Engineering Development Model

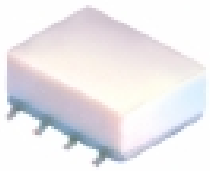
Power Splitter/Combiner AD3PS-ED7781C/1

3 Way-0°

Important Note

This model has been designed, built and tested in our engineering department. Performance data represents model capability.
At present it is a non-catalog model. On request, we can supply a final specification sheet, part number and price/delivery information.

Please click "Back", and then click "Contact Us" for Applications support.



CASE STYLE : CJ725

ELECTRICAL SPECIFICATIONS 50Ω @ +25°C					
Parameter		**Min.**	**Typ.**	**Max.**	**Units**
Frequency		1		400	MHz
Isolation	**1 - 10 MHz**		34		dB
	10 - 200 MHz		31		dB
	200 - 400 MHz		24		dB
Insertion Loss Above 4.8 dB	**1 - 10 MHz**		0.40		dB
	10 - 200 MHz		0.42		dB
	200 - 400 MHz		0.85		dB
Phase Unbalance	**1 - 10 MHz**		0.05		deg.
	10 - 200 MHz		0.75		deg.
	200 - 400 MHz		1.95		deg.
Amplitude Unbalance	**1 - 10 MHz**		0.01		dB
	10 - 200 MHz		0.05		dB
	200 - 400 MHz		0.43		dB
VSWR	**SUM Port**		1.23		(:1)
	OUT Ports		1.10		(:1)

MAXIMUM RATINGS	
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C

PIN CONNECTIONS	
SUM PORT	1
PORT 1	8
PORT 2	5
PORT 3	4
GND EXT	2,3,6,7

Functional Diagram

3 Way-0° Power Splitter/Combiner AD3PS-ED7781C/1

Typical Performance Data

FREQ. (MHz)	TOTAL LOSS[1] (dB)			AMP. UNBAL. (dB)	ISOLATION (dB)			PHASE UNBAL. (deg.)
	S-1	S-2	S-3		1-2	1-3	2-3	
0.2	5.71	5.71	5.71	0.01	32.64	31.58	36.04	0.18
0.3	5.59	5.60	5.60	0.01	33.76	33.00	37.42	0.13
0.4	5.55	5.55	5.55	0.00	34.21	33.71	38.04	0.08
0.5	5.51	5.51	5.51	0.00	34.42	34.01	38.32	0.05
0.6	5.47	5.47	5.47	0.01	34.49	34.15	38.46	0.02
0.7	5.44	5.45	5.44	0.01	34.51	34.20	38.49	0.01
0.8	5.41	5.42	5.43	0.01	34.48	34.20	38.45	0.02
0.9	5.39	5.39	5.39	0.00	34.41	34.16	38.38	0.03
1.0	5.37	5.37	5.38	0.01	34.36	34.12	38.35	0.03
4.0	5.14	5.14	5.14	0.01	33.56	33.06	38.05	0.05
7.0	5.10	5.11	5.11	0.01	33.60	33.06	38.19	0.05
10.0	5.10	5.10	5.11	0.01	33.65	33.11	38.25	0.06
30.0	5.11	5.12	5.12	0.01	33.71	33.28	37.41	0.28
50.0	5.14	5.15	5.14	0.01	33.29	33.09	35.66	0.37
70.0	5.16	5.16	5.15	0.01	32.64	32.69	34.05	0.55
90.0	5.19	5.18	5.17	0.02	31.91	32.25	32.64	0.70
110.0	5.22	5.21	5.19	0.03	31.21	31.73	31.42	0.81
130.0	5.25	5.22	5.20	0.05	30.53	31.25	30.46	0.92
150.0	5.28	5.24	5.22	0.06	29.95	30.84	29.68	1.10
170.0	5.33	5.26	5.23	0.10	29.42	30.45	28.98	1.21
190.0	5.36	5.28	5.25	0.12	28.95	30.12	28.45	1.23
210.0	5.41	5.31	5.26	0.15	28.47	29.74	27.95	1.33
240.0	5.49	5.35	5.29	0.21	27.85	29.28	27.42	1.42
270.0	5.59	5.39	5.32	0.27	27.02	28.58	26.83	1.45
300.0	5.69	5.44	5.34	0.35	25.93	27.53	26.06	1.61
310.0	5.73	5.47	5.36	0.37	25.49	27.09	25.73	1.70
320.0	5.78	5.50	5.39	0.39	25.02	26.60	25.35	1.81
330.0	5.83	5.54	5.41	0.42	24.52	26.08	24.95	1.86
340.0	5.89	5.58	5.45	0.45	23.97	25.51	24.50	1.93
350.0	5.96	5.62	5.47	0.49	23.39	24.89	24.00	2.04
360.0	6.03	5.67	5.52	0.51	22.78	24.24	23.45	2.12
370.0	6.10	5.72	5.56	0.54	22.16	23.58	22.88	2.27
380.0	6.19	5.78	5.60	0.59	21.52	22.89	22.28	2.39
390.0	6.28	5.84	5.66	0.62	20.86	22.20	21.62	2.52
400.0	6.38	5.92	5.73	0.65	20.22	21.50	20.99	2.60
404.0	6.42	5.96	5.75	0.67	19.96	21.23	20.72	2.71
408.0	6.47	6.00	5.80	0.67	19.70	20.96	20.46	2.73
412.0	6.52	6.04	5.82	0.70	19.45	20.69	20.20	2.79
420.0	6.64	6.14	5.91	0.73	18.93	20.14	19.68	2.91

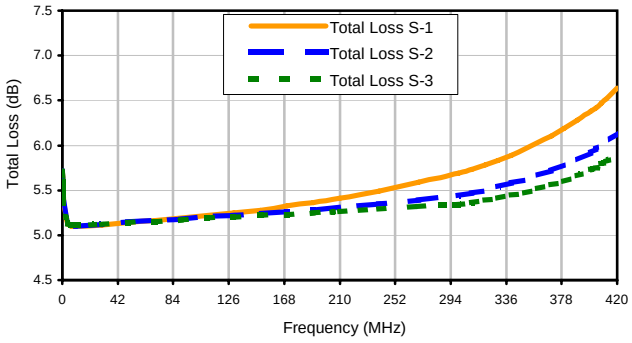
FREQ. (MHz)	VSWR (:1)			
	S	1	2	3
0.2	1.44	1.66	1.63	1.64
0.3	1.31	1.45	1.44	1.44
0.4	1.25	1.36	1.35	1.35
0.5	1.21	1.31	1.30	1.30
0.6	1.19	1.28	1.27	1.27
0.7	1.17	1.25	1.25	1.25
0.8	1.16	1.24	1.24	1.24
0.9	1.15	1.22	1.22	1.22
1.0	1.14	1.21	1.21	1.21
4.0	1.06	1.09	1.10	1.10
7.0	1.04	1.06	1.08	1.07
10.0	1.04	1.05	1.07	1.07
30.0	1.05	1.04	1.06	1.06
50.0	1.06	1.04	1.06	1.06
70.0	1.07	1.04	1.06	1.05
90.0	1.08	1.04	1.06	1.05
110.0	1.09	1.04	1.06	1.05
130.0	1.09	1.04	1.06	1.05
150.0	1.10	1.03	1.06	1.05
170.0	1.11	1.03	1.06	1.05
190.0	1.12	1.04	1.06	1.05
210.0	1.13	1.04	1.06	1.05
240.0	1.15	1.05	1.06	1.05
270.0	1.19	1.06	1.07	1.06
300.0	1.24	1.08	1.08	1.07
310.0	1.27	1.09	1.09	1.07
320.0	1.30	1.09	1.10	1.08
330.0	1.33	1.10	1.10	1.09
340.0	1.37	1.12	1.11	1.10
350.0	1.41	1.13	1.12	1.10
360.0	1.45	1.14	1.13	1.11
370.0	1.51	1.15	1.14	1.12
380.0	1.56	1.17	1.16	1.14
390.0	1.62	1.18	1.17	1.15
400.0	1.70	1.20	1.18	1.16
404.0	1.72	1.20	1.19	1.17
408.0	1.76	1.21	1.20	1.17
412.0	1.79	1.22	1.20	1.18
420.0	1.86	1.23	1.22	1.19

[1]Total Loss = Insertion Loss + 4.8dB Splitter Loss

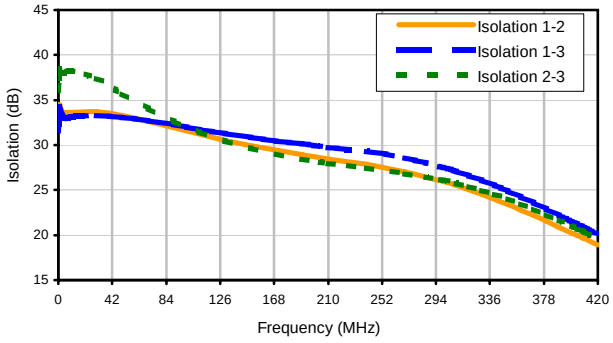
3 Way-0° Power Splitter/Combiner AD3PS-ED7781C/1

Typical Performance Curves

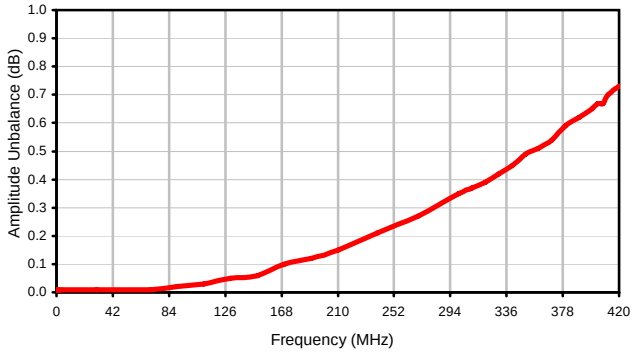
Total Loss



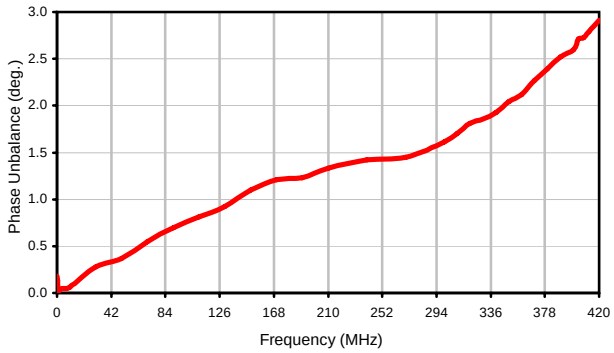
Isolation



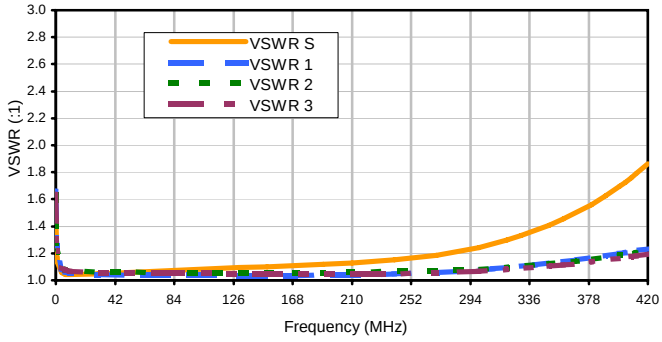
Amplitude Unbalance



Phase Unbalance



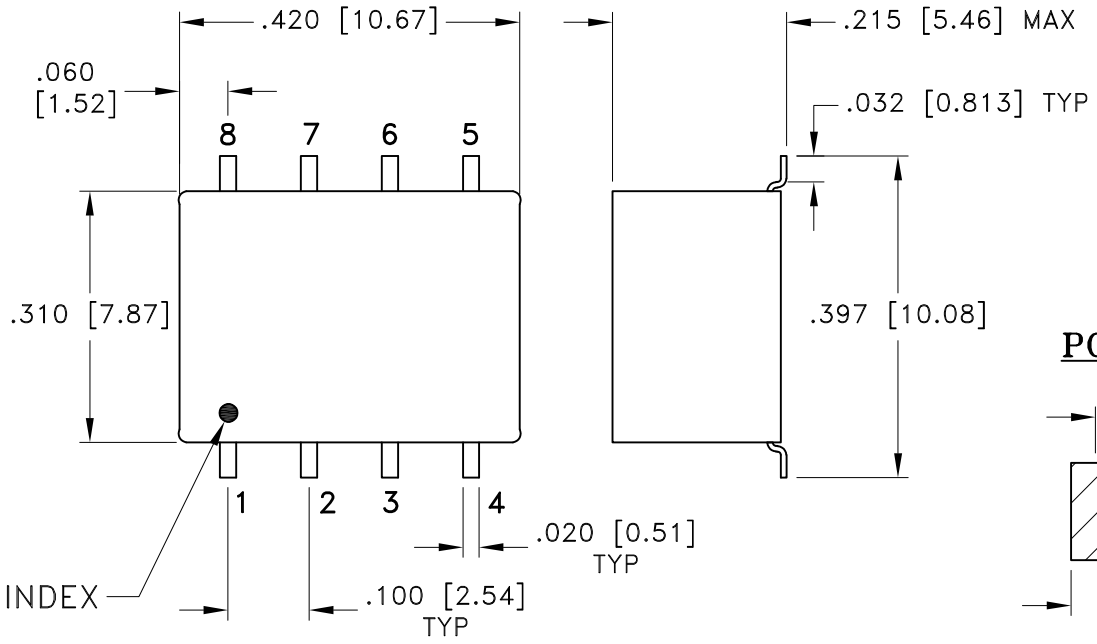
VSWR



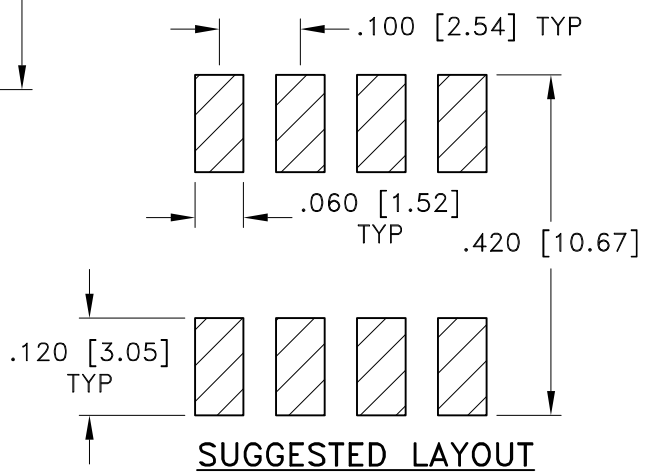
Case Style CJ

Outline Dimensions

CJ725



PCB Land Pattern



SUGGESTED LAYOUT
FOR PCB LAND PATTERN
PATTERN TO BE WITHIN ±.002

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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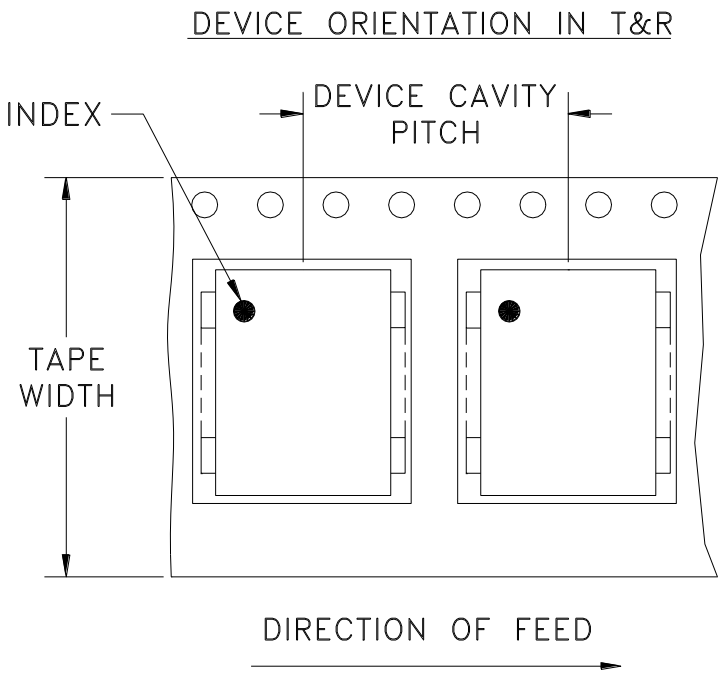
Tape & Reel Packaging TR-F10



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

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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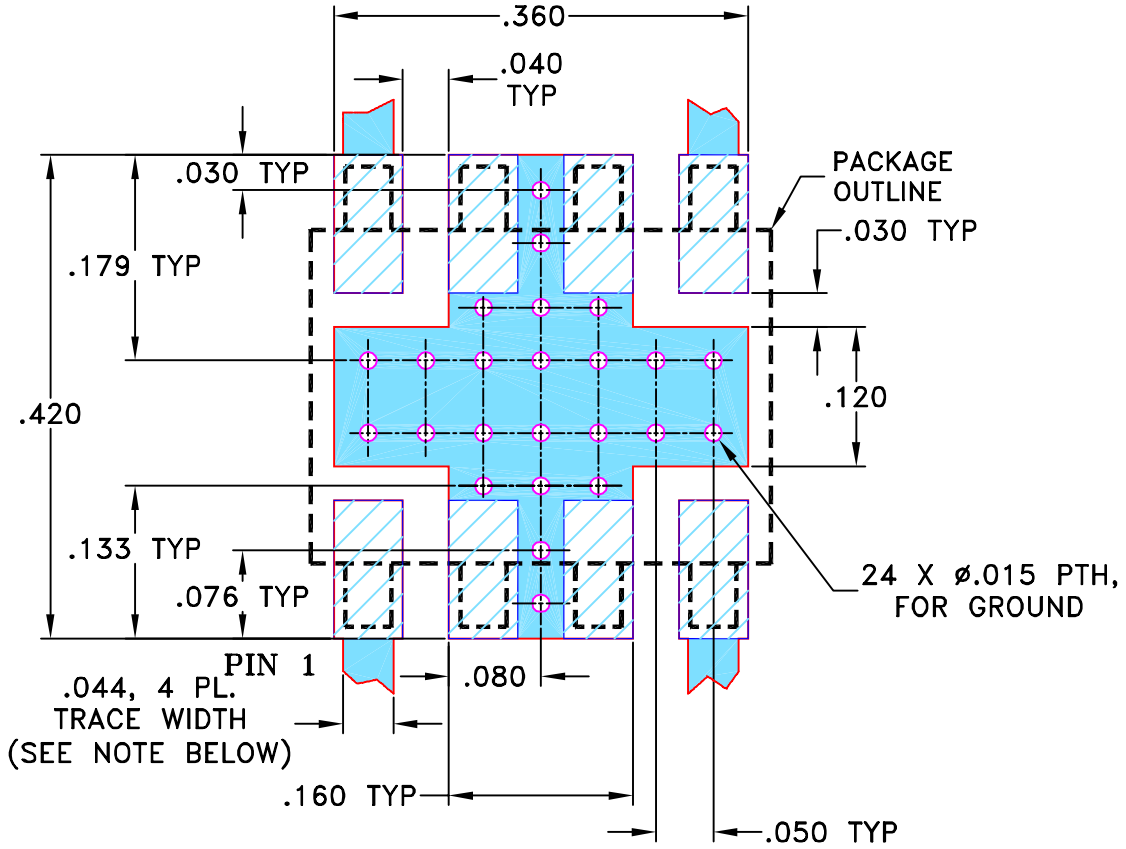
THIRD ANGLE PROJECTION

REVISIONS					
REV	ECN No.	DESCRIPTION	DATE	DR	AUTH
OR	M82272	NEW RELEASE	08/06/02	GF	DJ
A	M102713	UPDATED NOTES, ADDED "...WITH SMOBC"	01/16/06	GT	IL

SUGGESTED MOUNTING CONFIGURATION FOR CJ725 CASE STYLE, "ma", "nf" PIN CONNECTIONS



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

UNLESS OTHERWISE SPECIFIED		INITIALS	DATE
DIMENSIONS ARE IN INCHES	DRAWN	GF	07/18/02
TOLERANCES ON:	CHECKED	HY	08/01/02
2 PL DECIMALS ±	APPROVED	DJ	08/06/02
3 PL DECIMALS ± .005			
ANGLES ±			
FRACTIONS ±			

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

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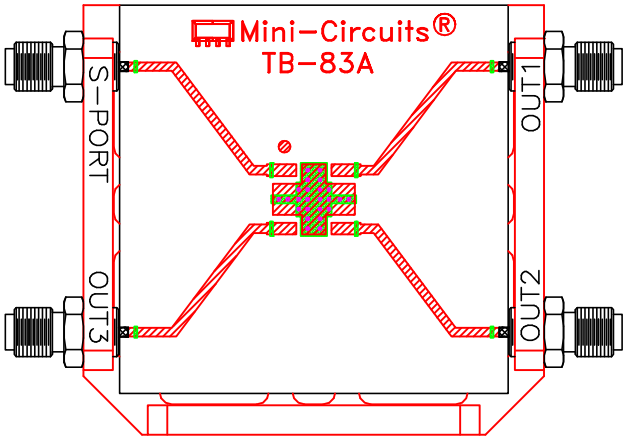
PL, ma/nf, CJ725, AD3PS/ADQ, TB-83

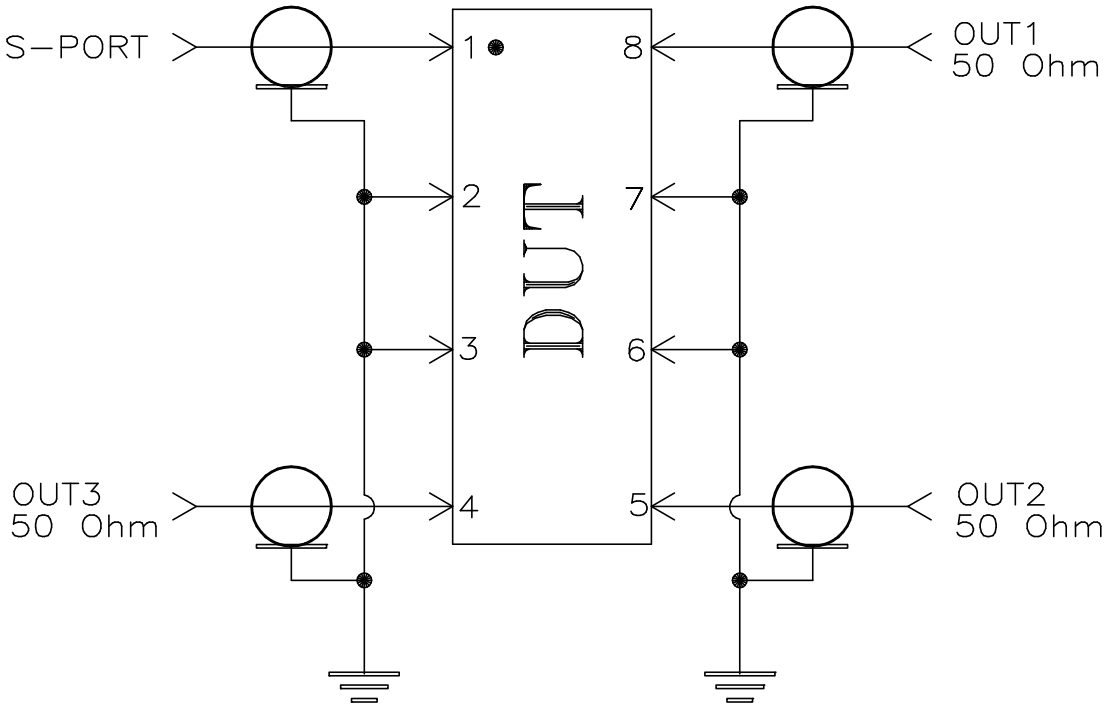
SIZE	CODE IDENT	DRAWING NO:	REV:
A	15542	98-PL-063	A

FILE:	SCALE:	SHEET:
98PL063	6:1	1 OF 1

Evaluation Board and Circuit



TB-83



Schematic Diagram

Notes:

1. SMA Female connectors.
2. PCB Material: Rogers RO4350 or equivalent, Dielectric Constant=3.5, Thickness=.020 inch.

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Environmental Specifications ENV02T1

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

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