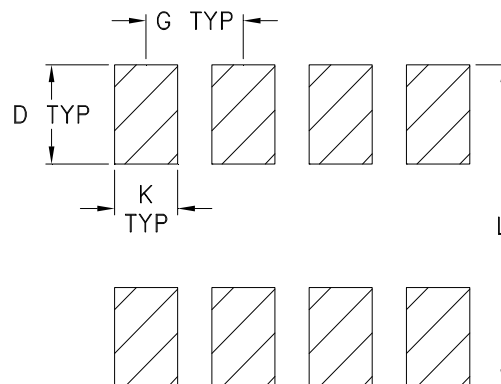


Outline Dimensions

BJ293
BJ398



PCB Land Pattern



Suggested Layout,
Tolerance to be within $\pm .002$

CASE#	A	B	C	D	E	F	G	H	J	K	L	WT. GRAMS
BJ293	.395 (10.03)	.500 (12.70)	-- --	.100 (2.54)	.230 (5.84)	.100 (2.54)	.100 (2.54)	.047 (1.19)	.065 (1.65)	.065 (1.65)	.425 (10.80)	.80
BJ398	.305 (7.75)	.390 (9.91)	-- --	.100 (2.54)	.105 (2.67)	.045 (1.14)	.100 (2.54)	.047 (1.19)	.065 (1.65)	.065 (1.65)	.325 (8.26)	.20

Dimensions are in inches (mm). Tolerances: 2Pl. $\pm .01$; 3Pl. $\pm .005$

Notes:

- Case material: Plastic.
- Base material: Printed wiring laminate.
- Termination finish:
For RoHS Case Styles: Tin plate over Nickel plate. All models, (+) suffix.
For RoHS-5 Case Styles: Tin-Lead plate. All models, no (+) suffix.



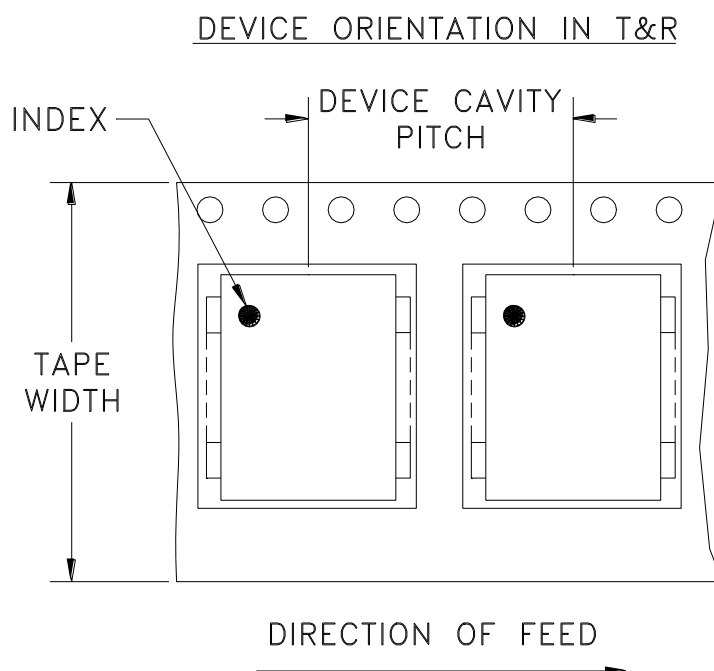
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Tape & Reel Packaging TR-F10



Tape Width, mm	Device Cavity Pitch, mm	Reel Size, inches	Devices per Reel
24	16	7	10,20,50,100,200
		13	500

Mini-Circuits carrier tape materials provide protection from ESD (Electro-Static Discharge) during handling and transportation. Tapes are static dissipative and comply with industry standards EIA-481/EIA-541.

Go to: www.minicircuits.com/pages/pdfs/tape.pdf

Note: Please consult individual model data sheet to determine device per reel availability.



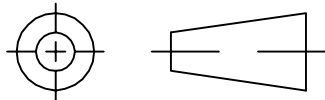
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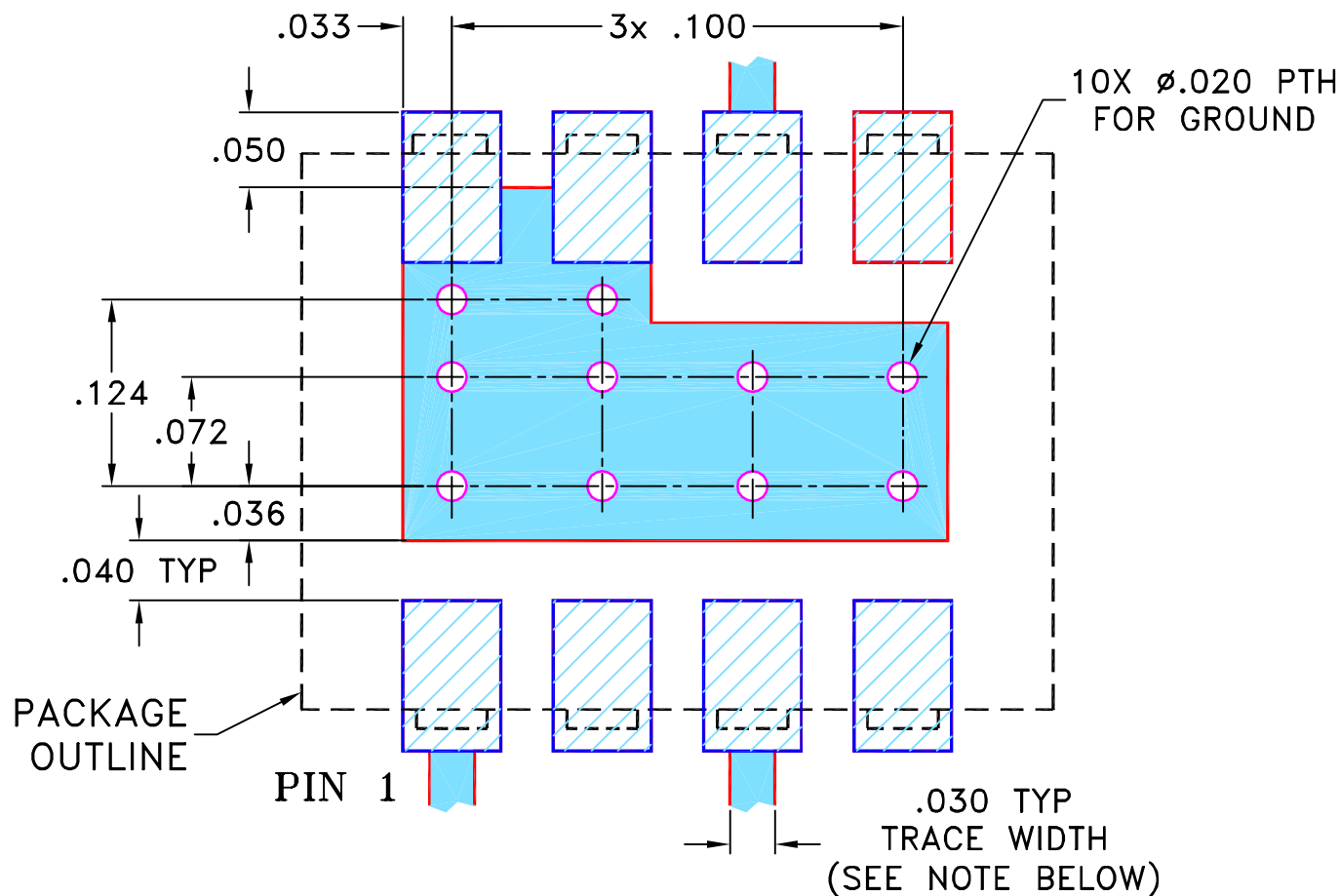
THIRD ANGLE PROJECTION



REVISIONS

REV	ECN No.	DESCRIPTION	DATE	DR	AUTH
OR	M82272	NEW RELEASE	08/05/02	MMG	DJ
A	M102713	UPDATED NOTES	01/14/06	GF	IL

SUGGESTED MOUNTING CONFIGURATION FOR BJ293 CASE STYLE "jf" PIN CONNECTION

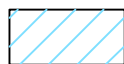


NOTES: 1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS 0.030" $\pm$ 0.002"; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.

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

UNLESS OTHERWISE SPECIFIED

INITIALS

DATE

DIMENSIONS ARE IN INCHES

DRAWN

MMG

07/22/02

TOLERANCES ON:

CHECKED

HY

08/01/02

2 PL DECIMALS $\pm$

APPROVED

DJ

08/05/02

3 PL DECIMALS $\pm$.005ANGLES $\pm$ FRACTIONS $\pm$

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ASHEETA1.DWG REV:A DATE:01/12/95



Mini-Circuits®

13 Neptune Avenue
Brooklyn NY 11235

PL, jf, 75, BJ293, JYPS, TB-105

SIZE

A

CODE IDENT

15542

DRAWING NO:

98-PL-069

REV:

A

FILE:

98PL069

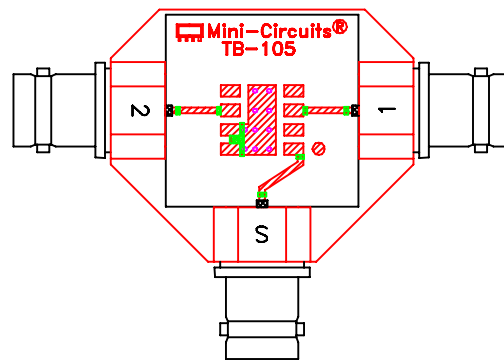
SCALE:

8:1

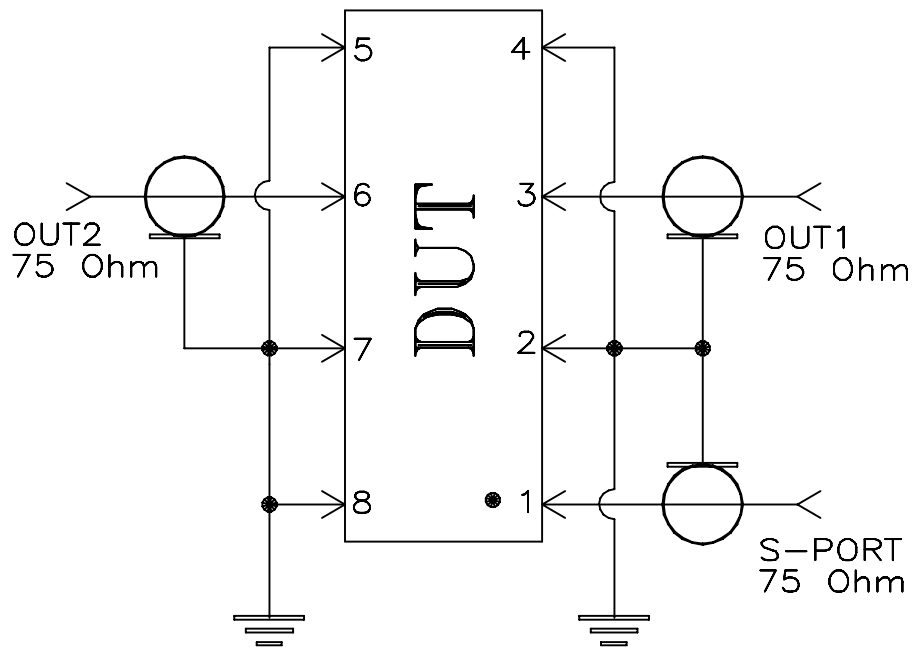
SHEET:

1 OF 1

Evaluation Board and Circuit



TB-105



Schematic Diagram

Notes:

1. 75 Ohm BNC Female connectors.
2. PCB Material: Rogers R04350 or equivalent,
Dielectric Constant=3.5, Thickness=.030 inch.

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All Mini-Circuits products are manufactured under exacting quality assurance and control standards, and are capable of meeting published specifications after being subjected to any or all of the following physical and environmental test.

Specification	Test/Inspection Condition	Reference/Spec
Operating Temperature	-40° to 85°C Ambient Environment	Individual Model Data Sheet
Storage Temperature	-55° to 100° C Ambient Environment	Individual Model Data Sheet
Humidity	90 to 95% RH, 240 hours, 50°C	MIL-STD-202, Method 103, Condition A, Except 50°C and end-point electrical test done within 12 hours
Thermal Shock	-55° to 100°C, 100 cycles	MIL-STD-202, Method 107, Condition A-3, except +100°C
Solder Reflow Heat	Sn-Pb Eutetic Process: 225°C peak Pb-Free Process 245° - 250°C peak	J-STD-020, Table 4-1, 4-2 and 5-2, Figure 5-1
Solderability	10X Magnification	J-STD-002, 95% Coverage
Vibration (High Frequency)	20g peak, 10-2000 Hz, 12 times in each of three perpendicular directions (total 36)	MIL-STD-202, Method 204, Condition D
Mechanical Shock	50g, 11 ms, 1/2-sine, 18 shocks: 3 each direction, each of 3 axes	MIL-STD-202, Method 213, Condition A
Marking Resistance to Solvents	Isopropyl alcohol + mineral spirits at 25°C; terpene defluxer at 25°C; distilled water + proylene glycol monomethyl ether + monoethanolamine at 63°C to 70°C	MIL-STD-202, Method 215