

Engineering Development Model

Power Splitter/Combiner

2 Way-180°

SYPJ-ED14518/1

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 : AH202-1

ELECTRICAL SPECIFICATIONS 50Ω @ +25°C				
Parameter		Min.	Typ.	Max. Units
Frequency		500		2700 MHz
Isolation	500-1350 MHz		15	dB
	1350-2700 MHz		20	dB
Insertion Loss Above 3.0 dB	500-1350 MHz		0.80	dB
	1350-2700 MHz		1.50	dB
Phase Unbalance	500-1350 MHz		4.0	deg.
	1350-2700 MHz		6.0	deg.
Amplitude Unbalance	500-1350 MHz		0.30	dB
	1350-2700 MHz		0.60	dB
VSWR	SUM Port		1.65	(:1)
	OUT Ports		1.45	(:1)

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

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

Functional Diagram



2 Way-180° Power Splitter/Combiner

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Typical Performance Data

FREQ. (MHz)	TOTAL LOSS ¹ (dB)		AMP. UNBAL. (dB)	ISOLATION (dB)	PHASE UNBAL. (Deg.)	FREQ. (MHz)	VSWR (:1)		
	S-1	S-2					S	1	2
500.0	3.79	3.44	0.35	15.27	174.08	500.0	1.58	1.52	1.26
550.0	3.75	3.43	0.32	15.29	174.96	550.0	1.52	1.45	1.22
600.0	3.72	3.43	0.29	15.32	175.70	600.0	1.47	1.40	1.19
650.0	3.69	3.43	0.26	15.37	176.33	650.0	1.42	1.35	1.16
700.0	3.66	3.43	0.23	15.43	176.88	700.0	1.39	1.31	1.13
725.0	3.66	3.44	0.22	15.49	177.11	725.0	1.37	1.29	1.11
750.0	3.65	3.45	0.20	15.54	177.32	750.0	1.36	1.28	1.10
775.0	3.65	3.45	0.19	15.59	177.51	775.0	1.35	1.26	1.09
800.0	3.65	3.46	0.18	15.65	177.69	800.0	1.34	1.25	1.07
850.0	3.64	3.48	0.16	15.80	178.03	850.0	1.33	1.23	1.04
900.0	3.65	3.51	0.13	15.98	178.27	900.0	1.34	1.22	1.03
950.0	3.66	3.54	0.11	16.17	178.48	950.0	1.35	1.22	1.03
1000.0	3.67	3.58	0.09	16.40	178.65	1000.0	1.38	1.22	1.05
1050.0	3.70	3.62	0.08	16.64	178.80	1050.0	1.41	1.24	1.08
1100.0	3.73	3.66	0.06	16.92	178.90	1100.0	1.45	1.26	1.11
1150.0	3.76	3.71	0.05	17.19	178.97	1150.0	1.49	1.28	1.13
1200.0	3.80	3.76	0.04	17.51	179.01	1200.0	1.54	1.30	1.16
1250.0	3.84	3.81	0.03	17.82	179.01	1250.0	1.59	1.33	1.18
1300.0	3.88	3.86	0.02	18.16	179.01	1300.0	1.64	1.35	1.21
1350.0	3.93	3.91	0.02	18.50	178.96	1350.0	1.68	1.38	1.23
1400.0	3.97	3.95	0.02	18.85	178.93	1400.0	1.73	1.40	1.26
1450.0	4.02	4.00	0.03	19.21	178.85	1450.0	1.77	1.43	1.28
1500.0	4.07	4.03	0.03	19.55	178.77	1500.0	1.81	1.45	1.30
1550.0	4.11	4.07	0.04	19.89	178.70	1550.0	1.84	1.47	1.31
1600.0	4.15	4.10	0.05	20.22	178.60	1600.0	1.87	1.50	1.33
1650.0	4.19	4.12	0.07	20.54	178.52	1650.0	1.88	1.51	1.34
1700.0	4.23	4.14	0.09	20.84	178.41	1700.0	1.90	1.52	1.35
1750.0	4.26	4.15	0.11	21.11	178.33	1750.0	1.90	1.53	1.36
1800.0	4.29	4.16	0.13	21.37	178.21	1800.0	1.90	1.54	1.37
1850.0	4.31	4.16	0.15	21.63	178.15	1850.0	1.89	1.54	1.37
1900.0	4.33	4.15	0.18	21.82	178.06	1900.0	1.86	1.53	1.37
1950.0	4.35	4.14	0.21	22.04	178.00	1950.0	1.84	1.52	1.37
2000.0	4.36	4.13	0.23	22.22	177.96	2000.0	1.80	1.51	1.36
2050.0	4.36	4.10	0.26	22.38	177.96	2050.0	1.75	1.49	1.35
2100.0	4.36	4.08	0.28	22.54	177.97	2100.0	1.70	1.47	1.34
2150.0	4.36	4.06	0.30	22.72	178.00	2150.0	1.64	1.44	1.33
2200.0	4.36	4.03	0.33	22.87	178.09	2200.0	1.57	1.41	1.31
2250.0	4.37	4.02	0.35	23.04	178.17	2250.0	1.51	1.38	1.30
2300.0	4.38	4.00	0.38	23.23	178.33	2300.0	1.44	1.35	1.29
2350.0	4.39	3.99	0.41	23.43	178.47	2350.0	1.37	1.33	1.28
2400.0	4.42	3.97	0.45	23.62	178.53	2400.0	1.30	1.30	1.29
2450.0	4.41	3.98	0.43	23.65	178.63	2450.0	1.24	1.29	1.29
2500.0	4.43	3.99	0.44	23.73	178.91	2500.0	1.19	1.30	1.32
2600.0	4.49	4.01	0.49	23.75	179.75	2600.0	1.12	1.38	1.39
2650.0	4.56	4.03	0.52	23.88	179.93	2650.0	1.13	1.45	1.45
2700.0	4.64	4.07	0.57	23.98	179.52	2700.0	1.18	1.54	1.51

¹Total Loss = Insertion Loss + 3dB Splitter Loss



REV. X1

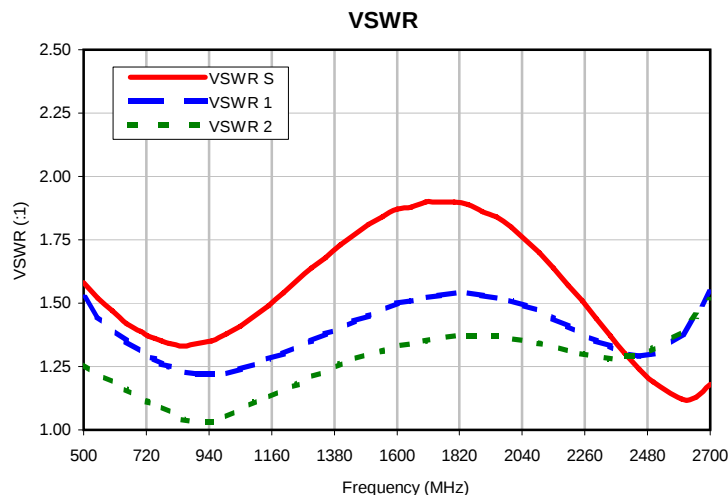
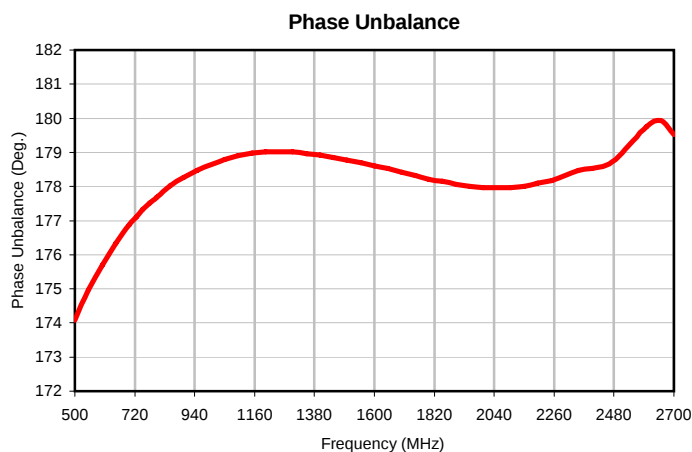
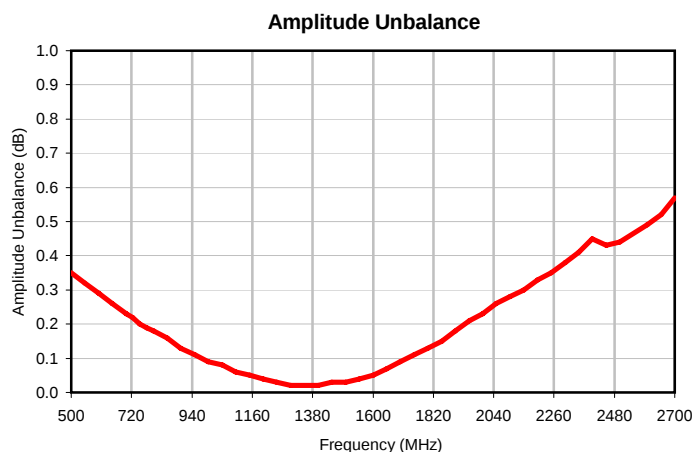
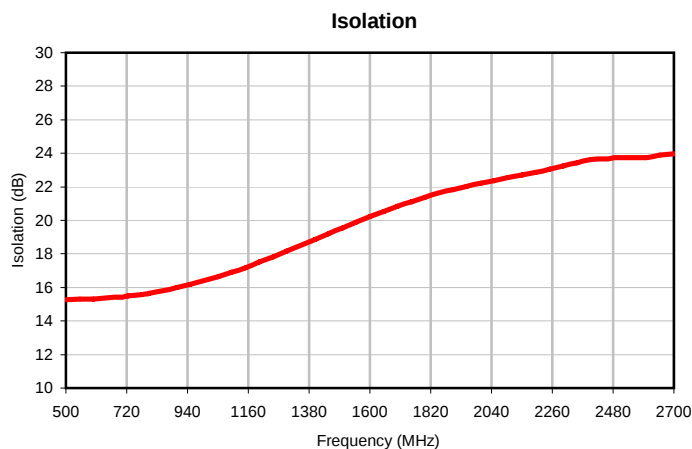
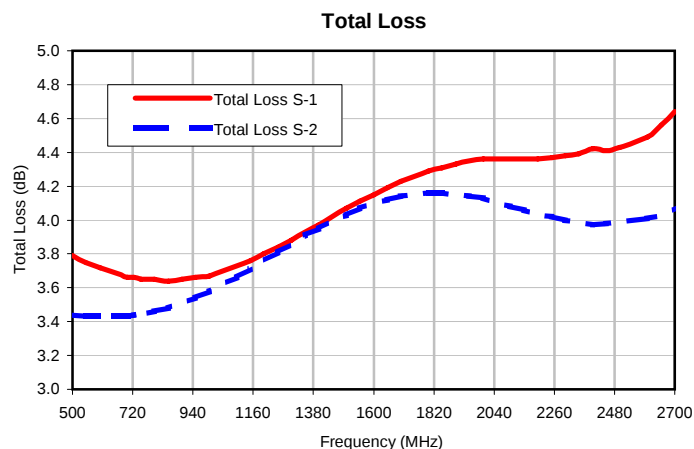
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IF/RF MICROWAVE COMPONENTS

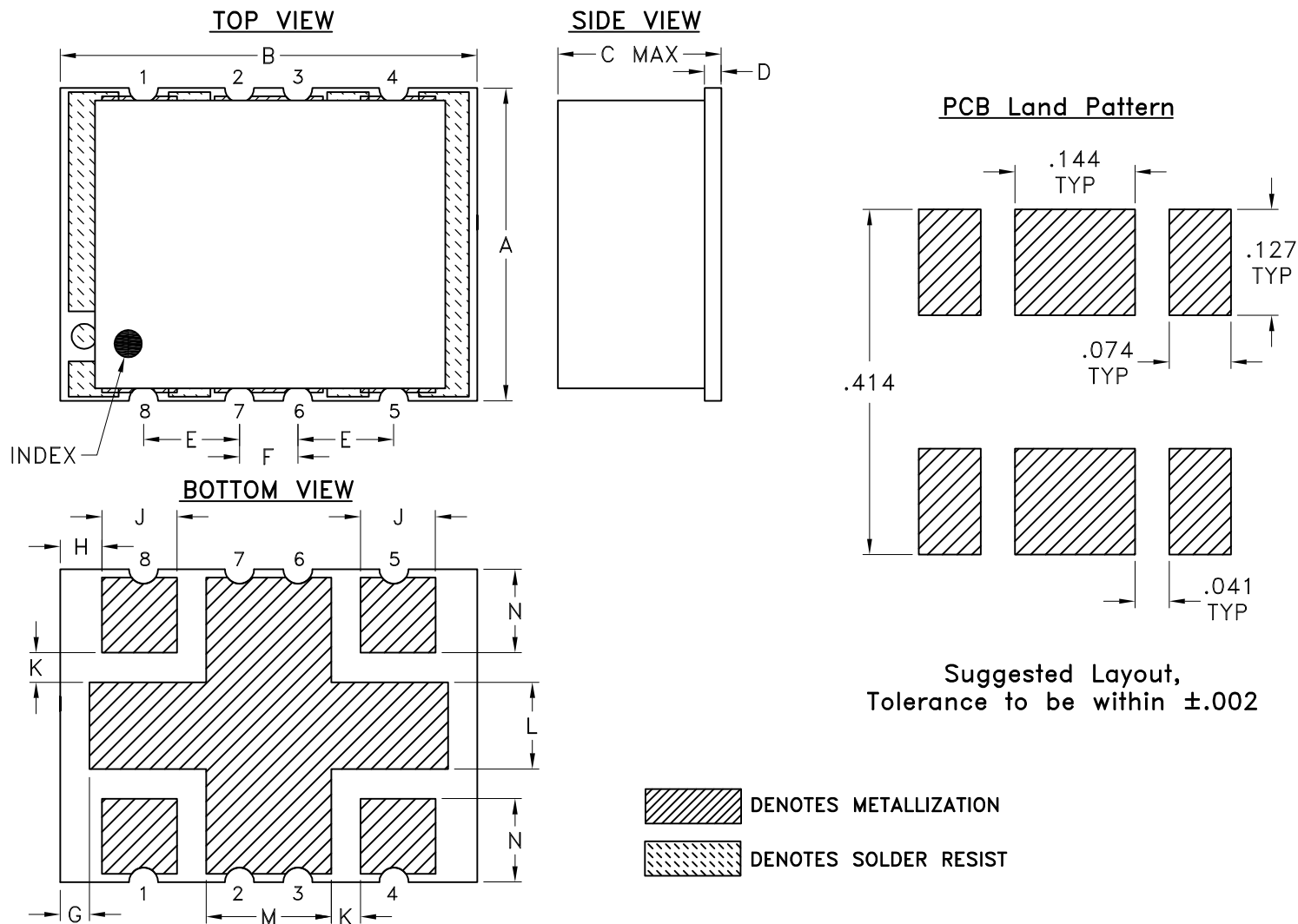
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Typical Performance Curves



Outline Dimensions

AH202-1



CASE#	A	B	C	D	E	F	G	H	J	K	L	M	N	WT, GRAM
AH202-1	.38 (9.65)	.50 (12.70)	.25 (6.35)	.020 (0.51)	.115 (2.92)	.070 (1.78)	.035 (0.89)	.050 (1.27)	.090 (2.29)	.040 (1.02)	.105 (2.67)	.140 (3.56)	.095 (2.41)	.80

Dimensions are in inches (mm). Tolerances: 2 Pl. ± 0.01 ; 3 Pl. ± 0.005

Notes:

- Case material: Nickel Silver alloy.
- Base material: Printed wiring laminate.
- Termination finish:

For RoHS 3-5 μ inch (.08-.13 microns) Gold over 120-240 μ inch (3.05-6.10 microns) Nickel plate.

All models, (+) suffix.

For RoHS-5 Case Styles: Tin-Lead plate. All models, no (+) suffix.

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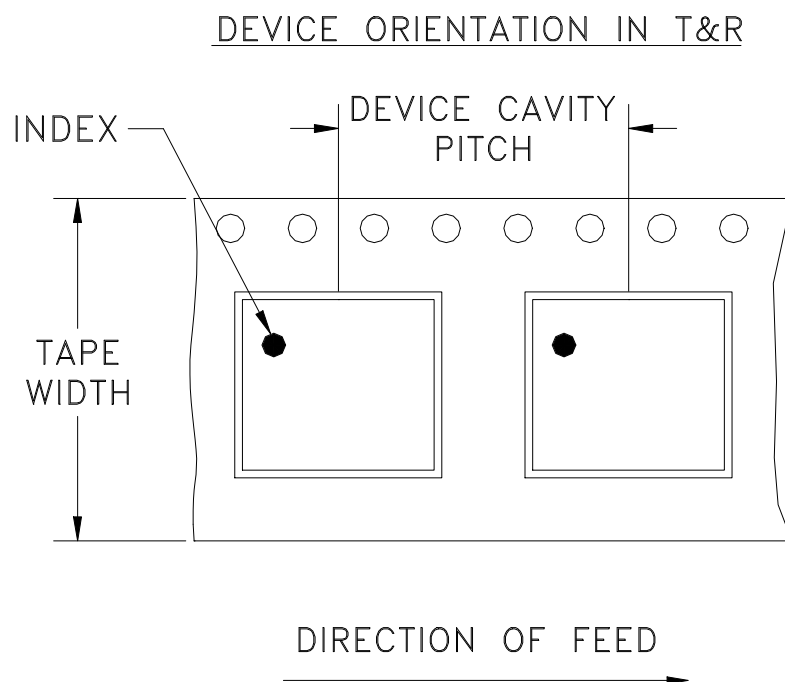
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RF/IF MICROWAVE COMPONENTS

Tape & Reel Packaging TR-F61



Tape Width, mm	Device Cavity Pitch, mm	Reel Size, inches	Devices per Reel
24	12	13	200

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



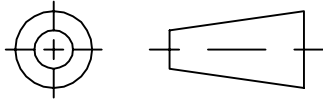
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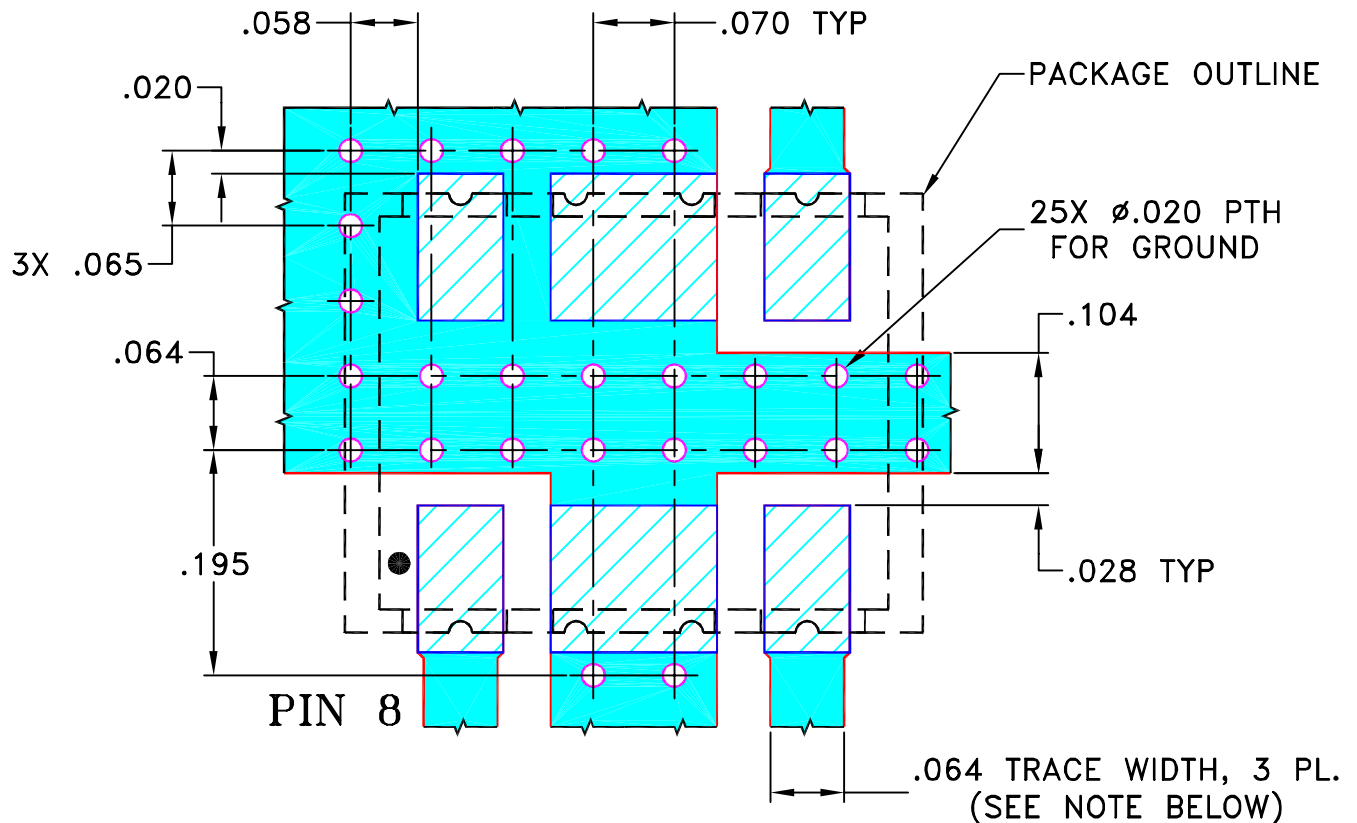
THIRD ANGLE PROJECTION



REVISIONS

REV	ECN No.	DESCRIPTION	DATE	DR	AUTH
OR	M110938	NEW RELEASE	04/12/07	AV	HY

SUGGESTED MOUNTING CONFIGURATION FOR
AH202-2 CASE STYLE, "sb" PIN CONNECTION



- NOTES: 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. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.



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

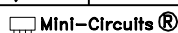


DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

UNLESS OTHERWISE SPECIFIED

DIMENSIONS ARE IN INCHES

TOLERANCES ON:
 2 PL DECIMALS $\pm$
 3 PL DECIMALS $\pm$.005
 ANGLES $\pm$
 FRACTIONS $\pm$



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INITIALS

DATE

DRAWN	AV	04/11/07
CHECKED	IL	04/12/07
APPROVED	HY	04/12/07



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PL, sb, AH202-2, SYPS-2, TB-427+

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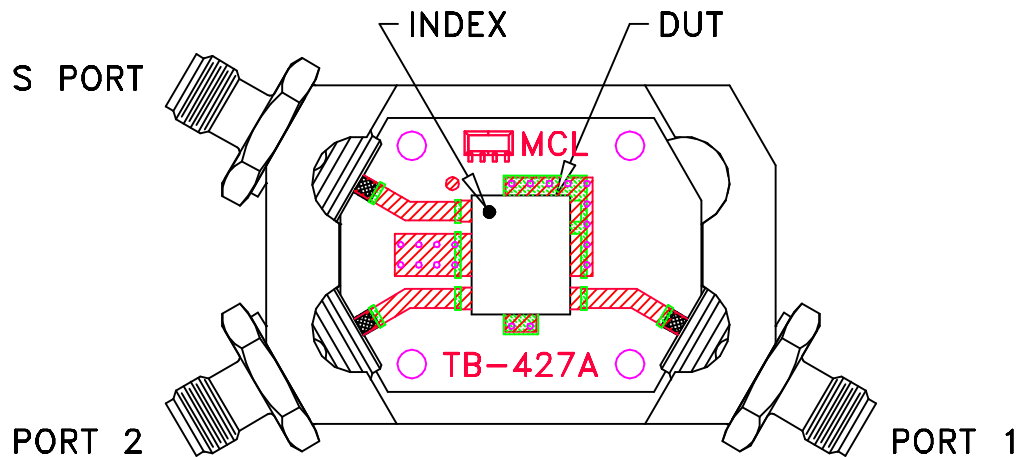
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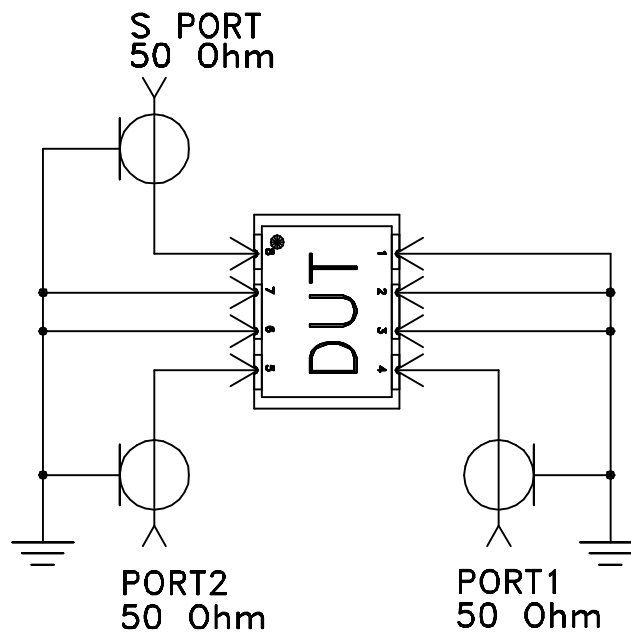
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SHEET: 1 OF 1

Evaluation Board and Circuit



TB-427+



Schematic Diagram

Notes:

1. SMA Female connectors.
2. PCB Material: Rogers R04350 or its equivalent, Dielectric Constant=3.5, Thickness=.030"

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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