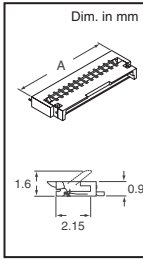


**HRS HIROSE ELECTRIC CO., LTD. High Density FFC/FPC Connectors (Cont.)**

**FH19(C) and FH19S(C) Series Flex Connectors (0.5mm Pitch) Flat Flex Cable and Flexible Printed Circuit**

**Features:** • Conductive traces on the PCB can be designed to run under the connector. The bottom surface of the connector is solid, without any exposure of the contact. • Accepts 0.2mm and 0.3mm thick FPC and FFC, easily inserted in the connector. • The connector will also terminate successfully with 0.2mm thick Flat Flexible Cable (FFC) **Applications:** • Notebook PC's, PDAs, digital cameras and other compact devices requiring interconnection of the main circuit board with the LCD, plasma display (PDP), HDD or other devices



**Specifications:** • Current Rating: 0.5A DC • Voltage Rating: 50VAC • Operating Temperature: -55°C - 85°C • Operating Humidity Range: Relative humidity 90% maximum (No condensation) • Insulation Resistance: 500MΩ minimum @ 100VDC • Contact Resistance: 100mΩ maximum @ 1mA (including FPC/FFC conductor resistance) • FH19(C) Series: Thickness: 0.2 ± 0.03mm tin or gold plating\* • FH19S(C) Series: Thickness: 0.3 ± 0.03mm tin or gold plating\*

**Materials:** • Insulators: LCP; beige; PPS; FH19(C) Series: dark brown, FH19S(C) Series: black; all UL94V-0 • Contacts: Phosphor Bronze, gold flash or tin plating\* • Metal fittings: Phosphor bronze, pure tin reflow plating

\* Note: When FPC is gold plated, connector contacts should also be gold plated

No. of Pos.	Dim. A (mm)	Digi-Key Part No.	Cut Tape Price Each				T&R Pricing † 5,000	Hirose Part No.
			1	10	100	250		
9	6.5	HFN09CT-ND	1.67	1.39	1.03	.86	643.00/M	FH19-9S-0.5SH(51)
13	8.5	HFN13CT-ND	1.82	1.51	1.12	.93	699.00/M	FH19-13S-0.5SH(51)
17	10.5	HFN17CT-ND	1.91	1.59	1.18	.98	734.00/M	FH19-17S-0.5SH(51)
20	12.0	HFN20CT-ND	2.03	1.69	1.26	1.04	783.00/M	FH19-20S-0.5SH(51)
30	17.0	HFN30CT-ND	2.39	1.99	1.47	1.23	—	FH19-30S-0.5SH(51)
9	6.5	HFN109CT-ND†	1.80	1.50	1.11	.93	694.00/M	FH19-9S-0.5SH(05)
13	8.5	HFN113CT-ND†	2.01	1.67	1.24	1.03	771.00/M	FH19-13S-0.5SH(05)
17	10.5	HFN117CT-ND†	2.16	1.80	1.33	1.11	830.00/M	FH19-17S-0.5SH(05)
20	12.0	HFN120CT-ND†	2.33	1.94	1.44	1.19	895.00/M	FH19-20S-0.5SH(05)
30	17.0	HFN130CT-ND†	2.83	2.36	1.75	1.45	1089.00/M	FH19-30S-0.5SH(05)
12	8.0	HFN212CT-ND	1.75	1.45	1.08	.90	671.00/M	FH19S-12S-0.5SH(51)
17	10.5	HFN217CT-ND	1.91	1.59	1.18	.98	734.00/M	FH19S-17S-0.5SH(51)
18	11.0	HFN218CT-ND	1.97	1.64	1.22	1.01	758.00/M	FH19S-18S-0.5SH(51)
20	12.0	HFN220CT-ND	2.03	1.69	1.26	1.04	783.00/M	FH19S-20S-0.5SH(51)
22	13.0	HFN222CT-ND	2.11	1.75	1.30	1.08	810.00/M	FH19S-22S-0.5SH(51)
24	14.0	HFN224CT-ND	2.18	1.81	1.34	1.12	—	FH19S-24S-0.5SH(51)
26	15.0	HFN226CT-ND	2.26	1.88	1.39	1.16	—	FH19S-26S-0.5SH(51)
27	15.5	HFN227CT-ND	2.31	1.93	1.43	1.19	890.00/M	FH19S-27S-0.5SH(51)
12	8.0	HFN312CT-ND†	1.92	1.60	1.19	.99	740.00/M	FH19S-12S-0.5SH(05)
17	10.5	HFN317CT-ND†	2.16	1.80	1.33	1.11	830.00/M	FH19S-17S-0.5SH(05)
18	11.0	HFN318CT-ND†	2.24	1.86	1.38	1.15	860.00/M	FH19S-18S-0.5SH(05)
20	12.0	HFN320CT-ND†	2.33	1.94	1.44	1.19	—	FH19S-20S-0.5SH(05)

No. of Pos.	Dim. A (mm)	Digi-Key Part No.	Cut Tape Price Each				T&R Pricing † 5,000	Hirose Part No.
			1	10	100	250		
22	13.0	HFN322CT-ND†	2.43	2.02	1.50	1.24	934.00/M	FH19S-22S-0.5SH(05)
24	14.0	HFN324CT-ND†	2.53	2.11	1.56	1.30	974.00/M	FH19S-24S-0.5SH(05)
26	15.0	HFN326CT-ND†	2.64	2.20	1.63	1.35	1016.00/M	FH19S-26S-0.5SH(05)
27	15.5	HFN327CT-ND†	2.71	2.26	1.67	1.39	1043.00/M	FH19S-27S-0.5SH(05)
50	27.0	HFN350CT-ND†	3.60	2.98	2.24	1.80	1550.00/M	FH19S-50S-0.5SH(05)

**Improved Actuator Design — RoHS Compliant**

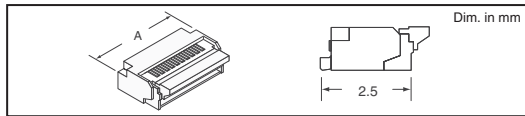
No. of Pos.	Dim. A (mm)	Digi-Key Part No.	Cut Tape Price Each				T&R Pricing † 5,000	Hirose Part No.
			1	10	100	250		
4	4.0	HFN404CT-ND	1.56	1.28	.93	.78	523.00/M	FH19C-4S-0.5SH(05)
6	5.0	HFN406CT-ND	1.67	1.37	.99	.84	561.00/M	FH19C-6S-0.5SH(05)
7	5.5	HFN407CT-ND	1.75	1.43	1.04	.88	587.00/M	FH19C-7S-0.5SH(05)
8	6.0	HFN408CT-ND	1.79	1.46	1.06	.90	599.00/M	FH19C-8S-0.5SH(05)
9	6.5	HFN409CT-ND	1.82	1.49	1.08	.92	612.00/M	FH19C-9S-0.5SH(05)
10	7.0	HFN410CT-ND	1.86	1.52	1.11	.94	625.00/M	FH19C-10S-0.5SH(05)
12	8.0	HFN412CT-ND	1.69	1.41	1.04	.87	650.00/M	FH19C-12S-0.5SH(05)
13	8.5	HFN413CT-ND	1.76	1.46	1.08	.90	675.00/M	FH19C-13S-0.5SH(05)
15	9.5	HFN415CT-ND	1.82	1.52	1.12	.93	700.00/M	FH19C-15S-0.5SH(05)
17	10.5	HFN417CT-ND	1.89	1.57	1.16	.97	725.00/M	FH19C-17S-0.5SH(05)
20	12.0	HFN420CT-ND	2.02	1.68	1.24	1.03	775.00/M	FH19C-20S-0.5SH(05)
21	12.5	HFN421CT-ND	2.08	1.73	1.28	1.07	800.00/M	FH19C-21S-0.5SH(05)
24	14.0	HFN424CT-ND	2.21	1.84	1.36	1.13	850.00/M	FH19C-24S-0.5SH(05)
27	15.5	HFN427CT-ND	2.34	1.95	1.44	1.20	900.00/M	FH19C-27S-0.5SH(05)
30	17.0	HFN430CT-ND	2.47	2.06	1.52	1.27	950.00/M	FH19C-30S-0.5SH(05)
4	4.0	HFN504CT-ND	1.56	1.28	.93	.78	523.00/M	FH19SC-4S-0.5SH(05)
5	4.5	HFN505CT-ND	1.63	1.34	.97	.82	548.00/M	FH19SC-5S-0.5SH(05)
6	5.0	HFN506CT-ND	1.67	1.37	.99	.84	561.00/M	FH19SC-6S-0.5SH(05)
8	6.0	HFN508CT-ND	1.79	1.46	1.06	.90	599.00/M	FH19SC-8S-0.5SH(05)
9	6.5	HFN509CT-ND	1.82	1.49	1.08	.92	612.00/M	FH19SC-9S-0.5SH(05)
10	7.0	HFN510CT-ND	1.86	1.52	1.11	.94	625.00/M	FH19SC-10S-0.5SH(05)
12	8.0	HFN512CT-ND	1.69	1.41	1.04	.87	650.00/M	FH19SC-12S-0.5SH(05)
13	8.5	HFN513CT-ND	1.76	1.46	1.08	.90	675.00/M	FH19SC-13S-0.5SH(05)
14	9.0	HFN514CT-ND	1.76	1.46	1.08	.90	675.00/M	FH19SC-14S-0.5SH(05)
15	9.5	HFN515CT-ND	1.82	1.52	1.12	.93	700.00/M	FH19SC-15S-0.5SH(05)
16	10.0	HFN516CT-ND	1.85	1.54	1.14	.95	713.00/M	FH19SC-16S-0.5SH(05)
17	10.5	HFN517CT-ND	1.89	1.57	1.16	.97	725.00/M	FH19SC-17S-0.5SH(05)
18	11.0	HFN518CT-ND	1.95	1.62	1.20	1.00	750.00/M	FH19SC-18S-0.5SH(05)
20	12.0	HFN520CT-ND	2.02	1.68	1.24	1.03	775.00/M	FH19SC-20S-0.5SH(05)
21	12.5	HFN521CT-ND	2.08	1.73	1.28	1.07	800.00/M	FH19SC-21S-0.5SH(05)
22	13.0	HFN522CT-ND	2.11	1.76	1.30	1.08	813.00/M	FH19SC-22S-0.5SH(05)
24	14.0	HFN524CT-ND	2.21	1.84	1.36	1.13	850.00/M	FH19SC-24S-0.5SH(05)
26	15.0	HFN526CT-ND	2.31	1.92	1.42	1.18	888.00/M	FH19SC-26S-0.5SH(05)
27	15.5	HFN527CT-ND	2.34	1.95	1.44	1.20	900.00/M	FH19SC-27S-0.5SH(05)
28	16.0	HFN528CT-ND	2.37	1.98	1.46	1.22	913.00/M	FH19SC-28S-0.5SH(05)
30	17.0	HFN530CT-ND	2.47	2.06	1.52	1.27	950.00/M	FH19SC-30S-0.5SH(05)
32	18.0	HFN532CT-ND	2.54	2.11	1.56	1.30	975.00/M	FH19SC-32S-0.5SH(05)
40	22.0	HFN540CT-ND	3.09	2.57	1.90	1.58	1188.00/M	FH19SC-40S-0.5SH(05)
45	24.5	HFN545CT-ND	2.96	2.45	1.84	1.48	1275.00/M	FH19SC-45S-0.5SH(05)
50	27.0	HFN550CT-ND	3.13	2.60	1.95	1.57	1350.00/M	FH19SC-50S-0.5SH(05)

† Gold Plating ♦ RoHS Compliant ‡ For Tape and Reel part number, change CT-ND to TR-ND.

**0.5mm FFC/FPC Connectors FH33 Series — Single-sided Lead, Bottom Contact**



**Specifications:** • Current Rating: 0.5A maximum • PCB Mount Type: SMT • Contact Mating Area Plating: Gold • Terminal Pitch: 0.5mm • Contact Spacing: 0.5mm



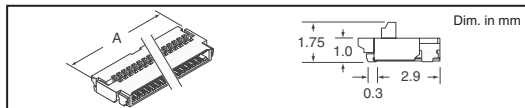
No. of Pos.	Dim. A (mm)	Digi-Key Part No.	Cut Tape Price Each				Digi-Key Part No.	Tape and Reel Pricing 5,000	Hirose Part No.
			1	10	100	250			
6	5.0	HFS06CT-ND	1.56	1.28	.93	.78	HFS06TR-ND	523.00/M	FH33-6S-0.5SH(10)
9	6.5	HFS09CT-ND	1.63	1.34	.97	.82	HFS09TR-ND	548.00/M	FH33-9S-0.5SH(10)
10	7.0	HFS10CT-ND	1.67	1.37	.99	.84	HFS10TR-ND	561.00/M	FH33-10S-0.5SH(10)
12	8.0	HFS12CT-ND	1.75	1.43	1.04	.88	HFS12TR-ND	597.00/M	FH33-12S-0.5SH(10)
14	9.0	HFS14CT-ND	1.79	1.46	1.06	.90	HFS14TR-ND	599.00/M	FH33-14S-0.5SH(10)
26	15.0	HFS26CT-ND	1.82	1.52	1.12	.93	HFS26TR-ND	700.00/M	FH33-26S-0.5SH(10)
28	16.0	HFS28CT-ND	1.89	1.57	1.16	.97	HFS28TR-ND	725.00/M	FH33-28S-0.5SH(10)

**0.5mm FFC/FPC Connectors FH34 Series — Top Contact Version of FH19S(C)**



**Features:** • Low profile and space saving 1.0mm of height and 3.8mm of mounting depth top contact connectors • Increased FPC/FFC retention force • Unique back flip ZIF structure enables user-friendly and reliable connection • Smooth FPC/FFC insertion with tapers at housing opening • Smooth FPC/FFC insertion with actuator delivered in open position

**Applications:** • Mobile phones • Digital cameras • Digital video cameras • Portable terminals • DVD • CD-RW • Notebook PC • Game machines  
**Specifications:** • Current Rating: 0.5A maximum • PCB Mount Type: SMT • Contact Mating Area Plating: Gold • Terminal Pitch: 0.5mm • Contact Spacing: 0.5mm • Operating Temperature: -55°C - 85°C



No. of Pos.	Dim. A (mm)	Digi-Key Part No.	Cut Tape Price Each				Digi-Key Part No.	Tape and Reel Pricing 2,500	Hirose Part No.
			1	10	100	250			
4	4.0	HFT04CT-ND	3.00	2.50	1.85	1.54	HFT04TR-ND	1178.00/M	FH34S-4S-0.5SH(10)
8	6.0	HFT08CT-ND	2.93	2.43	1.82	1.47	HFT08TR-ND	1288.00/M	FH34S-8S-0.5SH(10)
14	9.0	HFT14CT-ND	1.83	1.52	1.13	.94	HFT14TR-ND	718.00/M	FH34S-14S-0.5SH(10)
30	17.0	HFT30CT-ND	4.21	3.48	2.61	2.11	HFT30TR-ND	1849.00/M	FH34S-30S-0.5SH(10)

**0.5mm and 1.0mm FFC/FPC Connectors FH12, FH12A, FH12F and FH12S Series — "Flip-Lock" SMT/ZIF Type Flexible Printed Circuit Board Connectors**



The FH12 Series of miniature connectors for FPC/FFC use brings form to the newly developed "flip-lock" concept and can be used with Surface Mount Technology (SMT) to eliminate the problems of the contemporary side-lock system. These connectors have a contact spacing of 0.5mm, are suited to high density mounting, and are based on a single-action Zero Insertion Force (ZIF) structure for easy connections. Types with top or bottom contacts, and vertical mounting are available to suit your applications.

**Materials/Finish:** • Insulation: Polyamide Resin, beige; PPS Resin, dark brown (UL94V-0) • Contacts: Phosphor Bronze, solder plating

**Electrical:** • Rated Current: 0.4A • Insulation Resistance: 500MΩ or greater at 100VDC • Withstanding Voltage: 150VAC for one minute • Contact Resistance: 50mΩ or less (*Note: When all conductors are to continuously carry the rated current, set the current to 70% of the rated current value.*)

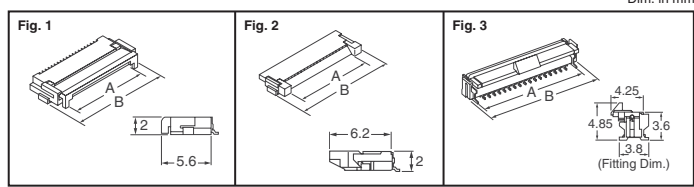


Fig.	No. of Pos.	Dimensions (mm)		Digi-Key Part No.	Cut Tape Price Each				Tape and Reel Pricing		Hirose Part No.	
		A	B		25	100	250	Qty.	Price			
<b>.5mm Horizontal Mount — Bottom Contact Type</b>												
1	11	6.07	9.6	HFJ11CT-ND	1.84	1.42	1.14	.94	HFJ11TR-ND	2,000	722.00/M	FH12-11S-0.5SH
	12	6.57	10.1	HFJ12CT-ND	1.84	1.42	1.14	.94	HFJ12TR-ND	2,000	722.00/M	FH12-12S-0.5SH
	13	7.07	10.6	HFJ13CT-ND	1.89	1.46	1.17	.97	—	—	—	FH12-13S-0.5SH
	14	7.57	11.1	HFJ14CT-ND	1.93	1.49	1.19	.99	HFJ14TR-ND	2,000	759.00/M	FH12-14S-0.5SH
	15	8.07	11.6	HFJ15CT-ND	1.98	1.53	1.22	1.02	—	—	—	FH12-15S-0.5SH

\* Note: The 1.0mm version of FH12 is constructed by loading every other contact into the 0.5mm housing

(Continued)

Digi-Reel® Most SMT cutdown parts are available on a Digi-Reel®. For Digi-Reel part number, change 1-ND to 6-ND or CT-ND to DKR-ND. See Digi-Key® Services on page 2 for additional information.

More Product Available Online: [www.digikey.com](http://www.digikey.com)