### 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.
### Product Specifications

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Specification</th>
<th>Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Contact resistance</td>
<td>60mΩ max.</td>
<td>100mA DC</td>
</tr>
<tr>
<td>2. Insulation resistance</td>
<td>1,000MΩ min.</td>
<td>250V DC</td>
</tr>
<tr>
<td>3. Dielectric withstanding voltage</td>
<td>No flashover or insulation breakdown.</td>
<td>350V AC/ 1 minute</td>
</tr>
<tr>
<td>5. Durability (mating/un-mating)</td>
<td>Contact resistance : 100mΩ max.</td>
<td>10,000 cycles</td>
</tr>
<tr>
<td>6. Shock</td>
<td>No electrical discontinuity of 10µ sec. max.</td>
<td>Acceleration of 490 m/s², 11 ms duration, sine half-wave waveform, 3 cycles in each of the 3 axis.</td>
</tr>
<tr>
<td>7. Temperature cycle</td>
<td>Contact resistance : 100mΩ max.</td>
<td>Time (Minutes) : 30 → 5 → 30 → 5</td>
</tr>
<tr>
<td>Insulation resistance : 1,000MΩ min.</td>
<td>Temperature : -55°C → +5°C to +35°C → +85°C → +5°C to +35°C</td>
<td>5 cycles</td>
</tr>
<tr>
<td>8. Salt spray</td>
<td>No corrosions</td>
<td>5±1% salt water solution at 35±3°C for 48 hours, after washing without salt, leave for 24 hours at room temperature</td>
</tr>
<tr>
<td>9. Lock strength</td>
<td>Fully inserted and locked corresponding connector.</td>
<td>Pull force : 49N max. applied in each of the 4 axis.</td>
</tr>
<tr>
<td>10. Vibration</td>
<td>No electrical discontinuity of 10µ sec. max.</td>
<td>Frequency : 10 to 55 Hz, single amplitude of 0.75mm, 2 hours, 3 axis.</td>
</tr>
</tbody>
</table>

Note: Includes temperature rise caused by current flow.

### Materials / Finish

#### Receptacles and cradles

<table>
<thead>
<tr>
<th>Component</th>
<th>Material</th>
<th>Finish</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insulator</td>
<td>Thermoplastic compound, glass reinforced</td>
<td>Color: Black</td>
<td>UL94V-0</td>
</tr>
<tr>
<td>Contacts</td>
<td>Copper alloy</td>
<td>Contact area: Gold plated</td>
<td></td>
</tr>
<tr>
<td>Shield</td>
<td>Stainless steel</td>
<td>Tin alloy plating</td>
<td></td>
</tr>
</tbody>
</table>

#### Plugs

<table>
<thead>
<tr>
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</tr>
<tr>
<td>Shield</td>
<td>Stainless steel</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cover</td>
<td>Thermoplastic compound, glass reinforced</td>
<td></td>
<td>UL94V-0</td>
</tr>
</tbody>
</table>

### 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)**

- Series name : ST
- Termination type : Right angle SMT
- Number of contacts : 18
- Contact type : Male contact (Receptacle)
- Plug type : Standard type, for top PCB mount
- RoHS compliant : (30)

#### Plugs

**ST 40 X - 18 S - CVR (30)**

- Series name : ST
- Termination type : Solder type
- Number of contacts : 18
- Contact type : Female contact (Plug)
- Plug type : Reverse type, for bottom PCB mount
- RoHS compliant : (30)

#### Plug - Cradle type

**ST 80 X - 18 S (30)**

- Series name : ST
- Termination type : Cradle, vertical, SMT
- Number of contacts : 18
- Contact type : Female contact (Plug)
- Plug type : Reverse type, for bottom PCB mount
- RoHS compliant : (30)
### Receptacle

**10 pos.**

![10 pos. Receptacle](image)

<table>
<thead>
<tr>
<th>Part No.</th>
<th>HRS No.</th>
<th>Packaging</th>
<th>RoHS</th>
</tr>
</thead>
<tbody>
<tr>
<td>ST60-10P(30)</td>
<td>241-0022-5 30</td>
<td>1,500pcs/reel</td>
<td></td>
</tr>
</tbody>
</table>

**18 pos.**

![18 pos. Receptacle](image)

<table>
<thead>
<tr>
<th>Part No.</th>
<th>HRS No.</th>
<th>Packaging</th>
<th>RoHS</th>
</tr>
</thead>
<tbody>
<tr>
<td>ST60-18P(30)</td>
<td>241-0011-9 30</td>
<td>1,500pcs/reel</td>
<td></td>
</tr>
</tbody>
</table>

**24 pos.**

![24 pos. Receptacle](image)

<table>
<thead>
<tr>
<th>Part No.</th>
<th>HRS No.</th>
<th>Packaging</th>
<th>RoHS</th>
</tr>
</thead>
<tbody>
<tr>
<td>ST60-24P(30)</td>
<td>241-0003-0 30</td>
<td>1,500pcs/reel</td>
<td></td>
</tr>
</tbody>
</table>

**36 pos.**

![36 pos. Receptacle](image)

<table>
<thead>
<tr>
<th>Part No.</th>
<th>HRS No.</th>
<th>Packaging</th>
<th>RoHS</th>
</tr>
</thead>
<tbody>
<tr>
<td>ST60-36P(30)</td>
<td>241-0033-1 30</td>
<td>1,500pcs/reel</td>
<td></td>
</tr>
</tbody>
</table>
36 pos. reverse type

36 pos. reverse type

Plug – cradle type (Horizontal)

18 pos.

36 pos.

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

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

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

Recommended PCB mounting pattern

Recommended PCB mounting pattern

Recommended PCB mounting pattern

Recommended PCB mounting pattern
### Plug – cradle type (Vertical)

#### 10 pos.

![Diagram of 10 pos plug]

**Recommended PCB mounting pattern**

#### 18 pos.

![Diagram of 18 pos plug]

**Recommended PCB mounting pattern**

#### 24 pos.

![Diagram of 24 pos plug]

**Recommended PCB mounting pattern**

---

<table>
<thead>
<tr>
<th>Part No.</th>
<th>HRS No.</th>
<th>Packaging</th>
<th>RoHS</th>
</tr>
</thead>
<tbody>
<tr>
<td>ST80X-10S(30)</td>
<td>241-0030-3</td>
<td>400 pcs/reel</td>
<td></td>
</tr>
<tr>
<td>ST80X-18S(30)</td>
<td>241-0020-0</td>
<td>400 pcs/reel</td>
<td></td>
</tr>
<tr>
<td>ST80X-24S(30)</td>
<td>241-0037-2</td>
<td>400 pcs/reel</td>
<td></td>
</tr>
</tbody>
</table>
## Plug

- **10 pos. (Non-shielded type)**

<table>
<thead>
<tr>
<th>Part No.</th>
<th>HRS No.</th>
<th>Packaging</th>
<th>RoHS</th>
</tr>
</thead>
<tbody>
<tr>
<td>ST40-10S-CV(30)</td>
<td>241-0021-2 30</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

- **10 pos. (Reverse, non-shielded type)**

<table>
<thead>
<tr>
<th>Part No.</th>
<th>HRS No.</th>
<th>Packaging</th>
<th>RoHS</th>
</tr>
</thead>
<tbody>
<tr>
<td>ST40-10S-CVR(30)</td>
<td>241-0040-7 30</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

- **10 pos. (Shielded type)**

<table>
<thead>
<tr>
<th>Part No.</th>
<th>HRS No.</th>
<th>Packaging</th>
<th>RoHS</th>
</tr>
</thead>
<tbody>
<tr>
<td>ST40X-10S-CV(30)</td>
<td>241-0041-0 30</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

- **10 pos. (Reverse, shielded type)**

<table>
<thead>
<tr>
<th>Part No.</th>
<th>HRS No.</th>
<th>Packaging</th>
<th>RoHS</th>
</tr>
</thead>
<tbody>
<tr>
<td>ST40X-10S-CVR(30)</td>
<td>241-0029-4 30</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>
● 18 pos. (Shielded type)

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

● 18 pos. (Reverse, shielded type)

Part No. | HRS No. | Packaging | RoHS
---|---|---|---
ST40X-18S-CVR(30)241-0016-2 30 | 1 | 

● 24 pos. (Shielded type)

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

● 24 pos. (Shielded type)

Part No. | HRS No. | Packaging | RoHS
---|---|---|---
ST40X-24S-CV1(30)241-0023-8 30 | 1 |
ST Series ● Interface Connectors for Portable Terminal Devices

● 36 pos. (Shielded type)

No.36
No.1

30.6
11.4

32.5
7.6

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

Packaging Specification

Embossed Carrier Tape Dimensions

Unreeling direction

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

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 20 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

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.

HIROSE ELECTRIC CO., LTD.
2-6-3, Nakagawa Chuoh, Tsuzuki-Ku, Yokohama-Shi 224-8540, JAPAN
TEL: +81-45-620-3526  Fax: +81-45-591-3726