

## ZE05 Series

# High Heat and Vibration Resistance, 0.5 Size, 2mm pitch Automotive Interface Connector



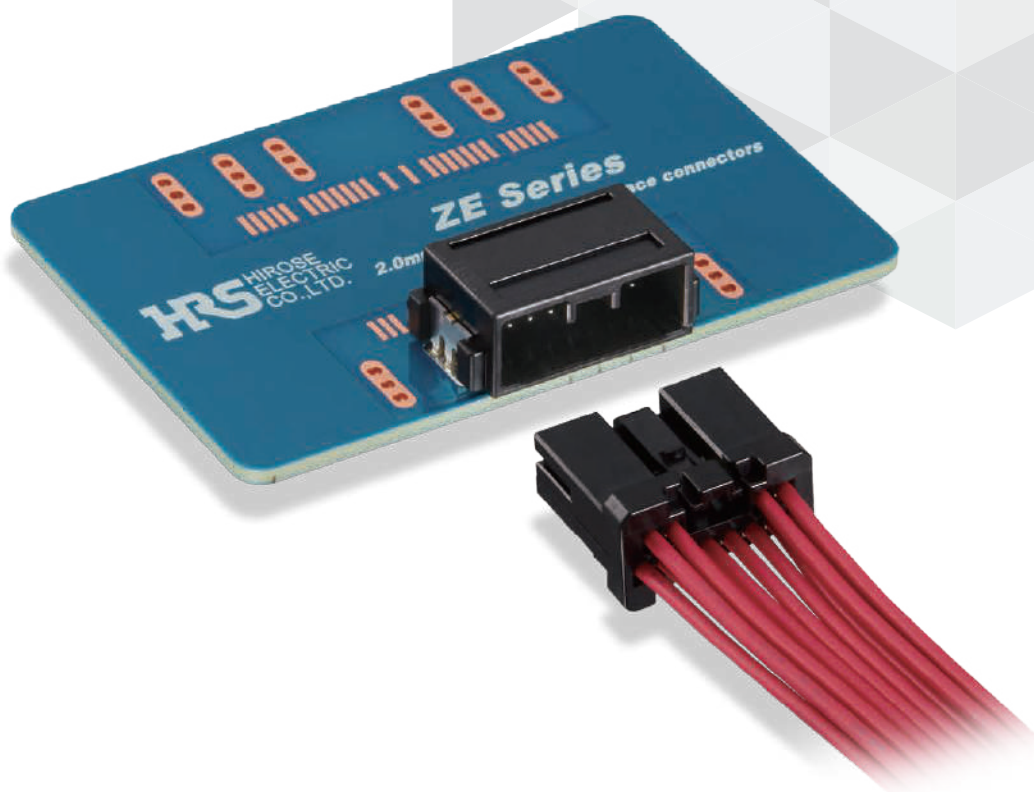
Low Profile



Space Saving



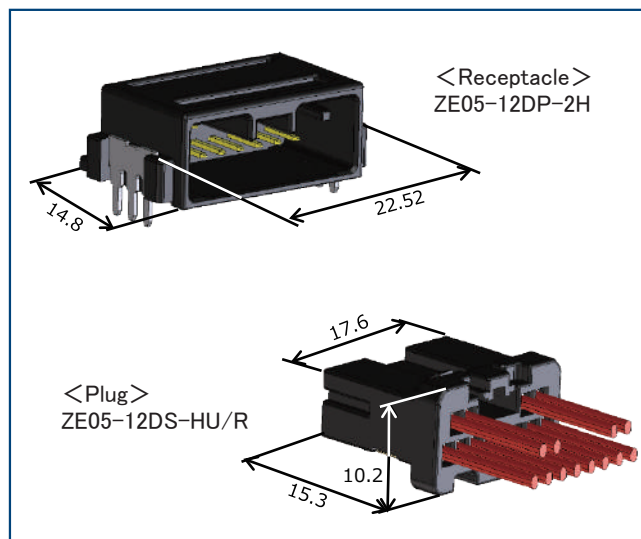
Contact Reliability



## Features

### 1. Space-saving

0.5 size terminal, 2mm pitch.  
Contributes to end product size reduction



### 2. High Heat Resistance : up to 125°C

- Up to 125°C
- Suitable for automotive and other high-heat applications

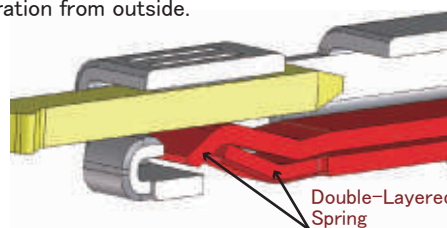
Note : Includes the temperature rise due to current flow.

### 3. High Vibration Resistance

- Female terminal with original 3-point contact design
- Double-layered spring for stability
- Maintains contact under intense vibration, enhancing reliability

#### ① Double-Layered Spring Design

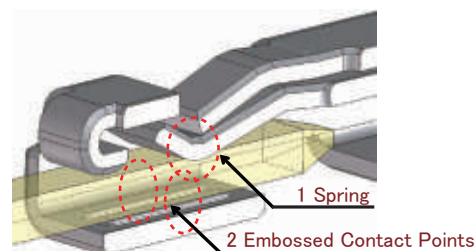
Increases contact force and prevents vibration from outside.



#### ② 3-Point Contact Design

Withstands severe vibration due to improved contact reliability.

1 Spring + 2 Embossed Contact Points = 3-Point Contact Design



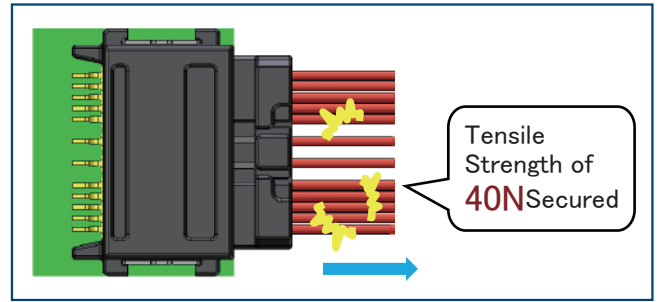
\*The contact is flipped upside down to make the beat easier to see.

High Vibration Resistance Terminal Design

### 4. Rated Current : 5A (Single pin power supply) / 2A (All pins power supply)

## 5. Retainer Guarantees 40N Tensile Strength

Design Resistant to Cable Routing



## 6. Wide Position Varieties (2, 4, 5, 8, 12, 16, 20, 24)

## 7. Compatible with 20 to 26 AWG (0.13 to 0.5sq)

### Product Specifications

|               |                                                            |                                |                                                 |
|---------------|------------------------------------------------------------|--------------------------------|-------------------------------------------------|
| Rated Current | 2A (All pins power supply)<br>5A (Single pin power supply) | Operating Temperature (Note1)  | -40 to +125°C                                   |
| Rated Voltage | 60V AC/DC                                                  | Storage Temperature (Note2)    | -10 to +60°C                                    |
|               |                                                            | Storage Humidity Range (Note2) | Relative humidity 85% Max.<br>(No condensation) |

| Items                        | Specifications                                                                 | Conditions                                                                                                                     |
|------------------------------|--------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|
| Contact Resistance           | 10mΩ Max.                                                                      | Measured at 1A DC                                                                                                              |
| Insulation Resistance        | 100MΩ Min.                                                                     | Measured at 500V DC                                                                                                            |
| Withstanding Voltage         | No insulation breakdown                                                        | 1,000V AC for 1 min.                                                                                                           |
| Mating Durability            | Contact Resistance : 20mΩ Max.                                                 | 30 Insertion/Extraction cycles                                                                                                 |
| Vibration Resistance         | No electrical discontinuity of 1 μs or more.<br>Contact Resistance : 20mΩ Max. | Frequency : 20 to 200Hz (Constant Acceleration of 88m/s <sup>2</sup> )<br>1 Cycle 3 min. (round trip), 3 hours in 3 directions |
| Lock Strength                | 100N Min.                                                                      | Lock breaking strength measured when pulling in mating axis direction                                                          |
| Humidity Resistance          | Contact Resistance : 20mΩ Max.<br>Insulation Resistance : 100MΩ Min.           | Left for 96 hours at a temperature of 60°C and a relative humidity 90 to 95%                                                   |
| Thermal Shock                | Contact Resistance : 20mΩ Max.                                                 | Temperature : -40°C → Room temperature → +125°C → Room temperature<br>Time : 30 → 5 → 30 → 5 minutes for 1000 cycles           |
| Heat Resistance              | Contact Resistance : 20mΩ Max.                                                 | Left at 140°C for 120 hours                                                                                                    |
| Cold Resistance              | Contact Resistance : 20mΩ Max.                                                 | Left at -40°C for 120 hours                                                                                                    |
| Sulfuric Acid Gas Resistance | Contact Resistance : 20mΩ Max.                                                 | Left in sulfuric acid gas at room temperature with a concentration of 25ppm and 75% or more RH for 96 hours while unmated      |

Note 1 : Includes the temperature rise due to current flow.

Note 2 : Storage refers to long-term storage of unused items before they are mounted on the PCB.

Operating temperature and humidity range apply when the product is not powered after PCB mounting and when temporarily stored during transportation.

Materials / Finish

| Component      | Part          | Material     | Color / Finish      | UL Standard |
|----------------|---------------|--------------|---------------------|-------------|
| Receptacle     | Housing       | PA Rasin     | Black, Gray, Violet | UL94V-0     |
|                | Terminal      | Brass        | Tin Plating         | -           |
|                | Retention Tab | Brass        | Tin Plating         | -           |
| Plug           | Housing       | PA Rasin     | Black, Gray, Violet | UL94V-0     |
|                | Retainer      | PA Rasin     | Natural             | UL94V-0     |
| Crimp Terminal | Terminal      | Copper Alloy | Tin Plating         | -           |

Product Number Structure

Refer to the chart below when determining the product specifications from the product number.  
Please select from the product numbers listed in this catalog when placing orders.

■ Receptacle / Plug

**ZE05 H - 8 D P - 2 H (A)**  
① ② ③ ④ ⑤ ⑥ ⑦ ⑧

■ Crimp Terminal

**ZE05 - 2022 SCF**  
① ⑨ ⑩

|                  |                                             |                           |                                                                            |
|------------------|---------------------------------------------|---------------------------|----------------------------------------------------------------------------|
| ① Series Name    | ZE05                                        | ⑥ Pitch                   | 2mm                                                                        |
| ② Retention Tab  | H : SMT<br>None : THR (Through Hole Reflow) | ⑦ Part Type               | H : Right Angle<br>V : Straight<br>HU/R : Housing/ Retainer                |
| ③ No. of Pos.    | 2, 4, 5, 8, 12, 16, 20, 24                  | ⑧ Mating Key              | None : Standard, A, B                                                      |
| ④ Row            | None : Single-row<br>D : Double-row         | ⑨ Applicable Cable Size   | 2022 : 20 to 22 AWG (0.3 to 0.5sq)<br>2426 : 24 to 26 AWG (0.13 to 0.22sq) |
| ⑤ Connector Type | P : Receptacle<br>S : Plug                  | ⑩ Form Type/<br>Packaging | Female terminal, Reel                                                      |

# Combination Chart

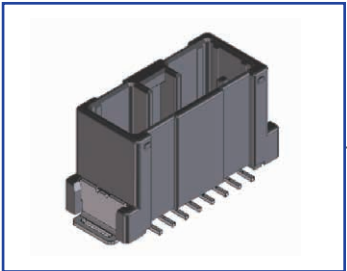
## Receptacle



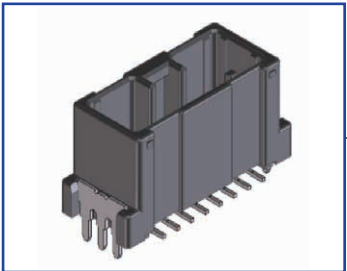
ZE05H-##P-2H



ZE05-##P-2H

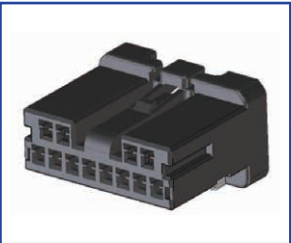


ZE05H-##P-2V



ZE05-##P-2V

## Plug



ZE05-##S-HU/R

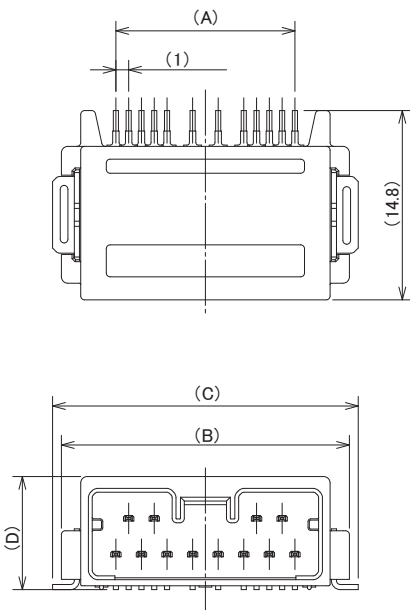
## Crimp Terminal



ZE05-####SCF

Right Angle Receptacle

SMT Retention Tab

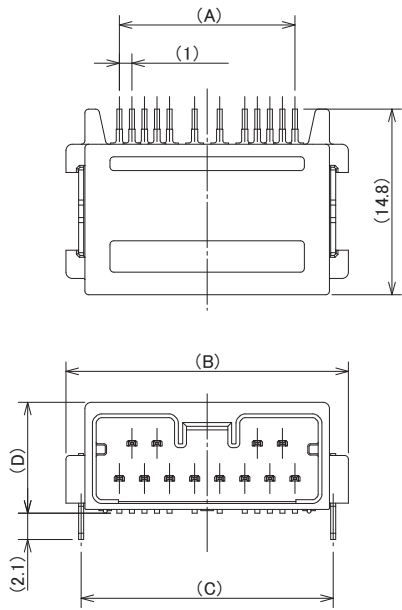


Unit : mm

| Part No.         | HRS No.          | Color  | Mating Key | No. of Pos. | A    | B     | C    | D    | Purchase Unit   |
|------------------|------------------|--------|------------|-------------|------|-------|------|------|-----------------|
| ZE05H-2P-2H      | CL0752-2109-0-00 | Black  | Standard   | 2           | 2.0  | 12.32 | 13.7 | 8.34 | 300pcs per reel |
| ZE05H-2P-2H(B)   | CL0752-2145-0-00 | Violet | B Key      |             |      |       |      |      |                 |
| ZE05H-4P-2H      | CL0752-2110-0-00 | Black  | Standard   | 4           | 6.0  | 16.32 | 17.7 |      |                 |
| ZE05H-4P-2H(A)   | CL0752-2127-0-00 | Gray   | A Key      |             |      |       |      |      |                 |
| ZE05H-5P-2H      | CL0752-2120-0-00 | Black  | Standard   | 5           | 8.0  | 18.32 | 19.7 |      |                 |
| ZE05H-8DP-2H     | CL0752-2112-0-00 | Black  | Standard   | 8           | 10.0 | 18.52 | 19.9 | 8.84 |                 |
| ZE05H-8DP-2H(A)  | CL0752-2122-0-00 | Gray   | A Key      |             |      |       |      |      |                 |
| ZE05H-8DP-2H(B)  | CL0752-2123-0-00 | Violet | B Key      |             |      |       |      |      |                 |
| ZE05H-12DP-2H    | CL0752-2113-0-00 | Black  | Standard   | 12          | 14.0 | 22.52 | 23.9 |      |                 |
| ZE05H-16DP-2H    | CL0752-2114-0-00 | Black  | Standard   | 16          | 20.0 | 28.52 | 29.9 |      |                 |
| ZE05H-20DP-2H    | CL0752-2115-0-00 | Black  | Standard   | 20          | 26.0 | 34.52 | 35.9 |      |                 |
| ZE05H-20DP-2H(A) | CL0752-2133-0-00 | Gray   | A Key      |             |      |       |      |      |                 |
| ZE05H-24DP-2H    | CL0752-2116-0-00 | Black  | Standard   | 24          | 30.0 | 38.52 | 39.9 |      |                 |
| ZE05H-24DP-2H(A) | CL0752-2132-0-00 | Gray   | A Key      |             |      |       |      |      |                 |

Note 1 : Depopulated version and UL certified specifications are also available.  
For details, please contact a Hirose representative.

THR (Through Hole Reflow) Retention Tab



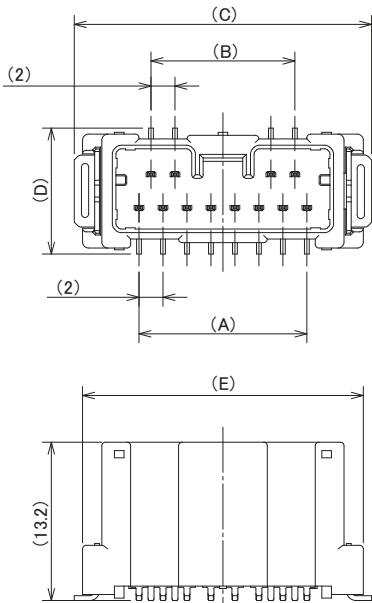
Unit : mm

| Part No.        | HRS No.          | Color | Mating Key | No. of Pos. | A    | B     | C    | D    | Purchase Unit   |
|-----------------|------------------|-------|------------|-------------|------|-------|------|------|-----------------|
| ZE05-2P-2H      | CL0752-2100-0-00 | Black | Standard   | 2           | 2.0  | 12.32 | 9.9  | 8.34 | 300pcs per reel |
| ZE05-4P-2H      | CL0752-2101-0-00 | Black | Standard   | 4           | 6.0  | 16.32 | 13.9 |      |                 |
| ZE05-4P-2H(A)   | CL0752-2128-0-00 | Gray  | A Key      |             |      |       |      |      |                 |
| ZE05-5P-2H      | CL0752-2121-0-00 | Black | Standard   | 5           | 8.0  | 18.32 | 15.9 |      |                 |
| ZE05-8DP-2H     | CL0752-2103-0-00 | Black | Standard   | 8           | 10.0 | 18.52 | 16.1 | 8.84 |                 |
| ZE05-12DP-2H    | CL0752-2104-0-00 | Black | Standard   | 12          | 14.0 | 22.52 | 20.1 |      |                 |
| ZE05-16DP-2H    | CL0752-2105-0-00 | Black | Standard   | 16          | 20.0 | 28.52 | 26.1 |      |                 |
| ZE05-20DP-2H    | CL0752-2106-0-00 | Black | Standard   | 20          | 26.0 | 34.52 | 32.1 |      |                 |
| ZE05-20DP-2H(A) | CL0752-2119-0-00 | Gray  | A Key      |             |      |       |      |      |                 |
| ZE05-24DP-2H    | CL0752-2107-0-00 | Black | Standard   | 24          | 30.0 | 38.52 | 36.1 |      |                 |
| ZE05-24DP-2H(A) | CL0752-2124-0-00 | Gray  | A Key      |             |      |       |      |      |                 |

Note : Depopulated version and UL certified specifications are also available.  
For details, please contact a Hirose representative.

Straight Receptacle

SMT Retention Tab



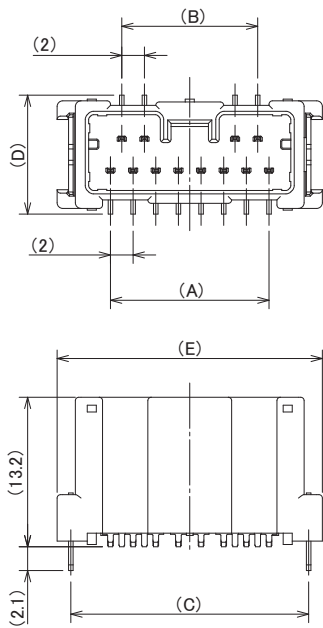
Unit : mm

| Part No.       | HRS No.          | Color  | Mating Key | No. of Pos. | A    | B    | C    | D    | E     | Purchase Unit   |
|----------------|------------------|--------|------------|-------------|------|------|------|------|-------|-----------------|
| ZE05H-2P-2V    | CL0752-2309-0-00 | Black  | Standard   | 2           | 2.0  | -    | 14.6 | 10.0 | 13.22 | 250pcs per reel |
| ZE05H-2P-2V(B) | CL0752-2325-0-00 | Violet | B Key      |             |      |      |      |      | 17.22 |                 |
| ZE05H-4P-2V    | CL0752-2310-0-00 | Black  | Standard   | 4           | 6.0  | -    | 18.6 | 10.5 | 19.42 |                 |
| ZE05H-4P-2V(A) | CL0752-2320-0-00 | Gray   | A Key      |             |      |      |      |      | 23.42 |                 |
| ZE05H-8DP-2V   | CL0752-2312-0-00 | Black  | Standard   | 8           | 10.0 | 8.0  | 20.8 | 10.5 | 29.42 |                 |
| ZE05H-12DP-2V  | CL0752-2313-0-00 | Black  | Standard   | 12          | 14.0 | 12.0 | 24.8 |      | 35.42 |                 |
| ZE05H-16DP-2V  | CL0752-2314-0-00 | Black  | Standard   | 16          | 18.0 | 20.0 | 30.8 |      | 39.42 |                 |
| ZE05H-20DP-2V  | CL0752-2315-0-00 | Black  | Standard   | 20          | 26.0 | 24.0 | 36.8 |      |       |                 |
| ZE05H-24DP-2V  | CL0752-2316-0-00 | Black  | Standard   | 24          | 30.0 | 28.0 | 40.8 |      |       |                 |

Note 1 : Suction tape is attached as a standard.  
Note 2 : Depopulated version and UL certified specifications are also available.  
For details, please contact a Hirose representative.



THR (Through Hole Reflow) Retention Tab



| Unit : mm    |                         |       |            |             |      |      |      |      |       |                 |
|--------------|-------------------------|-------|------------|-------------|------|------|------|------|-------|-----------------|
| Part No.     | HRS No.                 | Color | Mating Key | No. of Pos. | A    | B    | C    | D    | E     | Purchase Unit   |
| ZE05-2P-2V   | CL0752-2300-0-00        | Black | Standard   | 2           | 2.0  | -    | 10.8 | 10.0 | 13.22 | 250pcs per reel |
| ZE05-4P-2V   | CL0752-2301-0-00        | Black | Standard   | 4           | 6.0  | -    | 14.8 |      | 17.22 |                 |
| ZE05-8DP-2V  | CL0752-2303-0-00        | Black | Standard   | 8           | 10.0 | 8.0  | 17.0 | 10.5 | 19.42 |                 |
| ZE05-12DP-2V | CL0752-2304-0-00        | Black | Standard   | 12          | 14.0 | 12.0 | 21.0 |      | 23.42 |                 |
| ZE05-16DP-2V | CL0752-2305-0-00        | Black | Standard   | 16          | 18.0 | 20.0 | 27.0 |      | 29.42 |                 |
| ZE05-24DP-2V | Under Planning (Note 1) | Black | Standard   | 24          | 30.0 | 28.0 | 37.0 |      | 39.42 |                 |

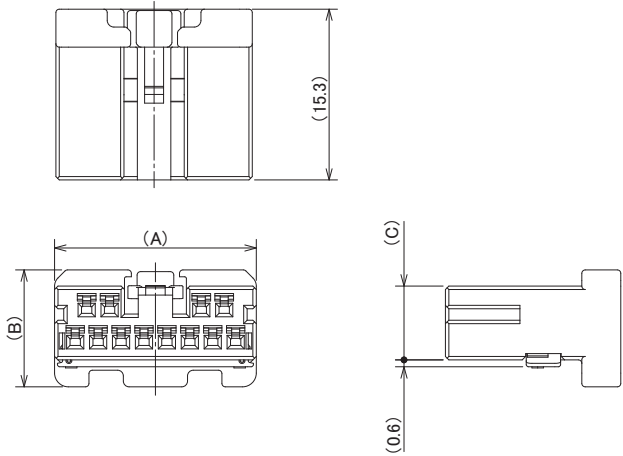
Note 1 : Products without HRS No. are currently being planned for development. Contact a Hirose representative regarding questions on pin count variation development.

Note 2 : Suction tape is attached as a standard.

Note 3 : Depopulated version and UL certified specifications are also available.

For details, please contact a Hirose representative.

Plug

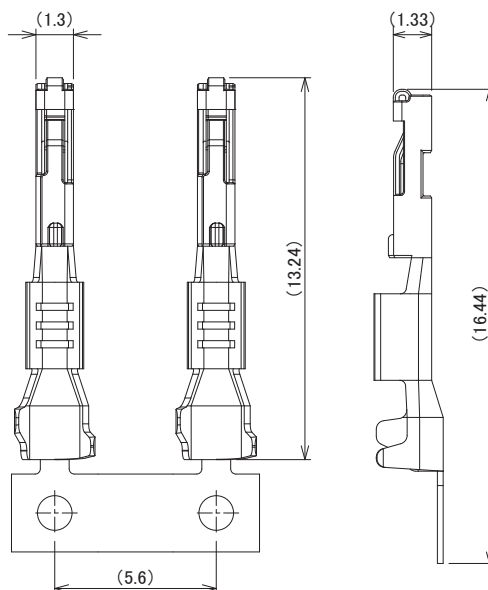


Unit : mm

| Part No.          | HRS No.          | Color  | Mating Key | No. of Pos. | A    | B    | C    | Purchase Unit  |  |
|-------------------|------------------|--------|------------|-------------|------|------|------|----------------|--|
| ZE05-2S-HU/R      | CL0752-2200-0-00 | Black  | Standard   | 2           | 8.8  | 9.7  | 5.3  | 350pcs per box |  |
| ZE05-2S-HU/R(B)   | CL0752-2221-0-00 | Violet | B Key      |             |      |      |      |                |  |
| ZE05-4S-HU/R      | CL0752-2201-0-00 | Black  | Standard   | 4           | 12.8 |      |      |                |  |
| ZE05-4S-HU/R(A)   | CL0752-2216-0-00 | Gray   | A Key      |             |      |      |      |                |  |
| ZE05-5S-HU/R      | CL0752-2211-0-00 | Black  | Standard   | 5           | 14.8 | 10.2 | 6.44 | 385pcs per box |  |
| ZE05-8DS-HU/R     | CL0752-2203-0-00 | Black  | Standard   | 8           | 13.6 |      |      |                |  |
| ZE05-8DS-HU/R(A)  | CL0752-2212-0-00 | Gray   | A Key      |             |      |      |      |                |  |
| ZE05-8DS-HU/R(B)  | CL0752-2213-0-00 | Violet | B Key      |             |      |      |      |                |  |
| ZE05-12DS-HU/R    | CL0752-2204-0-00 | Black  | Standard   | 12          | 17.6 |      |      | 350pcs per box |  |
| ZE05-16DS-HU/R    | CL0752-2205-0-00 | Black  | Standard   | 16          | 23.6 |      |      | 280pcs per box |  |
| ZE05-20DS-HU/R    | CL0752-2206-0-00 | Black  | Standard   | 20          | 29.6 |      |      | 245pcs per box |  |
| ZE05-20DS-HU/R(A) | CL0752-2210-0-00 | Gray   | A Key      |             |      |      |      |                |  |
| ZE05-24DS-HU/R    | CL0752-2207-0-00 | Black  | Standard   | 24          | 33.6 |      |      | 210pcs per box |  |
| ZE05-24DS-HU/R(A) | CL0752-2214-0-00 | Gray   | A Key      |             |      |      |      |                |  |

Note 1 : UL certified specifications are also available.  
For details, please contact a Hirose representative.

## Crimp Terminal for Plug



| Part No.     | HRS No.          | Applicable Cable                                                                | Purchase Unit         |
|--------------|------------------|---------------------------------------------------------------------------------|-----------------------|
| ZE05-2022SCF | CL0752-2001-0-00 | 20 to 22 AWG (0.3 to 0.5sq)<br>Coated Outer Diameter : $\phi$ 1.6mm [AESSX etc] | 10,000pcs<br>per reel |
| ZE05-2426SCF | CL0752-2009-0-00 | 24 to 26 AWG (0.13 to 0.22sq)                                                   |                       |

## Applicable Tools

| Type                                                                | Part No.                  | HRS No.          | Compatible Crimp Terminal |
|---------------------------------------------------------------------|---------------------------|------------------|---------------------------|
| Hirose Crimping Tool                                                | CM-105C                   | CL0901-0001-0-00 | -                         |
| Applicator for Hirose Crimping Tool                                 | AP105-ZE05-2022S          | CL0901-5239-0-00 | ZE05-2022SCF              |
|                                                                     | AP105-ZE05A-2426S         | CL0901-5270-0-00 | ZE05-2426SCF              |
| Japan Automatic Machine Applicator<br>(Note 1)                      | CHX022700H                | -                | ZE05-2022SCF              |
| Hand Tool (Note 2)                                                  | HT802/ZE05-2022S (Note 3) | CL0780-0045-0-00 | ZE05-2022SCF              |
| Retainer Release Tool<br>(Single-row products only : 2, 4, 5pos.)   | ZE05-2DC-HU/R/RE-MD       | CL0902-5144-0-00 | -                         |
| Retainer Release Tool<br>(Double-row products only : 8, 12, 16pos.) | ZE05-12DC-HU/R/RE-MD      | CL0902-5143-0-00 | -                         |
| Retainer Release Tool<br>(Double-row products only : 20, 24pos.)    | ZE05-20-24DC-HU/R/RE-MD   | CL0902-5160-0-00 | -                         |
| Terminal Extraction Tool                                            | ZE05/RE-MD                | CL0902-5145-0-00 | -                         |

Note 1 : Contact Japan Automatic Machine (J.A.M.) regarding crimping failure relating to applicable

J.A.M. applicators or for other applicator inquiries via the J.A.M. website. (URL : <http://www.jam-net.co.jp>)

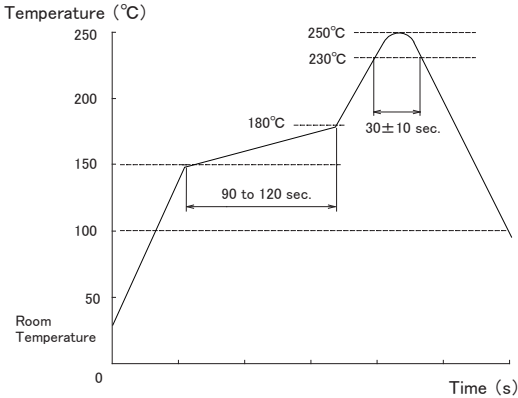
Note 2 : Hand tools are developed as a prototype tool during product development. Use an applicator for mass production.

Note 3 : Applicable cables are limited to 0.3 and 0.5sq. Cut the reel terminal for use with the hand tool.

Note 4 : Crimping should be carried out based on the "Crimping Quality Standards" and "Crimping Conditions Table."

Note 5 : Problems caused by tools other than those specified are not covered by the warranty.

## Usage Precautions

|                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|---------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Recommended Temperature Profile | <div>  <p>Temperature (°C)</p> <p>250</p> <p>200</p> <p>150</p> <p>100</p> <p>50</p> <p>Room Temperature</p> <p>0</p> <p>Time (s)</p> <p>180°C</p> <p>250°C</p> <p>230°C</p> <p>90 to 120 sec.</p> <p>30±10 sec.</p> </div> <div> <p>【Conditions】</p> <ol style="list-style-type: none"> <li>1. Reflow Heating Method Used :<br/>Far infrared, air atmosphere or nitrogen</li> <li>2. Peak Temperature 250°C Peak</li> <li>3. Heated part 230°C Min. 20-40 sec.</li> <li>4. Preheat Temperature 150 to 180°C 90-120 sec.</li> <li>5. Cycles 2 times Max.</li> </ol> </div> |
|---------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## While Taking into Consideration

Specifications mentioned in this catalog are reference values.

When considering to order or use this product, please review the Drawing and Product Specifications sheets.

Use an appropriate cable when using the connector in combination with cables.

If considering usage of a non-specified cable, please contact your sales representative.

If assembly process is done by jigs & tools which are not identified by Hirose, the warranty of the product may be affected.

If considering usage for below mentioned applications, please contact your sales representative.

In cases where the application will demand a high level of reliability, such as automotive, medical instruments, public infrastructure, aerospace/defense etc. Hirose must review before assurance of reliability can be given.

HIROSE