



Mini-Circuits®

SURFACE MOUNT

Directional Coupler

DBTC-18-4-75L+

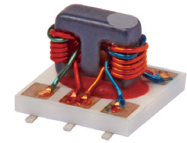
75Ω

18 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: AT1030

+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		0.8	1.5	dB
	50-500		0.8	1.4	
	500-1000		1.0	1.6	
Nominal Coupling	5-1000		18.2±0.5		dB
Coupling Flatness	5-1000			±0.7	dB
Directivity	5-50	16	25		dB
	50-500	14	21		
	500-1000		15		
VSWR ²	5-1000		1.3		:1
Input Power	5-50			1.0	W
	50-500			1.0	
	500-1000			1.0	

1. Includes theoretical coupled power loss of 0.07 dB at 18 dB coupling.

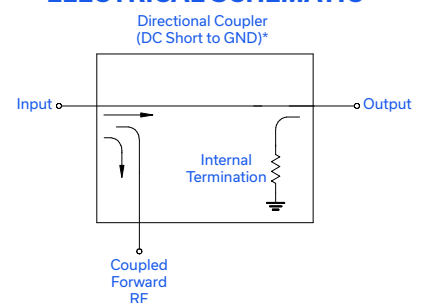
2. For coupled port VSWR above 500 MHz, 1.6:1 typ.

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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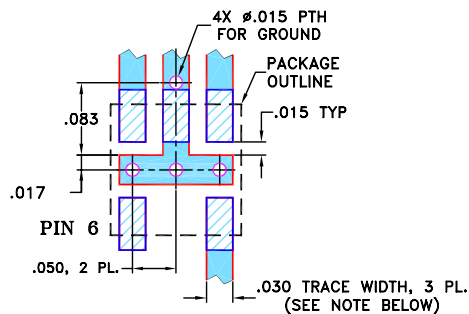
5 to 1000 MHz

PIN CONNECTIONS

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

PRODUCT MARKING: N/A

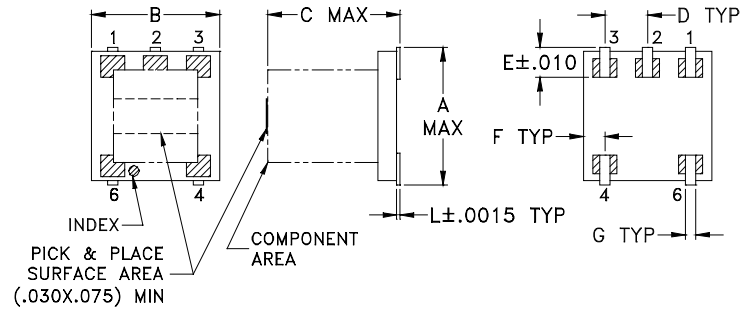
DEMO BOARD MCL P/N: TB-DBTC184-75L+
SUGGESTED PCB LAYOUT (PL-151)



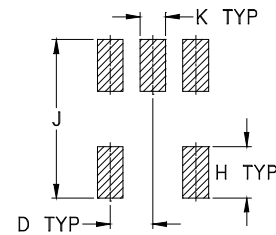
- NOTES: 1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS $0.030" \pm 0.002"$; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

-  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 Layout,
Tolerance to be within $\square .002$

OUTLINE DIMENSIONS (Inches/mm)

A	B	C	D	E	F	G	H	J	K	L	wt
.166	.150	.155	.050	.037	.025	.012	.060	.184	.030	.004	grams
4.22	3.81	3.94	1.27	0.94	0.64	0.30	1.52	4.67	0.76	0.10	0.10

TAPE & REEL INFORMATION: F76



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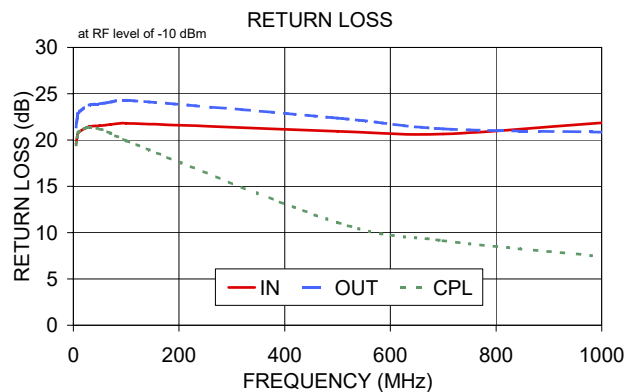
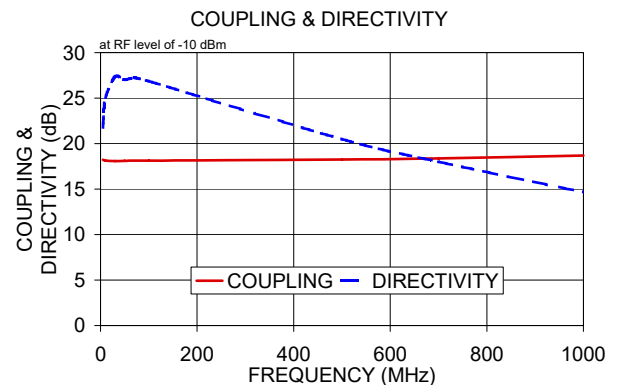
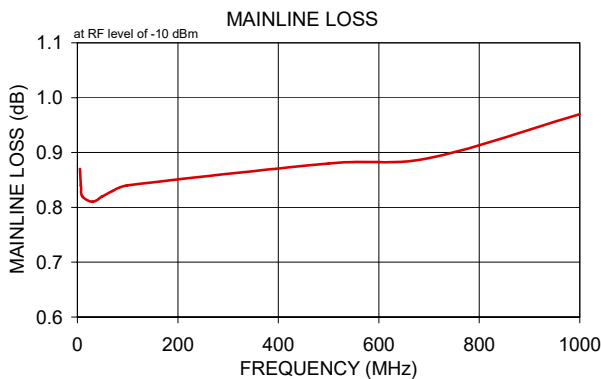
75Ω

18 dB

5 to 1000 MHz

TYPICAL PERFORMANCE DATA

Frequency (MHz)	Mainline Loss (dB)	Coupling (dB)	Directivity (dB)	Return Loss (dB)		
	In-Out			In	Out	Cpl
5	0.87	18.24	21.78	19.58	21.40	19.46
7	0.84	18.17	23.60	20.35	22.32	20.29
10	0.82	18.14	25.06	20.85	22.98	20.87
30	0.81	18.08	27.35	21.44	23.78	21.40
50	0.82	18.10	27.01	21.54	23.92	21.18
70	0.83	18.12	27.23	21.66	24.08	20.74
100	0.84	18.14	26.88	21.81	24.29	19.93
500	0.88	18.26	20.48	20.94	22.37	11.09
700	0.89	18.38	18.00	20.66	21.20	9.14
1000	0.97	18.68	14.66	21.86	20.85	7.41



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

