

Directional Couplers

50Ω, 13dB coupling, 5 to 1000 MHz

DBTC-13-4+

DBTC-13-4L+

Maximum Ratings

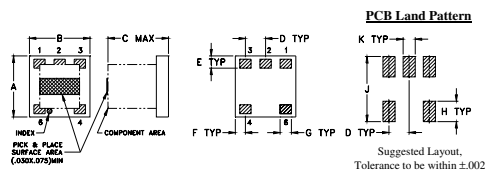
| | |
|-----------------------|----------------|
| Operating Temperature | -40°C to 85°C |
| Storage Temperature | -55°C to 100°C |

Pin Connections

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

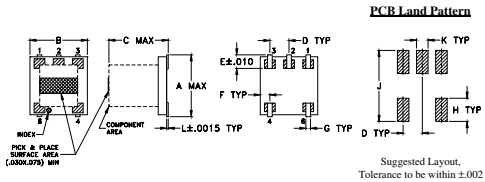
Outline Drawing / Dimensions (inch / mm)

AT790-1 (DBTC-13-4)



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

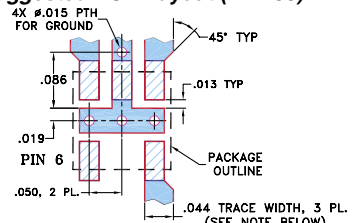
AT1030 (DBTC-13-4L)



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

Demo Board MCL P/N: TB-278

Suggested PCB Layout (PL-150)



- NOTES: 1. TRACE WIDTH IS SHOWN FOR ROGERS RO4360B WITH DIELECTRIC THICKNESS 0.020" ± 0.0015". 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

Features

- very flat coupling
- very broadband, multi octave
- temperature stable LTCC base
- all welded construction
- leads attached for better solderability
- micro-miniature coupler
- protected by US Patents, 6,140,887 & 6,784,521

Applications

- VHF/UHF receivers/transmitters
- cellular



No Leads

CASE STYLE:AT790-1
 PRICE:\$1.99 ea. QTY (25)
 \$1.69 ea. QTY (1000)



Leads

CASE STYLE:AT1030
 PRICE:\$2.14 ea. QTY (25)
 \$1.84 ea. QTY (1000)

+ RoHS compliant in accordance with EU Directive (2002/95/EC)

The +Suffix has been added in order to identify RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications.

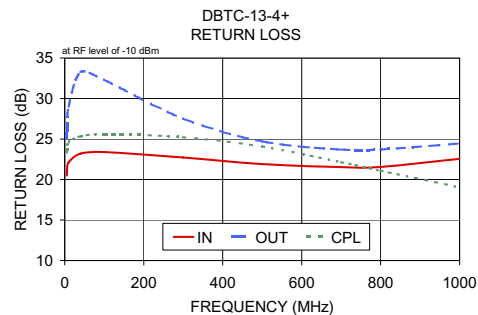
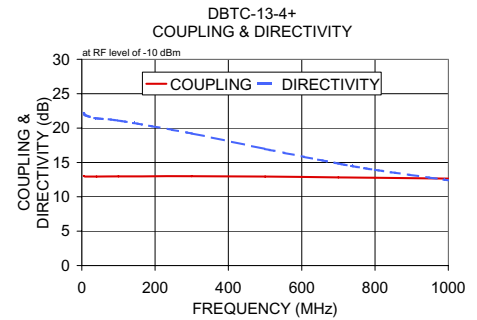
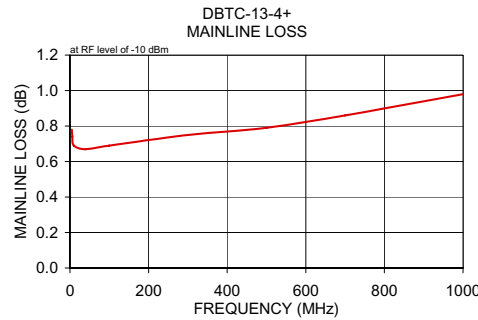
Electrical Specifications

| FREQ. RANGE (MHz) | COUPLING (dB) | | MAINLINE LOSS* (dB) | | | | | DIRECTIVITY (dB) | | | VSWR** (:1) | POWER INPUT (W) | | | | | |
|-------------------|---------------|----------|---------------------|-----|-----|-----|-----|------------------|------|------|-------------|-----------------|----|---|-----|-----|-----|
| | Nom. | Flatness | L | M | U | L | M | U | Typ. | Max. | | MU | | | | | |
| 5-1000 | 13.0±0.5 | ±0.6 | 0.7 | 1.3 | 0.7 | 1.3 | 1.1 | 1.6 | 21 | 17 | 18 | 13 | 13 | — | 1.2 | 0.5 | 1.0 |

L = low range [f_l to 10 f_l] M = mid range [10 f_l to f_u/2] U = upper range [f_u/2 to f_u]
 * Includes theoretical coupled power loss of 0.22 dB at 13 dB coupling
 ** For coupled port VSWR above 500 MHz, 1.4:1 typ.

Typical Performance Data

| Frequency (MHz) | Mainline Loss (dB) In-Out | Coupling (dB) In-Cpl | Directivity (dB) | Return Loss (dB) | | |
|-----------------|---------------------------|----------------------|------------------|------------------|-------|-------|
| | | | | In | Out | Cpl |
| 5.00 | 0.77 | 13.08 | 22.34 | 19.78 | 23.72 | 22.27 |
| 10.00 | 0.70 | 13.00 | 21.94 | 21.65 | 27.70 | 23.92 |
| 50.00 | 0.65 | 12.95 | 21.49 | 23.18 | 32.43 | 25.26 |
| 100.00 | 0.67 | 12.98 | 21.06 | 23.12 | 31.88 | 25.46 |
| 300.00 | 0.74 | 13.04 | 19.82 | 22.41 | 26.20 | 24.99 |
| 500.00 | 0.79 | 13.05 | 18.10 | 21.80 | 23.68 | 24.06 |
| 600.00 | 0.82 | 13.03 | 16.98 | 21.37 | 22.90 | 23.20 |
| 800.00 | 0.89 | 13.01 | 15.16 | 21.11 | 22.22 | 21.19 |
| 900.00 | 0.93 | 12.99 | 14.48 | 21.34 | 22.35 | 20.16 |
| 1000.00 | 0.98 | 12.97 | 13.82 | 21.62 | 22.42 | 19.03 |



electrical schematic

