

# Bi-Directional Coupler

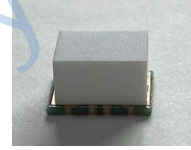
## Features

- high power handling
- low mainline loss
- good return loss

## Applications

- military mobile

## HT-SYDC-20-61HP+



**50Ω 20 dB Coupling 1.5 to 60 MHz 15 Watt**

### Electrical Specifications at 25°C

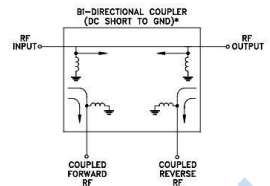
Parameter	Condition (MHz)	Min.	Typ.	Max.	Unit
Frequency Range		1.5		60	MHz
Mainline Loss	1.5-60	-	0.1	0.4	dB
Nominal Coupling	1.5-60	-	20±0.5	-	dB
Coupling Flatness (±)	1.5-60	-	±0.3	-	dB
Directivity	1.5-60	20	35	-	dB
Return Loss	1.5-60	-	32	-	dB
Input Power	1.5-60	-	-	15	W

### Maximum Ratings

*Operating Temperature, Case	-40°C to 65°C
Storage Temperature	-55°C to 100°C

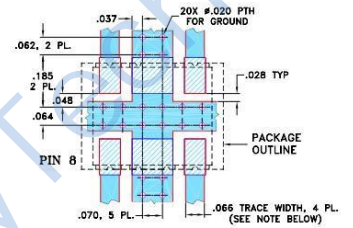
\* Case temperature is defined as temperature on ground leads.  
Permanent damage may occur if any of these limits are exceeded.

### Electrical Schematic



\* ELECTRICAL SCHEMATIC IS FOR BI-DIRECTIONAL COUPLER WITH INTERNAL TRANSFORMER(S) THAT ROUTES DC FROM RF PORTS TO GROUND.

### Suggested PCB Layout

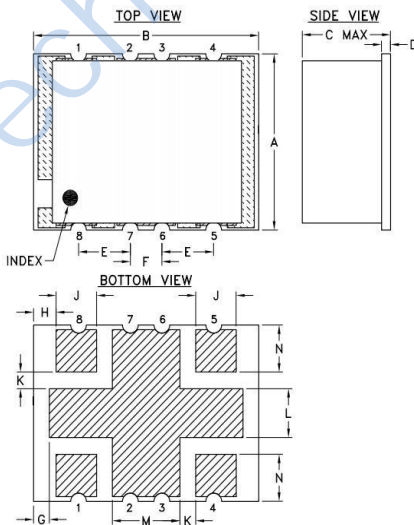


#### NOTES:

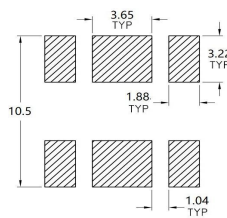
1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS .030" ± .002"; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

- DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)
- DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

### Outline Drawing



### PCB Land Pattern



Suggested L layout, Tolerance to be within ±0.2mm

#### Outline Dimensions: Unit (mm)

A	9.65	H	1.27
B	12.70	N	2.41
C	7.08	M	3.56
D	1.00	J	2.29
E	2.92	K	1.02
F	1.78	L	2.67
G	0.89	WT	0.8g

### Pan Connections

Input	8
Output	1
Forward	5
Reverse	4
Ground	2,3,6,7

# Bi-Directional Coupler

## Typical Performance Data

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

Freq.(MHz)	Mainline Loss (dB)	Coupling (dB)		Directivity (dB)		Return Loss (dB)			
		In-Out	In-Cpl Fwd	Out-Cpl Rev	Out-Cpl Fwd	In-Cpl Rev	In	Out	Cpl Fwd
1.5	0.08	20.06	19.94	43.29	46.09	37.74	38.71	36.46	38.64
2.0	0.09	20.07	19.94	45.39	49.18	39.02	40.51	37.41	40.45
4.0	0.09	20.10	19.96	47.26	52.62	40.63	42.30	39.20	42.92
8.0	0.09	20.10	19.98	43.88	46.67	41.17	41.69	39.76	42.18
10.0	0.11	20.12	20.02	41.51	43.47	40.96	41.34	39.70	42.36
15.0	0.10	20.11	20.04	38.56	39.06	39.69	39.72	38.91	40.69
20.0	0.09	20.10	20.05	36.40	36.70	38.63	38.17	38.03	38.54
30.0	0.10	20.10	20.11	32.62	32.46	36.47	35.84	36.17	36.17
40.0	0.11	20.10	20.13	29.91	29.79	34.69	34.03	34.31	34.17
50.0	0.11	20.09	20.10	27.59	27.69	33.23	32.55	32.59	32.55
60.0	0.12	20.07	20.03	25.78	26.07	32.03	31.24	31.36	31.12

