



Mini-Circuits®

SURFACE MOUNT

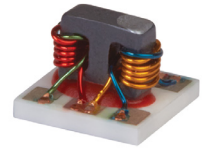
Directional Coupler

DBTC-10-4-75+

75Ω 10 dB 5 to 1000 MHz

FEATURES

- Very Flat Coupling
- Very Broadband, Multi Octave
- Temperature Stable, LTCC Base
- All Welded Construction
- Leads Attached for Better Solderability
- Micro Miniature Coupler
- Aqueous Washable
- Protected by US Patents 6,140,887 & 6,784,521



Generic photo used for illustration purposes only

CASE STYLE: AT790-1

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

APPLICATIONS

- Cable TV

ELECTRICAL SPECIFICATIONS AT +25°C

Parameter	Condition (MHz)	Min.	Typ.	Max.	Unit
Frequency Range		5		1000	MHz
Mainline Loss ¹	5-50		1.5	2.2	dB
	50-500		1.4	2.0	
	500-1000		1.5	2.0	
Nominal Coupling	5-1000		10.5±0.5		dB
Coupling Flatness	5-1000			±0.7	dB
Directivity	5-50	16	21		dB
	50-500	13	20		
	500-1000		16		
VSWR ²	5-1000		1.3		:1
Input Power	5-500			0.5	W
	500-1000			1.0	

1. Includes theoretical coupled power loss of 0.4 dB at 10 dB coupling.

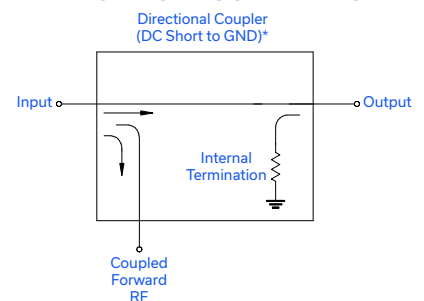
2. For coupled port VSWR above 500 MHz, 1.6:1 typ.

ABSOLUTE 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.

ELECTRICAL SCHEMATIC



* Electrical schematic is for directional coupler with internal transformer(s) that routes DC from RF ports to ground.

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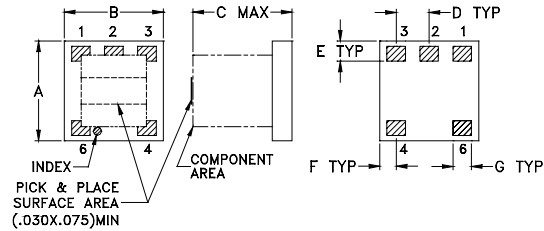
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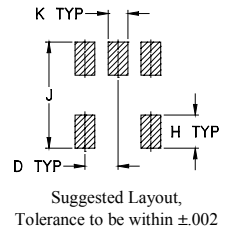
PIN CONNECTIONS

INPUT	3
OUTPUT	4
COUPLED	1
GROUND	2
ISOLATE (DO NOT USE)	6

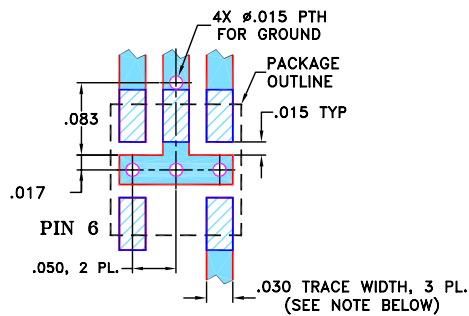
OUTLINE DRAWING



PCB Land Pattern



PRODUCT MARKING: N/A

DEMO BOARD MCL P/N: TB-DBTC10-4-75+
SUGGESTED PCB LAYOUT (PL-151)

- NOTES: 1. TRACE WIDTH IS SHOWN FOR ROGERS R04350B WITH DIELECTRIC THICKNESS $0.030" \pm 0.002"$; 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 DIMENSIONS (Inches
mm)

A	B	C	D	E	F	G	H	J	K	wt
.150	.150	.150	.050	.030	.025	.028	.050	.160	.030	grams
3.81	3.81	3.81	1.27	0.76	0.64	0.71	1.27	4.06	0.76	0.10

TAPE & REEL INFORMATION: F17



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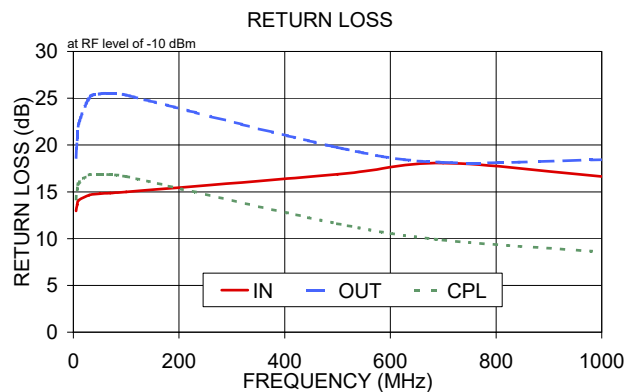
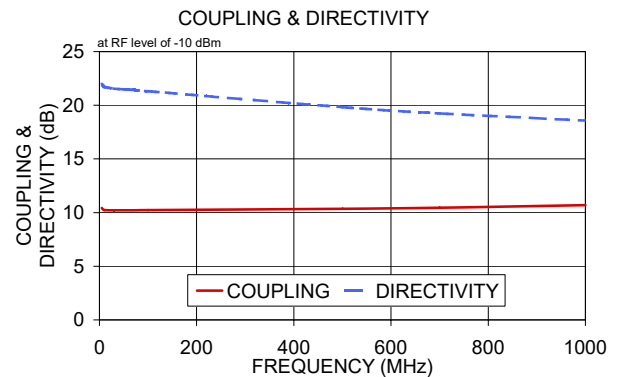
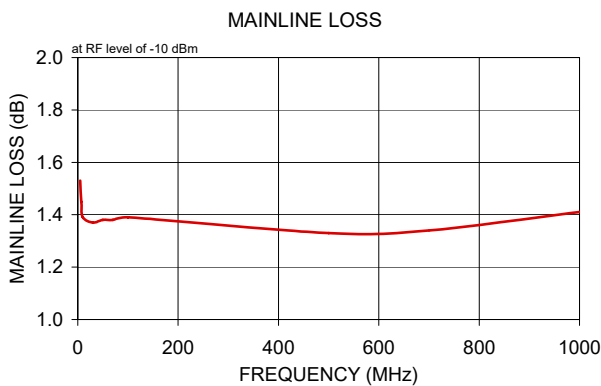
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TYPICAL PERFORMANCE DATA

Frequency (MHz)	Mainline Loss (dB)	Coupling (dB)	Directivity (dB)	Return Loss (dB)		
	In-Out			In	Out	Cpl
5	1.53	10.44	21.95	12.96	18.66	14.22
7	1.45	10.32	21.83	13.63	20.55	15.21
10	1.39	10.24	21.71	14.11	22.29	15.95
30	1.37	10.21	21.54	14.66	25.03	16.80
50	1.38	10.21	21.49	14.79	25.45	16.88
70	1.38	10.22	21.42	14.86	25.51	16.83
100	1.39	10.24	21.31	14.98	25.34	16.64
500	1.33	10.35	19.83	16.88	19.74	11.59
700	1.34	10.46	19.25	18.06	18.15	9.84
1000	1.41	10.70	18.57	16.64	18.44	8.57



- NOTES
- A. 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.
- B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
- C. 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

