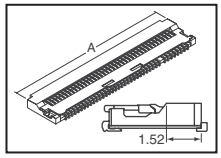
HIROSE ELECTRIC CO., LTD.

# High Density FFC/FPC Connectors

A

## FH29 Series (0.2mm Pitch)

**Features:** • Space saving 0.2mm of contact spacing FPC connectors • Easy mounting in double-sided lead design: 0.4mm mounting lead pitch • FPC alignment mechanism enables high connection reliability • Suitable for FPC with mating area thickness of 0.2mm • The flip-lock (one-touch rotating system) Zero Insertion Force (ZIF) structure allows easy and reliable FPC connection
**Applications:** • Mobile phones, LCDs, Digital video cameras (DVC), Digital cameras (DSC), Portable terminals (PDA), Camera modules, Portable equipment
**Specifications:** • Current Rating: 0.25A • Operating Temperature: -55°C ~ 85°C




| No. of Pos. | Dim. A (mm) | Digi-Key Part No. | Cut Tape Price Each 1 | 25 | 100 | Tape & Reel‡ Pricing 5,000 | Hirose Part No. |
|---|---|---|---|---|---|---|---|
| 34 | 8.62 | HFD034CT-ND | 3.86 | 3.00 | 2.40 | 1663.00/M | FH29-34S-0.2SHW(05) |
| 40 | 9.82 | HFD040CT-ND | 4.00 | 3.11 | 2.49 | — | FH29-40S-0.2SHW(05) |
| 44 | 10.62 | HFD044CT-ND | 4.09 | 3.18 | 2.54 | 1763.00/M | FH29-44S-0.2SHW(05) |
| 50 | 11.82 | HFD050CT-ND | 4.58 | 3.56 | 2.85 | 1975.00/M | FH29-50S-0.2SHW(05) |
| 70 | 15.82 | HFD070CT-ND | 4.90 | 3.81 | 3.05 | 2113.00/M | FH29-70S-0.2SHW(05) |
| 80 | 17.82 | HFD080CT-ND | 5.13 | 3.99 | 3.19 | 2213.00/M | FH29-80S-0.2SHW(05) |
| 90 | 19.82 | HFD090CT-ND | 5.57 | 4.32 | 3.46 | — | FH29-90S-0.2SHW(05) |
| 120 | 25.82 | HFD120CT-ND | 6.90 | 5.36 | 4.29 | 2975.00/M | FH29-120S-0.2SHW(05) |

‡ For Tape and Reel part number, change CT-ND to TR-ND.

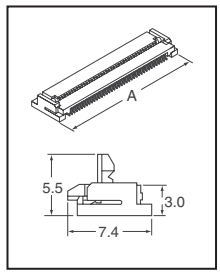
## FH16, FH16H, FH16M and FH16P Series (0.3mm/0.4mm/0.5mm Pitch)

**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 will assure 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



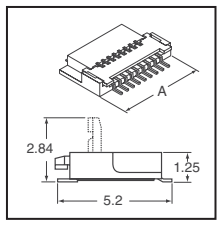

| Ratings: | | | |
|---|---|---|---|
| Pitch | 0.3mm | 0.4mm | 0.5mm |
| Current Rating | 0.15A | 0.3A | 0.4A |
| Voltage Rating | 30 VAC | 50 VAC | 60 VAC |

| No. of Pos. | Contact Pitch (mm) | Dim. A (mm) | Digi-Key Part No. | Cut Tape Price Each 1 | 10 | 100 | Tape & Reel‡ Pricing 1,000 | Hirose Part No. |
|---|---|---|---|---|---|---|---|---|
| 60 | 0.3 | 21.9 | HFP060CT-ND | 6.06 | 5.02 | 3.77 | 2717.00 | FH16-60S-0.3SHW |
| | | | HFP160CT-ND†◆ | 6.47 | 5.36 | 4.02 | 2899.00 | FH16-60S-0.3SHW(05) |
| 80 | 0.3 | 27.9 | HFP080CT-ND | 6.82 | 5.64 | 4.23 | 3055.00 | FH16-80S-0.3SHW |
| | | | HFP180CT-ND†◆ | 6.60 | 5.59 | 4.20 | 3239.00 | FH16-80S-0.3SHW(05) |
| 90 | 0.3 | 30.9 | HFP090CT-ND | 7.22 | 5.98 | 4.49 | 3237.00 | FH16-90S-0.3SHW |
| | | | HFP190CT-ND†◆ | 7.02 | 5.94 | 4.46 | 3443.00 | FH16-90S-0.3SHW(05) |
| 50 | 0.5 | 29.4 | HFP050CT-ND | 4.67 | 3.87 | 2.90 | 2093.00 | FH16H-50S-0.5SHW |
| | | | HFP150CT-ND†◆ | 6.03 | 5.00 | 3.75 | 2704.00 | FH16H-50S-0.5SHW(05) |
| 96 | 0.4 | 42.5 | HFP096CT-ND | 7.08 | 5.86 | 4.40 | 3172.00 | FH16M-96S-0.4SHW |
| | | | HFP196CT-ND†◆ | 7.25 | 6.14 | 4.61 | 3557.00 | FH16M-96S-0.4SHW(05) |
| 64 | 0.5 | 36.0 | HFP064CT-ND | 5.97 | 4.95 | 3.71 | 2678.00 | FH16P-64S-0.5SHW |
| | | | HFP164CT-ND†◆ | 6.61 | 5.48 | 4.11 | 2964.00 | FH16P-64S-0.5SHW(05) |

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

## FH23 Series (0.3mm Pitch) Flexible Printed Circuit Connectors

**Features:** • Provided with a flexible printed circuit (FPC) temporary hold mechanism, thus preventing the shift of the FPC and connector after FPC insertion • Only slight force is required to lock the flip-lock (one-touch rotating system) Low Insertion Force (LIF) structure
**Applications:** • Mobile phones, LCD, digital video camera (DVC), digital cameras (DSC), portable terminals (PDA), camera modules, portable equipment
**Specifications:** • Current Rating: 0.3A DC • Voltage Rating: 30VAC • Operating Temperature: -55°C ~ 85°C • Insulation Resistance: 50MΩ minimum @ 100VDC • Contact Resistance: 100mΩ maximum @ 90VAC/one minute (Including FPC/FFC conductor resistance)
**Materials:** • Insulators: LCP, Beige; LCP, black; UL94V-0 • Contacts: Phosphor bronze, tin plating

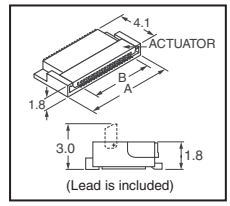



| No. of Pos. | Dim. A (mm) | Digi-Key Part No. | Cut Tape Price Each 1 | 25 | 100 | 250 | Tape & Reel‡ Pricing 2,500 | Hirose Part No. |
|---|---|---|---|---|---|---|---|---|
| ***Leadless Type Termination*** | | | | | | | | |
| 15 | 7.0 | HFQ015CT-ND | 1.79 | 1.38 | 1.10 | .92 | 701.00/M | FH23-15S-0.3SHAW(51) |
| | 7.0 | HFQ515CT-ND†◆ | 2.18 | 1.68 | 1.34 | 1.12 | 854.00/M | FH23-15S-0.3SHAW(05) |
| 17 | 7.6 | HFQ17CT-ND | 1.92 | 1.48 | 1.18 | .98 | — | FH23-17S-0.3SHAW(51) |
| | 7.6 | HFQ517CT-ND†◆ | 2.24 | 1.73 | 1.38 | 1.15 | 880.00/M | FH23-17S-0.3SHAW(05) |
| 21 | 8.8 | HFQ621CT-ND†◆ | 2.50 | 1.93 | 1.54 | 1.28 | 982.00/M | FH23-21S-0.3SHAW(05) |
| 25 | 10 | HFQ625CT-ND†◆ | 2.67 | 2.05 | 1.64 | 1.37 | 1046.00/M | FH23-25S-0.3SHAW(05) |
| 27 | 10.6 | HFQ27CT-ND | 2.28 | 1.75 | 1.40 | 1.17 | 893.00/M | FH23-27S-0.3SHAW(51) |
| | 10.6 | HFQ527CT-ND†◆ | 2.73 | 2.10 | 1.68 | 1.40 | 1071.00/M | FH23-27S-0.3SHAW(05) |
| 31 | 11.8 | HFQ031CT-ND | 2.41 | 1.85 | 1.48 | 1.23 | 944.00/M | FH23-31S-0.3SHAW(51) |
| | 11.8 | HFQ531CT-ND†◆ | 2.86 | 2.20 | 1.76 | 1.47 | 1122.00/M | FH23-31S-0.3SHAW(05) |
| 33 | 12.4 | HFQ033CT-ND | 2.50 | 1.93 | 1.54 | 1.28 | — | FH23-33S-0.3SHAW(51) |
| | 12.4 | HFQ533CT-ND†◆ | 3.09 | 2.38 | 1.90 | 1.58 | 1211.00/M | FH23-33S-0.3SHAW(05) |
| 39 | 14.2 | HFQ039CT-ND | 2.76 | 2.13 | 1.70 | 1.42 | 1084.00/M | FH23-39S-0.3SHAW(51) |
| | 14.2 | HFQ539CT-ND†◆ | 3.02 | 2.34 | 1.88 | 1.51 | 1326.00/M | FH23-39S-0.3SHAW(05) |
| 45 | 16.0 | HFQ045CT-ND | 3.06 | 2.35 | 1.88 | 1.57 | — | FH23-45S-0.3SHAW(51) |
| | 16.0 | HFQ545CT-ND†◆ | 3.31 | 2.57 | 2.06 | 1.66 | 1454.00/M | FH23-45S-0.3SHAW(05) |
| 51 | 17.8 | HFQ051CT-ND | 3.02 | 2.34 | 1.88 | 1.51 | 1326.00/M | FH23-51S-0.3SHAW(52) |
| | 17.8 | HFQ551CT-ND†◆ | 3.15 | 2.43 | 1.94 | 1.62 | 1237.00/M | FH23-51S-0.3SHAW(06) |
| 61 | 20.8 | HFQ061CT-ND | 3.34 | 2.59 | 2.07 | 1.67 | — | FH23-61S-0.3SHAW(51) |
| | 20.8 | HFQ561CT-ND†◆ | 4.09 | 3.18 | 2.54 | 2.05 | 1798.00/M | FH23-61S-0.3SHAW(05) |
| ***Lead Type Termination*** | | | | | | | | |
| 15 | 7 | HFQ615CT-ND†◆ | 2.08 | 1.60 | 1.28 | 1.07 | 854.00/M | FH23-15S-0.3SHW(05) |
| 17 | 7.6 | HFQ117CT-ND | 1.92 | 1.48 | 1.18 | .98 | 752.00/M | FH23-17S-0.3SHW(51) |
| | 7.6 | HFQ417CT-ND†◆ | 2.24 | 1.73 | 1.38 | 1.15 | 880.00/M | FH23-17S-0.3SHW(05) |
| 21 | 8.8 | HFQ221CT-ND†◆ | 2.50 | 1.93 | 1.54 | 1.28 | 982.00/M | FH23-21S-0.3SHW(05) |
| | 8.8 | HFQ121CT-ND | 2.08 | 1.60 | 1.28 | 1.07 | — | FH23-21S-0.3SHW(51) |
| 25 | 10.0 | HFQ125CT-ND | 2.21 | 1.70 | 1.36 | 1.13 | 867.00/M | FH23-25S-0.3SHW(51) |
| | 10.0 | HFQ425CT-ND†◆ | 2.67 | 2.05 | 1.64 | 1.37 | 1046.00/M | FH23-25S-0.3SHW(05) |
| 27 | 10.6 | HFQ127CT-ND | 2.28 | 1.75 | 1.40 | 1.17 | 893.00/M | FH23-27S-0.3SHW(51) |
| | 10.6 | HFQ427CT-ND†◆ | 2.73 | 2.10 | 1.68 | 1.40 | 1071.00/M | FH23-27S-0.3SHW(05) |
| 31 | 11.8 | HFQ131CT-ND | 2.41 | 1.85 | 1.48 | 1.23 | 944.00/M | FH23-31S-0.3SHW(51) |
| 33 | 12.4 | HFQ133CT-ND | 2.50 | 1.93 | 1.54 | 1.28 | 982.00/M | FH23-33S-0.3SHW(51) |
| | 12.4 | HFQ433CT-ND†◆ | 3.09 | 2.38 | 1.90 | 1.58 | 1211.00/M | FH23-33S-0.3SHW(05) |
| 39 | 14.2 | HFQ139CT-ND | 2.76 | 2.13 | 1.70 | 1.42 | 1084.00/M | FH23-39S-0.3SHW(51) |
| | 14.2 | HFQ439CT-ND†◆ | 3.02 | 2.34 | 1.88 | 1.51 | 1326.00/M | FH23-39S-0.3SHW(05) |
| 45 | 16 | HFQ645CT-ND†◆ | 3.31 | 2.57 | 2.06 | 1.66 | 1454.00/M | FH23-45S-0.3SHW(05) |
| 51 | 17.8 | HFQ651CT-ND†◆ | 3.15 | 2.43 | 1.94 | 1.62 | 1237.00/M | FH23-51S-0.3SHW(06) |
| 61 | 20.8 | HFQ461CT-ND†◆ | 4.09 | 3.18 | 2.54 | 2.05 | 1798.00/M | FH23-61S-0.3SHW(05) |

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

## FH18 Series (0.3mm Pitch) Flex Connectors Low Profile

**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, PDAs 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; Latch - Black; UL94V-0 • Contacts: Phosphor bronze, tin-lead plated; Metal Fitting: Bronze, tin-lead plated

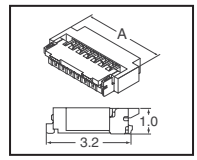



| No. of Pos. | Dimensions (mm) A | B | Digi-Key Part No. | Cut Tape Price Each 1 | 25 | 100 | 250 | Tape & Reel‡ Pricing 2,500 | Hirose Part No. |
|---|---|---|---|---|---|---|---|---|---|
| 17 | 7.6 | 4.8 | HFM17CT-ND | 1.69 | 1.30 | 1.04 | .87 | 663.00/M | FH18-17S-0.3SHW |
| | 7.6 | 4.8 | HFM117CT-ND◆ | 1.89 | 1.45 | 1.16 | .97 | 740.00/M | FH18-17S-0.3SHW(55) |
| 21 | 8.8 | 6.0 | HFM21CT-ND | 1.72 | 1.33 | 1.06 | .88 | 676.00/M | FH18-21S-0.3SHW |
| | 8.8 | 6.0 | HFM121CT-ND◆ | 1.98 | 1.53 | 1.22 | 1.02 | 778.00/M | FH18-21S-0.3SHW(55) |
| 25 | 10.0 | 7.2 | HFM25CT-ND | 1.92 | 1.48 | 1.18 | .98 | 752.00/M | FH18-25S-0.3SHW |
| | 10.0 | 7.2 | HFM125CT-ND◆ | 2.21 | 1.70 | 1.36 | 1.13 | 867.00/M | FH18-25S-0.3SHW(55) |
| 27 | 10.6 | 7.8 | HFM127CT-ND◆ | 2.24 | 1.73 | 1.38 | 1.15 | 880.00/M | FH18-27S-0.3SHW(55) |
| 39 | 14.2 | 11.4 | HFM39CT-ND | 2.21 | 1.70 | 1.36 | 1.13 | — | FH18-39S-0.3SHW |
| | 14.2 | 11.4 | HFM139CT-ND◆ | 2.67 | 2.05 | 1.64 | 1.37 | 1046.00/M | FH18-39S-0.3SHW(55) |
| 51 | 17.8 | 15.0 | HFM51CT-ND | 2.50 | 1.93 | 1.54 | 1.28 | — | FH18-51S-0.3SHW |
| | 17.8 | 15.0 | HFM151CT-ND◆ | 3.09 | 2.38 | 1.90 | 1.58 | 1211.00/M | FH18-51S-0.3SHW(55) |

◆ *RoHS Compliant* ‡ For Tape and Reel part number, change CT-ND to TR-ND.

## FH26 Series (0.3mm Pitch) Flexible Printed Circuit ZIF Connectors

**Features:** • Space saving design: connector height is 1.0mm and the depth of the mounting area is 3.2mm • Flip lock actuator allows easy insertion of FPC • Metal FPC insertion guide makes it easy to insert FPC
**Applications:** • Mobile phone, LCD application, digital video camera, digital camera, PDA, camera module, compact electronic equipment
**Specifications:** • Current Rating: 0.2A • Voltage Rating: 30VAC • Operating Temperature: -55°C ~ 85°C
**Materials:** • Insulator: Polyamide, LCP, black, UL94V-0 • Actuator PA, dark brown, UL94V-0 • Contacts: Phosphor bronze, gold plated • Metal fitting: Phosphor bronze, tin plated (lead free)




| No. of Pos. | Dim. A (mm) | Digi-Key Part No. | Cut Tape Price Each 1 | 25 | 100 | 250 | Tape & Reel‡ Pricing 5,000 | Hirose Part No. |
|---|---|---|---|---|---|---|---|---|
| 13 | 5.4 | HFQ313CT-ND | 2.21 | 1.70 | 1.36 | 1.13 | 850.00/M | FH26-13S-0.3SHW(05) |
| 15 | 6.0 | HFQ315CT-ND | 2.28 | 1.75 | 1.40 | 1.17 | 875.00/M | FH26-15S-0.3SHW(05) |
| 17 | 6.6 | HFQ317CT-ND | 2.41 | 1.85 | 1.48 | 1.23 | 925.00/M | FH26-17S-0.3SHW(05) |
| 21 | 7.8 | HFQ321CT-ND | 2.54 | 1.95 | 1.56 | 1.30 | 975.00/M | FH26-21S-0.3SHW(05) |
| 23 | 8.4 | HFQ323CT-ND | 2.63 | 2.03 | 1.62 | 1.35 | 1013.00/M | FH26-23S-0.3SHW(05) |
| 25 | 9.0 | HFQ325CT-ND | 2.70 | 2.08 | 1.66 | 1.38 | 1038.00/M | FH26-25S-0.3SHW(05) |
| 27 | 9.6 | HFQ327CT-ND | 2.76 | 2.13 | 1.70 | 1.42 | 1063.00/M | FH26-27S-0.3SHW(05) |
| 29 | 10.2 | HFQ329CT-ND | 2.89 | 2.23 | 1.78 | 1.48 | 1113.00/M | FH26-29S-0.3SHW(05) |
| 31 | 10.8 | HFQ331CT-ND | 2.93 | 2.25 | 1.80 | 1.50 | 1125.00/M | FH26-31S-0.3SHW(05) |
| 33 | 11.4 | HFQ333CT-ND | 2.99 | 2.30 | 1.84 | 1.53 | 1150.00/M | FH26-33S-0.3SHW(05) |
| 35 | 12.0 | HFQ335CT-ND | 3.12 | 2.40 | 1.92 | 1.60 | 1200.00/M | FH26-35S-0.3SHW(05) |
| 39 | 13.2 | HFQ339CT-ND | 2.90 | 2.25 | 1.80 | 1.45 | 1250.00/M | FH26-39S-0.3SHW(05) |
| 41 | 13.8 | HFQ341CT-ND | 2.99 | 2.32 | 1.86 | 1.50 | 1288.00/M | FH26-41S-0.3SHW(05) |
| 45 | 15.0 | HFQ345CT-ND | 3.10 | 2.41 | 1.93 | 1.56 | 1338.00/M | FH26-45S-0.3SHW(05) |
| 51 | 16.8 | HFQ351CT-ND | 3.36 | 2.61 | 2.09 | 1.69 | 1450.00/M | FH26-51S-0.3SHW(05) |
| 57 | 18.6 | HFQ357CT-ND | 3.65 | 2.84 | 2.27 | 1.83 | 1575.00/M | FH26-57S-0.3SHW(05) |
| 61 | 19.8 | HFQ361CT-ND | 3.74 | 2.91 | 2.33 | 1.88 | 1613.00/M | FH26-61S-0.3SHW(05) |
| 71 | 22.8 | HFQ371CT-ND | 4.12 | 3.20 | 2.56 | 2.06 | 1775.00/M | FH26-71S-0.3SHW(05) |

‡ For Tape and Reel part number, change CT-ND to TR-ND.

*(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.