



Mini-Circuits®

SURFACE MOUNT

Directional Coupler

TCD-10-1W-75+

75Ω 10 to 750 MHz

FEATURES

- Wideband, 10 to 750 MHz
- Low mainline loss, 1.4 dB typ.
- Aqueous washable
- Leads for excellent solderability
- Protected by US Patent 6,140,887

APPLICATIONS

- VHF/UHF
- CATV
- Communications



Generic photo used for illustration purposes only

CASE STYLE: DB714

+RoHS Compliant

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

ELECTRICAL SPECIFICATIONS AT 25°C

Parameter	Frequency (MHz)	Min.	Typ.	Max.	Unit
Frequency Range	—	5	—	2000	MHz
Mainline Loss ¹	10-100	—	1.6	2.1	dB
	100-350	—	1.4	1.9	
	350-750	—	1.5	2.0	
Coupling		—	10.5±0.5	—	dB
Coupling Flatness (±)		—	±0.7	—	dB
Directivity	10-100	17	22	—	dB
	100-350	14	18	—	
	350-750	—	14	—	
VSWR	10-750	—	1.3	—	:1
Input Power	10-100	—	—	0.5	W
	100-750	—	—	1.0	

1. Mainline loss includes theoretical power loss at coupled port.

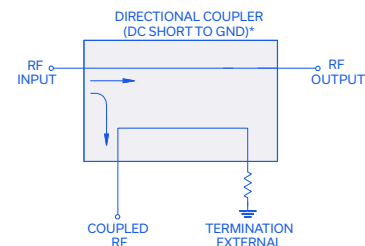
MAXIMUM RATINGS

Parameter	Ratings
Operating Temperature	-40°C to 85°C*
Storage Temperature	-55°C to 100°C

Permanent damage may occur if any of these limits are exceeded.

* Case temperature is defined as temperature on ground leads.

ELECTRICAL SCHEMATIC



*Electrical schematic is for Directional coupler with internal transformer(s) and external termination

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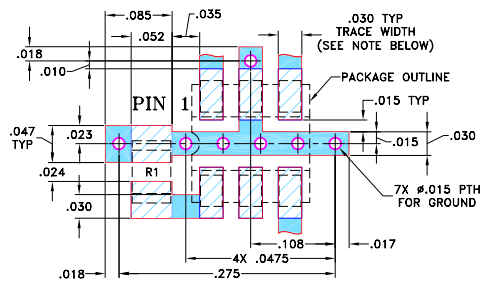
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INPUT	3
OUTPUT	4
COUPLED	1
GROUND	2
75Ω TERM EXTERNAL	6
NOT USED	5

DEMO BOARD MCL P/N: TB-72
SUGGESTED PCB LAYOUT (PL-010)

 DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

Lead #1 identifier shall be located in the cross-hatched area shown. Identifier may be either a molded or marked feature.

Diagram illustrating the component layout and dimensions:

- Lead #1 identifier shall be located in the cross-hatched area shown. Identifier may be either a molded or marked feature.
- Dimensions: A, B, C MAX, D TYP, E $+0.005$ / -0.009 TYP, F TYP.
- Labels: COMPONENT AREA, PICK & PLACE SURFACE AREA (.03X.075)MIN., PLASTIC SHAPE ADJACENT TO LEADS MAY VARY.

The diagram shows a three-layered structure. The top layer has a thickness labeled 'D TYP'. The middle layer has a thickness labeled 'K TYP'. The bottom layer has a thickness labeled 'H TYP'. The total height of the structure is labeled 'J'. Arrows indicate the dimensions: 'J' is the total height, 'D' is the top layer thickness, 'K' is the middle layer thickness, and 'H' is the bottom layer thickness.

OUTLINE DIMENSIONS (Inches)

A	B	C	D	E	F
.160	.150	.160	.050	.040	.025
4.06	3.81	4.06	1.27	1.02	0.64
G	H	J	K		wt
.028	.065	.190	.030		grams
0.71	1.65	4.83	0.76		0.15



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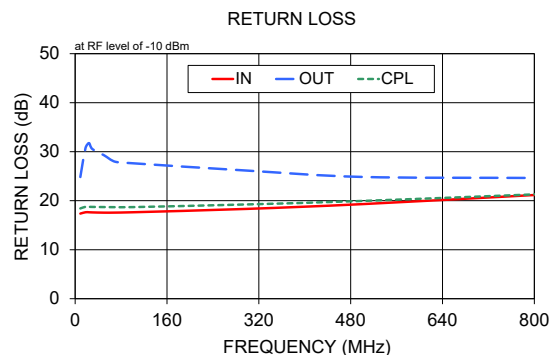
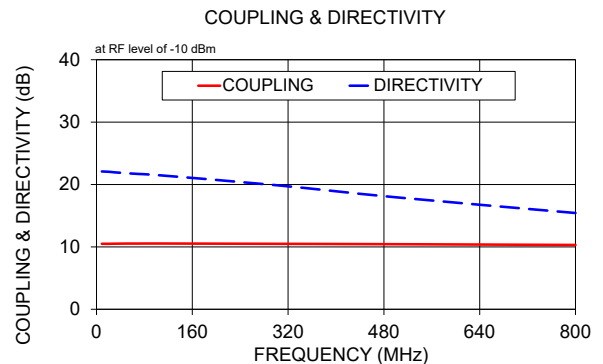
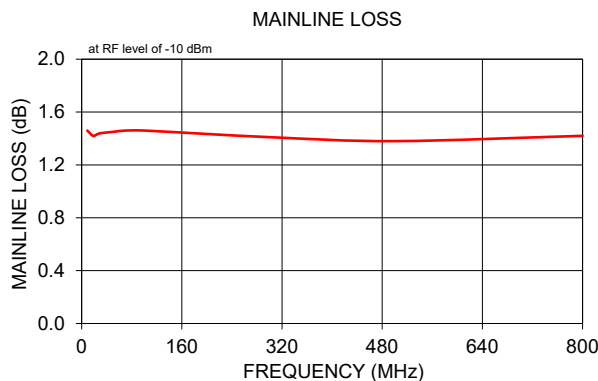
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TYPICAL PERFORMANCE DATA

Frequency (MHz)	Mainline Loss (dB)	Coupling (dB)	Directivity (dB)	Return Loss (dB)		
	In-Out	In-Cpl		In	Out	Cpl
9.00	1.46	10.50	22.09	17.37	24.83	18.42
18.00	1.42	10.49	22.05	17.64	30.73	18.75
24.00	1.43	10.50	22.01	17.64	31.76	18.75
30.00	1.44	10.51	21.95	17.61	30.54	18.73
50.00	1.45	10.53	21.81	17.56	29.29	18.70
70.00	1.46	10.53	21.69	17.57	27.94	18.68
100.00	1.46	10.54	21.52	17.64	27.64	18.69
300.00	1.41	10.49	19.89	18.33	26.14	19.24
500.00	1.38	10.43	17.95	19.30	24.85	19.95
800.00	1.42	10.31	15.43	21.16	24.64	21.29



- 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-Circuits 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-Circuits' website at www.minicircuits.com/terms/viewterm.html

