3 dB 0°/180°

# COUPLERS, HYBRID WITH SMA OR N CONNECTORS SERIES MH

**GENERAL INFORMATION:** KDI/Triangle's 0°/ 180° isolated Hybrid Couplers, Series MH, consist of a conventional 90° hybrid plus a broadband 90° phase shifter. Depending on which input is used, the two output signals are either in phase or 180° out of phase. These Hybrid Couplers can handle large amounts of CW power since they do not employ internal resistors.

**FREQUENCY RANGE:** 0.20 to 18.0 GHz

**RF IMPEDANCE:** 50 OHMS

**TEMPERATURE INFORMATION:** Operating temperature from -55° C to +85° C.

**ENVIRONMENT:** MIL-E-5400, MIL-STD-202, MIL-E-16400, MIL-STD-883 (Special request only)

**CONNECTORS:** SMA or N standard, others on request.

**NOTES:**

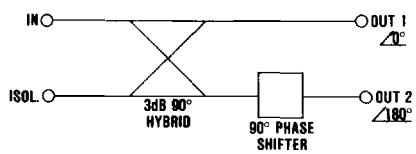
**1.** If the frequency band of interest is narrower than that listed, it should be indicated when ordering. Performance will be optimized over the band of interest and improved delivery may be provided. A special part number may be assigned.

**2.** If type N connectors are required, add N to the model number. i.e.; MH-22 with type N connectors is ordered as MH-22N.

## ELECTRICAL PERFORMANCE

| Model No. | Frequency Range GHz | Nominal Coupling dB | Max. Dev. From Nominal Coupling dB | Max. Insertion Loss dB | Min.* Isolation dB | Max* VSWR | Min. Power** Capability Peak kW | Min. Power** Capability Ave Watts | Phase Balance Deg | Outline SMA | Outline N |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MH-22 | 0.20-0.40 | 3.0 + 0.25/-0 | ±0.50 | 0.25 | 22 | 1.25 | 8 | 60 | ±3.0 | 1 | 1 |
| MH-24 | 0.25-0.50 | 3.0 + 0.25/-0 | ±0.50 | 0.25 | 22 | 1.25 | 8 | 60 | ±3.0 | 1 | 1 |
| MH-29 | 0.50-1.00 | 3.0 + 0.25/-0 | ±0.50 | 0.25 | 22 | 1.25 | 8 | 60 | ±3.0 | 2 | 2 |
| MH-33 | 1.00-2.00 | 3.0 + 0.30/-0 | ±0.50 | 0.30 | 20 | 1.30 | 7 | 60 | ±3.5 | 4 | 4 |
| MH-36 | 1.50-3.00 | 3.0 + 0.30/-0 | ±0.50 | 0.30 | 18 | 1.30 | 6 | 60 | ±4.0 | See Fig. 2 | 7 |
| MH-39 | 2.00-4.00 | 3.0 + 0.30/-0 | ±0.55 | 0.30 | 18 | 1.35 | 5 | 50 | ±4.0 | 3 | 3 |
| MH-42 | 2.60-5.20 | 3.0 + 0.35/-0 | ±0.55 | 0.35 | 17 | 1.40 | 5 | 50 | ±4.0 | 5 | 5 |
| MH-46 | 4.00-8.00 | 3.0 + 0.35/-0 | ±0.60 | 0.35 | 17 | 1.45 | 4 | 40 | ±4.0 | 6 | 6 |
| MH-52 | 7.00-11.00 | 3.0 + 0.40/-0 | ±0.60 | 0.40 | 16 | 1.45 | 4 | 40 | ±4.0 | 6 | 6 |
| MH-54 | 7.00-12.40 | 3.0 + 0.45/-0 | ±0.60 | 0.45 | 15 | 1.50 | 4 | 40 | ±5.0 | 6 | 6 |

*UNITS WITH TYPE N CONNECTORS: Up to 4.0 GHz multiply VSWR's by 1.05 and subtract 2.0 dB from isolation. Above 4.0 GHz multiply VSWR's by 1.10 and subtract 3.0 dB from isolation.
**SMA = 3 kW peak




FUNCTIONAL DIAGRAM

## MECHANICAL OUTLINES—FIGURE 1
## SMA CONNECTOR SERIES MH

| Outline | A Inches cm | B Inches cm | C Inches cm | D Inches cm | E Inches cm | F Inches cm | G Inches cm |
|---|---|---|---|---|---|---|---|
| 1 | 4.00<br>10.16 | 3.00<br>7.62 | 0.20<br>0.51 | 2.600<br>6.604 | 3.800<br>9.652 | 0.25<br>0.64 | 0.25<br>0.64 |
| 2 | 3.25<br>8.26 | 1.70<br>4.32 | 0.20<br>0.51 | 1.300<br>3.302 | 3.050<br>7.747 | 0.40<br>1.02 | 0.28<br>0.71 |
| 3 | 1.55<br>3.94 | 1.70<br>4.32 | 0.20<br>0.51 | 1.300<br>3.302 | 1.350<br>3.429 | 0.25<br>0.64 | 0.38<br>0.97 |
| 4 | 2.00<br>5.08 | 1.70<br>4.32 | 0.20<br>0.51 | 1.300<br>3.302 | 1.800<br>4.572 | 0.38<br>0.97 | 0.25<br>0.64 |
| 5 | 1.25<br>3.18 | 1.70<br>4.32 | 0.20<br>0.51 | 1.300<br>3.302 | 1.050<br>2.667 | 0.25<br>0.64 | 0.25<br>0.64 |
| 6 | 1.00<br>2.54 | 1.10<br>2.79 | 0.55<br>1.40 | N/A<br>2 HOLES | 0.800<br>2.032 | 0.25<br>0.64 | 0.25<br>0.64 |

INCHES/CENTIMETERS
XX ±.03 XXX ±.010 / XX ±.08 XXX ±.025

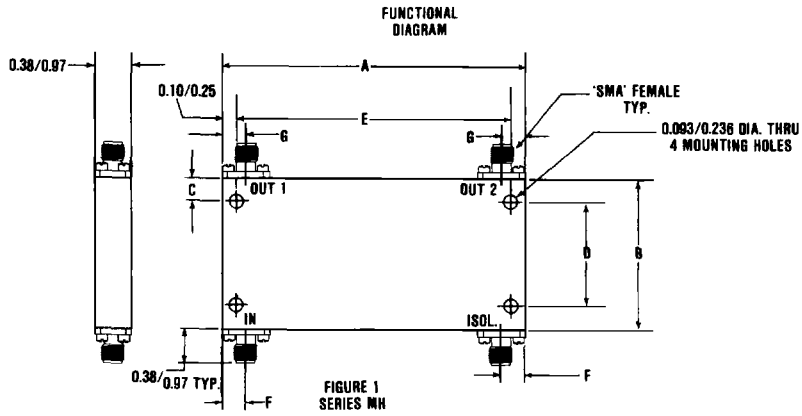
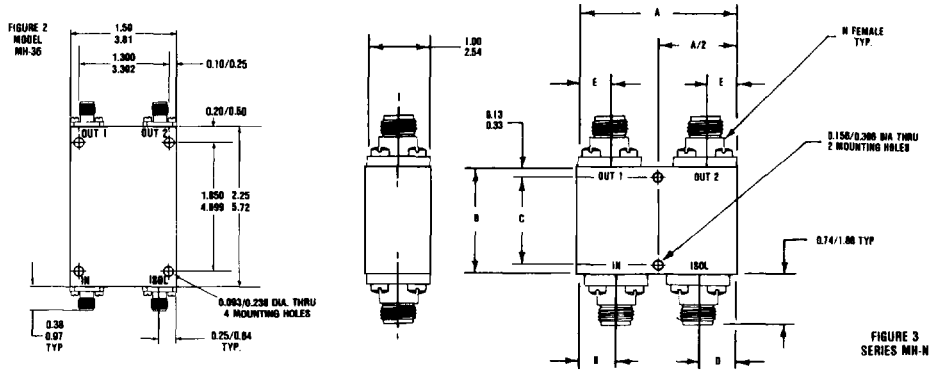



FIGURE 1
SERIES MH

## MECHANICAL OUTLINES—FIGURE 3
## N CONNECTOR SERIES MH-N

| Outline | A Inches cm | B Inches cm | C Inches cm | D Inches cm | E Inches cm |
|---|---|---|---|---|---|
| 1 | 4.50<br>11.43 | 3.00<br>7.62 | 2.750<br>6.940 | 0.50<br>1.27 | 0.50<br>1.27 |
| 2 | 3.70<br>9.39 | 1.70<br>4.32 | 1.450<br>3.680 | 0.63<br>1.60 | 0.50<br>1.27 |
| 3 | 2.05<br>5.21 | 1.70<br>4.32 | 1.450<br>3.680 | 0.50<br>1.27 | 0.63<br>1.60 |
| 4 | 2.50<br>6.35 | 1.70<br>4.32 | 1.450<br>3.680 | 0.63<br>1.60 | 0.50<br>1.27 |
| 5 | 2.00<br>5.08 | 1.50<br>3.81 | 1.250<br>3.180 | 0.50<br>1.27 | 0.50<br>1.27 |
| 6 | 2.00<br>5.08 | 1.00<br>2.54 | 0.750<br>1.910 | 0.50<br>1.27 | 0.50<br>1.27 |
| 7 | 2.00<br>5.08 | 2.50<br>6.35 | 2.250<br>5.715 | 0.50<br>1.27 | 0.50<br>1.27 |

INCHES/CENTIMETERS
XX ±.03 XXX ±.010 / XX ±.08 XXX ±.025

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