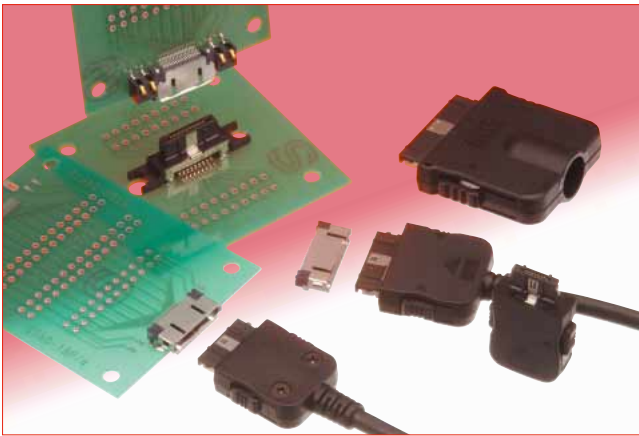


# Interface Connectors for Portable Terminal Devices

## ST Series



### Overview

The ST Series interface connectors are specifically designed for use as Input/Output (I/O) connectors on portable information devices. They feature a unique structure with high strength which resists deformation and helps to prevent improper mating.

3.0 mm height and 0.5 mm contact pitch connector prevents EMI as well.

The ST Series can be used in wide range of applications such as DSC, PDA, laptop PCs, cellular phones, etc.

### Features

#### 1. Strong locking mechanism

To assure continuous reliability of the connection in an unpredictable consumer environment, mated connectors will withstand pull force of 49N max. applied in any direction. (Fig.1)

#### 2. Prevention against reversed or angle insertion

Multiple polarization keys will not allow incorrect insertion of the mating plug.

In addition, contacts will not be damaged when the user attempts to insert only the corner of the mating plug. (Fig.2)

#### 3. Optimal I/F for Small Devices

Plugs are 8 mm in height and 20 mm long (including covers), which is appropriate for small devices.

Receptacles feature the low height of 3 mm and the contact pitch of 0.5 mm. Their small size saves valuable space and contributes to a smaller device set.

#### 4. Multiple Variations

A wide variations is available for supporting different types of peripheral devices. Examples include shielded plugs for data communication, non-shielded plugs for power charge, reversed plug types as shown in Fig.3 and cradle type connectors.

#### 5. Cable Options

This connector uses a solder type termination, which allows you to apply flexible cable types.

### Applications

Digital Still Cameras, Personal Digital Assistance, Notebook computers, Cellular phones, Smart phones and other portable devices requiring high reliability small size input/output connection.

#### Strong locking mechanism

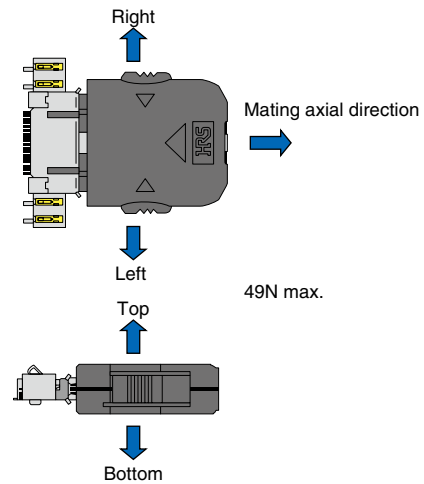


Fig.1

#### Prevention against reversed or angle insertion

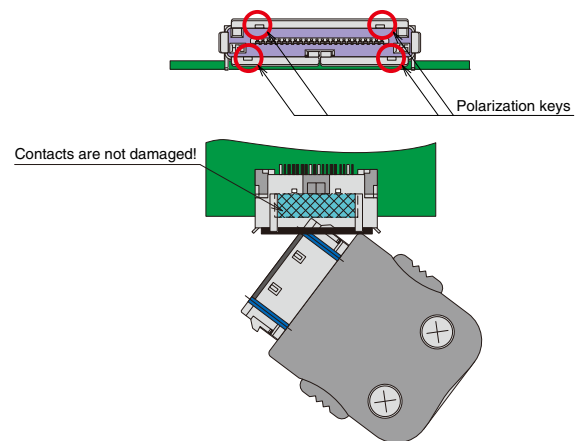


Fig.2

#### Plug variations

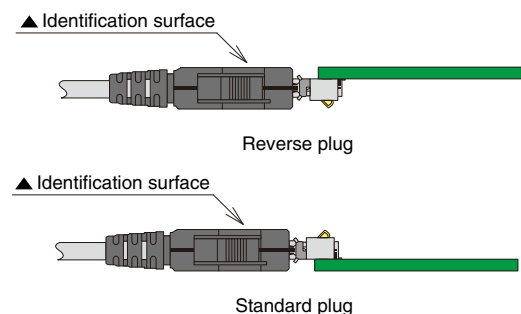


Fig.3

## ■ Product Specifications

|        |   |   |
|--------|---|---|
| Rating | Current rating 0.5A (1 A max. can be carried via 4 random contacts) | Operating temperature range : -30°C to +80°C      |
|        | Voltage rating 100V AC  | Storage temperature range : -40°C to +85°C (Note) |

| Characteristic                     | Specification   | Conditions  |
|------------------------------------|---|---|
| 1. Contact resistance              | 60mΩ max.   | 100mA DC  |
| 2. Insulation resistance           | 1,000MΩ min.  | 250V DC   |
| 3. Dielectric withstanding voltage | No flashover or insulation breakdown.   | 350V AC/ 1 minute   |
| 4. Mating/un-mating forces         | Mating : 29.4N max.   | With corresponding connector.   |
| 5. Durability (mating/un-mating)   | Contact resistance : 100mΩ max.   | 10,000 cycles   |
| 6. Shock                           | No electrical discontinuity of 10μ sec. max.  | Acceleration of 490 m/s <sup>2</sup> , 11 ms duration, sine half-wave waveform, 3 cycles in each of the 3 axis.     |
| 7. Temperature cycle               | Contact resistance : 100mΩ max.<br>Insulation resistance : 1,000MΩ min.                         | Temperature : -55°C → +5°C to +35°C → +85°C → +5°C to +35°C<br>Time (Minutes): 30 → 5 → 30 → 5<br>5 cycles          |
| 8. Salt spray                      | No corrosions   | 5±1% salt water solution at 35±3°C for 48 hours, after washing without salt, leave for 24 hours at room temperature |
| 9. Lock strength                   | Fully inserted and locked corresponding connector.<br>No physical damage or electrical failure. | Pull force : 49N max. applied in each of the 4 axis.  |
| 10. Vibration                      | No electrical discontinuity of 10μ sec. max.  | Frequency : 10 to 55 Hz, single amplitude of 0.75mm, 2 hours, 3 axis.   |

Note: Includes temperature rise caused by current flow.

## ■ Materials / Finish

### ● Receptacles and cradles

| Component | Material                                 | Finish                    | Remarks |
|-----------|--|---------------------------|---------|
| Insulator | Thermoplastic compound, glass reinforced | Color: Black              | UL94V-0 |
| Contacts  | Copper alloy                             | Contact area: Gold plated | —————   |
| Shield    | Stainless steel                          | Tin alloy plating         | —————   |

### ● Plugs

| Component | Material                                 | Finish                    | Remarks |
|-----------|--|---------------------------|---------|
| Insulator | Thermoplastic compound, glass reinforced | Color: Black              | UL94V-0 |
| Contacts  | Copper alloy                             | Contact area: Gold plated | —————   |
| Shield    | Stainless steel                          | —————                     | —————   |
| Cover     | Thermoplastic compound, glass reinforced | —————                     | UL94V-0 |

## ■ 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.

### ● Receptacles

**ST 60 - 18 P (30)**  
① ② ④ ⑤ ⑦

### ● Plugs

**ST 40 X - 18 S - CVR (30)**  
① ② ③ ④ ⑤ ⑥ ⑦

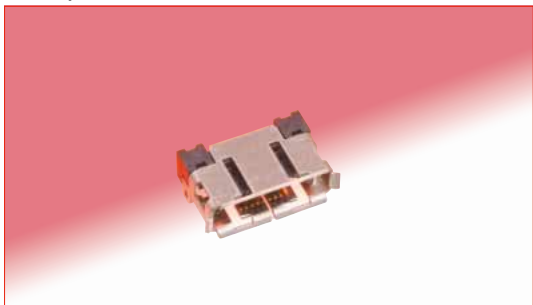
### ● Plug - Cradle type

**ST 80 X - 18 S (30)**  
① ② ③ ④ ⑤ ⑦

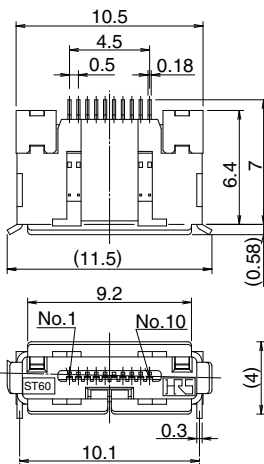
|                      |   |
|----------------------|---|
| ① Series name        | : ST  |
| ② Termination type   | 60 : Right angle SMT<br>40 : Solder type<br>80 : Cradle, vertical, SMT  |
| ③ Shield             | X : With shield<br>Blank : Without shield   |
| ④ Number of contacts |   |
| ⑤ Contact type       | P : Male contact (Receptacle)<br>S : Female contact (Plug)  |
| ⑥ Plug type          | CV : Standard type, for top PCB mount<br>CVR : Reverse type, for bottom PCB mount<br>CV1 : For larger diameter cables |
| ⑦ RoHS compliant     | : (30)  |

### ■ Receptacle

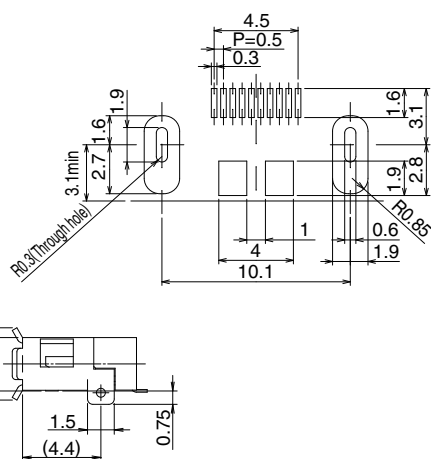
● 10 pos.



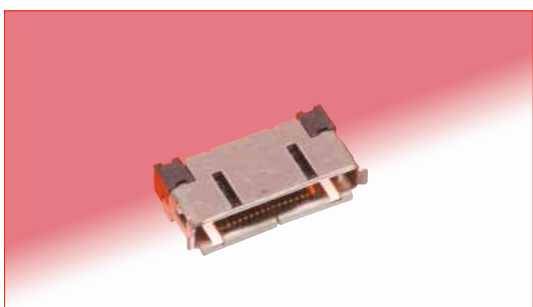
| Part No.     | HRS No.       | Packaging     | RoHS |
|--------------|---------------|---------------|------|
| ST60-10P(30) | 241-0022-5 30 | 1,500pcs/reel | ○    |



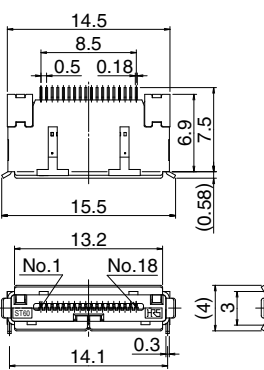
### ◆ Recommended PCB mounting pattern



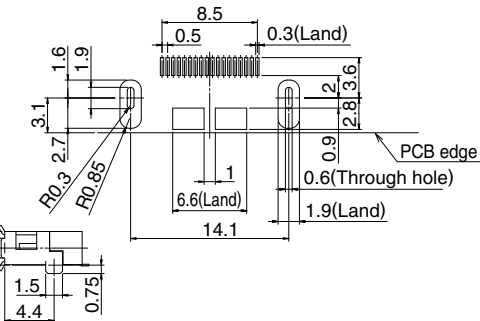
● 18 pos.



| Part No.     | HRS No.       | Packaging     | RoHS |
|--------------|---------------|---------------|------|
| ST60-18P(30) | 241-0011-9 30 | 1,500pcs/reel | ○    |



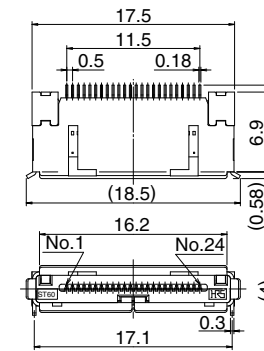
### ◆ Recommended PCB mounting pattern



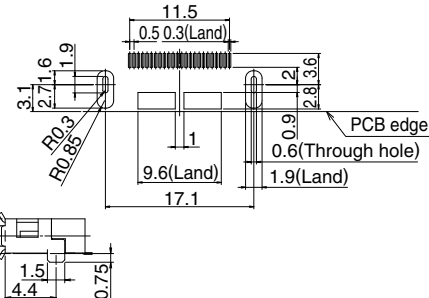
● 24 pos.



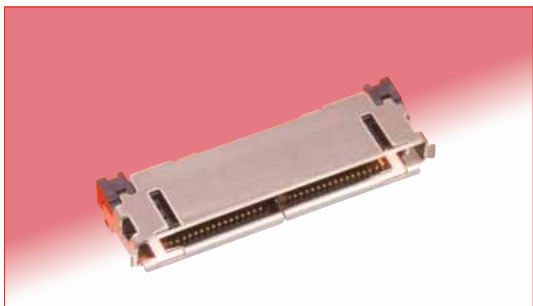
| Part No.     | HRS No.       | Packaging     | RoHS |
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| ST60-24P(30) | 241-0003-0 30 | 1,500pcs/reel | ○    |



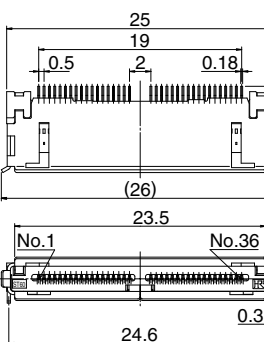
### ◆ Recommended PCB mounting pattern



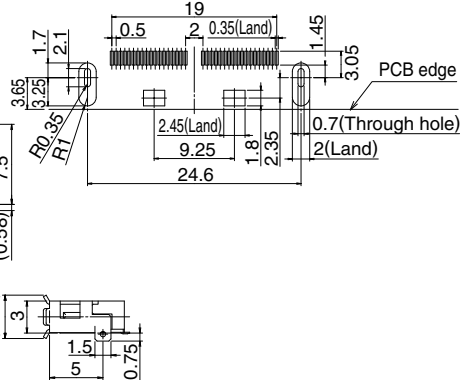
● 36 pos.



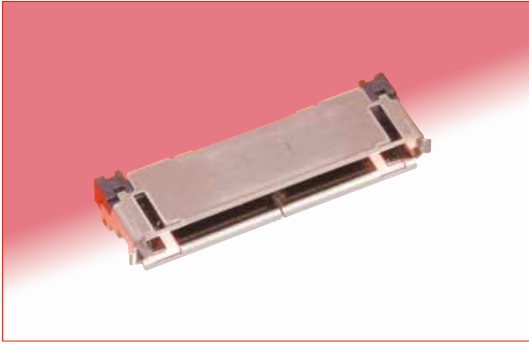
| Part No.     | HRS No.       | Packaging     | RoHS |
|--------------|---------------|---------------|------|
| ST60-36P(30) | 241-0033-1 30 | 1,500pcs/reel | ○    |



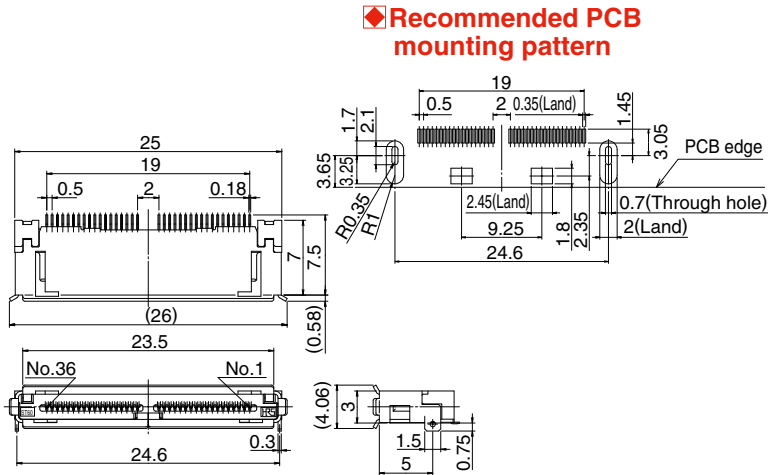
### ◆ Recommended PCB mounting pattern



● 36 pos. reverse type

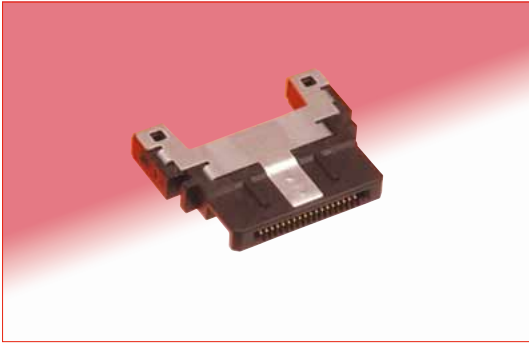


| Part No.      | HRS No.       | Packaging     | RoHS |
|---------------|---------------|---------------|------|
| ST60-36PR(30) | 241-0036-0 30 | 1,500pcs/reel | ○    |

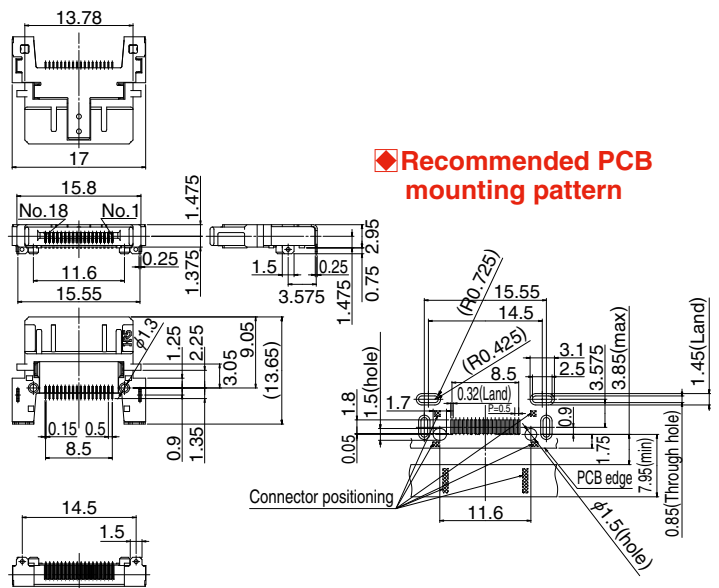


■ Plug – cradle type(Horizontal)

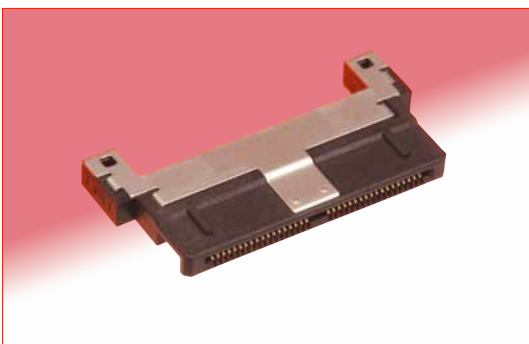
● 18 pos.



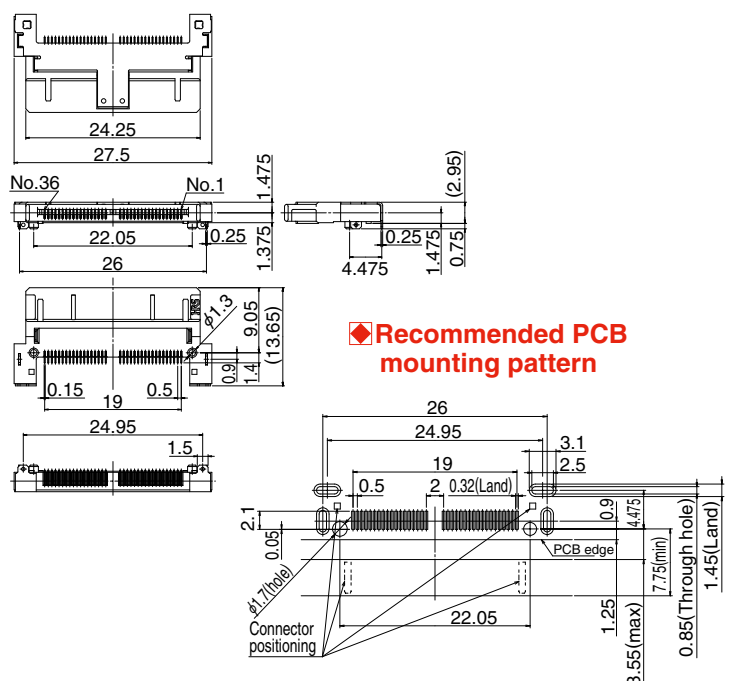
| Part No.      | HRS No.       | Packaging   | RoHS |
|---------------|---------------|-------------|------|
| ST60X-18S(30) | 241-0028-1 30 | 900pcs/reel | ○    |



● 36 pos.

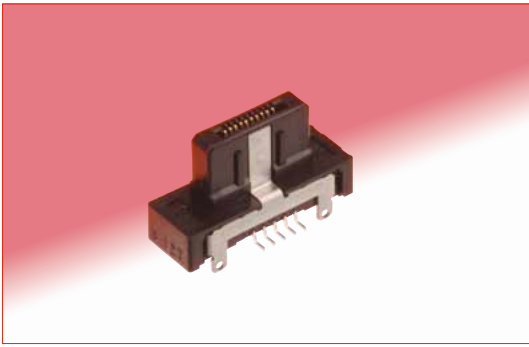


| Part No.      | HRS No.       | Packaging   | RoHS |
|---------------|---------------|-------------|------|
| ST60X-36S(30) | 241-0035-7 30 | 900pcs/reel | ○    |

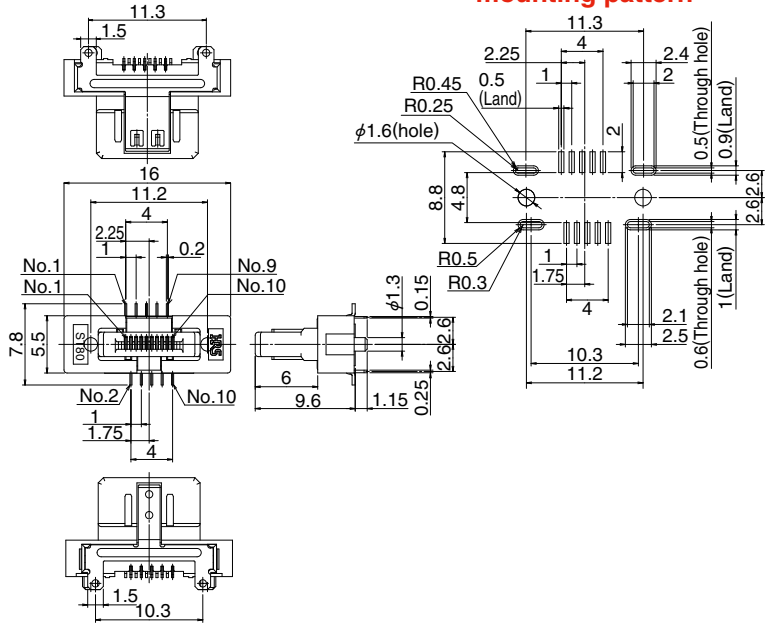


**Plug – cradle type(Vertical)**

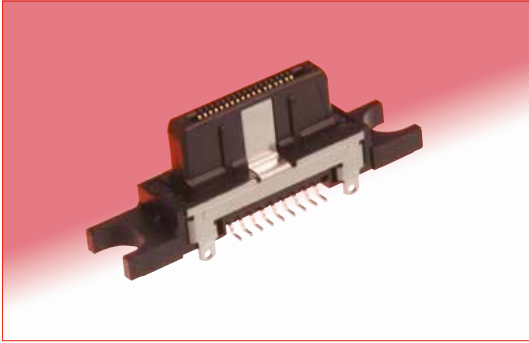
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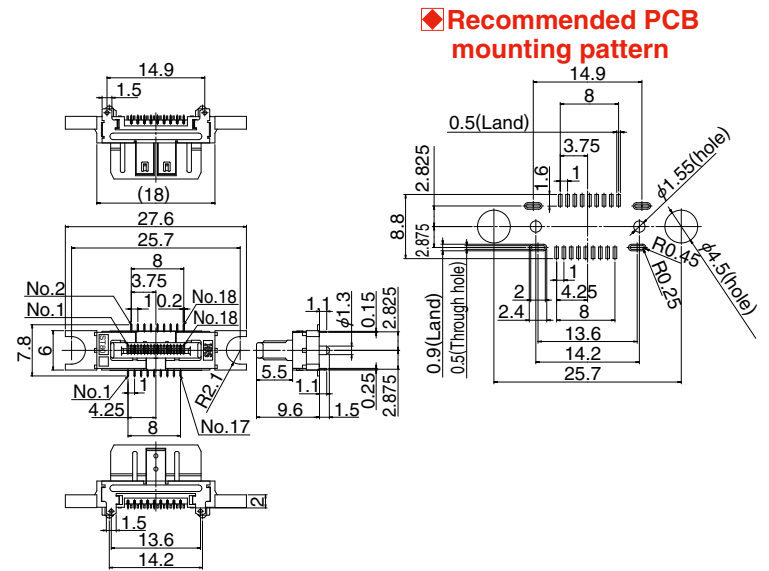
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|---------------|---------------|-------------|------|
| ST80X-10S(30) | 241-0030-3 30 | 400pcs/reel | ○    |



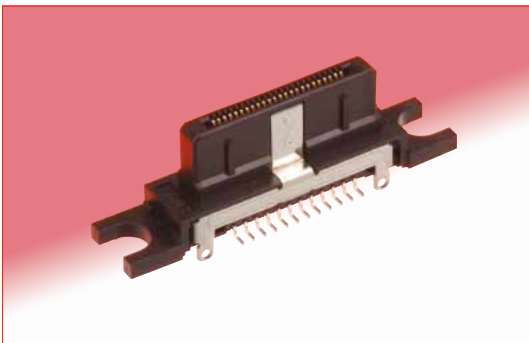
● 18 pos.



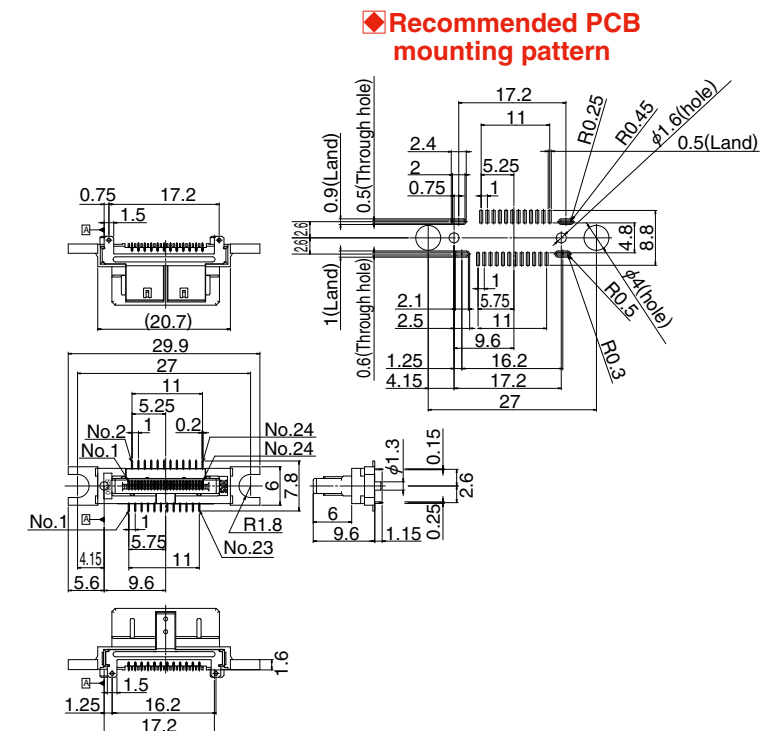
| Part No.      | HRS No.       | Packaging    | RoHS |
|---------------|---------------|--------------|------|
| ST80X-18S(30) | 241-0020-0 30 | 400 pcs/reel | ○    |



● 24 pos.

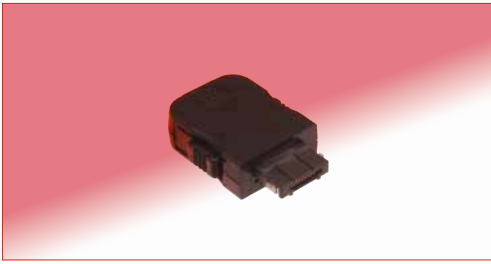


| Part No.      | HRS No.       | Packaging    | RoHS |
|---------------|---------------|--------------|------|
| ST80X-24S(30) | 241-0037-2 30 | 400 pcs/reel | ○    |

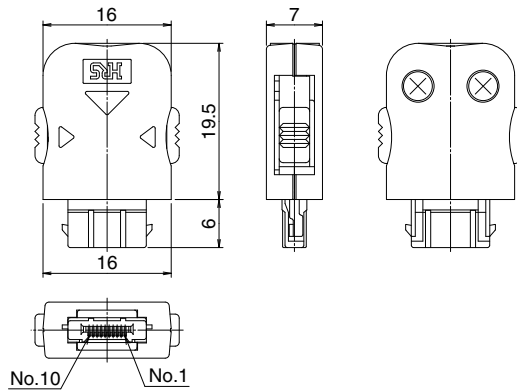


## ■ Plug

### ● 10 pos. (Non-shielded type)



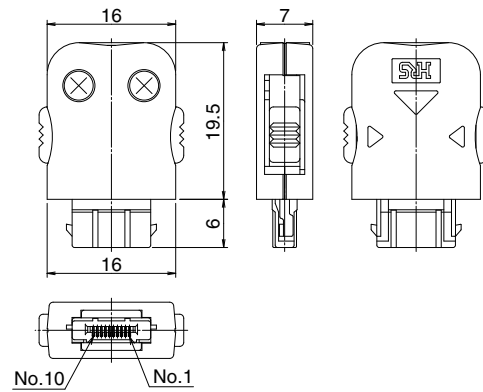
| Part No.        | HRS No.       | Packaging | RoHS |
|-----------------|---------------|-----------|------|
| ST40-10S-CV(30) | 241-0021-2 30 | 1         | ○    |



### ● 10 pos. (Reverse, non-shielded type)



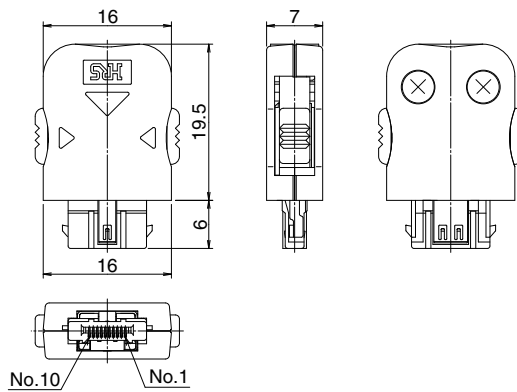
| Part No.         | HRS No.       | Packaging | RoHS |
|------------------|---------------|-----------|------|
| ST40-10S-CVR(30) | 241-0040-7 30 | 1         | ○    |



### ● 10 pos. (Shielded type)



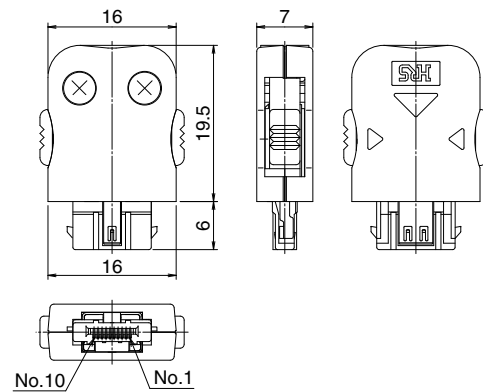
| Part No.         | HRS No.       | Packaging | RoHS |
|------------------|---------------|-----------|------|
| ST40X-10S-CV(30) | 241-0041-0 30 | 1         | ○    |



### ● 10 pos. (Reverse, shielded type)



| Part No.          | HRS No.       | Packaging | RoHS |
|-------------------|---------------|-----------|------|
| ST40X-10S-CVR(30) | 241-0029-4 30 | 1         | ○    |

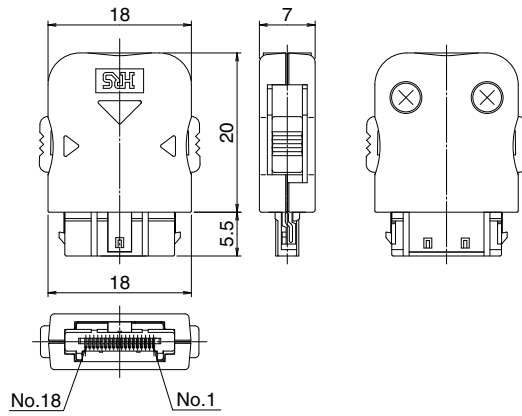




● 18 pos. (Shielded type)



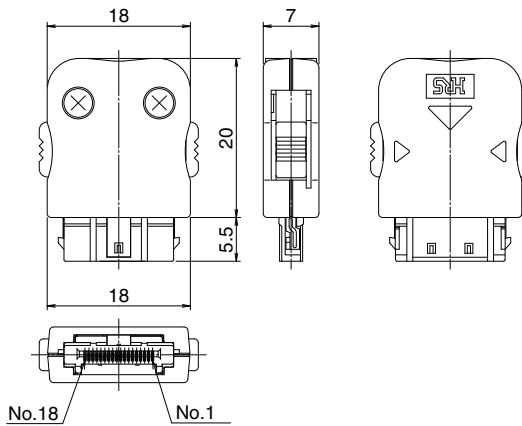
| Part No.         | HRS No.       | Packaging | RoHS |
|------------------|---------------|-----------|------|
| ST40X-18S-CV(30) | 241-0012-1 30 | 1         | ○    |



● 18 pos. (Reverse, shielded type)



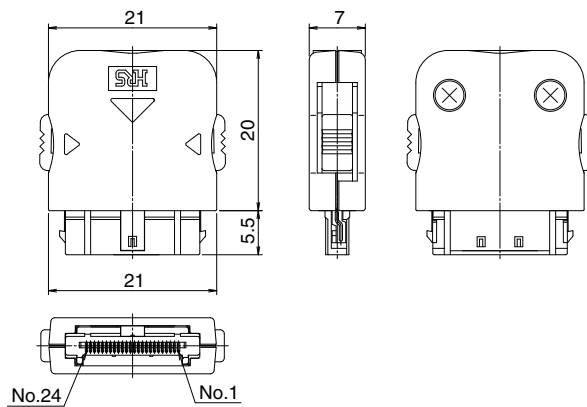
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|-------------------|---------------|-----------|------|
| ST40X-18S-CVR(30) | 241-0016-2 30 | 1         | ○    |



● 24 pos. (Shielded type)



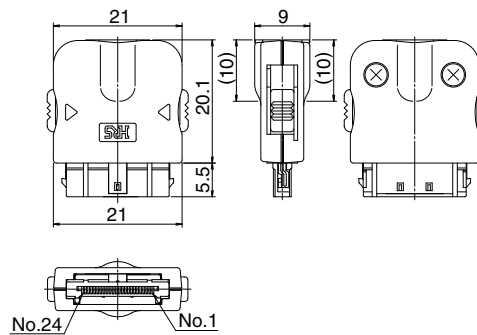
| Part No.         | HRS No.       | Packaging | RoHS |
|------------------|---------------|-----------|------|
| ST40X-24S-CV(30) | 241-0004-3 30 | 1         | ○    |



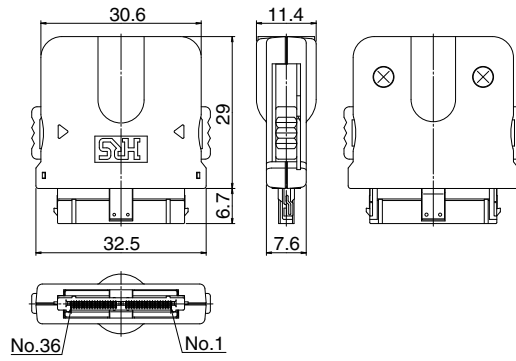
● 24 pos. (Shielded type)



| Part No.          | HRS No.       | Packaging | RoHS |
|-------------------|---------------|-----------|------|
| ST40X-24S-CV1(30) | 241-0023-8 30 | 1         | ○    |



● 36 pos. (Shielded type)

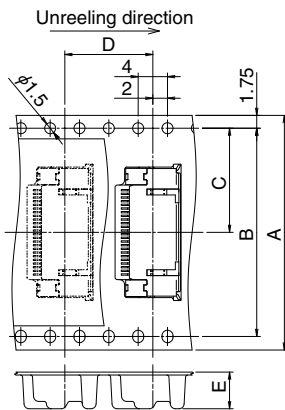


| Part No.         | HRS No.       | Packaging | RoHS |
|------------------|---------------|-----------|------|
| ST40X-36S-CV(30) | 241-0034-4 30 | 1         | ○    |

Note: Plug assemblies will require additional components. Contact Hirose Electric representative for detailed descriptions and installation instructions.

◆ Packaging Specification

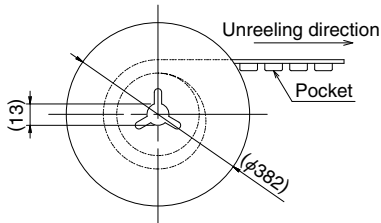
● Embossed Carrier Tape Dimensions



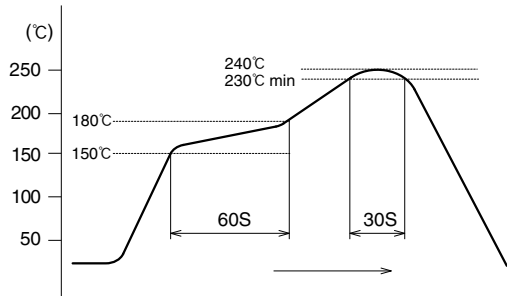
● Reel Dimensions

| Part No.      | A  | B    | C    | D  | E    | pcs. / reel |
|---------------|----|------|------|----|------|-------------|
| ST60-10P(30)  | 24 | —    | 11.5 | 12 | 5    | 1,500       |
| ST60-18P(30)  | 24 | —    | 11.5 | 12 | 5    | 1,500       |
| ST60-24P(30)  | 32 | 28.4 | 14.2 | 12 | 5    | 1,500       |
| ST60-36P(30)  | 44 | 40.4 | 20.2 | 12 | 5    | 1,500       |
| ST60-36PR(30) | 44 | 40.4 | 20.2 | 12 | 5    | 1,500       |
| ST80X-10S(30) | 24 | —    | 11.5 | 16 | 12.2 | 400         |
| ST80X-18S(30) | 44 | 40.4 | 20.2 | 16 | 12.7 | 400         |
| ST80X-24S(30) | 44 | 40.4 | 20.2 | 16 | 12.7 | 400         |
| ST60X-18S(30) | 32 | 28.4 | 14.2 | 20 | 4.95 | 900         |
| ST60X-36S(30) | 44 | 40.4 | 20.2 | 20 | 4.85 | 900         |

● Reel Dimensions



◆ Recommended Temperature Profile (Lead-free soldering compound)



This measurement is performed on the contact lead section. The temperature profile may vary due to external conditions such as the type of cream solder, manufacturer, and board size. Please contact the solder manufacturer for their specifications.



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