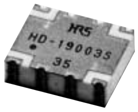
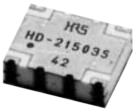
Subminiature ceramic couplers (suited to SMT)

HD-S Series


HD-19003S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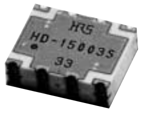
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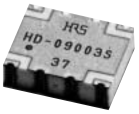

HD-09003S


HD-20003SH

■Features

1.Subminiature design

Hirose Electric's expertise in miniaturization and matching technology has permitted a subminiature, lightweight design.

2.High performance

The high frequency characteristics feature extremely low loss and a high degree of matching which makes these couplers ideal for a wide variety of wireless phone base station applications.

3.Suited to Automatic Mounting

Embossed tape packaging permits automatic mounting.(Individual delivery can also be accommodated.)

■Product specifications

Rating	Frequency range (NOTE) Characteristic impedance Maximum usable power (NOTE)	800 to 2300 MHz 50Ω 10 to 50 W	Operating temperature range Operating relative humidity	−10℃ to +65℃ 95% or less

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

Item	Standard	Conditions
1.Insulation resistance	1000 MΩ min.	Measured at 100 V DC
2.Vibration resistance	No electrical disconnections of 1μs or greater Contact resistance: 1000 mΩ max. No damage, cracks, or parts looseness	Frequency of 10 to 500 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 Contact resistance: 1000 mΩ max. No damage, cracks, or parts looseness	980 m/s^2 acceleration, half sine wave, in 3 axial directions, 3 times each
4.Temperature cycle	Contact resistance: 1000 mΩ or less Insulation resistance: 1000 MΩ min. No damage, cracks, or parts loosenes	(−55℃: 30 min. → 5 to 35℃: Within 15 min. → 85℃: 30 min. → 5 to 35℃: Within 15min.) for 200 cycles

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

■Materials

Part	Material	Processing
Case	Ceramic	Solder plating

■Production number breakdown

HD - 090 03 S

❶ ❷ ❸ ❹

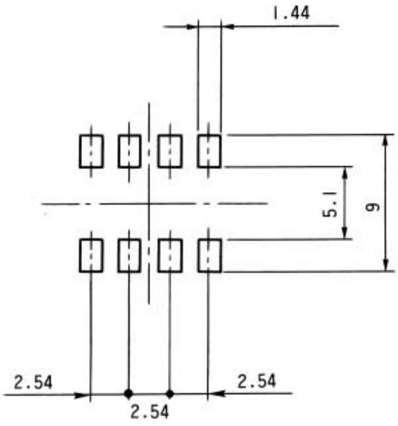
❶ Series Name: HD (Directional Couplers)

❷ Center Frequency
090 : 900MHz
150 : 1500MHz
190 : 1900MHz
200 : 2000MHz
215 : 2150MHz

❸ Degree of Coupling
03 : 3dB
10 : 10dB
16 : 16dB
21 : 21dB
23 : 23dB

❹ Board Mounting Method
S : SMT
SH : SMT High Power

■Recommended board pattern



●Resist processing should be performed around the electrode pads.

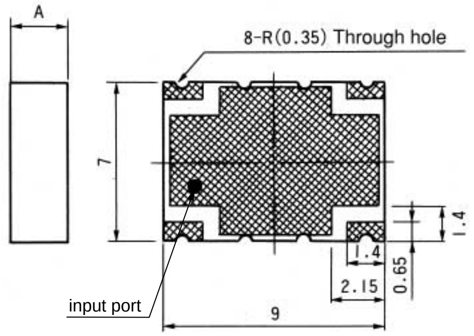
■Specifications

Model No.	(MHz) Frequency Range	(dB) Coupling	Frequency Sensitivity	(dBMax) Insertion Loss	(dB Min) Isolation	(dB Min) Directivity	(Max) V.S.W.R.	(g) Weight	(W) Power
HD-09003S	800～1000	$3^{+0.4}_{0}$	±0.35	—	20	—	1.22	0.6	10
HD-09010S	840～ 960	10±1	±0.4	0.4	—	15	1.3	0.6	20
HD-09016S	840～ 960	16±1	±0.4	0.4	—	15	1.3	0.6	20
HD-09023S	840～ 960	23±1	±0.4	0.4	—	15	1.3	0.6	20
HD-15003S	1400～1600	$3^{+0.4}_{0}$	±0.35	—	20	—	1.2	0.6	10
HD-15010S	1400～1600	11±1	±0.4	0.4	—	15	1.25	0.6	20
HD-15016S	1400～1600	16±1	±0.4	0.4	—	10	1.35	0.6	20
HD-15021S	1400～1600	21±1	±0.4	0.4	—	10	1.35	0.6	20
HD-19003S	1850～1950	$3^{+0.4}_{0}$	±0.5	—	20	—	1.2	0.6	20
HD-21503S	1900～2300	$3^{+0.4}_{0}$	±0.5	—	20	—	1.25	0.6	20
HD-20003SH	1900～2200	$3^{+0.4}_{0}$	±0.4	—	20	—	1.25	0.7	50

●The coupling loss component is not included in the insertion loss. ●There is a 90° phase difference between the output and the coupling.
●When ordering embossed tape packaged items, affix (06) to the end of the product number. One reel contains 1,000 pieces.

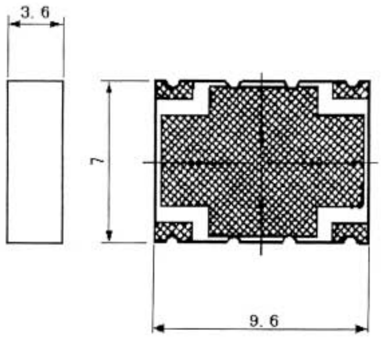
■External dimensions

HD-09003S HD-09023S HD-15016S HD-21503S
HD-09010S HD-15003S HD-15021S
HD-09016S HD-15010S HD-19003S

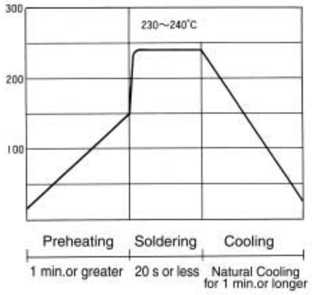


Degree of Coupling	A
3dB	2.6
10dB	1.6
16dB	1.6
21dB	1.8
23dB	1.8

HD-20003SH



■Usage precautions

1.Soldering (1)Recommended temperature profile	 ①Up to two cycles are permitted at the same conditions provided that the item is at room temperature between the first and second cycle. ②The temperature indicates the board surface temperature of the contact lead portion. ③Reflow soldering should be performed at a peak temperature of 240℃ or less at the surface of the printed circuit board. ④The temperature profile will change depending on the conditions which include board size, solder used, and solder thickness.
(2)Recommended hand soldering conditions	Soldering iron temperature: 350℃,Soldering time: Within 5 s
(3)Recommended screen thickness	0.15 mm
2.Product Storage	①After opening the package reseal promptly or store in a desiccator with a desiccant. ②Store in a place that is not exposed to harmful gases which include sulfur or chlorine, etc. ③Use within one year of delivery.