

Directional Coupler

SYDC-ED14339/2

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 : AH1596

ELECTRICAL SPECIFICATIONS 50Ω @ +25°C					
Parameter		Min.	Typ.	Max.	Units
Frequency		10		400	MHz
Coupling	Nominal		10±0.7		dB
	Flatness		±0.3		dB
Mainline Loss **	10-400 MHz		0.50		dB
Directivity	10-400 MHz		18		dB
VSWR	10-400 MHz		1.18		(:1)
RF Power Input***	10-400 MHz			20	W

** Mainline loss includes theoretical coupled power loss of 0.45 dB at 10 dB coupling.

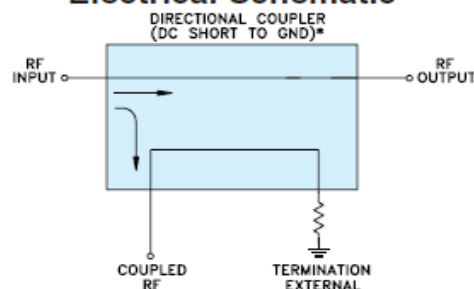
***The user must provide adequate means of heat removal to limit the temperature of ground connections 2,3,6,7 to 65°C, in order to ensure proper performance. At 25°C ambient temperature this requires thermal resistance of the user's PC board heat sink to be 10°C/W.

MAXIMUM RATINGS	
Operating Temperature	-40°C to 65°C Case ⁽¹⁾
Storage Temperature	-55°C to 100°C

⁽¹⁾Case temperature is defined as temperature on ground leads

PIN CONNECTIONS	
INPUT	8
OUTPUT	1
COUPLED FORWARD	5
EXTERNAL 50 OHM	4
GROUND	2,3,6,7

Electrical Schematic



* ELECTRICAL SCHEMATIC IS FOR DIRECTIONAL COUPLER WITH INTERNAL TRANSFORMER(S) AND EXTERNAL TERMINATION.

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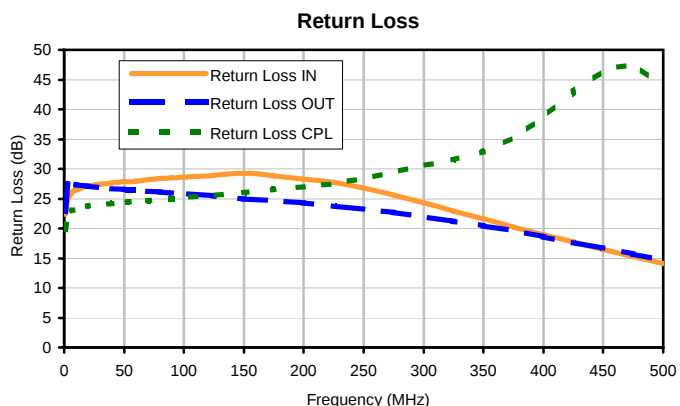
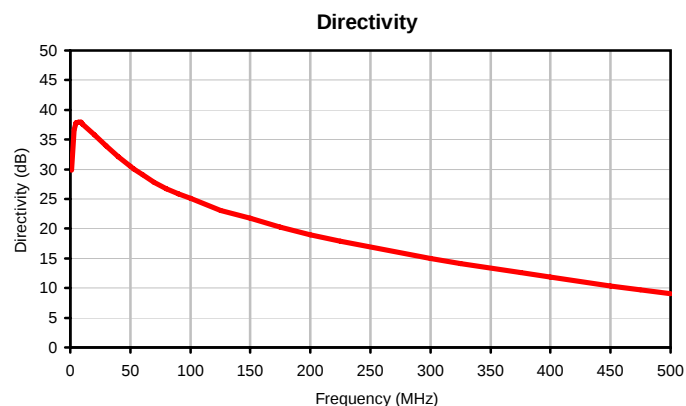
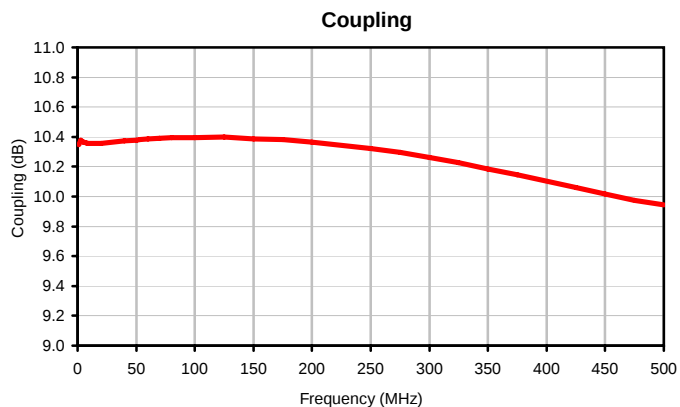
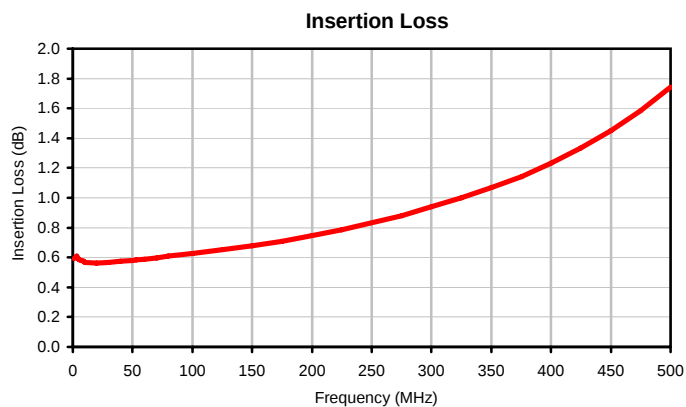
Typical Performance Data

FREQUENCY (MHz)	INSERTION LOSS (dB)	COUPLING (dB)	DIRECTIVITY (dB)	RETURN LOSS		
				IN	OUT	CPL
1.0	0.59	10.35	29.82	22.40	22.77	19.82
3.0	0.61	10.38	36.67	24.86	27.40	21.80
5.0	0.59	10.36	37.87	25.63	27.58	22.50
7.0	0.58	10.36	37.89	26.08	27.53	22.88
9.0	0.57	10.36	37.90	26.42	27.39	23.14
10.0	0.57	10.36	37.66	26.50	27.30	23.24
20.0	0.56	10.36	35.82	27.09	27.04	23.76
30.0	0.57	10.37	33.90	27.46	26.78	24.03
40.0	0.57	10.37	32.10	27.68	26.68	24.20
50.0	0.58	10.38	30.49	27.81	26.55	24.36
53.0	0.58	10.38	30.06	27.88	26.50	24.40
60.0	0.59	10.39	29.07	27.98	26.43	24.51
70.0	0.60	10.39	27.81	28.18	26.27	24.66
80.0	0.61	10.39	26.74	28.36	26.10	24.81
90.0	0.62	10.40	25.83	28.51	25.91	24.97
100.0	0.63	10.39	25.07	28.64	25.77	25.13
125.0	0.65	10.40	23.11	28.90	25.44	25.58
150.0	0.68	10.39	21.74	29.25	24.96	26.07
175.0	0.71	10.38	20.28	28.81	24.65	26.53
200.0	0.75	10.37	19.00	28.26	24.26	26.99
225.0	0.79	10.35	17.91	27.75	23.78	27.56
250.0	0.83	10.32	16.89	26.75	23.28	28.37
275.0	0.88	10.29	15.94	25.59	22.68	29.42
300.0	0.94	10.26	15.02	24.27	21.93	30.49
325.0	1.00	10.23	14.17	22.94	21.19	31.54
350.0	1.07	10.19	13.36	21.60	20.40	32.95
375.0	1.14	10.15	12.57	20.27	19.52	35.24
400.0	1.23	10.10	11.82	18.96	18.59	38.73
425.0	1.33	10.06	11.09	17.69	17.65	43.02
450.0	1.45	10.02	10.38	16.48	16.67	46.61
475.0	1.58	9.98	9.69	15.28	15.67	47.66
500.0	1.74	9.94	9.02	14.12	14.66	44.10

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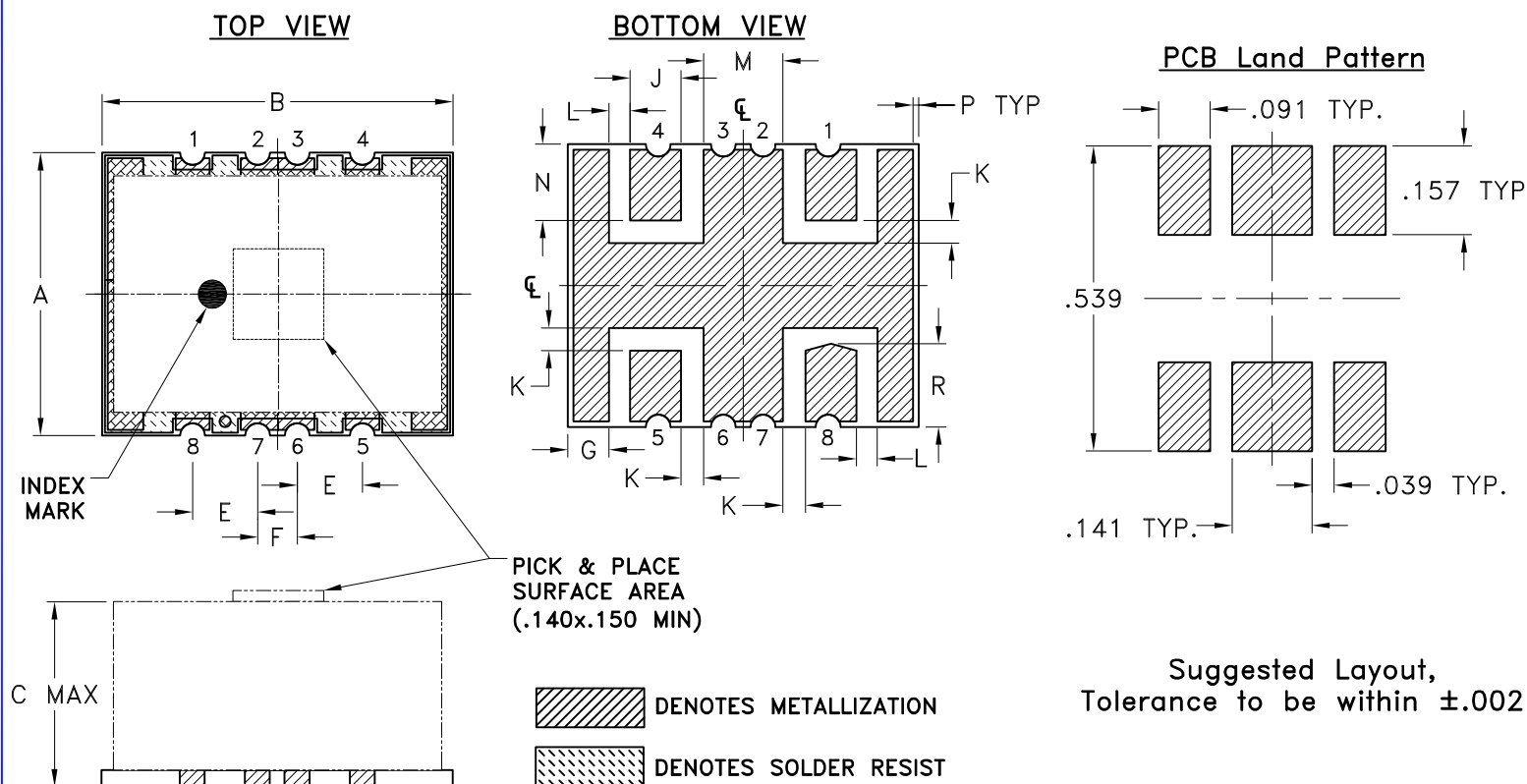
SYDC-ED14339/2

Typical Performance Curves



Outline Dimensions

AH1596



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

CASE#	A	B	C	D	E	F	G	H	J	K	L	M	N
AH1596	.50 (12.70)	.62 (15.75)	.36 (9.14)	- -	.115 (2.92)	.070 (1.78)	.073 (1.85)	- -	.090 (9.65)	.040 (1.02)	.037 (0.94)	.140 (3.56)	.135 (3.43)

CASE #	P	Q	R	WT, GRAM
AH1596	.010 (0.25)	- -	.135 (3.43)	3.00

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

Notes:

- Open style, Base material: Printed wiring laminate.
- Termination finish: 3-5 μ inch (.08-.13 microns) Gold over 120-240 μ inch (3.05-6.10 microns) Nickel plate.
All models, (+) suffix.

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Tape & Reel Packaging TR-F107

DEVICE ORIENTATION IN T&R



Tape Width, mm	Device Cavity Pitch, mm	Reel Size, inches	Devices per Reel	
32	20	7	Small quantity standards (see note)	10
				20
				50
				100
		13	Standard	200

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

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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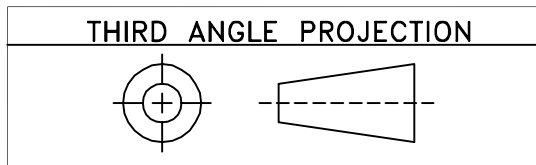


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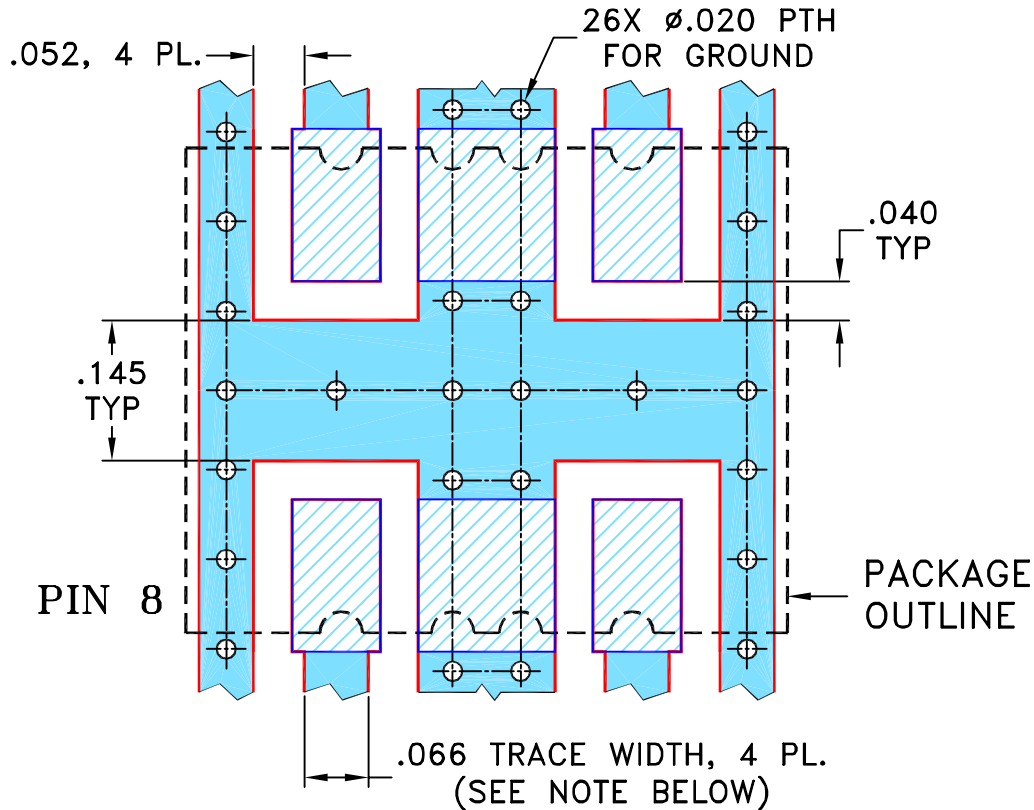
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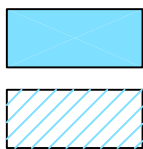
REVISIONS					
REV OR	ECN No.	DESCRIPTION	DATE	DR	AUTH
	M130233	NEW RELEASE	05/11/11	AV	YQ

SUGGESTED MOUNTING CONFIGURATION FOR
AH1596 CASE STYLE, "08DC03" PIN CODE



NOTES:

- 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.
- 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 TOLERANCES ON: 2 PL DECIMALS $\pm$ 3 PL DECIMALS $\pm$.005 ANGLES $\pm$ FRACTIONS $\pm$	DRAWN	AV	04/27/11
	CHECKED	IL	05/11/11
	APPROVED	YQ	05/11/11



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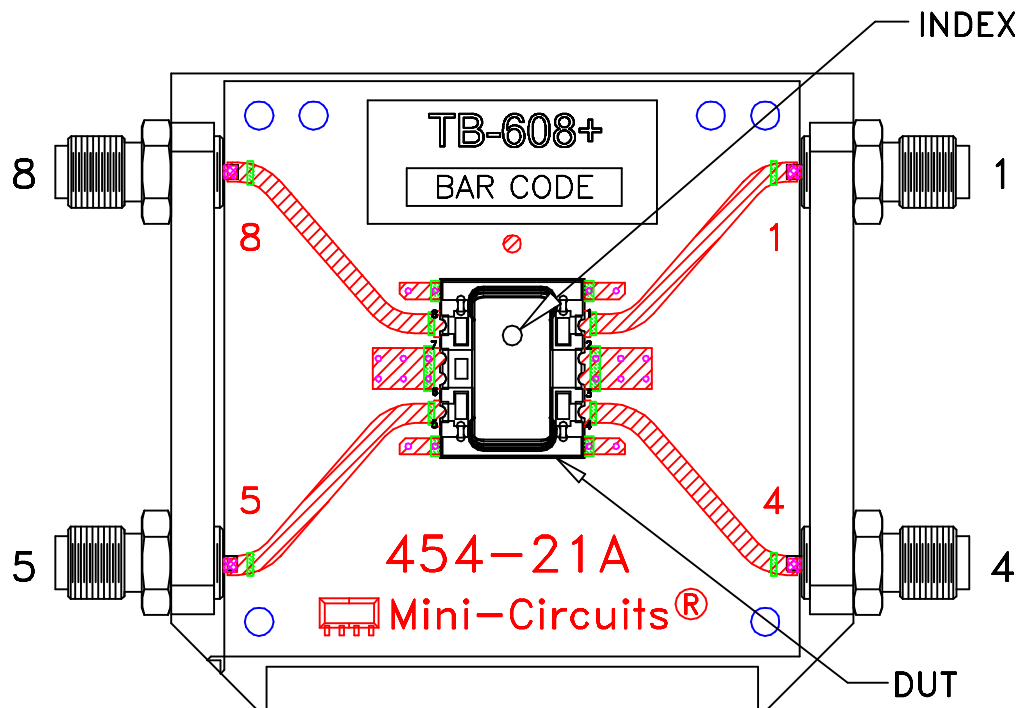
PL, 08DC03, AH1596, TB-608+

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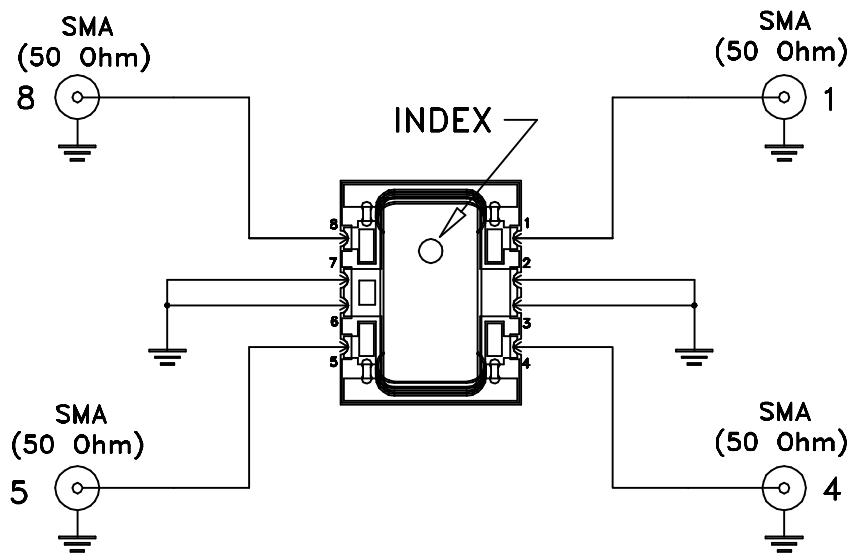
SIZE	CODE IDENT	DRAWING NO:	REV:
A	15542	98-PL-339	OR
FILE:	98PL339	SCALE:	SHEET:
		5:1	1 OF 1

Evaluation Board and Circuit

For Pin Connection Refer to
Data Sheet of the DUT



TB-608+



Schematic Diagram

Notes:

1. 50 Ohm SMA Female connectors.
2. PCB Material: 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 65° C Case 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, Para 4.2.5, Test S, 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