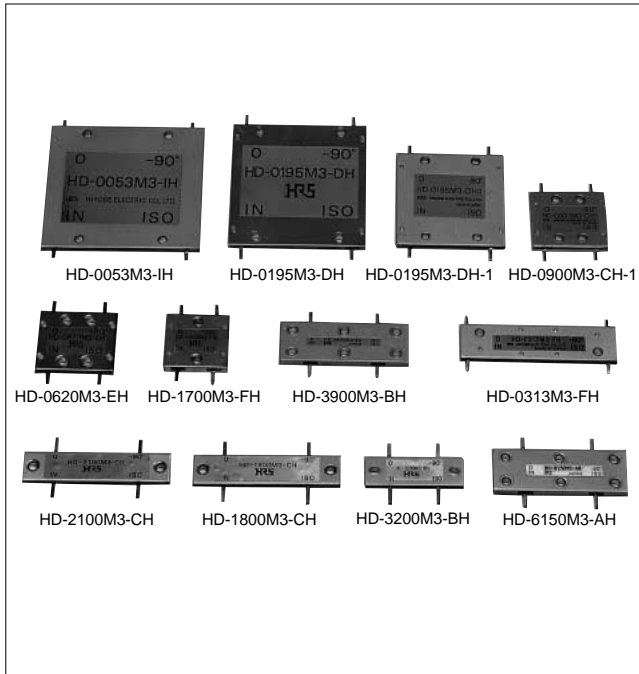


3 dB 90° Card Couplers

HD-M Series



■Features

1.High Performance

The high frequency characteristics feature. Extremely low loss and a high degree of matching.

2.Power Uniform Distribution and 90° Phase Difference Type

This is a one input, two output (or two input, one output) power uniform distribution type having a 90° phase difference between the two outputs (or two inputs).

3.Minature and Lightweight

Corrosion-resistant aluminum is used for the cover and the Hirose Electric original pattern design, which uses a stripline triplate method, enables the couplers to be extremely small and lightweight.

4.Equipped with Tabs

Tabs permit direct mounting to surface circuits.

5.High Power Type

This type can be used with up to 100 W of power.

■Product Specifications

Rating	Frequency range (NOTE) Characteristic impedance Maximum usable power (NOTE)	30 to 6400 MHz 50Ω 50 to 100 W	Operating temperature range Operating relative humidity	-10°C to +65°C 95% or less
--------	---	--------------------------------------	--	-------------------------------

NOTE: The frequency range and the maximum usable power will differ depending on the model.

Item	Standard	Conditions
1.Insulation resistance	500MΩ min	Measured at 100 V DC
2.Vibration resistance	No electrical disconnections of 1μs or greater No damage, cracks, or parts looseness	Frequency of 10 to 2000 Hz, overall amplitude of 1.52 mm, 98 m/s ² acceleration, in 3 axial directions, 2 hours each
3.Shock resistance	No electrical disconnections of 1μs or greater No damage, cracks, or parts looseness	490 m/s ² acceleration, half sine wave, in 3 axial directions, 3 times each
4.Temperature cycle	No damage, cracks, or parts looseness	(-55°C: 30 min. → 5 to 35°C: Within 15 min. → 80°C: 30 min. → 5 to 35°C: Within 15 min.)for 200 cycles
5.Corrosion resistance	No serious corrosion	Continuous immersion in 20% salt water for 48 hours
6.Hydrogen sulfide gas	No damage, cracks, or parts looseness	Continuous immersion in 10% potassium sulfide solution for 100 hours

●The test method conforms to MIL-STD-202.

●Please see the specification items for details concerning VSWR, coupling, frequency sensitivity, and directivity.

■Materials

Part	Material	Processing
Cover (A)	Stainless steel	—
Cover (B)	Aluminum	Conductive white Alumite
Board	Dielectric	Gold plating
Rivets	Aluminum	—
Eyelet	Brass	Nickel plating
Tabs	Phosphor bronze	Gold plating
Cover (A)	Stainless steel	—
Cover (B)	Stainless steel	—

Product Number Breakdown

HD-0195M 3 - D H - 1

① ② ③ ④ ⑤ ⑥

① Series Name: HD (Directional Couplers)	③ Degree of Coupling 3:3dB	⑤ Form H:H Type
② Center Frequency(MHz) Examples 0053M: 53MHz 0300M: 300MHz 6150M:6150MHz	④ Frequency Relative Bandwidth C:From 10% to below 15% D:From 15% to below 20% E:From 20% to below 25% F:From 25% to below 30% G:From 30% to below 35%	⑥ Suffix

Specifications

Model No.	(MHz) Frequency Range	(dB) Coupling	(dB) Frequency Sensitivity	(dB Min) Isolation	(Max) V.S.W.R.	(g) Weight	(W) Power	Fig
HD-0053M3-IH	30~76	3 ^{+0.35}	±0.75	15	1.40	22	100	1
HD-0070M3-GH	45~85	3 ^{+0.35}	±0.5	20	1.20	25	50	2
HD-0125M3-GH	80~160	3 ^{+0.3}	±0.5	20	1.20	22	100	2
HD-0155M3-IH	90~220	3 ^{+0.3}	±0.8	20	1.20	23	100	2
HD-0195M3-DH	160~230	3 ^{+0.3}	±0.5	20	1.20	22	100	2
HD-0195M3-DH-1	160~230	3 ^{+0.3}	±0.5	20	1.20	11	100	1
HD-0300M3-FH	225~400	3 ^{+0.3}	±0.5	20	1.20	10	100	2
HD-0300M3-FH-1	225~400	3 ^{+0.3}	±0.5	20	1.20	9	100	1
HD-0313M3-FH	225~400	3 ^{+0.3}	±0.5	20	1.20	6	100	3
HD-0430M3-CH	360~470	3 ^{+0.3}	±0.3	20	1.20	10	100	2
HD-0620M3-EH	470~770	3 ^{+0.3}	±0.5	20	1.20	6	100	2
HD-0660M3-GH	470~880	3 ^{+0.3}	±0.6	19	1.20	6	100	2

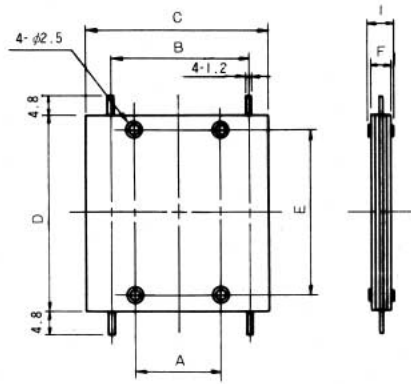
■ Specifications

Model No.	(MHz) Frequency Range.	(dB) Coupling	(dB) Frequency Sensitivity	(dB Min) Isolation	(Max) V.S.W.R.	(g) Weight	(W) Power	Fig
HD-0660M3-GH-1	440~880	$3^{+0.35}$	± 0.6	20	1.20	6	100	1
HD-0700M3-FH	500~900	$3^{+0.3}$	± 0.5	20	1.20	6	100	2
HD-0750M3-GH	500~1,000	$3^{+0.3}$	± 0.5	20	1.20	5	100	1
HD-0900M3-CH	800~1,000	$3^{+0.3}$	± 0.3	20	1.20	6	100	2
HD-0900M3-CH-1	800~1,000	$3^{+0.3}$	± 0.3	20	1.20	6	100	1
HD-0900M3-CH-2	800~1,000	$3^{+0.3}$	± 0.3	20	1.20	6	100	3
HD-1500M3-GH	1,000~2,000	$3^{+0.3}$	± 0.6	20	1.25	4	100	4
HD-1700M3-FH	1,200~2,200	$3^{+0.3}$	± 0.5	20	1.20	5	50	5
HD-1800M3-CH	1,600~2,000	$3^{+0.3}$	± 0.3	20	1.20	3	50	6
HD-1900M3-CH	1,700~2,100	$3^{+0.3}$	± 0.3	20	1.20	3	50	6
HD-2100M3-CH	1,900~2,300	$3^{+0.3}$	± 0.3	20	1.20	3	50	6
HD-2400M3-BH	2,200~2,600	$3^{+0.4}$	± 0.5	20	1.20	3	100	8
HD-2500M3-BH	2,300~2,700	$3^{+0.4}$	± 0.3	21	1.25	3	100	6
HD-3200M3-BH	3,000~3,400	$3^{+0.4}$	± 0.3	18	1.30	3	100	6
HD-3900M3-BH	3,600~4,200	$3^{+0.4}$	± 0.5	18	1.30	7	100	7
HD-6150M3-AH	5,900~6,400	$3^{+0.4}$	± 0.5	18	1.30	7	100	7

● There is a 90° phase difference between the output and the coupling.

● The VSWR has a common standard for both the primary line and the secondary line.

External Dimensions



Mounting Holes Diagram

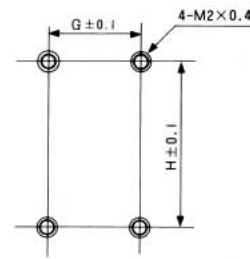
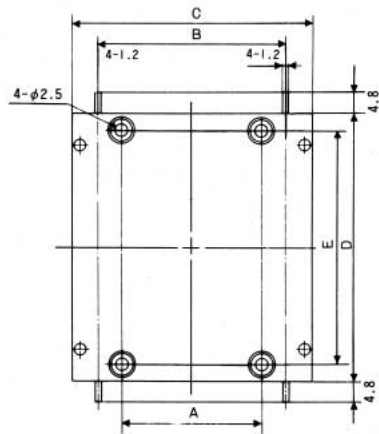


Fig1

Product No.	A	B	C	D	E	F	G	H	I
HD-0053M3-IH	28.0	44.5	53.3	50.8	44.5	3.2	28.0	44.5	3.6
HD-0195M3-DH-I	17.3	26.9	36.3	38.1	31.8	2.9	17.3	31.8	3.3
HD-0300M3-FH-I	12.7	21.8	31.8	31.8	25.4	3.1	12.7	25.4	3.5
HD-0660M3-GH-I	7.9	17.8	25.4	25.4	19.1	3.1	7.9	19.1	3.5
HD-0750M3-GH	8.0	16.8	25.4	22.2	15.9	3.2	8.0	15.9	3.6
HD-0900M3-CH-I	8.0	17.0	25.5	22.5	15.9	3.4	8.0	15.9	3.8



Mounting Holes Diagram

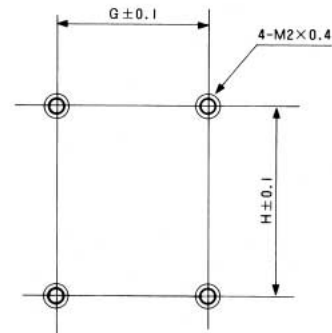


Fig2

Product No.	A	B	C	D	E	F	G	H
HD-0900M3-CH	8.0	17.0	25.5	22.5	15.9	3.0	8.0	15.9
HD-0620M3-EH	8.0	17.0	25.5	22.5	15.9	3.1	8.0	15.9
HD-0430M3-CH	12.8	21.8	32.0	32.0	25.4	3.0	12.8	25.4
HD-0300M3-FH	12.8	21.8	32.0	32.0	25.4	3.2	12.8	25.4
HD-0195M3-DH	28.0	37.1	46.1	51.0	44.5	3.0	28.0	44.5
HD-0155M3-IH	28.0	37.1	46.1	51.0	44.5	3.4	28.0	44.5
HD-0125M3-GH	28.0	37.1	46.1	51.0	44.5	3.2	28.0	44.5
HD-0070M3-GH	28.0	44.5	53.5	51.0	44.5	3.2	28.0	44.5
HD-0660M3-GH	8.0	17.0	25.5	22.5	15.9	3.3	8.0	15.9
HD-0700M3-FH	8.0	17.0	25.5	22.5	15.9	3.1	8.0	15.9

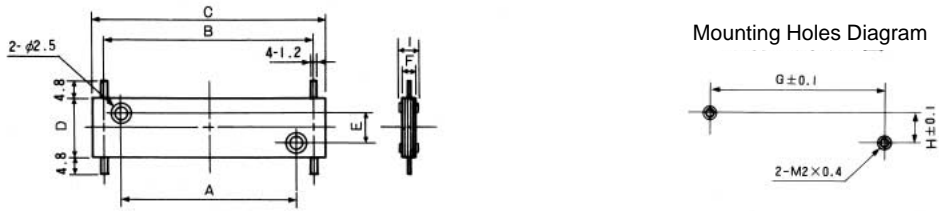


Fig3

Product No.	A	B	C	D	E	F	G	H	I
HD-0313M3-FH	38.1	45.7	50.8	12.7	6.4	3.2	38.1	6.4	3.6
HD-0900M3-CH-2	38.1	45.7	50.8	12.7	6.4	3.2	38.1	6.4	3.6

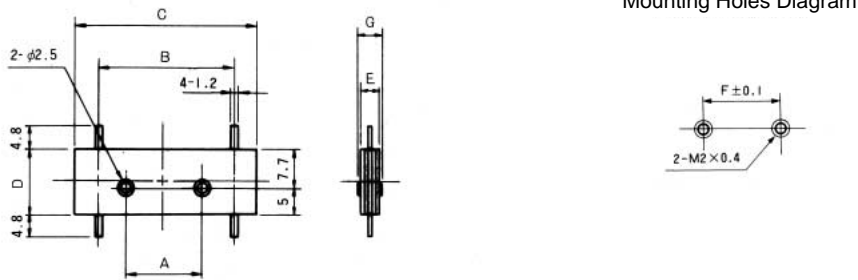


Fig4

Product No.	A	B	C	D	E	F	G
HD-1500M3-GH	14.0	26.7	34.3	12.7	3.2	14.0	3.6

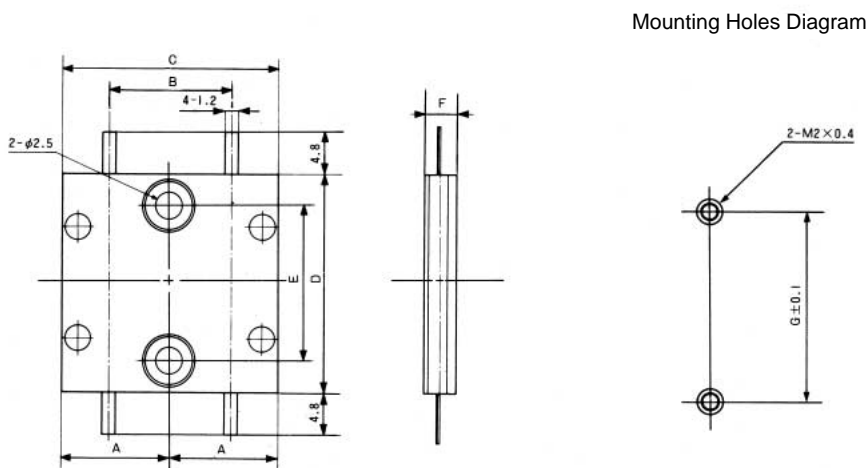


Fig5

Product No.	A	B	C	D	E	F	G
HD-1700M3-FH	10.35	11.7	20.7	20.7	14.3	3.3	14.3

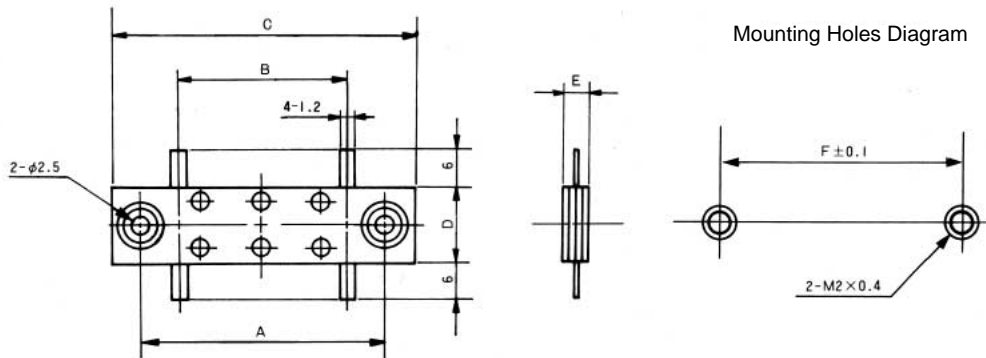


Fig6

Product No.	A	B	C	D	E	F
HD-2100M3-CH	40.2	26.8	46.6	10.0	2.8	40.2
HD-1900M3-CH	40.2	26.8	46.6	10.0	2.8	40.2
HD-1800M3-CH	40.2	26.8	46.6	10.0	2.8	40.2
HD-3200M3-BH	25.1	15.1	31.1	10.0	3.3	25.1
HD-2500M3-BH	40.2	26.8	46.6	10.0	3.1	40.2

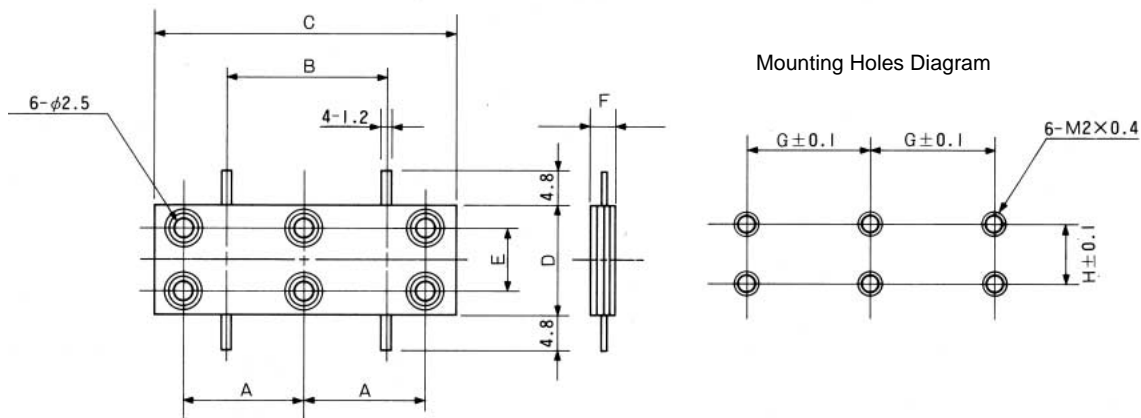
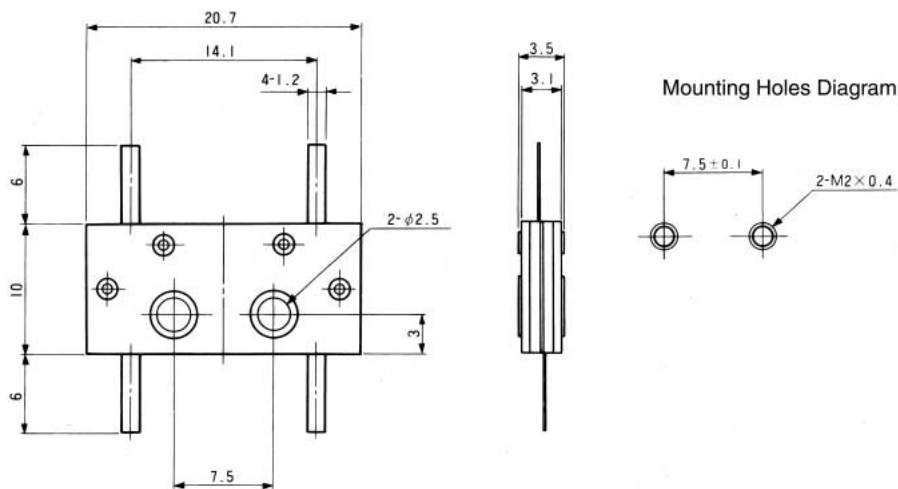


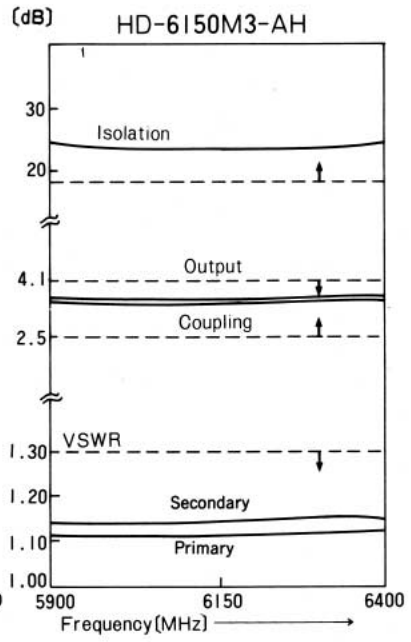
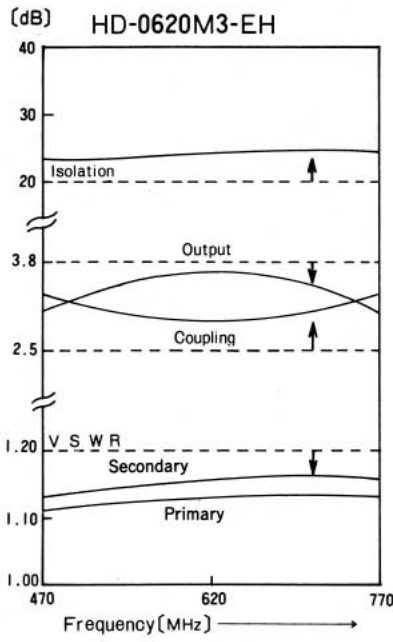
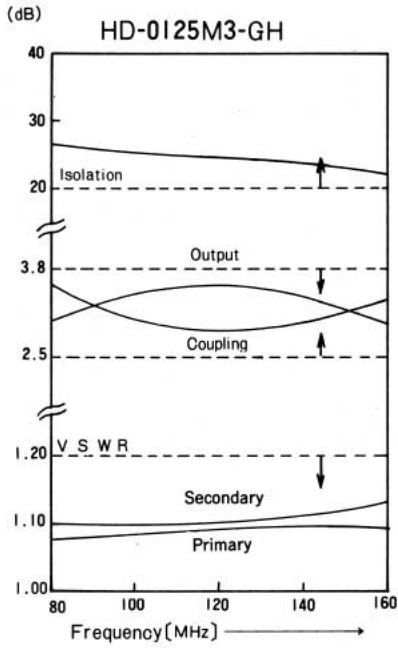
Fig7

Product No.	A	B	C	D	E	F	G	H
HD-3900M3-BH	17	22	42	15	8.5	3.2	17	8.5
HD-6150M3-AH	17	22	42	15	8.5	3.2	17	8.5



HD-2400M3-BH
Fig8

■ Typical Data



Temperature Test Data
<HD-1800M3-CH>

