

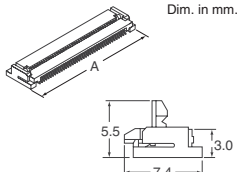
High Density FFC/FPC Connectors

FH16, FH16H, FH16M and FH16P Series (0.3mm/0.4mm/0.5mm Pitch)

Features: The FH16 Series is a fine pitch, zero insertion force (ZIF), right angle, bottom contact connector compatible with flat flex cables (FFC) or flexible printed circuits (FPC) with a pitch of 0.3mm, 0.4mm and 0.5mm. A recommended thickness of 0.295mm for single-sided or 0.306mm for double-sided. The flip-lock (one-touch rotating type) ZIF structure secures the FFC/FPC connection with a single and light force. This design helps simplify assembly and repair work. When locking the FFC/FPC, the audible click assures the assembly worker of a steady FFC/FPC connection resulting in improved customer

service. Embossed tape packaging allows for automatic placement onto the PCB. **Applications:** • Notebook computers, printers, PDAs, digital cameras and other compact devices for interconnecting the main circuit board with the LCD, PDP (Plasma Display), HDD or other device. **Specifications:** • Operating Temperature: -40°C ~ 70°C • Insulation Resistance: 500MΩ minimum • Contact Resistance: 150mΩ maximum (including FFC/FPC conductor resistance) **Materials:** • Insulators: Polyamide and LCP - Beige, PPS - Deep Brown; UL94V-0 • Contacts: Phosphor Bronze - Solder plating

A

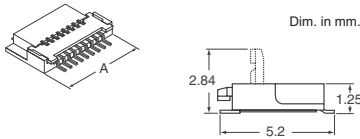


Ratings	Pitch	0.3mm	0.4mm	0.5mm
	Current Rating	0.15A	0.3A	0.4A
Voltage Rating	30 VAC	50 VAC	60 VAC	

No. of Pos.	Contact Pitch	Dim. A (mm)	Digi-Key Part No.	Cut Tape Price Each				Digi-Key Part No.	Tape & Reel Pricing			Hirose Part No.
				1	10	50	100		1,000	5,000	10,000	
60	0.3	21.9	HFP060CT-ND HFP160CT-ND†	6.79 6.47	5.62 5.36	4.68 4.46	4.22 4.02	HFP060TR-ND HFP160TR-ND†	3042.00 2899.00	2925.00/M 2787.50/M	2866.50/M 2731.75/M	FH16-60S-0.3SHW FH16-60S-0.3SHW(05)
80	0.3	27.9	HFP080CT-ND HFP180CT-ND†	7.71 6.58	6.39 5.45	5.32 4.54	4.79 4.09	HFP080TR-ND HFP180TR-ND†	3458.00 2951.00	3325.00/M 2837.50/M	3258.50/M 2780.75/M	FH16-80S-0.3SHW FH16-80S-0.3SHW(05)
90	0.3	30.9	HFP090CT-ND HFP190CT-ND†	5.74 3.92	4.76 3.24	3.96 2.70	3.57 2.43	HFP090TR-ND HFP190TR-ND†	2574.00 1755.00	2475.00/M 1687.50/M	2425.50/M 1653.75/M	FH16-90S-0.3SHW FH16-90S-0.3SHW(05)
50	0.5	29.4	HFP050CT-ND HFP150CT-ND†	4.67 6.03	3.87 5.00	3.22 4.16	3.75	HFP050TR-ND HFP150TR-ND†	2093.00 2704.00	2012.50/M 2600.00/M	1972.25/M 2548.00/M	FH16-50S-0.5SHW FH16H-50S-0.5SHW(05)
96	0.4	42.5	HFP096CT-ND HFP196CT-ND†	7.08 8.09	5.86 6.70	4.88 5.58	4.40 5.03	HFP096TR-ND HFP196TR-ND†	3172.00 3627.00	3050.00/M 3487.50/M	2989.00/M 3417.75/M	FH16H-96S-0.4SHW FH16M-96S-0.4SHW(05)
64	0.5	36.0	HFP064CT-ND HFP164CT-ND†	5.97 6.61	4.95 5.48	4.12 4.56	3.71 4.11	HFP064TR-ND HFP164TR-ND†	2678.00 2964.00	2575.00/M 2850.00/M	2523.50/M 2793.00/M	FH16P-64S-0.5SHW FH16P-64S-0.5SHW(05)

† Gold Plating

FH23 Series (0.3mm Pitch) Flexible Printed Circuit Connectors



Specifications:

• Current Rating: 0.3A DC • Voltage Rating: 50VAC • Operating Temperature: -55°C ~ 85°C • Insulation Resistance: 50MΩ minimum • Contact Resistance: 100mΩ maximum (including FFC/FPC conductor resistance)

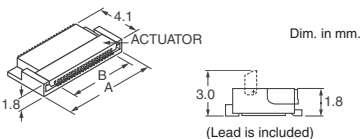
Materials:

• Insulators: LCP, beige; LCP, black; UL94V-0 • Contacts: Phosphor bronze, pure tin plating

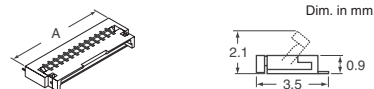
No. of Pos.	Dim. A (mm)	Digi-Key Part No.	Cut Tape Price Each				Digi-Key Part No.	Tape & Reel Pricing			Hirose Part No.
			1	25	100	250		2,500	5,000	10,000	
Lead-less											
15	7.0	HFQ15CT-ND	2.08	1.51	1.24	1.05	HFQ15TR-ND	712.40/M	698.70/M	685.00/M	FH23-15S-0.3SHAW(51)
17	7.6	HFQ17CT-ND	1.90	1.46	1.17	.97	HFQ17TR-ND	744.60/M	730.00/M	715.40/M	FH23-17S-0.3SHAW(51)
27	10.6	HFQ27CT-ND	2.28	1.75	1.40	1.17	HFQ27TR-ND	892.50/M	875.00/M	857.50/M	FH23-27S-0.3SHAW(51)
31	11.8	HFQ31CT-ND	2.39	1.84	1.48	1.23	HFQ31TR-ND	938.40/M	920.00/M	901.60/M	FH23-31S-0.3SHAW(51)
33	12.4	HFQ33CT-ND	2.52	1.94	1.56	1.29	HFQ33TR-ND	989.40/M	970.00/M	950.60/M	FH23-33S-0.3SHAW(51)
39	14.2	HFQ39CT-ND	2.77	2.13	1.71	1.42	HFQ39TR-ND	1086.30/M	1065.00/M	1043.70/M	FH23-39S-0.3SHAW(51)
45	16.0	HFQ45CT-ND	3.07	2.36	1.89	1.57	HFQ45TR-ND	1203.60/M	1180.00/M	1156.40/M	FH23-45S-0.3SHAW(51)
51	17.8	HFQ51CT-ND	3.38	2.60	2.08	1.73	HFQ51TR-ND	1326.00/M	1300.00/M	1274.00/M	FH23-51S-0.3SHAW(51)
61	20.8	HFQ61CT-ND	3.34	2.60	2.08	1.68	HFQ61TR-ND	1468.80/M	1440.00/M	1411.20/M	FH23-61S-0.3SHAW(51)
Leaded											
17	7.6	HFQ117CT-ND	1.90	1.46	1.17	.97	HFQ117TR-ND	744.60/M	730.00/M	715.40/M	FH23-17S-0.3SHW(51)
21	8.8	HFQ221CT-ND†	2.39	1.84	1.48	1.23	HFQ221TR-ND†	938.40/M	920.00/M	901.60/M	FH23-21S-0.3SHW(05)
21	8.8	HFQ121CT-ND	2.09	1.61	1.29	1.07	HFQ121TR-ND	821.10/M	805.00/M	788.90/M	FH23-21S-0.3SHW(51)
25	10.0	HFQ125CT-ND	2.21	1.70	1.36	1.13	HFQ125TR-ND	867.00/M	850.00/M	833.00/M	FH23-25S-0.3SHW(51)
27	10.6	HFQ127CT-ND	2.28	1.75	1.40	1.17	HFQ127TR-ND	892.50/M	875.00/M	857.50/M	FH23-27S-0.3SHW(51)
31	11.8	HFQ131CT-ND	2.39	1.84	1.48	1.23	HFQ131TR-ND	938.40/M	920.00/M	901.60/M	FH23-31S-0.3SHW(51)
33	12.4	HFQ133CT-ND	2.52	1.94	1.56	1.29	HFQ133TR-ND	989.40/M	970.00/M	950.60/M	FH23-33S-0.3SHW(51)
39	14.2	HFQ139CT-ND	2.77	2.13	1.71	1.42	HFQ139TR-ND	1086.30/M	1065.00/M	1043.70/M	FH23-39S-0.3SHW(51)
61	20.8	HFQ161CT-ND	3.34	2.60	2.08	1.68	HFQ161TR-ND	1468.80/M	1440.00/M	1411.20/M	FH23-61S-0.3SHW(51)

† Gold Plating

FH18 Series (0.3mm Pitch) Flex Connectors Low Profile



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



Features: • Low-profile 0.5mm pitch FPC, FFC Connectors: Miniaturization of portable equipment and personal mobile devices has created increased demand for a low profile, high density, and high reliability connector • Conductive traces on the PCB can be designed to run under the connector. All 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 PCs, PDA's, 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 ~ 80°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 Series: Thickness: = 0.2 ± 0.03mm tinned copper or pure tin plating* • FH19S Series: Thickness: = 0.3 ± 0.03mm tinned copper or pure tin plating*

Materials: • Insulators: LCP — beige; PPS — FH19 Series: Dark brown, FH19S Series: Black; all UL94V-0 • Contacts: Phosphor bronze, pure tin plating* • Metal fittings: Phosphor bronze, pure tin reflow plating • **Note:** When FPC is gold plated, connector contacts should also be gold plated

Features: • Contact spacing (pitch) 0.3mm • Flexible printed circuits (FPC) with contact spacing of 0.3mm are used with increased frequency (These connectors occupy less board space and are lighter than comparable connectors with contacts spaced at 0.5mm) **Applications:** Consumer electronics, portable equipment, cameras, PDA's and other devices where board space and component packaging requires ultra small interconnection. **Specifications:** • Current Rating: 0.15A • Temperature Range: -40°C ~ 70°C • Voltage Rating: 30VAC **Materials:** • Insulators: LCP, Body - beige and Latch - Black; UL94V-0 • Contacts: Phosphor bronze, tin-lead plated; Metal Fitting: Bronze, tin-lead plated

No. of Pos.	Dimensions (mm)		Digi-Key Part No.	Cut Tape Price Each				Digi-Key Part No.	Tape & Reel Pricing			Hirose Part No.
	A	B		1	25	100	250		2,500	5,000	10,000	
17	7.6	4.8	HFM17CT-ND	1.96	1.42	1.17	.99	HFM17TR-ND	670.80/M	657.90/M	645.00/M	FH18-17S-0.3SHW
21	8.8	6.0	HFM21CT-ND	1.73	1.33	1.07	.89	HFM21TR-ND	678.30/M	665.00/M	651.70/M	FH18-21S-0.3SHW
25	10.0	7.2	HFM25CT-ND	1.92	1.48	1.19	.99	HFM25TR-ND	754.80/M	740.00/M	725.20/M	FH18-25S-0.3SHW
27	10.6	7.8	HFM27CT-ND	1.92	1.48	1.19	.99	HFM27TR-ND	754.80/M	740.00/M	725.20/M	FH18-27S-0.3SHW
39	14.2	11.4	HFM39CT-ND	2.20	1.69	1.36	1.13	HFM39TR-ND	861.90/M	845.00/M	828.10/M	FH18-39S-0.3SHW
51	17.8	15.0	HFM51CT-ND	2.48	1.91	1.53	1.27	HFM51TR-ND	974.10/M	955.00/M	935.90/M	FH18-51S-0.3SHW

† Gold Plating

No. of Pos.	Dim. A (mm)	Digi-Key Part No.	Cut Tape Price Each				Digi-Key Part No.	Tape & Reel Pricing			Hirose Part No.
			1	10	100	250		5,000	10,000		
9	6.5	HFN09CT-ND	2.12	1.73	1.26	1.07	HFN09TR-ND	711.45/M	697.50/M		FH19-9S-0.5SH(51)
13	8.5	HFN13CT-ND	1.97	1.64	1.22	1.01	HFN13TR-ND	757.50/M	742.35/M		FH19-13S-0.5SH(51)
17	10.5	HFN17CT-ND	2.07	1.72	1.28	1.06	HFN17TR-ND	795.00/M	779.10/M		FH19-17S-0.5SH(51)
20	12.0	HFN20CT-ND	2.20	1.84	1.36	1.13	HFN20TR-ND	847.50/M	830.55/M		FH19-20S-0.5SH(51)
30	17.0	HFN30CT-ND	2.59	2.15	1.60	1.33	HFN30TR-ND	995.00/M	975.10/M		FH19-30S-0.5SH(51)
9	6.5	HFN109CT-ND†	1.96	1.63	1.21	1.00	HFN109TR-ND†	752.50/M	737.45/M		FH19-9S-0.5SH(05)
13	8.5	HFN113CT-ND†	2.18	1.81	1.34	1.12	HFN113TR-ND†	837.50/M	820.75/M		FH19-13S-0.5SH(05)
17	10.5	HFN117CT-ND†	2.34	1.95	1.44	1.20	HFN117TR-ND†	900.00/M	882.00/M		FH19-17S-0.5SH(05)
20	12.0	HFN120CT-ND†	2.52	2.10	1.56	1.29	HFN120TR-ND†	970.00/M	950.60/M		FH19-20S-0.5SH(05)
30	17.0	HFN130CT-ND†	3.07	2.55	1.89	1.57	HFN130TR-ND†	1180.00/M	1156.40/M		FH19-30S-0.5SH(05)
12	8.0	HFN212CT-ND	1.89	1.58	1.17	.97	HFN212TR-ND	727.50/M	712.95/M		FH19S-12S-0.5SH(51)
17	10.5	HFN217CT-ND	2.07	1.72	1.28	1.06	HFN217TR-ND	795.00/M	779.10/M		FH19S-17S-0.5SH(51)
18	11.0	HFN218CT-ND	2.13	1.78	1.32	1.09	HFN218TR-ND	820.00/M	803.60/M		FH19S-18S-0.5SH(51)
20	12.0	HFN220CT-ND	1.95	1.62	1.20	1.00	HFN220TR-ND	847.50/M	830.55/M		FH19S-20S-0.5SH(51)
22	13.0	HFN222CT-ND	2.28	1.90	1.41	1.17	HFN222TR-ND	877.50/M	859.95/M		FH19S-22S-0.5SH(51)
24	14.0	HFN224CT-ND	2.36	1.96	1.46	1.21	HFN224TR-ND	907.50/M	889.35/M		FH19S-24S-0.5SH(51)
26	15.0	HFN226CT-ND	2.45	2.04	1.51	1.26	HFN226TR-ND	942.50/M	923.65/M		FH19S-26S-0.5SH(51)
27	15.5	HFN227CT-ND	2.51	2.09	1.55	1.29	HFN227TR-ND	965.00/M	945.70/M		FH19S-27S-0.5SH(51)
50	27.0	HFN228CT-ND	3.20	2.65	1.99	1.61	HFN228TR-ND	1408.00/M	1380.00/M		FH19S-50S-0.5SH(51)
12	8.0	HFN312CT-ND†	2.09	1.74	1.29	1.07	HFN312TR-ND†	802.50/M	786.45/M		FH19S-12S-0.5SH(05)
17	10.5	HFN317CT-ND†	2.34	1.95	1.44	1.20	HFN317TR-ND†	900.00/M	882.00/M		FH19S-17S-0.5SH(05)
18	11.0	HFN318CT-ND†	2.42	2.02	1.50	1.24	HFN318TR-ND†	932.50/M	913.85/M		FH19S-18S-0.5SH(05)
20	12.0	HFN320CT-ND†	2.52	2.10	1.56	1.29	HFN320TR-ND†	970.00/M	950.60/M		FH19S-20S-0.5SH(05)
22	13.0	HFN322CT-ND†	2.63	2.19	1.62	1.35	HFN322TR-ND†	1012.50/M	992.25/M		FH19S-22S-0.5SH(05)
24	14.0	HFN324CT-ND†	2.74	2.28	1.69	1.41	HFN324TR-ND†	1055.00/M	1033.90/M		FH19S-24S-0.5SH(05)
26	15.0	HFN326CT-ND†	2.87	2.39	1.77	1.47	HFN326TR-ND†	1102.50/M	1080.45/M		FH19S-26S-0.5SH(05)
27	15.5	HFN327CT-ND†	2.94	2.45	1.81	1.51	HFN327TR-ND†	1130.00/M	1107.40/M		FH19S-27S-0.5SH(05)