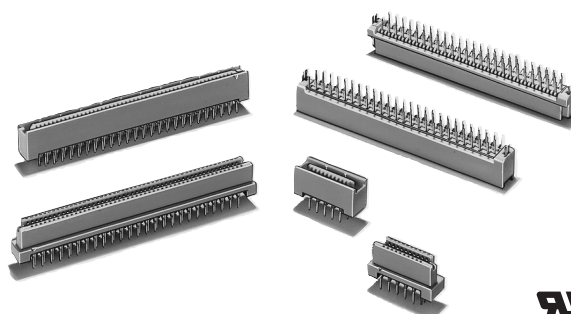


# Half-pitch Board-to-Board Connectors

## XH3

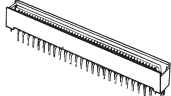
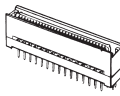
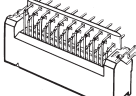
### Screw Mount Eliminated to Save Space. Adjustable Stacking Height of 12 to 20 mm.

- The stacking height can be adjusted in 1-mm increments.
- Mating length of 3.1 mm and a pitch of 1.27 mm for high-density mounting in double-row arrangements.
- All models incorporate fastening pins to secure the terminals, thus preventing floating or falling over during soldering.
- Leaf contact construction enables smooth mating and resistance to bending.
- The XH3 conforms to EN, IEC, UL (file no. E103202), and CSA (file no. LR62678).



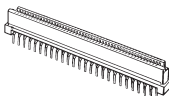
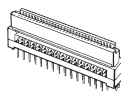
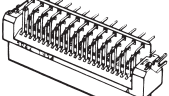
## Ordering Information

### Plugs - - Straight and Right-angle Through-hole PCB Terminals

| Appearance      |  |                                    |  |                   |  |
|-----------------|-----------------------------------------------------------------------------------|------------------------------------|-------------------------------------------------------------------------------------|-------------------|-------------------------------------------------------------------------------------|
|                 | No Fastening Pin                                                                  | With PCB Fastening Pins (See Note) |                                                                                     |                   |                                                                                     |
|                 | (Standard)                                                                        | (Standard)                         | (2-mm increments)                                                                   | (4-mm increments) | (Standard)                                                                          |
| No. of contacts | Straight Terminals                                                                |                                    |                                                                                     |                   | Right-angle Terminals                                                               |
| 20              | XH3A-2041                                                                         | XH3A-2041-A                        | XH3A-2041-2A                                                                        | XH3A-2041-4A      | ---                                                                                 |
| 30              | XH3A-3041                                                                         | XH3A-3041-A                        | XH3A-3041-2A                                                                        | XH3A-3041-4A      | XH3A-3042-A                                                                         |
| 40              | XH3A-4041                                                                         | XH3A-4041-A                        | XH3A-4041-2A                                                                        | XH3A-4041-4A      | XH3A-4042-A                                                                         |
| 50              | XH3A-5041                                                                         | XH3A-5041-A                        | XH3A-5041-2A                                                                        | XH3A-5041-4A      | XH3A-5042-A                                                                         |
| 60              | XH3A-6041                                                                         | XH3A-6041-A                        | XH3A-6041-2A                                                                        | XH3A-6041-4A      | XH3A-6042-A                                                                         |
| 68              | XH3A-6841                                                                         | XH3A-6841-A                        | XH3A-6841-2A                                                                        | XH3A-6841-4A      | XH3A-6842-A                                                                         |
| 80              | XH3A-8041                                                                         | XH3A-8041-A                        | XH3A-8041-2A                                                                        | XH3A-8041-4A      | XH3A-8042-A                                                                         |
| 100             | XH3A-0141                                                                         | XH3A-0141-A                        | XH3A-0141-2A                                                                        | XH3A-0141-4A      | XH3A-0142-A                                                                         |
| 120             | XH3A-0241                                                                         | XH3A-0241-A                        | XH3A-0241-2A                                                                        | XH3A-0241-4A      | ---                                                                                 |

**Note:** Applicable board thickness is 1.6 mm.

### Sockets - - Straight and Right-angle Through-hole PCB Terminals

| Appearance      |  |                                    |  |                   |                   |  |
|-----------------|-------------------------------------------------------------------------------------|------------------------------------|--------------------------------------------------------------------------------------|-------------------|-------------------|---------------------------------------------------------------------------------------|
|                 | No Fastening Pin                                                                    | With PCB Fastening Pins (See Note) |                                                                                      |                   |                   |                                                                                       |
|                 | (Standard)                                                                          | (Standard)                         | (1-mm increment)                                                                     | (3-mm increments) | (4-mm increments) | (Standard)                                                                            |
| No. of contacts | Straight Terminals                                                                  |                                    |                                                                                      |                   |                   | Right-angle                                                                           |
| 20              | XH3B-2041                                                                           | XH3B-2041-A                        | XH3B-2041-1A                                                                         | XH3B-2041-3A      | XH3B-2041-4A      | ---                                                                                   |
| 30              | XH3B-3041                                                                           | XH3B-3041-A                        | XH3B-3041-1A                                                                         | XH3B-3041-3A      | XH3B-3041-4A      | XH3B-3042-A                                                                           |
| 40              | XH3B-4041                                                                           | XH3B-4041-A                        | XH3B-4041-1A                                                                         | XH3B-4041-3A      | XH3B-4041-4A      | XH3B-4042-A                                                                           |
| 50              | XH3B-5041                                                                           | XH3B-5041-A                        | XH3B-5041-1A                                                                         | XH3B-5041-3A      | XH3B-5041-4A      | XH3B-5042-A                                                                           |
| 60              | XH3B-6041                                                                           | XH3B-6041-A                        | XH3B-6041-1A                                                                         | XH3B-6041-3A      | XH3B-6041-4A      | XH3B-6042-A                                                                           |
| 68              | XH3B-6841                                                                           | XH3B-6841-A                        | XH3B-6841-1A                                                                         | XH3B-6841-3A      | XH3B-6841-4A      | XH3B-6842-A                                                                           |
| 80              | XH3B-8041                                                                           | XH3B-8041-A                        | XH3B-8041-1A                                                                         | XH3B-8041-3A      | XH3B-8041-4A      | XH3B-8042-A                                                                           |
| 100             | XH3B-0141                                                                           | XH3B-0141-A                        | XH3B-0141-1A                                                                         | XH3B-0141-3A      | XH3B-0141-4A      | XH3B-0142-A                                                                           |
| 120             | XH3B-0241                                                                           | XH3B-0241-A                        | XH3B-0241-1A                                                                         | XH3B-0241-3A      | XH3B-0241-4A      | ---                                                                                   |

**Note:** Applicable board thickness is 1.6 mm.

# Specifications

## ■ Ratings and Characteristics

|                                |                                                   |
|--------------------------------|---------------------------------------------------|
| Rated current                  | 0.5 A                                             |
| Rated voltage                  | 125 VAC                                           |
| Contact resistance (See note.) | 30 mΩ max. (20 mV max., 100 mA max.)              |
| Insulation resistance          | 1,000 MΩ min. (at 500 VDC)                        |
| Dielectric strength            | 650 VAC for 1 min<br>(leakage current: 1 mA max.) |
| Overall insertion force        | 80 gf (0.78 N) max. per contact                   |
| Overall removal force          | 10 gf (0.10 N) min. per contact                   |
| Insertion tolerance            | 400 times                                         |
| Ambient temperature            | Operating: -55 to 105°C (with no icing)           |

**Note:** The contact resistance is for the XH3A-□□41 combined with the XH3B-□□41.

## ■ Materials and Finish

| Item           | Type       | Plug                                                | Socket |
|----------------|------------|-----------------------------------------------------|--------|
| Housing        |            | PBT resin with glass (UL94V-0)/gray                 |        |
| Locator        |            | PBT resin with glass (UL94V-0)/gray                 |        |
| Contacts       | Mating end | Phosphor bronze/nickel base, gold/palladium plating |        |
|                | Terminal   | Phosphor bronze/nickel base, gold flash plating     |        |
| Fastening pins |            | Phosphor bronze/tin plating                         |        |

# Engineering Data

## ■ Mating Diagram

### Vertical/Horizontal/Stacking

| Vertical (standard) (See note.) | Vertical (reverse) | Stacking | Horizontal |
|---------------------------------|--------------------|----------|------------|
|                                 |                    |          |            |

**Note:** The function of the standard and reverse models is the same as that of the standard XC5 DIN Connectors.

## Stacking Space Adjustable Models

| Stacking space | 12 mm | 13 mm | 14 mm | 15 mm | 16 mm |
|----------------|-------|-------|-------|-------|-------|
| Mating diagram |       |       |       |       |       |
| Stacking space | 17 mm | 18 mm | 19 mm | 20 mm |       |
| Mating diagram |       |       |       |       |       |

## Combinations

| Plug                           | Socket | XH3B-□□41<br>XH3B-□□41-A | 1-mm increment<br>XH3B-□□41-1A | 3-mm increments<br>XH3B-□□41-3A | 4-mm increments<br>XH3B-□□41-4A |
|--------------------------------|--------|--------------------------|--------------------------------|---------------------------------|---------------------------------|
| XH3A-□□41, XH3A-□□41-A         |        | 12 mm                    | 13 mm                          | (15 mm) (See note.)             | (16 mm) (See note.)             |
| 2-mm increment<br>XH3A-□□41-2A |        | 14 mm                    | 15 mm                          | (17 mm) (See note.)             | 18 mm                           |
| 4-mm increment<br>XH3A-□□41-4A |        | 16 mm                    | 17 mm                          | 19 mm                           | 20 mm                           |

**Note:** Combinations marked with parentheses should be avoided if possible.

## Contact Numbers

| Item                               | Mated diagram | Mounting holes (bottom view) |
|------------------------------------|---------------|------------------------------|
| Model                              |               |                              |
| Plug,<br>Straight Ter-<br>minals   |               |                              |
| Socket,<br>Straight Ter-<br>minals |               |                              |

- Note:**
1. Contact numbers are not printed on the connectors. Use the triangular mark (▼) as a guide when designing and mounting to boards.
  2. On the mating side, the row of terminals on the triangular mark side are called row a, and the row on the other side is called row b. The numbers are in the order shown.
  3. The triangular marks on the plug and socket must be aligned when mated. The contact numbers on both sides must match.

# Dimensions

## ■ XH3A - Plugs

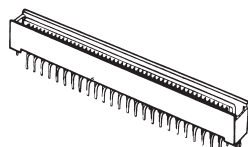
### Straight Through-hole Terminals

XH3A-□□41

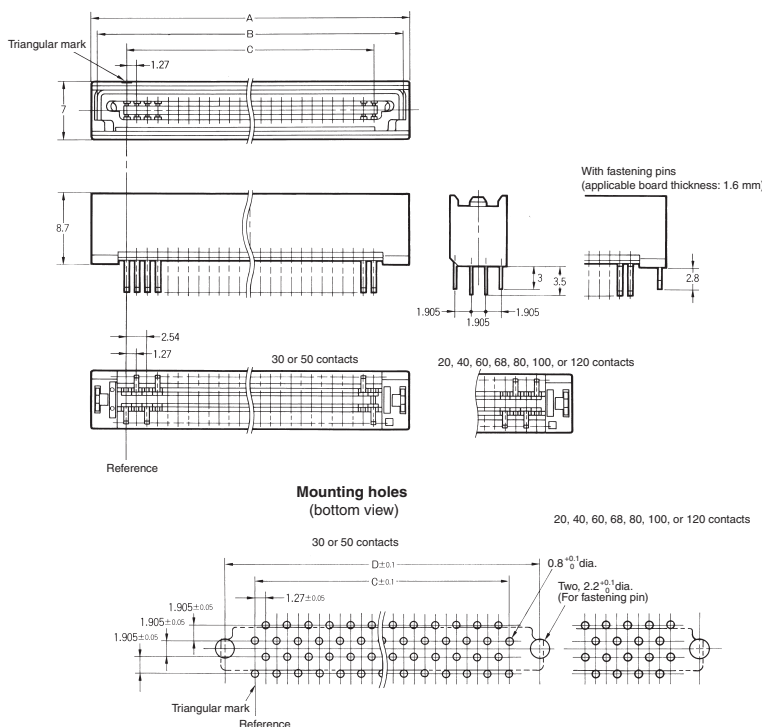
(without PCB Fastening Pins)

XH3A-□□41-A

(with Fastening Pins)



| No. of contacts | Dimensions (mm) |      |       |       |
|-----------------|-----------------|------|-------|-------|
|                 | A               | B    | C     | D     |
| 20              | 20.0            | 18.7 | 11.43 | 18.54 |
| 30              | 26.4            | 25.1 | 17.78 | 24.89 |
| 40              | 32.7            | 31.4 | 24.13 | 31.24 |
| 50              | 39.1            | 37.8 | 30.48 | 37.59 |
| 60              | 45.4            | 44.1 | 36.83 | 43.94 |
| 68              | 50.5            | 49.2 | 41.91 | 49.02 |
| 80              | 58.1            | 56.8 | 49.53 | 56.64 |
| 100             | 70.8            | 69.5 | 62.23 | 69.34 |
| 120             | 83.5            | 82.2 | 74.93 | 82.04 |

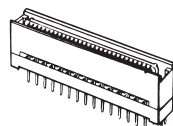


### Straight Through-hole Terminals, with Fastening Pin

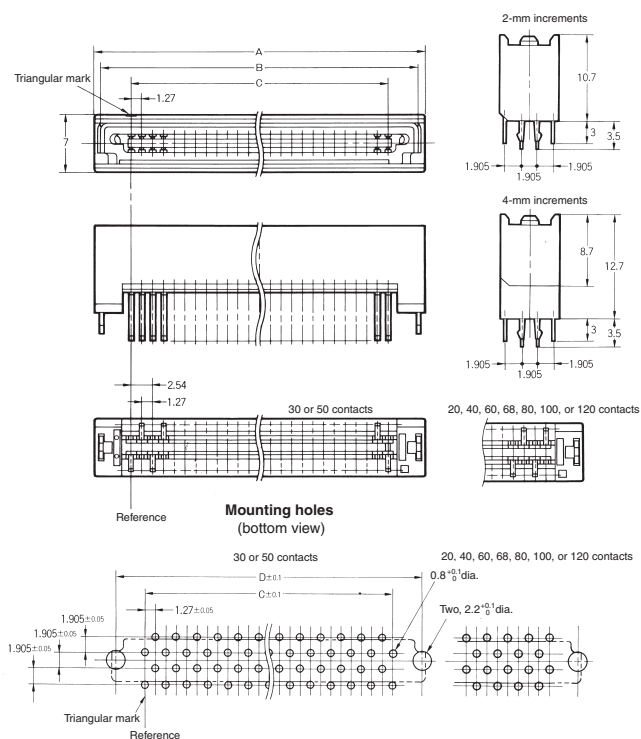
#### Stacking Space Adjustable in Increments of 2 or 4 mm

XH3A-□□41-2A (2-mm Increments)

XH3A-□□41-4A (4-mm Increments)

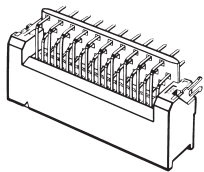


| No. of contacts | Dimensions (mm) |      |       |       |
|-----------------|-----------------|------|-------|-------|
|                 | A               | B    | C     | D     |
| 20              | 20.0            | 18.7 | 11.43 | 18.54 |
| 30              | 26.4            | 25.1 | 17.78 | 24.89 |
| 40              | 32.7            | 31.4 | 24.13 | 31.24 |
| 50              | 39.1            | 37.8 | 30.48 | 37.59 |
| 60              | 45.4            | 44.1 | 36.83 | 43.94 |
| 68              | 50.5            | 49.2 | 41.91 | 49.02 |
| 80              | 58.1            | 56.8 | 49.53 | 56.64 |
| 100             | 70.8            | 69.5 | 62.23 | 69.34 |
| 120             | 83.5            | 82.2 | 74.93 | 82.04 |

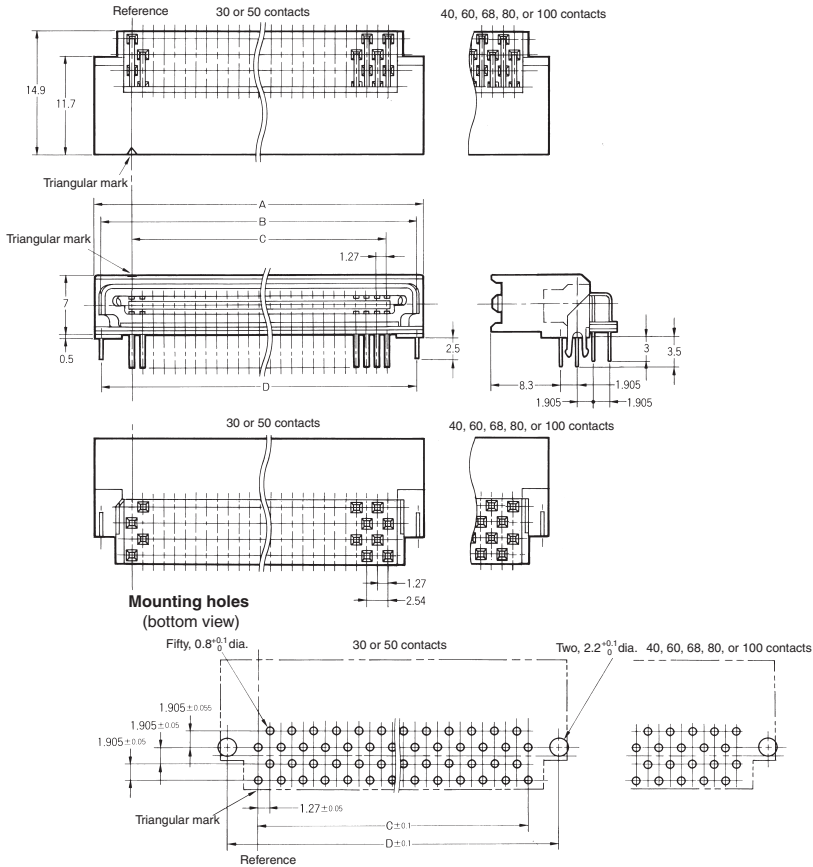


Right-angle Through-hole Terminals, with Fastening Pin

XH3A-□□42-A



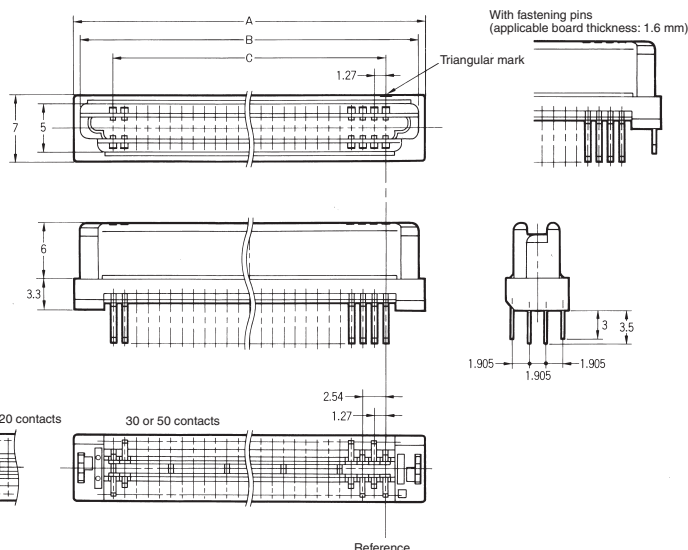
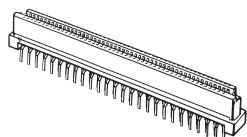
| No. of contacts | Dimensions (mm) |      |       |       |
|-----------------|-----------------|------|-------|-------|
|                 | A               | B    | C     | D     |
| 30              | 26.4            | 25.1 | 17.78 | 24.89 |
| 40              | 32.7            | 31.4 | 24.13 | 31.24 |
| 50              | 39.1            | 37.8 | 30.48 | 37.59 |
| 60              | 45.4            | 44.1 | 36.83 | 43.94 |
| 68              | 50.5            | 49.2 | 41.91 | 49.02 |
| 80              | 58.1            | 56.8 | 49.53 | 56.64 |
| 100             | 70.8            | 69.5 | 62.23 | 69.34 |



# **■ XH3B - Socket** **Straight Through-hole Terminals**

**XH3B-□□41**  
 (without Fastening Pins)

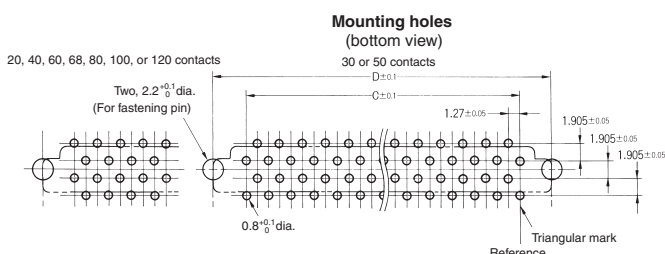
**XH3B-□□41-A**  
 (with Fastening Pins)



| No. of contacts | Dimensions (mm) |      |       |       |
|-----------------|-----------------|------|-------|-------|
|                 | A               | B    | C     | D     |
| 20              | 20.0            | 18.6 | 11.43 | 18.54 |
| 30              | 26.4            | 25.0 | 17.78 | 24.89 |
| 40              | 32.7            | 31.3 | 24.13 | 31.24 |
| 50              | 39.1            | 37.7 | 30.48 | 37.59 |
| 60              | 45.4            | 44.0 | 36.83 | 43.94 |
| 68              | 50.5            | 49.1 | 41.91 | 49.02 |
| 80              | 58.1            | 56.7 | 49.53 | 56.64 |
| 100             | 70.8            | 69.4 | 62.23 | 69.34 |
| 120             | 83.5            | 82.1 | 74.93 | 82.04 |

20, 40, 60, 68, 80, 100, or 120 contacts

30 or 50 contacts

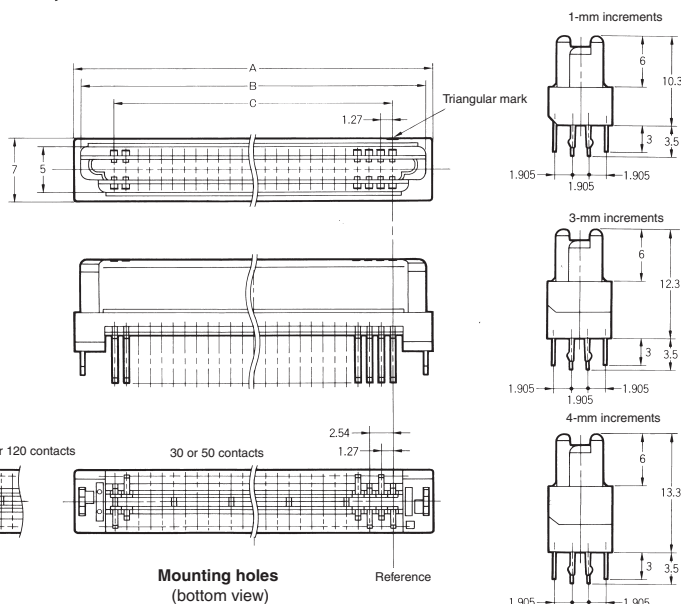
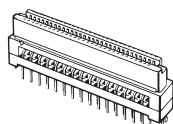


## **Straight Through-hole DIP Terminals, with Fastening Pin** **Stacking Space Adjustable in Increments of 1, 3 or 4 mm**

**XH3B-□□41-1A (1-mm Increment)**

**XH3B-□□41-3A (3-mm Increments)**

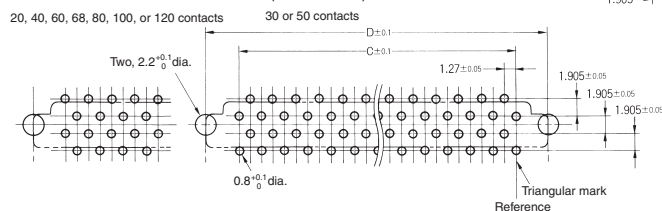
**XH3B-□□41-4A (4-mm Increments)**



20, 40, 60, 68, 80, 100, or 120 contacts

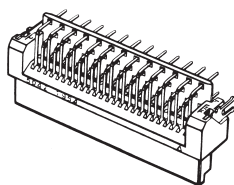
30 or 50 contacts

| No. of contacts | Dimensions (mm) |      |       |       |
|-----------------|-----------------|------|-------|-------|
|                 | A               | B    | C     | D     |
| 20              | 20.0            | 18.6 | 11.43 | 18.54 |
| 30              | 26.4            | 25.0 | 17.78 | 24.89 |
| 40              | 32.7            | 31.3 | 24.13 | 31.24 |
| 50              | 39.1            | 37.7 | 30.48 | 37.59 |
| 60              | 45.4            | 44.0 | 36.83 | 43.94 |
| 68              | 50.5            | 49.1 | 41.91 | 49.02 |
| 80              | 58.1            | 56.7 | 49.53 | 56.64 |
| 100             | 70.8            | 69.4 | 62.23 | 69.34 |
| 120             | 83.5            | 82.1 | 74.93 | 82.04 |

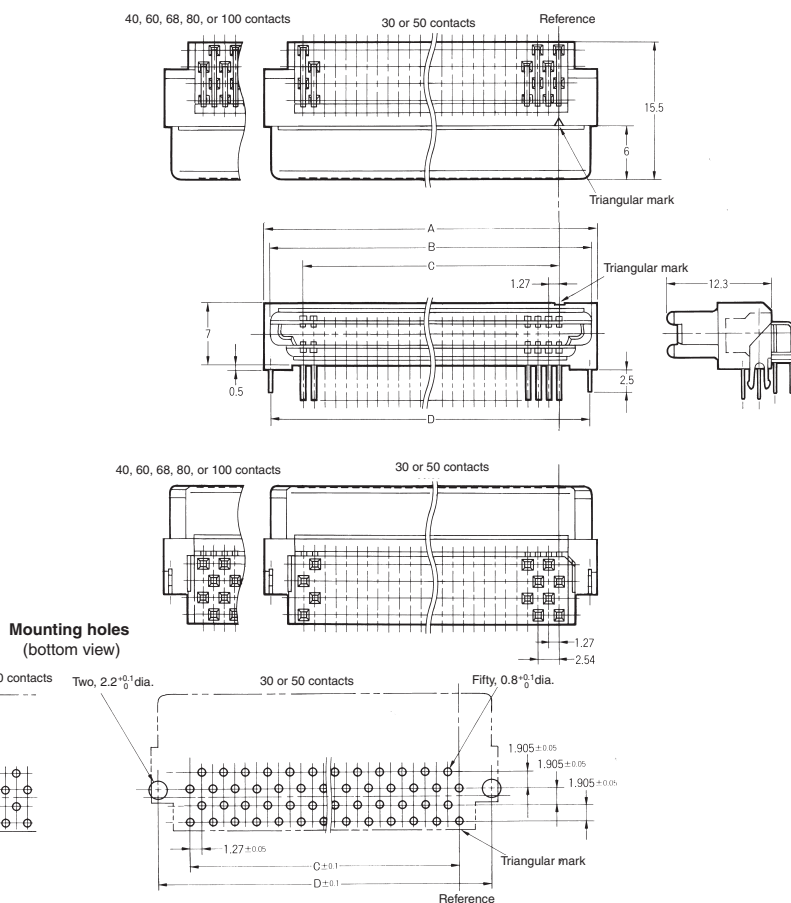


# Right-angle Through-hole Terminals, with Fastening Pin

XH3B-□□42-A



| No. of contacts | Dimensions (mm) |      |       |       |
|-----------------|-----------------|------|-------|-------|
|                 | A               | B    | C     | D     |
| 30              | 26.4            | 25.0 | 17.78 | 24.89 |
| 40              | 32.7            | 31.3 | 24.13 | 31.24 |
| 50              | 39.1            | 37.7 | 30.48 | 37.59 |
| 60              | 45.4            | 44.0 | 36.83 | 43.94 |
| 68              | 50.5            | 49.1 | 41.91 | 49.02 |
| 80              | 58.1            | 56.7 | 49.53 | 56.64 |
| 100             | 70.8            | 69.4 | 62.23 | 69.34 |



## Precautions

### Correct Use

#### Mating Compatibility

XH3 Half-pitch Connectors do not mate with XH2 or XH4 Half-pitch Connectors.

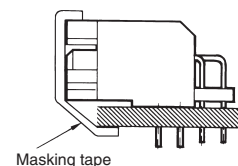
#### Special Finish for Preventing Flux Rise

XH3 Connectors (i.e., Straight Terminals and standard size, 1-, and 2-mm increments) have a special finish that prevents flux rise. (The Connectors are designed for automated soldering. Brush coating flux from the back of the board applies too much flux and may nullify the special finish. Never use this method to apply flux.)

### Soldering

#### Automated soldering

Use tape to mask the Right-angle Terminal Connector prior to automated soldering.



#### Automated Soldering Conditions (Jet Flow)

1. Soldering temperature: 250±5°C
2. Continuous soldering time: Within 5 s (Be sure to wash the board after continuous soldering is completed.)

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