

Directional Coupler

TCD-ED13061/1

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.



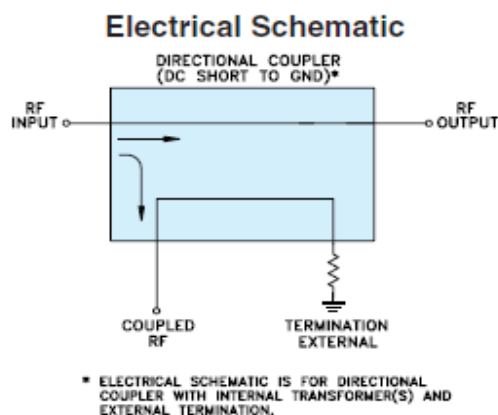
CASE STYLE : DB714

ELECTRICAL SPECIFICATIONS 75Ω @ +25°C					
Parameter		Min.	Typ.	Max.	Units
Frequency		40		1200	MHz
Coupling	Nominal		20 ± 0.7		dB
	Flatness		± 0.8		dB
Mainline Loss *	40-1200 MHz		0.60		dB
Directivity	40-1200 MHz		23		dB
VSWR	40-1200 MHz		1.2		(:1)
RF Power Input	40-1200 MHz			1	W

Note: * Mainline loss includes theoretical coupled power loss of 0.044 dB at 20 dB coupling.

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

PIN CONNECTIONS	
INPUT	3
OUTPUT	4
COUPLED	1
GROUND	2
75Ω TERM. EXTERNAL	6
NOT USED	5



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Typical Performance Data

FREQUENCY (MHz)	INSERTION LOSS (dB)	COUPLING (dB)	DIRECTIVITY (dB)	RETURN LOSS		
				IN	OUT	CPL
10.0	0.67	21.88	13.45	18.46	19.08	18.66
20.0	0.64	21.84	15.49	21.17	22.12	21.27
30.0	0.61	21.73	16.64	22.46	23.64	22.49
40.0	0.58	21.64	17.52	23.40	24.77	23.38
50.0	0.56	21.59	18.38	24.17	25.76	24.05
60.0	0.54	21.54	18.79	24.77	26.63	24.58
70.0	0.53	21.48	19.52	25.24	27.40	25.01
80.0	0.53	21.46	19.93	25.64	28.07	25.34
90.0	0.52	21.43	20.42	25.97	28.65	25.65
100.0	0.52	21.40	20.79	26.18	29.06	25.90
150.0	0.51	21.32	22.55	26.56	29.03	26.72
200.0	0.51	21.26	23.71	26.81	28.91	27.00
250.0	0.52	21.12	25.82	26.55	28.00	27.29
300.0	0.52	21.04	27.40	25.81	26.94	27.36
350.0	0.52	20.97	26.66	25.32	25.96	27.34
400.0	0.52	20.86	27.87	24.72	24.81	26.78
450.0	0.53	20.75	28.12	24.48	23.76	26.35
500.0	0.55	20.52	34.93	23.79	23.55	25.86
550.0	0.56	20.28	30.53	24.26	22.98	25.86
600.0	0.55	20.16	25.62	24.21	23.10	25.83
650.0	0.55	20.11	25.14	24.15	23.07	25.34
700.0	0.55	20.07	24.89	24.78	23.12	25.06
750.0	0.56	19.92	25.50	24.45	23.35	24.52
800.0	0.58	19.72	27.27	25.41	23.80	24.41
850.0	0.59	19.53	23.06	26.52	24.05	24.00
900.0	0.62	19.38	24.56	27.11	24.33	24.10
950.0	0.62	19.26	22.23	28.45	25.42	23.44
1000.0	0.65	19.12	23.38	29.12	26.11	23.57
1050.0	0.68	18.96	21.95	30.51	26.75	22.99
1100.0	0.69	18.81	21.82	31.20	26.49	23.19
1200.0	0.73	18.51	20.42	32.12	27.62	23.06
1300.0	0.76	18.22	18.99	32.41	29.43	23.03
1400.0	0.80	17.95	18.62	30.47	28.98	22.76
1500.0	0.85	17.68	17.26	29.30	29.72	22.13
1600.0	0.94	17.51	15.37	28.24	30.03	21.04
1700.0	1.07	17.47	14.34	27.49	29.58	19.75
1800.0	1.22	17.43	14.21	24.05	28.84	18.53
1900.0	1.34	17.27	14.03	21.48	25.39	17.47
2000.0	1.44	17.03	13.69	19.27	23.20	16.52



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IF/RF MICROWAVE COMPONENTS

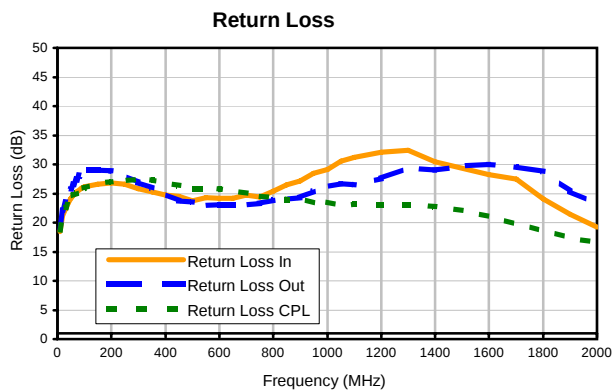
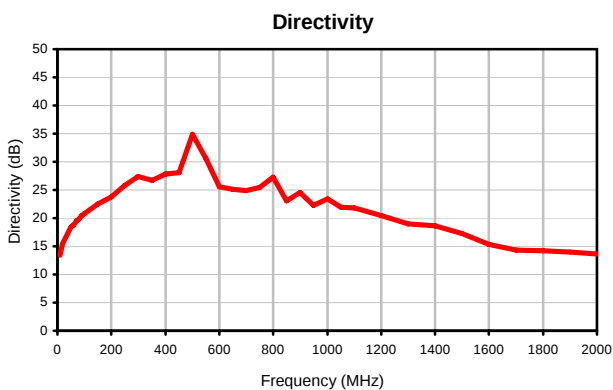
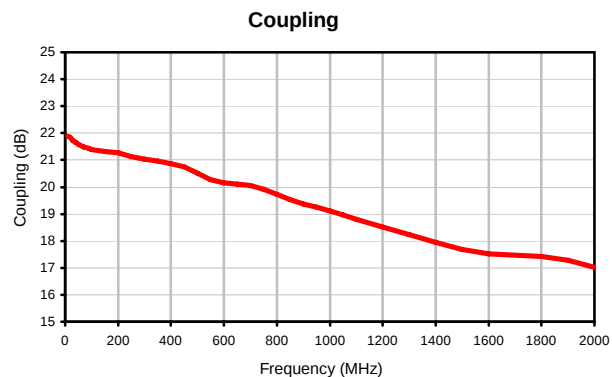
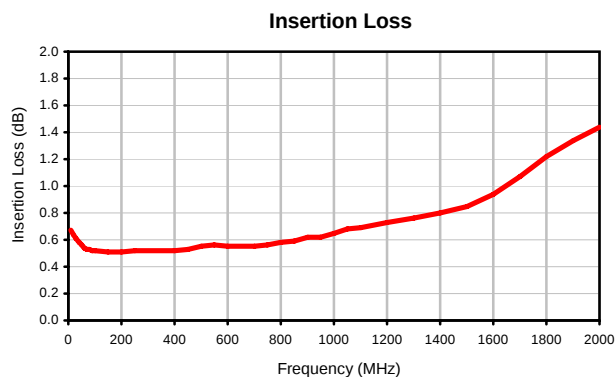


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Directional Coupler

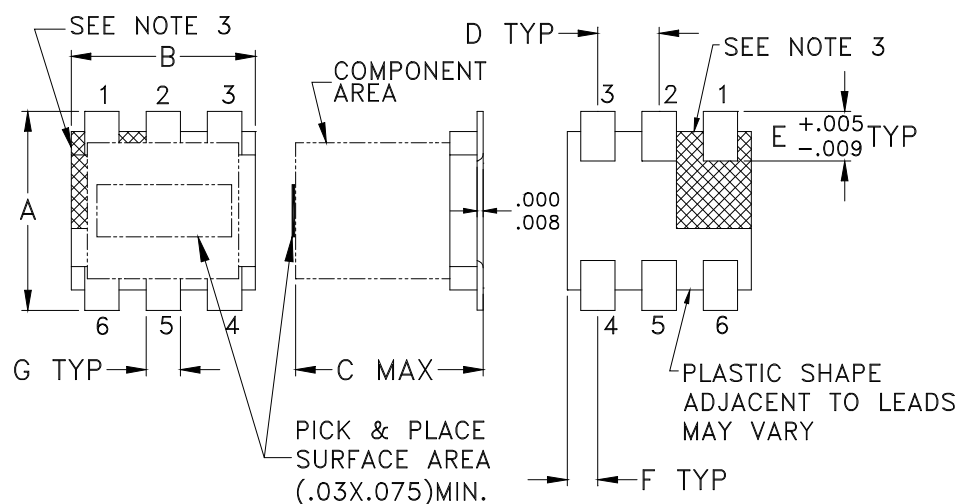
Typical Performance Curves

TCD-ED13061/1

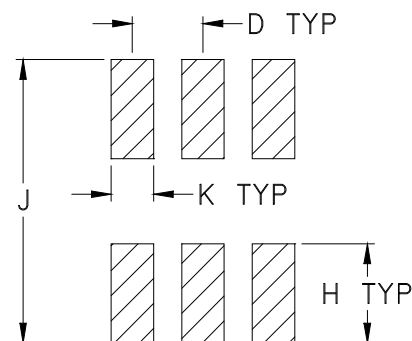


Outline Dimensions

DB714



PCB Land Pattern



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

CASE #	A	B	C	D	E	F	G	H	J	K	WT. GRAM
DB714	.160 (4.06)	.150 (3.81)	.160 (4.06)	.050 (1.27)	.040 (1.02)	.025 (0.64)	.028 (0.71)	.065 (1.65)	.190 (4.83)	.030 (0.76)	.15

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

Notes:

- Case material: Plastic.
- Termination finish:
For RoHS Case Styles: Tin plate over Nickel plate. All models, (+) suffix.
For RoHS-5 Case Styles: Tin-Lead plate. All models, no (+) suffix.
- Lead #1 identifier shall be located in the cross-hatched area shown.
Identifier may be either a molded or marked feature.



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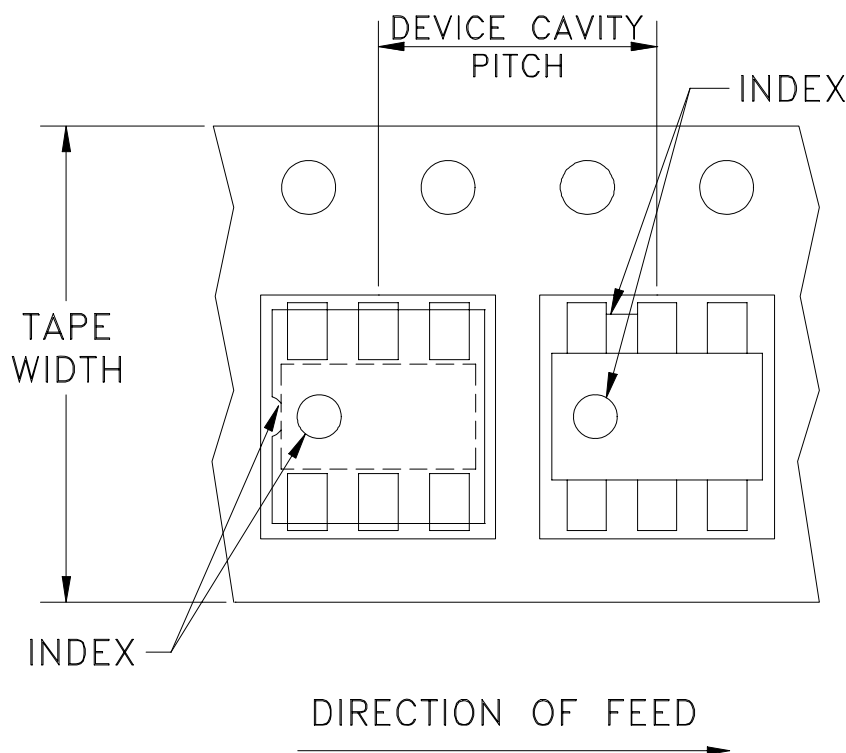


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RF/IF MICROWAVE COMPONENTS

Tape & Reel Packaging TR-F47

DEVICE ORIENTATION IN T&R



Tape Width, mm	Device Cavity Pitch, mm	Reel Size, inches	Devices per Reel see note
12	8	13	1000, 2000
		7	20, 50, 100, 200, 500

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.

Go to: www.minicircuits.com/pages/pdfs/tape.pdf



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OR	M73159	NEW RELEASE	08/00	IL	DB
A	M82377	UPDATED DRAWING	07/30/02	AV	LC
B	M102713	UPDATED NOTES	01/12/06	GF	IL

.018
 .010
 .085
 .052
 .035
 .030 TYP
 TRACE WIDTH
 (SEE NOTE BELOW)
 PACKAGE OUTLINE
 .015 TYP
 .015
 .030
 .047 TYP
 .023
 .024
 .030
 .108
 .017
 4X .0475
 .275
 .018
 PIN 1
 R1
 7X $\varnothing$.015 PTH FOR GROUND

NOTES: 1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS 0.030" $\pm$ 0.002"; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.



UNLESS OTHERWISE SPECIFIED

INITIALS

DATE _____

DIMENSIONS ARE IN INCHES

DRAWN

IL

08/03/00

TOLERANCES ON:

CHECKED

08/08/00

2 PL DECIMALS $\pm$
3 PL DECIMALS $\pm$

APPROVED

08 / 00 / 00

ANGLES $\pm$
FRACTIONS $\pm$

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PL, mm, 75, DB714, TCD, TB-72

SIZE
A

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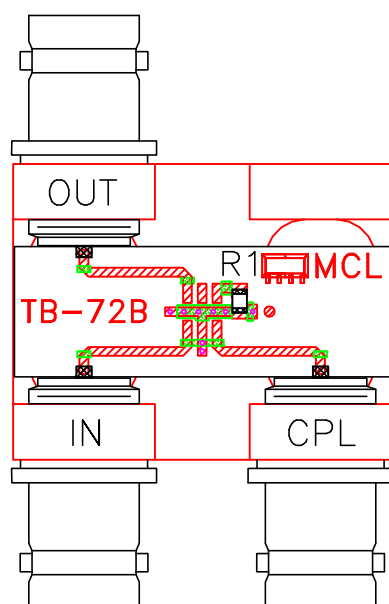
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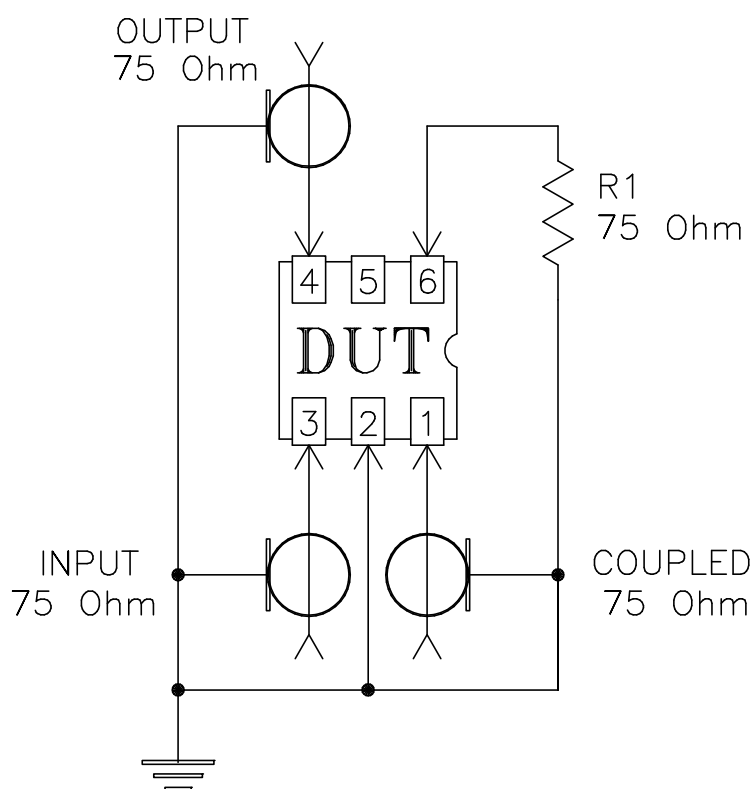
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Evaluation Board and Circuit



TB-72



Schematic Diagram

Notes:

1. 75 Ohm BNC Female connectors.
2. PCB Material: Rogers 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 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