



SURFACE MOUNT

Power Splitter/Combiner

AD6PS-1+

Mini-Circuits

6 Way-0° 50Ω 2 to 250 MHz

FEATURES

- Wideband, 2 to 250 MHz
- High Isolation, 30 dB typ.
- Good input port matching VSWR, 1.20 typ.
- Good output port matching VSWR, 1.10 typ.
- Small size



Generic photo used for illustration purposes only

CASE STYLE: CJ725

+RoHS Compliant

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

APPLICATIONS

- VHF-TV
- Aircraft Communications

ELECTRICAL SPECIFICATIONS

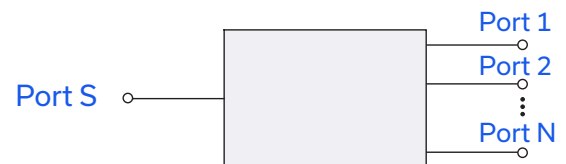
Parameter	Frequency (MHz)	Min.	Typ.	Max.	Unit
Frequency Range	—	2	—	250	MHz
Insertion Loss above 7.8 dB	2 - 20	—	0.2	0.6	dB
	20 - 125	—	0.2	1.0	
	125 - 250	—	0.6	1.5	
Isolation	2 - 20	17	35	—	dB
	20 - 125	20	30	—	
	125 - 250	20	27	—	
Phase Unbalance	2 - 20	—	—	2	Degree
	20 - 125	—	—	6	
	125 - 250	—	—	9	
Amplitude Unbalance	2 - 20	—	—	0.3	dB
	20 - 125	—	—	0.4	
	125 - 250	—	—	0.6	

ABSOLUTE 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.
Internal Dissipation	0.5W Max.

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

ELECTRICAL SCHEMATIC



REV. L
ECO-019621
AD6PS-1+
MCL NY
231012





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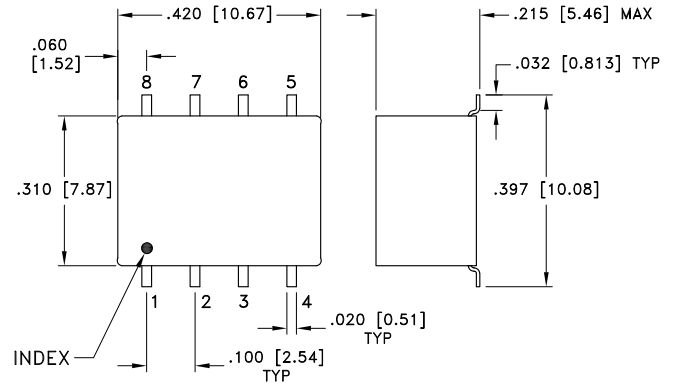


6 Way-0° 50Ω 2 to 250 MHz

PIN CONNECTIONS

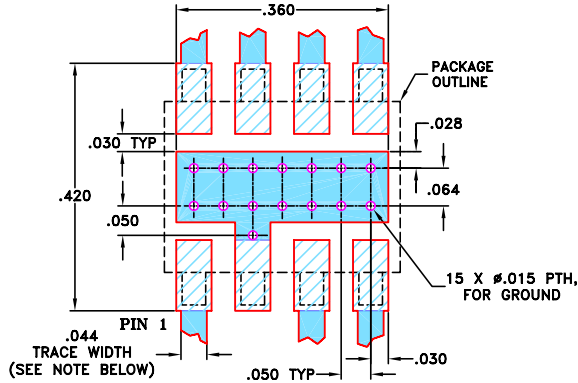
SUM PORT	1
PORT 1	8
PORT 2	7
PORT 3	6
PORT 4	5
PORT 5	4
PORT 6	3
GROUND	2

OUTLINE DRAWING



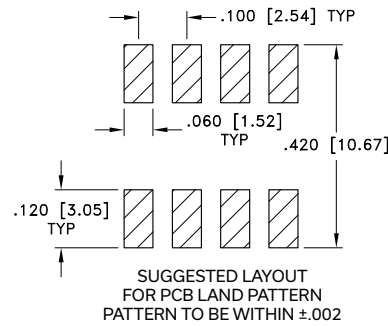
PRODUCT MARKING: N/A

DEMO BOARD MCL P/N: TB-84
SUGGESTED PCB LAYOUT (PL-089)



NOTE: TRACE WIDTH IS SHOWN FOR ROGERS R04350 WITH DIELECTRIC THICKNESS 0.020" ± 0.0015", COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.

- DENOTES PCB COPPER LAYOUT
- DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK



METALLIZATION

Weight: .40 gram
Dimensions are in inches [mm]. Tolerances: 2 Pl. ±.01; 3Pl.±.005 Inch

- Notes:
1. Case material: Plastic.
 2. Termination Finish: Tin plate over Nickel plate.

TAPE & REEL INFORMATION: F10





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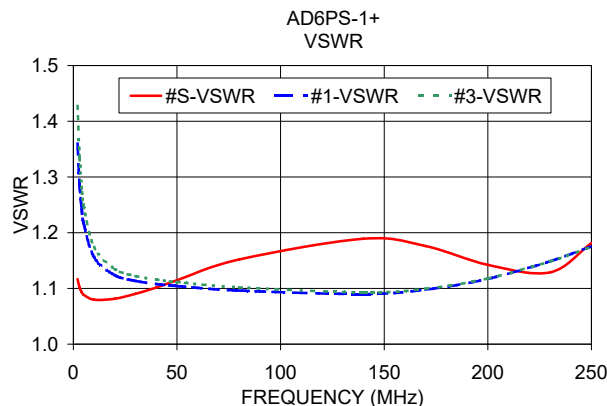
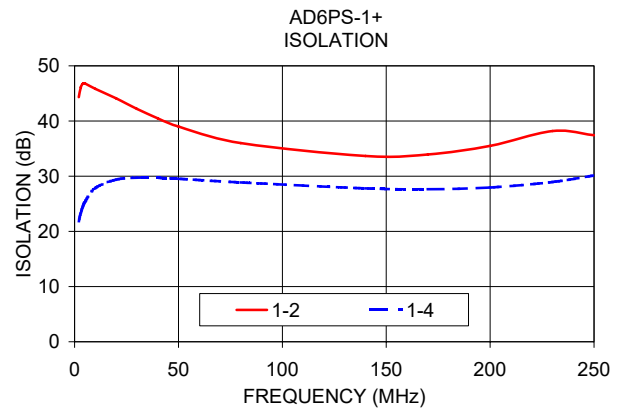
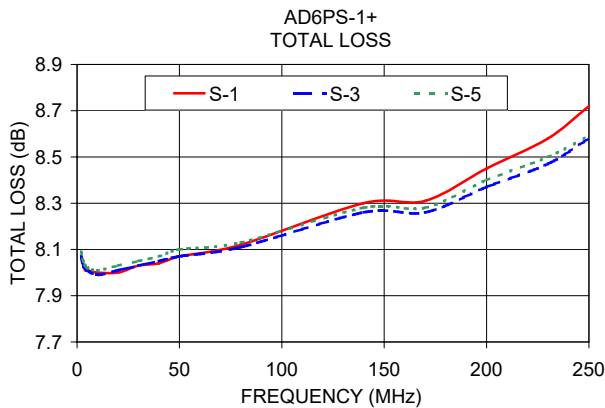
Mini-Circuits

6 Way-0° 50Ω 2 to 250 MHz

TYPICAL PERFORMANCE DATA

Frequency (MHz)	Total Loss ¹ (dB)			Amplitude Unbalance (dB)	Isolation (dB)		Phase Unbalance (deg.)	VSWR S	VSWR OUTPUTS
	S-1	S-3	S-5		Adjacent	Opposite			
2.00	8.07	8.07	8.09	0.02	44.32	21.86	0.17	1.12	1.43
3.00	8.03	8.03	8.05	0.02	46.13	23.38	0.15	1.10	1.33
4.00	8.01	8.02	8.03	0.02	46.77	24.50	0.14	1.09	1.28
5.00	8.01	8.01	8.02	0.01	46.81	25.38	0.22	1.09	1.25
10.00	8.00	7.99	8.01	0.02	45.82	27.85	0.32	1.08	1.17
20.00	8.00	8.01	8.03	0.03	44.12	29.38	0.52	1.08	1.13
30.00	8.03	8.03	8.05	0.02	42.21	29.73	0.80	1.09	1.12
40.00	8.04	8.05	8.07	0.03	40.48	29.69	0.98	1.10	1.12
50.00	8.07	8.07	8.10	0.03	39.00	29.54	1.28	1.11	1.11
80.00	8.12	8.11	8.13	0.03	36.01	28.87	2.03	1.15	1.10
140.00	8.30	8.26	8.28	0.04	33.66	27.80	3.30	1.19	1.09
170.00	8.31	8.26	8.28	0.06	33.93	27.65	3.95	1.18	1.10
200.00	8.45	8.37	8.40	0.08	35.49	27.95	4.50	1.14	1.12
230.00	8.58	8.47	8.50	0.11	38.19	28.94	4.94	1.13	1.15
250.00	8.72	8.58	8.59	0.17	37.43	30.14	5.29	1.18	1.17

1. Total Loss = Insertion Loss + 7.8dB splitter loss.



- 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-Circuits' applicable established test performance criteria and measurement instructions.
 - C. The parts covered by this specification document 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/terms/viewterm.html



6 Way-0° Power Splitter/Combiner

AD6PS-1+

Typical Performance Data

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

FREQ. (MHz)	TOTAL LOSS ¹ (dB)			AMP. UNBAL. (dB)	PHASE UNBAL. (deg.)	ISOLATION (dB)			VSWR (:1)		
	S-1	S-3	S-5			1-3	1-4	3-4	S	2	6
2	8.00	8.00	7.98	0.02	0.25	29.15	26.37	35.57	1.09	1.22	1.21
3	8.00	7.99	7.98	0.02	0.23	29.88	27.09	36.48	1.08	1.20	1.19
4	7.99	7.99	7.98	0.01	0.20	30.62	27.81	37.38	1.08	1.18	1.17
5	7.99	7.99	7.98	0.01	0.18	31.35	28.53	38.29	1.07	1.16	1.15
7	7.99	7.99	7.98	0.01	0.19	32.10	29.25	39.24	1.07	1.14	1.13
10	8.00	8.00	7.99	0.01	0.22	32.54	29.62	39.77	1.07	1.13	1.12
15	8.01	8.02	8.01	0.01	0.31	32.70	29.76	39.54	1.08	1.12	1.12
20	8.03	8.03	8.02	0.01	0.39	32.61	29.73	38.91	1.09	1.12	1.11
25	8.04	8.05	8.04	0.01	0.46	32.42	29.63	38.09	1.10	1.11	1.11
30	8.05	8.06	8.05	0.01	0.51	32.18	29.49	37.28	1.11	1.11	1.11
40	8.08	8.09	8.08	0.01	0.62	31.67	29.17	35.72	1.14	1.11	1.11
50	8.12	8.11	8.10	0.01	0.77	31.11	28.82	34.39	1.16	1.10	1.10
60	8.15	8.14	8.13	0.02	0.92	30.57	28.46	33.23	1.19	1.10	1.10
70	8.18	8.17	8.16	0.02	1.05	30.07	28.12	32.25	1.21	1.09	1.10
80	8.21	8.20	8.18	0.03	1.17	29.59	27.78	31.42	1.23	1.09	1.09
90	8.24	8.22	8.21	0.03	1.32	29.16	27.47	30.71	1.25	1.09	1.09
100	8.28	8.25	8.23	0.04	1.48	28.78	27.18	30.11	1.27	1.08	1.08
110	8.31	8.27	8.26	0.05	1.61	28.47	26.93	29.61	1.29	1.08	1.08
120	8.34	8.30	8.29	0.05	1.74	28.20	26.72	29.20	1.30	1.08	1.08
125	8.36	8.31	8.30	0.06	1.82	28.08	26.63	29.02	1.31	1.08	1.08
130	8.37	8.33	8.31	0.06	1.88	27.99	26.54	28.87	1.31	1.08	1.08
140	8.40	8.34	8.33	0.07	2.01	27.84	26.41	28.62	1.31	1.07	1.07
150	8.43	8.37	8.35	0.08	2.13	27.75	26.33	28.45	1.31	1.08	1.07
160	8.47	8.39	8.37	0.09	2.24	27.72	26.30	28.36	1.31	1.08	1.07
170	8.50	8.40	8.39	0.11	2.36	27.76	26.33	28.34	1.30	1.08	1.07
180	8.53	8.43	8.41	0.12	2.49	27.92	26.44	28.40	1.29	1.09	1.08
190	8.56	8.45	8.43	0.13	2.62	28.17	26.63	28.53	1.26	1.09	1.08
200	8.59	8.46	8.45	0.14	2.73	28.54	26.91	28.72	1.24	1.10	1.09
210	8.63	8.48	8.47	0.16	2.80	29.07	27.31	28.96	1.20	1.11	1.10
220	8.68	8.51	8.50	0.18	2.92	29.80	27.87	29.20	1.17	1.12	1.11
230	8.73	8.55	8.54	0.19	3.02	30.82	28.62	29.37	1.13	1.13	1.12
240	8.79	8.59	8.58	0.21	3.09	32.25	29.65	29.33	1.10	1.15	1.13
250	8.87	8.64	8.63	0.23	3.17	34.36	31.08	28.99	1.10	1.16	1.15
260	8.97	8.73	8.72	0.25	3.23	37.72	33.14	28.26	1.15	1.18	1.16
270	9.10	8.84	8.83	0.27	3.30	44.47	36.45	27.15	1.24	1.19	1.18
280	9.26	8.98	8.97	0.29	3.39	49.76	42.86	25.81	1.35	1.20	1.20
290	9.47	9.17	9.16	0.32	3.54	38.46	49.53	24.36	1.49	1.22	1.22
300	9.75	9.42	9.41	0.35	3.67	33.13	38.18	22.92	1.68	1.23	1.23

¹Total Loss = Insertion Loss + 7.8dB Splitter Loss



6 Way-0° Power Splitter/Combiner

AD6PS-1+

Typical Performance Data

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

FREQ. (MHz)	TOTAL LOSS ¹ (dB)			AMP. UNBAL. (dB)	PHASE UNBAL. (deg.)	ISOLATION (dB)			VSWR (:1)		
	S-1	S-3	S-5			1-3	1-4	3-4	S	2	6
2	8.13	8.12	8.12	0.02	0.18	25.91	21.81	35.50	1.14	1.44	1.51
3	8.10	8.10	8.10	0.02	0.17	26.56	22.61	35.72	1.13	1.39	1.44
4	8.07	8.07	8.08	0.02	0.18	27.22	23.41	35.93	1.12	1.34	1.39
5	8.05	8.05	8.05	0.03	0.18	27.88	24.21	36.15	1.11	1.30	1.34
7	8.01	8.02	8.03	0.03	0.21	28.96	25.51	36.63	1.10	1.25	1.28
10	7.99	8.00	8.00	0.02	0.25	30.31	27.10	37.35	1.09	1.20	1.23
15	7.98	7.99	7.99	0.03	0.28	31.80	28.80	37.76	1.09	1.15	1.17
20	7.99	7.99	7.99	0.02	0.35	32.60	29.77	37.60	1.10	1.13	1.14
25	8.00	8.00	8.00	0.02	0.41	32.95	30.24	37.13	1.10	1.12	1.13
30	8.01	8.02	8.01	0.02	0.47	33.02	30.40	36.52	1.11	1.11	1.12
40	8.03	8.04	8.03	0.01	0.56	32.77	30.41	35.27	1.14	1.09	1.10
50	8.05	8.06	8.05	0.01	0.74	32.31	30.16	34.09	1.16	1.08	1.09
60	8.08	8.08	8.07	0.01	0.87	31.74	29.80	33.05	1.19	1.08	1.09
70	8.11	8.10	8.09	0.02	0.97	31.17	29.40	32.14	1.21	1.07	1.08
80	8.13	8.12	8.11	0.02	1.11	30.60	28.99	31.35	1.23	1.07	1.07
90	8.16	8.15	8.13	0.03	1.23	30.09	28.61	30.68	1.26	1.07	1.07
100	8.19	8.16	8.15	0.04	1.38	29.63	28.26	30.10	1.28	1.06	1.06
110	8.23	8.19	8.18	0.04	1.48	29.23	27.95	29.62	1.29	1.06	1.06
120	8.25	8.21	8.20	0.05	1.61	28.90	27.68	29.22	1.31	1.06	1.06
125	8.26	8.22	8.21	0.05	1.70	28.75	27.57	29.05	1.31	1.06	1.06
130	8.28	8.23	8.22	0.06	1.74	28.64	27.47	28.90	1.31	1.06	1.05
140	8.31	8.25	8.24	0.07	1.86	28.44	27.31	28.66	1.32	1.06	1.05
150	8.34	8.27	8.26	0.08	2.01	28.30	27.20	28.50	1.32	1.06	1.05
160	8.37	8.29	8.27	0.09	2.14	28.23	27.15	28.42	1.32	1.06	1.05
170	8.39	8.30	8.29	0.11	2.27	28.26	27.17	28.40	1.31	1.06	1.05
180	8.42	8.32	8.30	0.12	2.41	28.39	27.28	28.48	1.30	1.07	1.06
190	8.45	8.33	8.32	0.14	2.54	28.64	27.48	28.63	1.28	1.08	1.06
200	8.48	8.35	8.33	0.15	2.69	29.02	27.78	28.84	1.25	1.08	1.07
210	8.51	8.36	8.34	0.17	2.82	29.56	28.22	29.11	1.22	1.09	1.08
220	8.55	8.39	8.37	0.18	2.96	30.34	28.83	29.39	1.18	1.11	1.09
230	8.59	8.41	8.40	0.19	3.10	31.42	29.67	29.61	1.14	1.12	1.10
240	8.65	8.45	8.43	0.22	3.26	32.99	30.84	29.63	1.10	1.13	1.12
250	8.72	8.49	8.48	0.24	3.39	35.33	32.51	29.33	1.10	1.15	1.13
260	8.81	8.57	8.55	0.26	3.53	39.23	35.00	28.62	1.15	1.17	1.15
270	8.93	8.67	8.65	0.28	3.67	47.98	39.33	27.49	1.23	1.18	1.17
280	9.08	8.80	8.79	0.30	3.83	45.65	49.26	26.10	1.35	1.20	1.19
290	9.28	8.98	8.96	0.33	3.98	36.80	43.43	24.60	1.49	1.21	1.21
300	9.55	9.22	9.20	0.35	4.13	32.12	35.56	23.10	1.68	1.22	1.22

¹Total Loss = Insertion Loss + 7.8dB Splitter Loss



6 Way-0° Power Splitter/Combiner

AD6PS-1+

Typical Performance Data

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

FREQ. (MHz)	TOTAL LOSS ¹ (dB)			AMP. UNBAL. (dB)	PHASE UNBAL. (deg.)	ISOLATION (dB)			VSWR (:1)		
	S-1	S-3	S-5			1-3	1-4	3-4	S	2	6
2	8.06	8.05	8.05	0.02	0.15	27.46	24.18	34.63	1.10	1.29	1.30
3	8.06	8.05	8.05	0.02	0.16	28.23	24.93	35.34	1.09	1.26	1.26
4	8.05	8.05	8.05	0.02	0.17	29.01	25.69	36.05	1.09	1.23	1.23
5	8.05	8.05	8.05	0.02	0.18	29.79	26.44	36.76	1.09	1.21	1.21
7	8.05	8.06	8.05	0.02	0.21	30.61	27.24	37.49	1.08	1.18	1.18
10	8.06	8.07	8.06	0.02	0.25	31.13	27.75	37.92	1.08	1.17	1.17
15	8.08	8.08	8.08	0.02	0.34	31.34	27.98	37.87	1.09	1.16	1.16
20	8.09	8.10	8.10	0.02	0.43	31.29	28.01	37.47	1.10	1.15	1.15
25	8.11	8.12	8.11	0.02	0.49	31.16	27.97	36.88	1.11	1.15	1.15
30	8.13	8.14	8.13	0.02	0.56	30.97	27.88	36.25	1.12	1.15	1.15
40	8.16	8.17	8.16	0.02	0.70	30.54	27.64	34.97	1.14	1.14	1.14
50	8.19	8.20	8.19	0.02	0.86	30.07	27.37	33.81	1.17	1.14	1.14
60	8.22	8.23	8.22	0.01	1.01	29.61	27.08	32.75	1.19	1.14	1.14
70	8.26	8.26	8.26	0.02	1.16	29.17	26.79	31.85	1.21	1.13	1.13
80	8.30	8.29	8.29	0.02	1.30	28.74	26.51	31.06	1.23	1.12	1.13
90	8.33	8.32	8.32	0.01	1.47	28.37	26.24	30.39	1.25	1.12	1.13
100	8.37	8.35	8.34	0.02	1.64	28.03	26.00	29.82	1.27	1.11	1.12
110	8.41	8.38	8.38	0.03	1.76	27.75	25.78	29.35	1.28	1.11	1.12
120	8.44	8.41	8.41	0.03	1.91	27.52	25.59	28.95	1.30	1.10	1.12
125	8.46	8.42	8.42	0.04	2.00	27.42	25.51	28.78	1.30	1.10	1.11
130	8.48	8.44	8.44	0.04	2.04	27.33	25.44	28.64	1.30	1.10	1.11
140	8.51	8.46	8.46	0.05	2.16	27.21	25.32	28.40	1.31	1.10	1.11
150	8.54	8.49	8.49	0.06	2.36	27.13	25.25	28.24	1.31	1.10	1.11
160	8.58	8.52	8.52	0.06	2.48	27.11	25.22	28.14	1.30	1.10	1.11
170	8.62	8.54	8.54	0.08	2.60	27.17	25.25	28.12	1.29	1.10	1.10
180	8.65	8.56	8.57	0.09	2.74	27.31	25.33	28.18	1.28	1.10	1.11
190	8.69	8.59	8.59	0.11	2.87	27.54	25.49	28.30	1.25	1.11	1.11
200	8.73	8.61	8.61	0.12	3.02	27.89	25.72	28.47	1.23	1.12	1.11
210	8.77	8.64	8.64	0.13	3.10	28.37	26.06	28.69	1.20	1.12	1.12
220	8.82	8.67	8.68	0.15	3.24	29.03	26.52	28.90	1.16	1.13	1.13
230	8.87	8.72	8.72	0.16	3.30	29.93	27.14	29.02	1.13	1.14	1.14
240	8.95	8.76	8.77	0.18	3.43	31.18	27.97	28.96	1.11	1.16	1.15
250	9.03	8.83	8.84	0.20	3.53	32.96	29.10	28.62	1.11	1.17	1.16
260	9.14	8.92	8.94	0.22	3.59	35.64	30.66	27.92	1.16	1.18	1.18
270	9.28	9.04	9.06	0.24	3.67	40.43	32.96	26.87	1.24	1.20	1.19
280	9.45	9.19	9.21	0.26	3.72	52.25	36.64	25.60	1.35	1.21	1.21
290	9.67	9.38	9.41	0.29	3.76	42.42	44.18	24.21	1.49	1.23	1.23
300	9.96	9.65	9.68	0.32	3.93	35.18	46.54	22.83	1.67	1.24	1.25

¹Total Loss = Insertion Loss + 7.8dB Splitter Loss

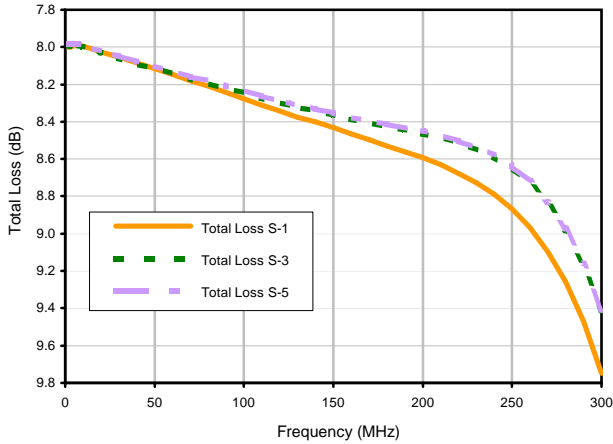


6 Way-0° Power Splitter/Combiner

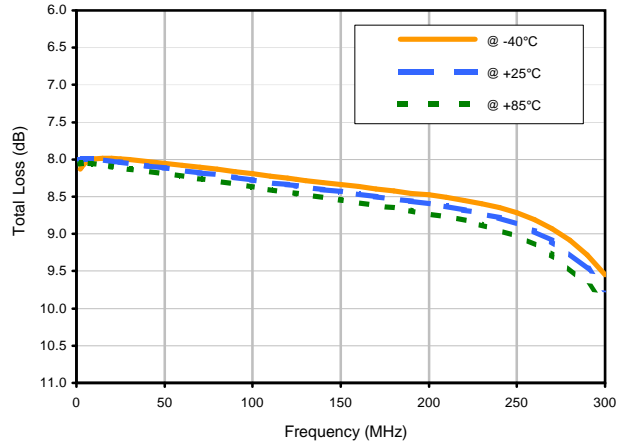
AD6PS-1+

Typical Performance Curves

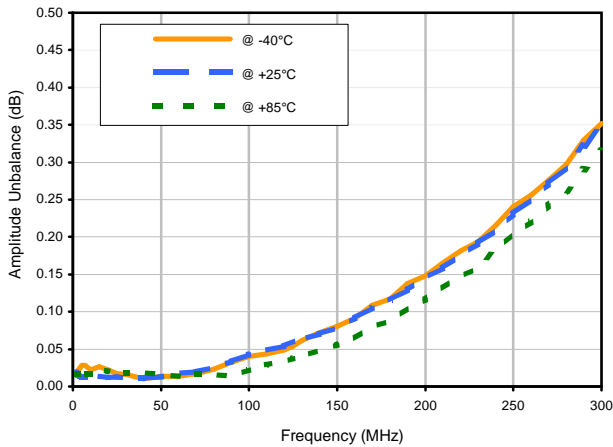
Total Loss



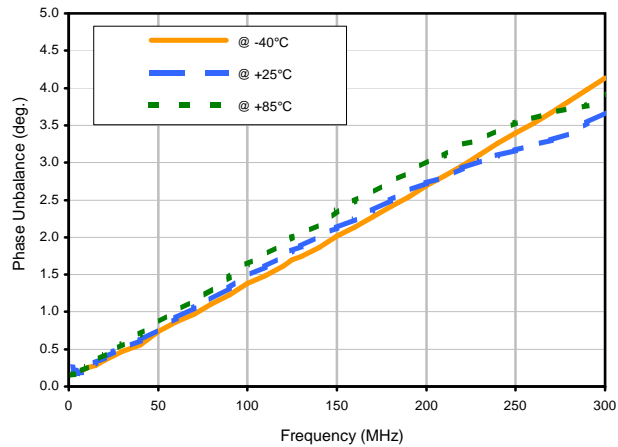
Total Loss S-1 vs. TEMPERATURE



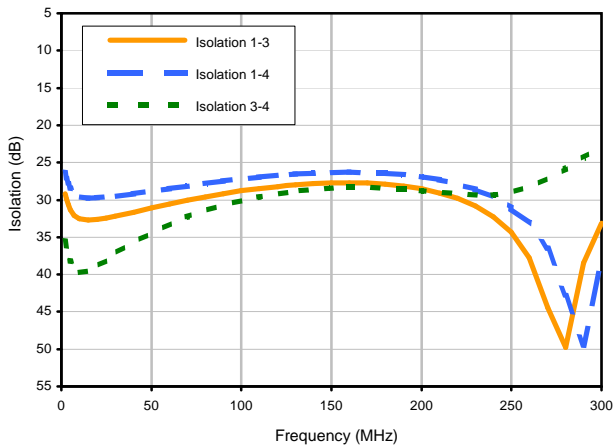
Amplitude Unbalance vs. TEMPERATURE



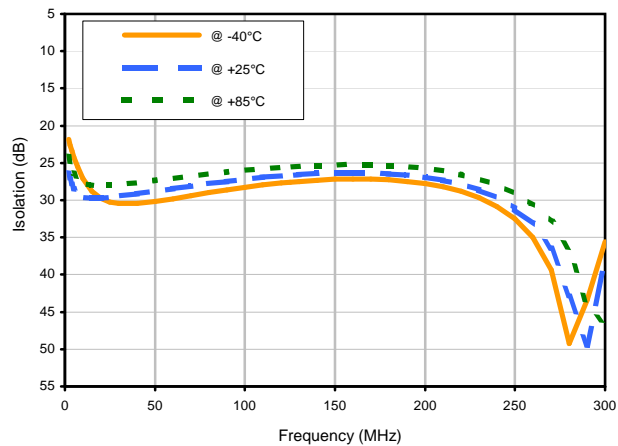
Phase Unbalance vs. TEMPERATURE



Isolation



Isolation 1-4 vs. TEMPERATURE



REV. X2
AD6PS-1+
100623
Page 1 of 2



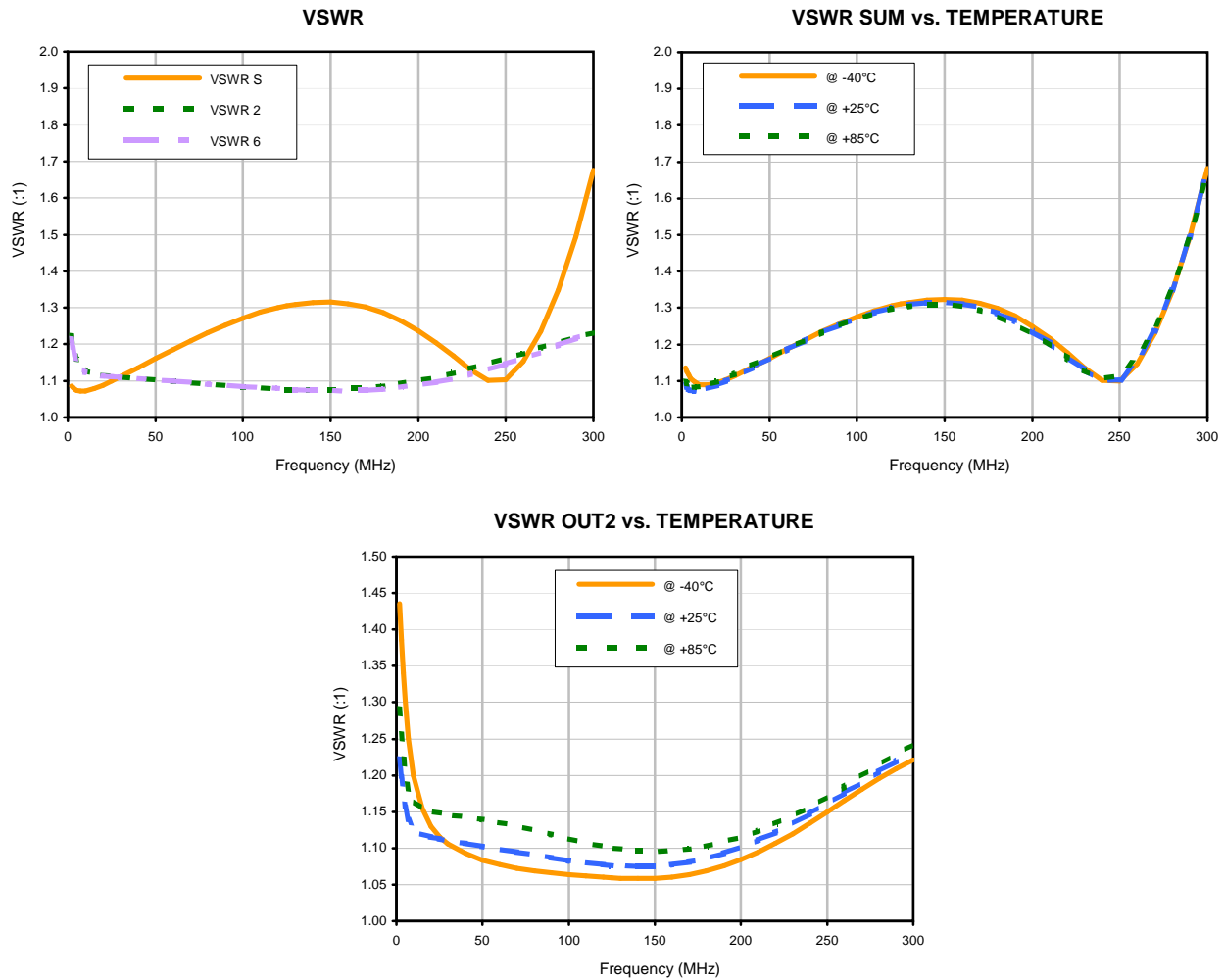
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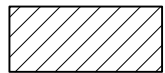
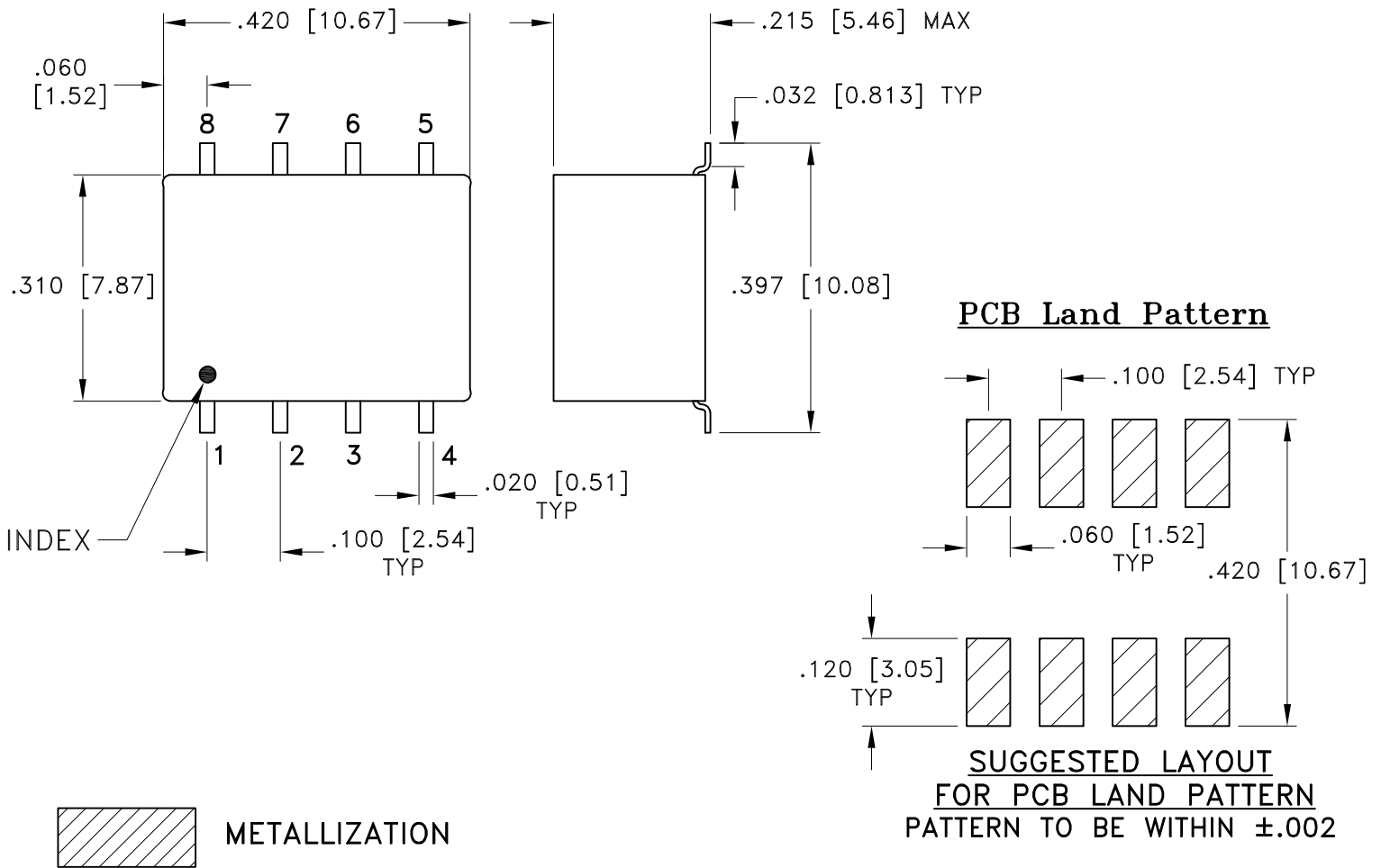


Case Style

CJ

Outline Dimensions

CJ725



METALLIZATION

Weight: .40 gram

Dimensions are in inches [mm]. Tolerances: 2 Pl. ±.01; 3 Pl. ±.005 Inch

Notes:

1. Case material: Plastic.
2. Termination finish:
Tin plate over Nickel plate.



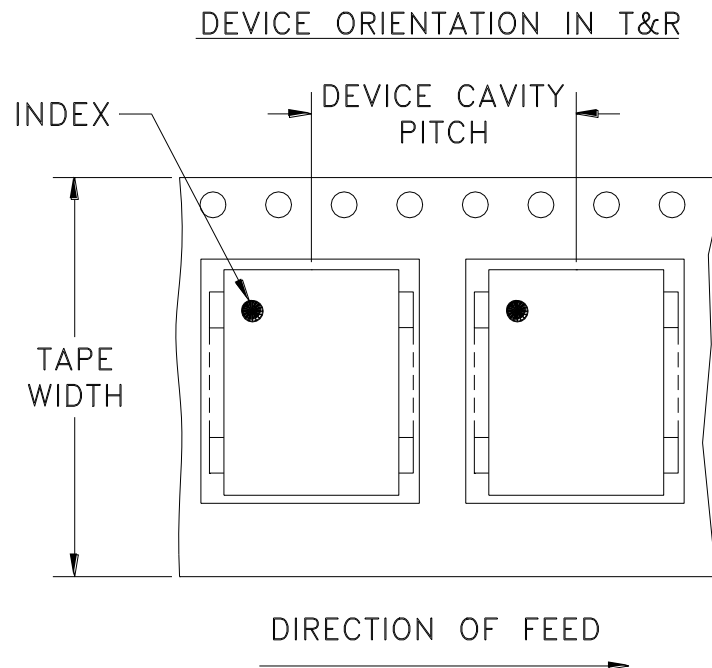
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Tape & Reel Packaging TR-F10



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.

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



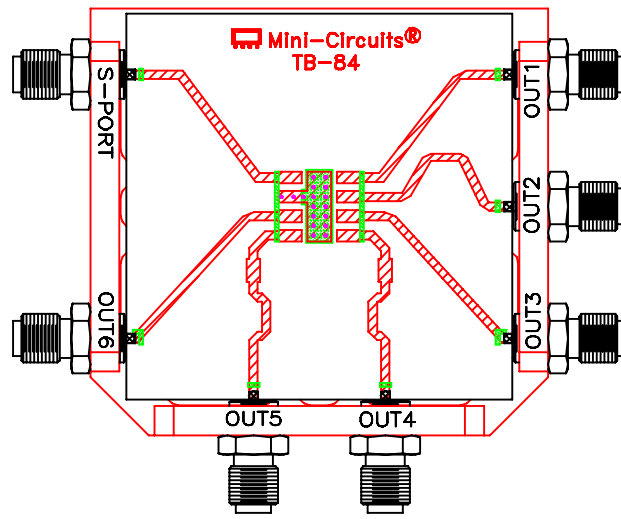
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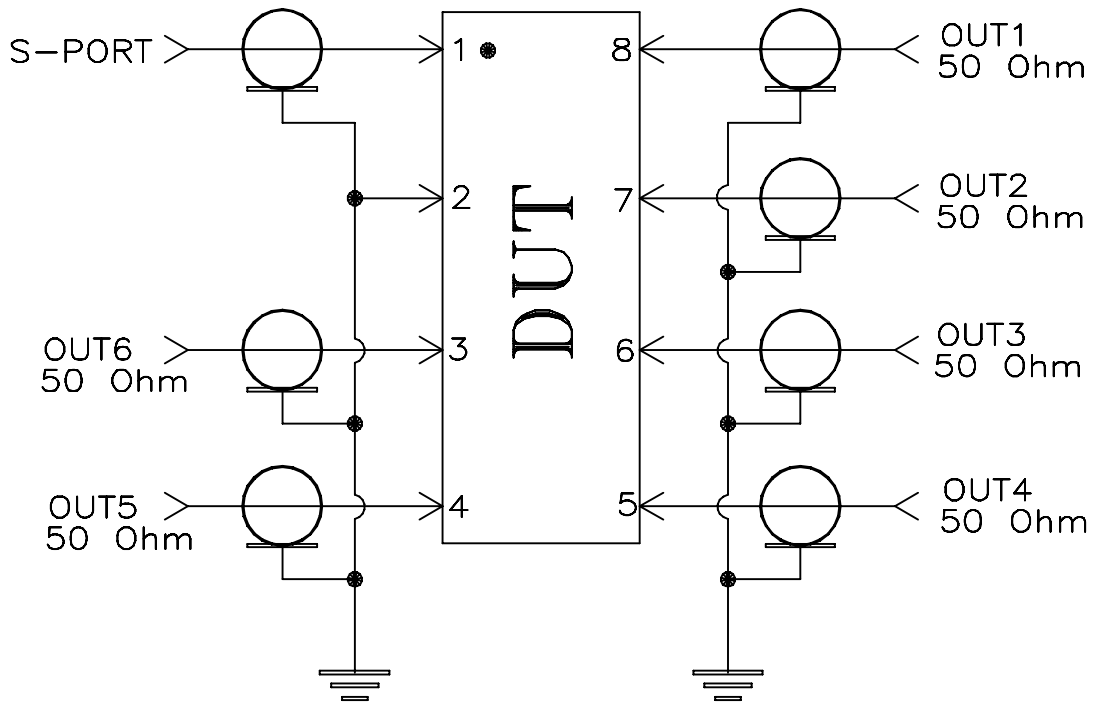
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Evaluation Board and Circuit



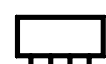
TB-84



Schematic Diagram

Notes:

1. SMA Female connectors.
2. PCB Material: Rogers R04350 or equivalent, Dielectric Constant=3.5, Thickness=.020 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