

MICROWAVE COMPONENTS

30 to
6400MHz

3dB 90° Card Couplers

CL 352

◆ GENERAL FEATURES

The 3 dB 90° Card Couplers have a special flat circuit design using the triplate-type stripline method. They are extremely compact. Directional couplers can be mounted directly on flat circuits. The case, made from corrosion-resistant aluminum, is compact,

light and extremely inexpensive. Both front and back of the device can be used, according to the thickness of the board on which it is mounted. The input signal is divided into two outputs, COUPLING and OUTPUT, one at 0° phase and the other at 90° phase.

◆ MATERIAL • FINISH

Part name	Material	Finish
Case	Stainless steel	
Case	Aluminum	Conductive White Alumite
P.C.Board	Dielectric	Gold plated
Rivet	Aluminum	
Eyelet	Brass	Nickel plated
Tab	Phosphor Bronze	Gold plated
Cover	Stainless steel	
Cover	Stainless steel	

◆ OPERATIONAL ENVIRONMENT

Operating temperature; $-10^{\circ}\text{C} \sim +65^{\circ}\text{C}$

Humidity; $\sim 95\%$

◆ TEST ENVIRONMENT

Vibration resistance; 10~55Hz

Total amplitude; 1.5mm 55~2000Hz 98m/s²

Temperature resistance; $-55^{\circ}\text{C} \sim +80^{\circ}\text{C}$

Impulse resistance; 490m/s²

Testing Method per MIL-STD-202

Corrosion resistance;

Salt spray test; 20% salt, 48hours

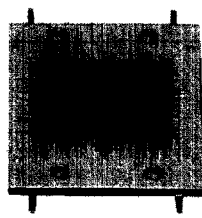
Sulfidized gas test; 10% liquid potassium, 100hours



HD-0053M3-IH



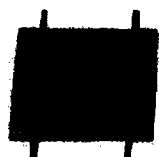
HD-0195M3-DH



HD-0195M3-DH-1



HD-0900M3-CH-1



HD-0620M3-EH



HD-1700M3-FH



HD-3900M3-BH



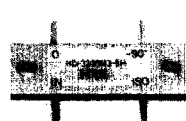
HD-0313M3-FH



HD-2100M3-CH



HD-1800M3-CH



HD-3200M3-BH



HD-6150M3-AH

◆ SPECIFICATIONS

Model No.	Frequency Range (MHz)	Coupling (dB)	Frequency Sensitivity (dB)	Isolation (dB Min)	VSWR (Max)	Weight (g)	Power (W)	Fig
HD-0053 M3-IH	30 ~ 76	$3^{+0.35}_0$	± 0.75	15	1.40	22	100	1
HD-0070 M3-GH	45 ~ 85	$3^{+0.3}_0$	± 0.5	20	1.20	25	50	2
HD-0125 M3-GH	80 ~ 160	$3^{+0.3}_0$	± 0.5	20	1.20	22	100	2
HD-0155 M3-IH	90 ~ 220	$3^{+0.3}_0$	± 0.8	20	1.20	23	100	2
HD-0195 M3-DH	160 ~ 230	$3^{+0.3}_0$	± 0.5	20	1.20	22	100	2
HD-0195 M3-DH-1	160 ~ 230	$3^{+0.3}_0$	± 0.5	20	1.20	11	100	1
HD-0300 M3-FH	225 ~ 400	$3^{+0.3}_0$	± 0.5	20	1.20	10	100	2
HD-0300 M3-FH-1	225 ~ 400	$3^{+0.3}_0$	± 0.5	20	1.20	9	100	1
HD-0313 M3-FH	225 ~ 400	$3^{+0.3}_0$	± 0.5	20	1.20	6	100	3
HD-0430 M3-CH	360 ~ 470	$3^{+0.3}_0$	± 0.3	20	1.20	10	100	2
HD-0620 M3-EH	470 ~ 770	$3^{+0.3}_0$	± 0.5	20	1.20	6	100	2
HD-0660 M3-GH	440 ~ 880	$3^{+0.3}_0$	± 0.6	19	1.20	6	100	2
HD-0660 M3-GH-1	440 ~ 880	$3^{+0.3}_0$	± 0.6	20	1.20	6	100	1
HD-0700 M3-FH	500 ~ 900	$3^{+0.3}_0$	± 0.5	20	1.20	6	100	2

MICROWAVE COMPONENTS

Model No.	Frequency Range (MHz)	Coupling (dB)	Frequency Sensitivity (dB)	Isolation (dB Min)	VSWR (Max)	Weight (g)	Power (W)	Fig
HD-0750 M3-GH	500~1000	3 $^{+0.3}_0$	± 0.5	20	1.20	5	100	1
HD-0900 M3-CH	800~1000	3 $^{+0.3}_0$	± 0.3	20	1.20	6	100	2
HD-0900 M3-CH-1	800~1000	3 $^{+0.3}_0$	± 0.3	20	1.20	6	100	1
HD-0900 M3-CH-2	800~1000	3 $^{+0.3}_0$	± 0.3	20	1.20	6	100	3
HD-1500 M3-GH	1000~2000	3 $^{+0.3}_0$	± 0.6	20	1.25	4	100	4
HD-1700 M3-FH	1200~2200	3 $^{+0.3}_0$	± 0.5	20	1.20	5	50	5
HD-1800 M3-CH	1600~2000	3 $^{+0.3}_0$	± 0.3	20	1.20	3	50	6
HD-1900 M3-CH	1700~2100	3 $^{+0.3}_0$	± 0.3	20	1.20	3	50	6
HD-2100 M3-CH	1900~2300	3 $^{+0.3}_0$	± 0.3	20	1.20	3	50	6
HD-2400 M3-BH	2200~2600	3 $^{+0.4}_0$	± 0.5	20	1.20	3	100	8
HD-2500 M3-BH	2300~2700	3 $^{+0.4}_0$	± 0.3	21	1.25	3	100	6
HD-3200 M3-BH	3000~3400	3 $^{+0.4}_0$	± 0.3	18	1.30	3	100	6
HD-3900 M3-BH	3600~4200	3 $^{+0.4}_0$	± 0.5	18	1.30	7	100	7
HD-6150 M3-AH	5900~6400	3 $^{+0.6}_0$	± 0.5	18	1.30	7	100	7

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

● The voltage standing wave ratio (VSWR) is applicable to both the main line and sub-line.

◆ DIMENSIONS

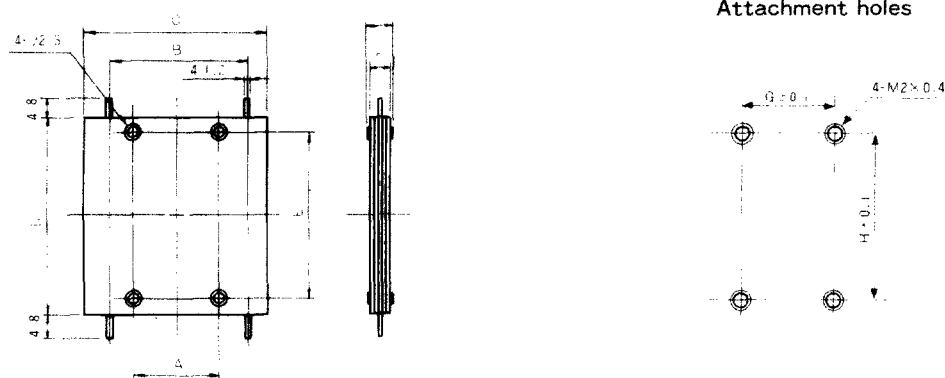


Fig 1

Part 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

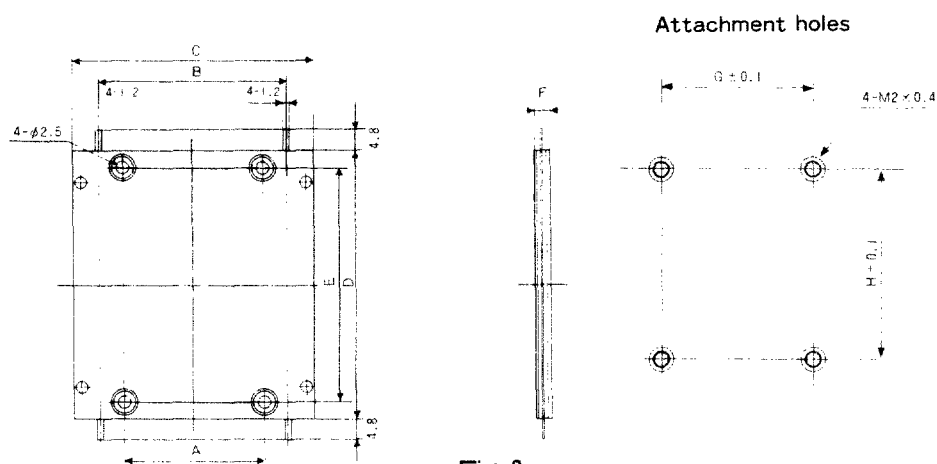
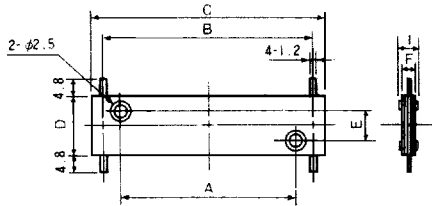


Fig 2

Part 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

◆ DIMENSIONS



Attachment holes

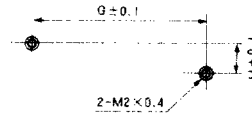
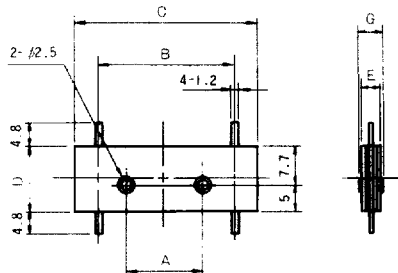


Fig 3

Part 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



Attachment holes

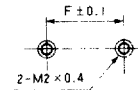
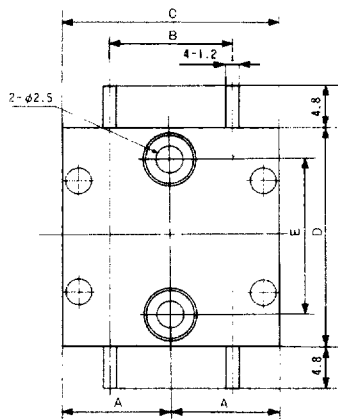


Fig 4

Part 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



Attachment holes

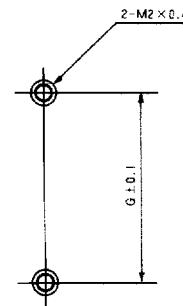


Fig 5

Part 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

◆ DIMENSIONS

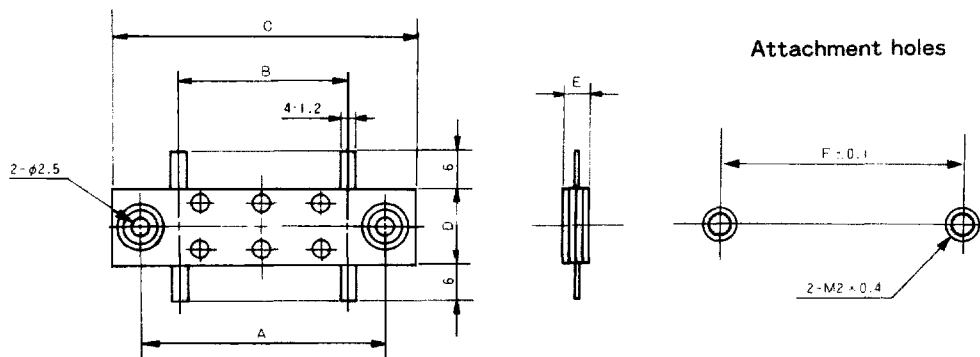


Fig 6

Part 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

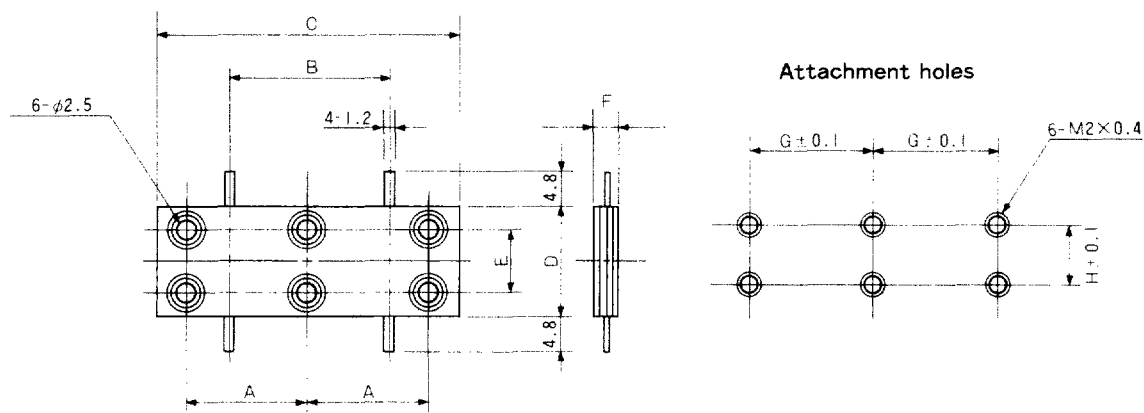
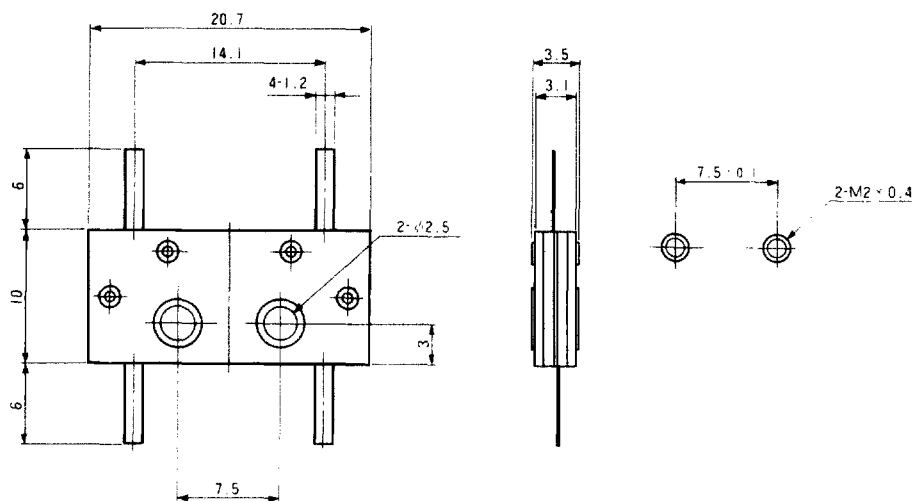


Fig 7

Part 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

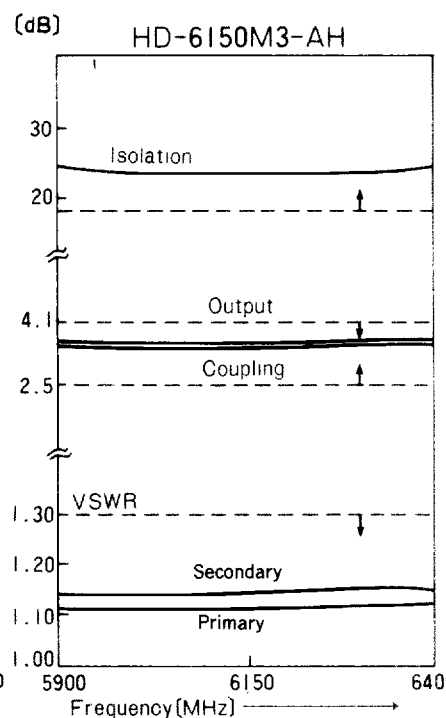
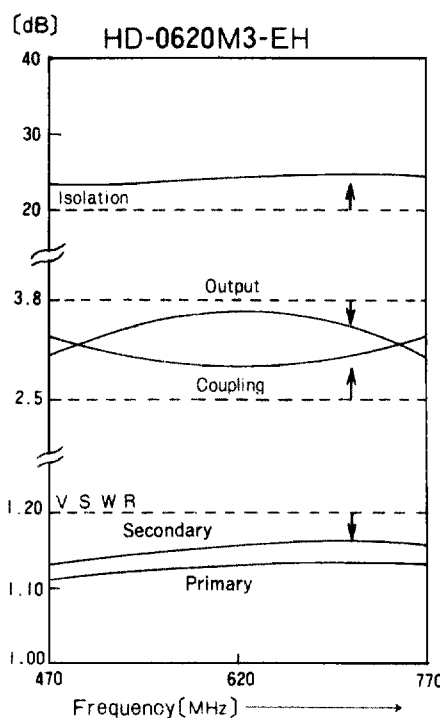
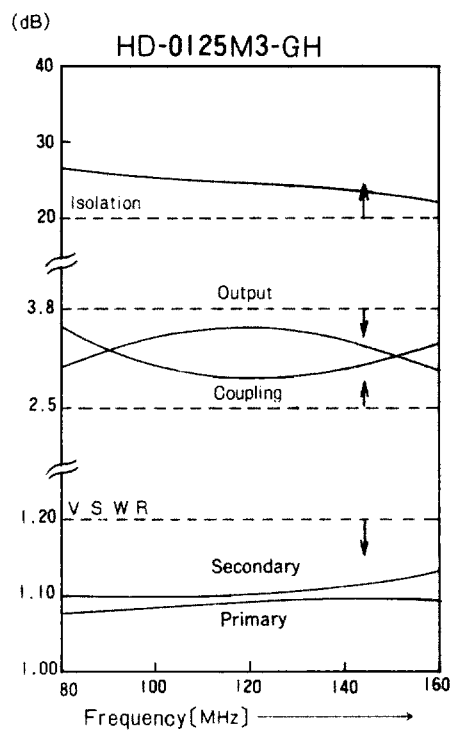
◆ DIMENSIONS



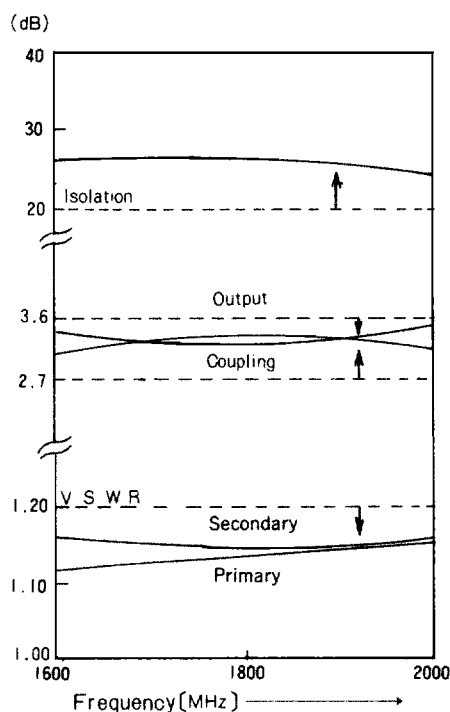
HD-2400M3-BH

Fig8

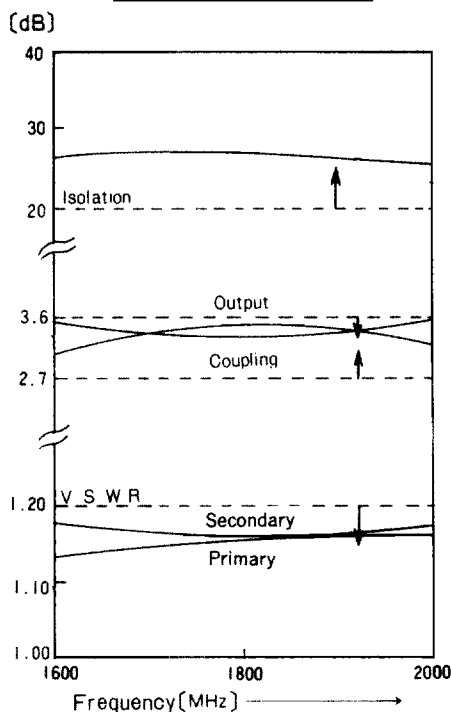
◆ (Typical) DATA



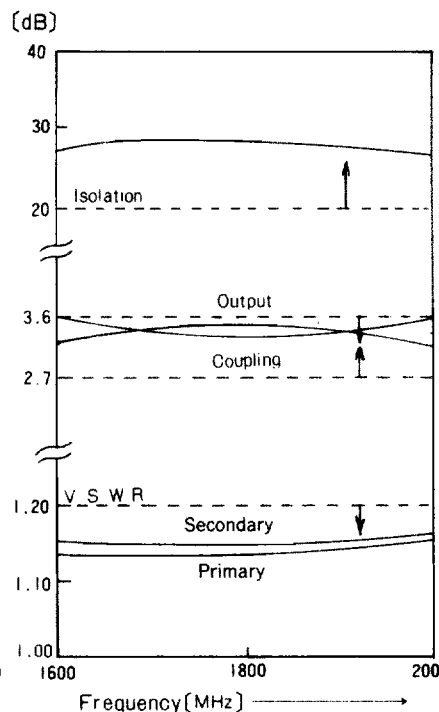
TEMPERATURE TESTING DATA <HD-1800M3-CH>



(-10°C)



(+20°C)



(+65°C)