

# Surface Mount Directional Coupler

## SYDC-10-42HP+

50Ω 10 dB Coupling 10 to 400 MHz 16 Watt



CASE STYLE: AH1596  
PRICE: \$29.95 ea. QTY (1-9)

**+RoHS Compliant**

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

### Maximum Ratings

Operating Temperature -40°C to 60°C Case\*

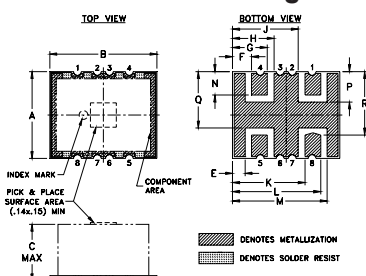
Storage Temperature -55°C to 100°C

\*Case temperature is defined as temperature on ground leads. Permanent damage may occur if any of these limits are exceeded.

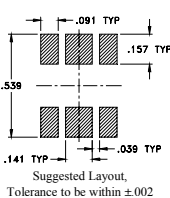
### Pad Connections

INPUT	8
OUTPUT	1
COUPLED (forward)	5
EXTERNAL 50Ω	4
GROUND	2,3,6,7

### Outline Drawing



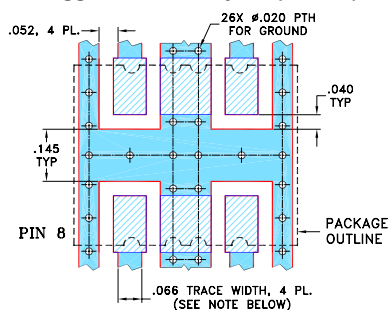
### PCB Land Pattern



### Outline Dimensions (inch/mm)

A	B	C	E	F	G	H	J
.500	.620	.36	.073	.110	.200	.240	.380
12.70	15.75	9.14	1.85	2.79	5.08	6.10	9.65
K	L	M	N	P	Q	R	wt
.420	.510	.547	.135	.175	.325	.365	grams
10.67	12.95	13.89	3.43	4.45	8.26	9.27	3.00

### Demo Board MCL P/N: TB-608+ Suggested PCB Layout (PL-339)



#### NOTES:

- TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS .030" ± .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

#### 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-Circuit's applicable established test performance criteria and measurement instructions.
- The parts covered by this specification document are subject to Mini-Circuit's 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-Circuit's website at [www.minicircuits.com/MCLStore/terms.jsp](http://www.minicircuits.com/MCLStore/terms.jsp)

### Features

- high power, 16W max.
- flat coupling, ±0.3 dB typ.
- low mainline loss, 0.3 dB typ.

### Applications

- signal monitoring
- military defense

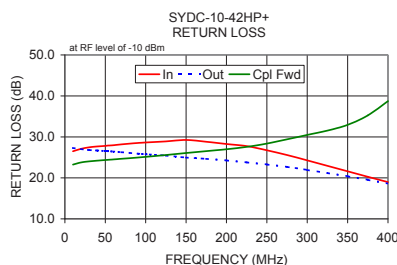
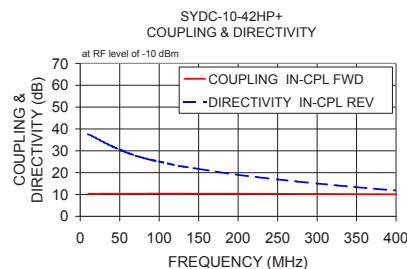
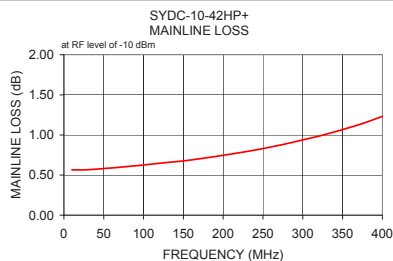
### Electrical Specifications at 25°C

Parameter	Condition (MHz)	Min.	Typ.	Max.	Unit
<b>Frequency Range</b>		10	—	400	MHz
<b>Mainline Loss</b> (above theoretical 0.45 dB)	10-250	—	0.3	0.7	dB
	250-400	—	0.6	1.3	
<b>Coupling</b>	10-400	9.0	10	10.8	dB
<b>Coupling Flatness(±)</b>	10-400	—	0.3	0.7	dB
<b>Directivity</b>	10	23	32	—	dB
	250	12	18	—	
	400	7	12	—	
<b>Return Loss (Input)</b>	10-400	—	22	—	dB
<b>Return Loss (Output)</b>	10-400	—	22	—	dB
<b>Return Loss (Coupling)</b>	10-400	—	18	—	dB
<b>Input Power<sup>1</sup></b>	10-400	—	—	16	W

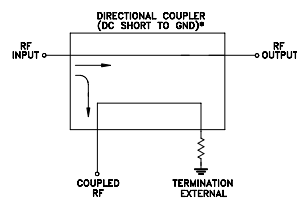
1. The user must provide adequate means of heat removal to limit the temperature of ground connections 2,3,6,7, to 60°C, in order to ensure proper performance. At 25°C ambient temperature this requires thermal resistance of the user's PC board heat sink to be 10°C/W.

### Typical Performance Data

Frequency (MHz)	Mainline Loss (dB) In-Out	Coupling (dB) In-Cpl	Directivity (dB)	Return Loss (dB)	
				In	Out
10.00	0.57	10.36	37.66	26.50	27.30
30.00	0.57	10.37	33.90	27.46	26.78
50.00	0.58	10.38	30.49	27.81	26.55
100.00	0.63	10.39	28.07	28.64	25.77
150.00	0.68	10.39	21.74	29.25	24.96
200.00	0.75	10.37	19.00	28.26	24.26
250.00	0.83	10.32	16.89	26.75	23.28
300.00	0.94	10.26	15.02	24.27	21.93
350.00	1.07	10.19	13.36	21.60	20.40
400.00	1.23	10.10	11.82	18.96	18.59



### Electrical Schematic



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

