

HS SERIES SHELL SIZE 12-35mm TRADITIONAL CONNECTORS

Introduction

The HS series is generally called "metal connector", and is the most widely used standard multi-pin circular connector.

Being sturdy and simple in construction, the HS connectors are stable mechanically and electrically and

are employed by NTT and set manufacturers as standard parts.

For the performance of the HS series connectors, see the terminal arrangement of the HS series on pages 15-18.

Material & Finish

| Part | Material | Finish |
|----------------|--------------------------|---------------|
| Shell | Brass or Synthetic resin | Nickel plated |
| Insulator | Synthetic resin | |
| Pin contact | Brass | Nickel plated |
| Socket contact | Brass or phosphor bronze | Nickel plated |

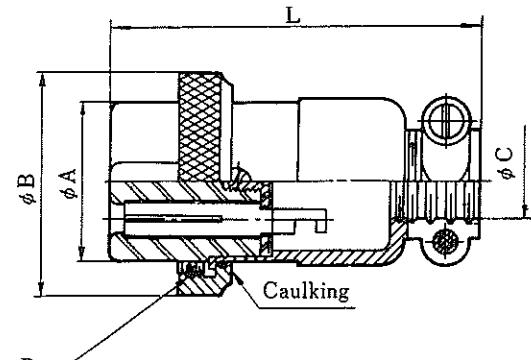
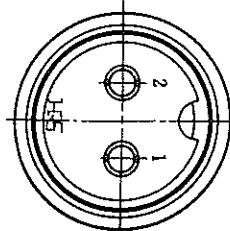
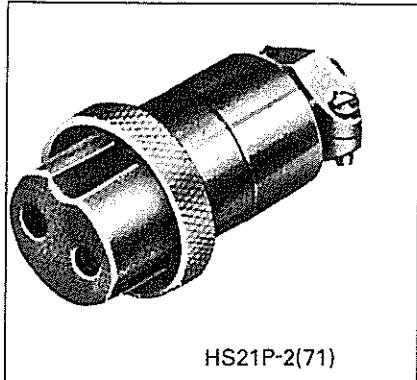


Ordering Information

| | | | | | | | |
|-------------------------------------|----|----|---|---|---|---|---|
| (1) Series name | HS | 21 | P | A | - | 2 | A |
| (2) Shell size | | | | | | | |
| (3) Shell type | | | | | | | |
| (4) Shell model change mark | | | | | | | |
| (5) Number of contacts | | | | | | | |
| (6) Contact arrangement change mark | | | | | | | |

(1) Series name: HS stands for HIROSE STANDARD.
(2) Shell size: The shell size is expressed as the outside diameter of the plug fitting section (insulator) with seven types; 12, 14, 16, 21, 25, 28 and 35.
(3) Shell type: The shell is classified into the following types.
P : Plug
R : Receptacle
J : Jack
RC : Receptacle cap
(4) Shell model change mark: Each time the shell undergoes a model change, it is marked as A, B or C.
(5) Contact: Number of terminals.
(6) Contact arrangement change mark: When the contact fitting section or contact arrangement undergoes a change, it is marked as A, B, C....after the number of contacts.

Plug

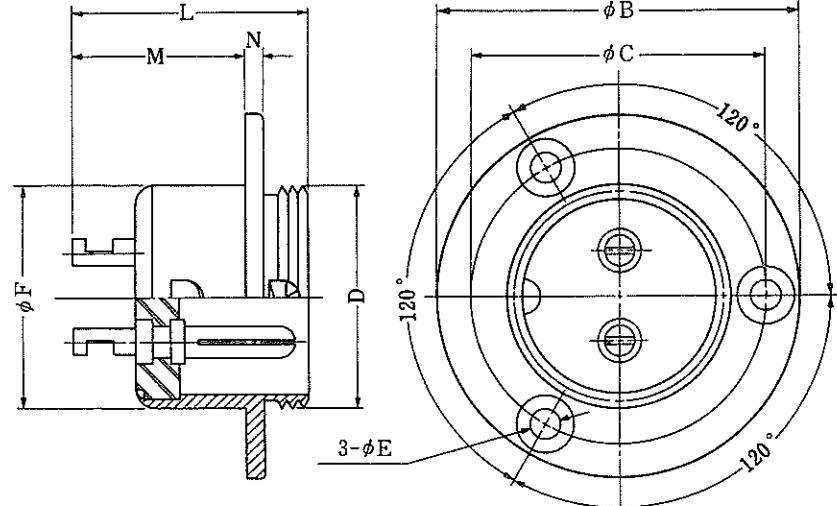
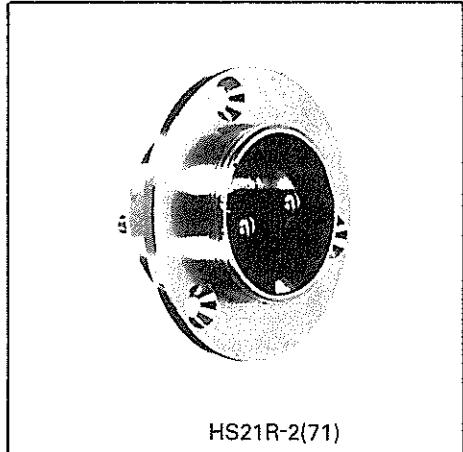


(An example in shape)

| HRS No. | Part No. | φA | φB | φC | D | L | RoHS |
|---------------|--------------|------|------|-----|---------|------|------|
| 101-0002-0-71 | HS12P-2(71) | 12 | 18 | 7 | M15.5×1 | 38 | |
| 101-0013-7-71 | HS14P-2(71) | 13.5 | 21.5 | 8.5 | M19×1 | 43 | |
| 101-0030-6-71 | HS16P-2(71) | 15.5 | 21.5 | 8.5 | M19×1 | 43 | |
| 101-0031-9-71 | HS16P-3(71) | 15.5 | 21.5 | 8.5 | M19×1 | 43 | |
| 101-0034-7-71 | HS16P-4(71) | 15.5 | 21.5 | 8.5 | M19×1 | 43 | |
| 101-0275-3-71 | HS16P-5(71) | 15.5 | 21.5 | 8.5 | M19×1 | 43 | |
| 101-0053-1-71 | HS21P-2(71) | 21 | 28 | 10 | M25×1 | 50 | |
| 101-0060-7-71 | HS21P-3(71) | 21 | 28 | 10 | M25×1 | 50 | |
| 101-0066-3-71 | HS21P-4(71) | 21 | 28 | 10 | M25×1 | 50 | |
| 101-0069-1-71 | HS21P-5(71) | 21 | 28 | 10 | M25×1 | 50 | |
| 101-0074-1-71 | HS21P-6(71) | 21 | 28 | 10 | M25×1 | 50 | |
| 101-0075-4-71 | HS21P-7(71) | 21 | 28 | 10 | M25×1 | 50 | |
| 101-0076-7-71 | HS21P-8(71) | 21 | 28 | 10 | M25×1 | 50 | |
| 101-0369-5-71 | HS21P-10(71) | 21 | 28 | 10 | M25×1 | 49 | |
| 101-0115-7-71 | HS25P-2(71) | 25 | 32 | 10 | M29×1 | 54.5 | |
| 101-0117-2-71 | HS25P-3(71) | 25 | 32 | 10 | M29×1 | 54.5 | |
| 101-0119-8-71 | HS25P-4(71) | 25 | 32 | 10 | M29×1 | 54.5 | |
| 101-0120-7-71 | HS25P-5(71) | 25 | 32 | 10 | M29×1 | 54.5 | |

| HRS No. | Part No. | φA | φB | φC | D | L | RoHS |
|---------------|---------------|----|----|----|-------|------|------|
| 101-0122-2-71 | HS25P-6(71) | 25 | 32 | 10 | M29×1 | 54.5 | |
| 101-0124-8-71 | HS25P-7(71) | 25 | 32 | 10 | M29×1 | 54.5 | |
| 101-0128-9-71 | HS25P-8(71) | 25 | 32 | 10 | M29×1 | 54.5 | |
| 101-0129-1-71 | HS25P-10(71) | 25 | 32 | 10 | M29×1 | 54.5 | |
| 101-0151-0-71 | HS28P-2(71) | 28 | 38 | 16 | M34×1 | 64.5 | |
| 101-0153-6-71 | HS28P-3(71) | 28 | 38 | 16 | M34×1 | 64.5 | |
| 101-0154-9-71 | HS28P-4(71) | 28 | 38 | 16 | M34×1 | 64.5 | |
| 101-0155-1-71 | HS28P-4A(71) | 28 | 38 | 16 | M34×1 | 64.5 | |
| 101-0157-7-71 | HS28P-7(71) | 28 | 38 | 16 | M34×1 | 64.5 | |
| 101-0158-0-71 | HS28P-8(71) | 28 | 38 | 16 | M34×1 | 64.5 | |
| 101-0159-2-71 | HS28P-12(71) | 28 | 38 | 16 | M34×1 | 64.5 | |
| 101-0272-5-71 | HS35PB-2(71) | 35 | 46 | 19 | M41×1 | 71.5 | |
| 101-0270-0-71 | HS35PB-3(71) | 35 | 46 | 19 | M41×1 | 71.5 | |
| 101-0187-8-71 | HS35PB-16(71) | 35 | 46 | 19 | M41×1 | 71.5 | |
| 101-0189-3-71 | HS35PB-20(71) | 35 | 46 | 19 | M41×1 | 71.5 | |

Receptacle

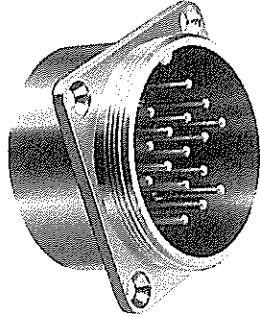


(An example in shape)

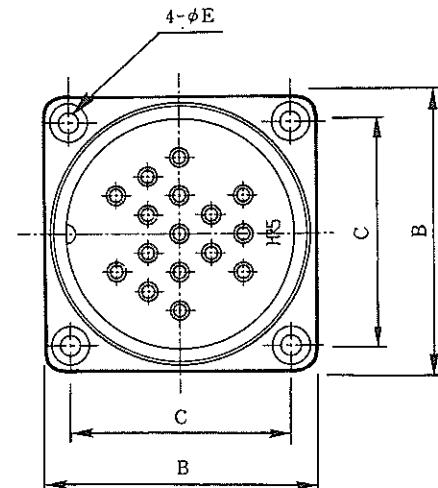
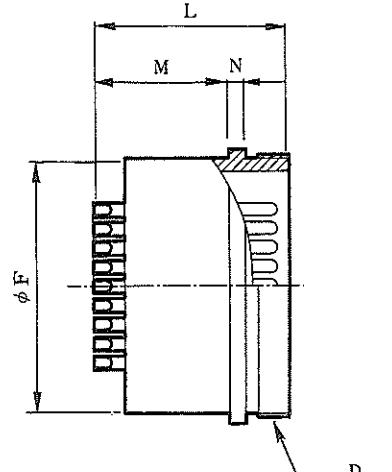
| HRS No. | Part No. | φB | φC | D | φE | φF | L | M | N | RoHS |
|---------------|--------------|----|------|---------|------|------|------|------|-----|------|
| 101-0007-4-71 | HS12R-2(71) | 23 | 19 | M15.5×1 | 2.1* | 14 | 22.5 | 16 | 1.5 | |
| 101-0016-5-71 | HS14R-2(71) | 32 | 25.5 | M19×1 | 3.2 | 16.5 | 23 | 16 | 2 | |
| 101-0040-0-71 | HS16R-2(71) | 32 | 25.5 | M19×1 | 3.2 | 19 | 23 | 16 | 2 | |
| 101-0041-2-71 | HS16R-3(71) | 32 | 25.5 | M19×1 | 3.2 | 19 | 23 | 16 | 2 | |
| 101-0042-5-71 | HS16R-4(71) | 32 | 25.5 | M19×1 | 3.2 | 19 | 23 | 16 | 2 | |
| 101-0448-0-71 | HS16R-5(71) | 32 | 25.5 | M19×1 | 3.2 | 19 | 23 | 16 | 2 | |
| 101-0084-5-71 | HS21R-2(71) | 41 | 33 | M25×1 | 3.2 | 25 | 26.5 | 19.5 | 2 | |
| 101-0089-9-71 | HS21R-3(71) | 41 | 33 | M25×1 | 3.2 | 25 | 26.5 | 19.5 | 2 | |
| 101-0091-0-71 | HS21R-4(71) | 41 | 33 | M25×1 | 3.2 | 25 | 26.5 | 19.5 | 2 | |
| 101-0093-6-71 | HS21R-5(71) | 41 | 33 | M25×1 | 3.2 | 25 | 26.5 | 19.5 | 2 | |
| 101-0095-1-71 | HS21R-6(71) | 41 | 33 | M25×1 | 3.2 | 25 | 26.5 | 19.5 | 2 | |
| 101-0096-4-71 | HS21R-7(71) | 41 | 33 | M25×1 | 3.2 | 25 | 26.5 | 19.5 | 2 | |
| 101-0097-7-71 | HS21R-8(71) | 41 | 33 | M25×1 | 3.2 | 25 | 26.5 | 19.5 | 2 | |
| 101-0370-4-71 | HS21R-10(71) | 41 | 33 | M25×1 | 3.2 | 25 | 24.5 | 17.5 | 2 | |
| 101-0130-0-71 | HS25R-2(71) | 46 | 37 | M29×1 | 3.2 | 29 | 26.5 | 19.5 | 2 | |
| 101-0131-3-71 | HS25R-3(71) | 46 | 37 | M29×1 | 3.2 | 29 | 26.5 | 19.5 | 2 | |
| 101-0132-6-71 | HS25R-4(71) | 46 | 37 | M29×1 | 3.2 | 29 | 26.5 | 19.5 | 2 | |
| 101-0133-9-71 | HS25R-5(71) | 46 | 37 | M29×1 | 3.2 | 29 | 26.5 | 19.5 | 2 | |
| 101-0135-4-71 | HS25R-6(71) | 46 | 37 | M29×1 | 3.2 | 29 | 26.5 | 19.5 | 2 | |
| 101-0136-7-71 | HS25R-7(71) | 46 | 37 | M29×1 | 3.2 | 29 | 26.5 | 19.5 | 2 | |
| 101-0137-0-71 | HS25R-8(71) | 46 | 37 | M29×1 | 3.2 | 29 | 26.5 | 19.5 | 2 | |
| 101-0138-2-71 | HS25R-10(71) | 46 | 37 | M29×1 | 3.2 | 29 | 26.5 | 19.5 | 2 | |
| 101-0160-1-71 | HS28R-2(71) | 51 | 43 | M34×1 | 3.2 | 32 | 35.5 | 28 | 2 | |
| 101-0162-7-71 | HS28R-3(71) | 51 | 43 | M34×1 | 3.2 | 32 | 36 | 28.5 | 2 | |
| 101-0163-0-71 | HS28R-4(71) | 51 | 43 | M34×1 | 3.2 | 32 | 26.5 | 19 | 2 | |
| 101-0164-2-71 | HS28R-4A(71) | 51 | 43 | M34×1 | 3.2 | 32 | 36 | 28.5 | 2 | |
| 101-0276-6-71 | HS28R-7(71) | 51 | 43 | M34×1 | 3.2 | 32 | 26.5 | 19 | 2 | |
| 101-0166-8-71 | HS28R-8(71) | 51 | 43 | M34×1 | 3.2 | 32 | 26.5 | 19 | 2 | |
| 101-0169-6-71 | HS28R-12(71) | 51 | 43 | M34×1 | 3.2 | 32 | 26.5 | 19 | 2 | |
| 101-0269-0-71 | HS35RC-2(71) | 58 | 50 | M41×1 | 3.2 | 40 | 38 | 28.5 | 2.5 | |
| 101-0273-8-71 | HS35RC-3(71) | 58 | 50 | M41×1 | 3.2 | 40 | 38 | 28.5 | 2.5 | |

* : 1.6φ flat head screw is recommended for mounting.

Receptacle



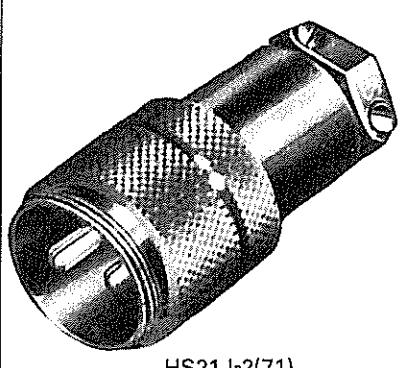
HS35RA-16(71)



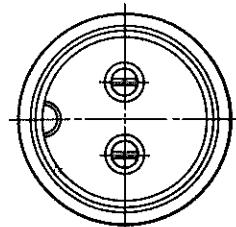
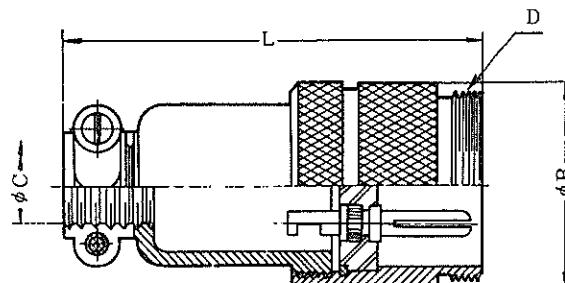
(An example in shape)

| HRS No. | Part No. | B | C | D | φE | φF | L | M | N | RoHS |
|---------------|---------------|----|----|-------|-----|----|----|------|-----|-------------------------------------|
| 101-0200-4-71 | HS35RA-16(71) | 43 | 35 | M41×1 | 3.2 | 40 | 31 | 21.5 | 2.5 | <input checked="" type="checkbox"/> |
| 101-0201-7-71 | HS35RA-20(71) | 43 | 35 | M41×1 | 3.2 | 40 | 31 | 21.5 | 2.5 | <input type="checkbox"/> |

Jack



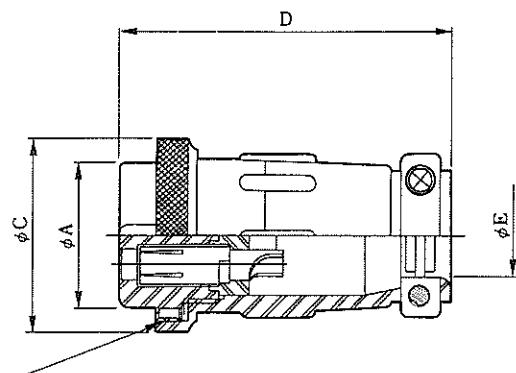
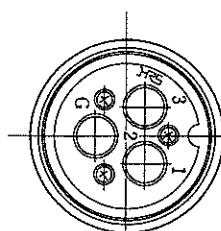
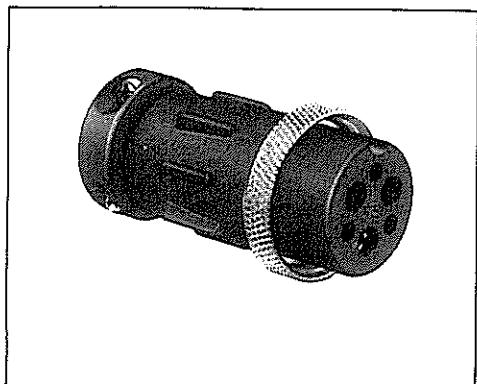
HS21J-2(71)



(An example in shape)

| HRS No. | Part No. | φB | φC | D | L | RoHS |
|---------------|-------------|------|-----|---------|------|-------------------------------------|
| 101-0010-9-71 | HS12J-2(71) | 18 | 7 | M15.5×1 | 44.5 | <input checked="" type="checkbox"/> |
| 101-0047-9-71 | HS16J-2(71) | 21.5 | 8.5 | M19×1 | 50 | <input type="checkbox"/> |
| 101-0048-1-71 | HS16J-3(71) | 21.5 | 8.5 | M19×1 | 50 | <input type="checkbox"/> |
| 101-0049-4-71 | HS16J-4(71) | 21.5 | 8.5 | M19×1 | 50 | <input type="checkbox"/> |
| 101-0416-3-71 | HS16J-5(71) | 21.5 | 8.5 | M19×1 | 50 | <input type="checkbox"/> |
| 101-0104-0-71 | HS21J-2(71) | 28 | 10 | M25×1 | 57 | <input type="checkbox"/> |
| 101-0105-3-71 | HS21J-3(71) | 28 | 10 | M25×1 | 57 | <input type="checkbox"/> |
| 101-0106-6-71 | HS21J-4(71) | 28 | 10 | M25×1 | 57 | <input type="checkbox"/> |
| 101-0107-9-71 | HS21J-5(71) | 28 | 10 | M25×1 | 57 | <input type="checkbox"/> |

Plug (Plastic Type)

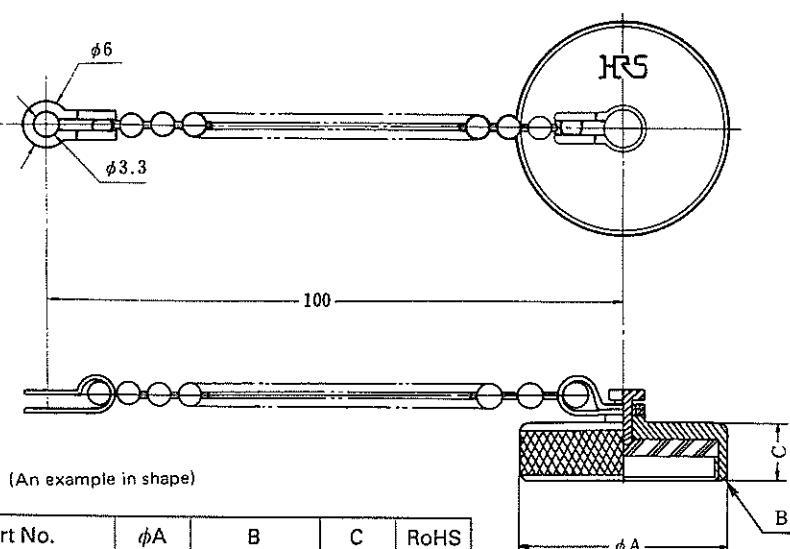
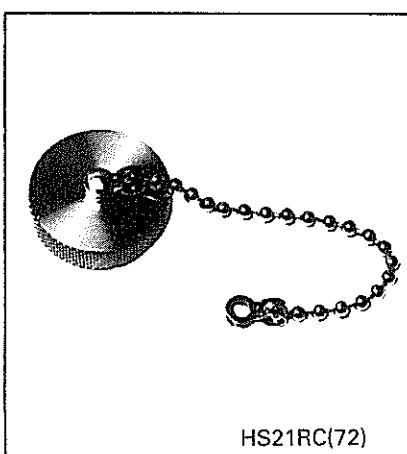


(An example in shape)

| HRS No. | Part No. | ϕA | B | ϕC | D | ϕE | RoHS |
|---------------|---------------|----------|-------|----------|----|----------|------|
| 101-0540-2-71 | HS28PD-3B(71) | 28.6 | M34×1 | 38 | 66 | 16 | ○ |

Remarks : Class A electric products in compliance with the Electric Products Control Regulations

Cap for Receptacle

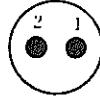


(An example in shape)

| HRS No. | Part No. | ϕA | B | C | RoHS |
|---------------|------------|----------|---------|---|------|
| 101-0011-1-72 | HS12RC(72) | 18 | M15.5×1 | 7 | ○ |
| 101-0027-1-72 | HS14RC(72) | 21.5 | M19×1 | 7 | |
| 101-0109-4-72 | HS21RC(72) | 28 | M25×1 | 7 | |
| 101-0148-6-72 | HS25RC(72) | 32 | M29×1 | 7 | |
| 101-0174-6-72 | HS28RC(72) | 38 | M34×1 | 7 | |
| 101-0207-3-72 | HS35RC(72) | 46 | M41×1 | 9 | |

Note : Part No. HS14RC is possible to use as cap of size 16.

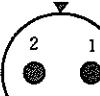
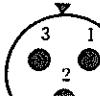
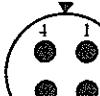
Contact Arrangement

| Shell size | |
|------------|---|
| 12 |  |

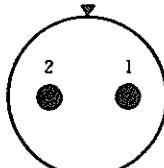
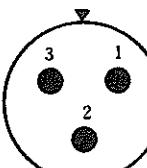
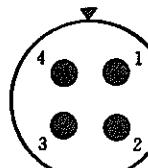
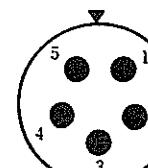
| | |
|-----------------------|------------------|
| No. of pins | 2 |
| Withstanding voltage | AC1000V a minute |
| Current rating | 7 A |
| Insulation resistance | 1000MΩ MIN. |
| Contact resistance | 5mΩ MAX. |
| Solder cup dia. | φ1.5 |

| Shell size | |
|------------|---|
| 14 |  |

| | |
|-----------------------|------------------|
| No. of pins | 2 |
| Withstanding voltage | AC1000V a minute |
| Current rating | 7 A |
| Insulation resistance | 1000MΩ MIN. |
| Contact resistance | 5mΩ MAX. |
| Solder cup dia. | φ1.5 |

| Shell size | | | | |
|------------|---|---|---|---|
| 16 |  |  |  |  |

| | | | | |
|-----------------------|------------------|------------------|------------------|------------------|
| No. of pins | 2 | 3 | 4 | 5 |
| Withstanding voltage | AC1000V a minute | AC1000V a minute | AC1000V a minute | AC1000V a minute |
| Current rating | 7A | 7A | 7A | 2A |
| Insulation resistance | 1000MΩ MIN. | 1000MΩ MIN. | 1000MΩ MIN. | 1000MΩ MIN. |
| Contact resistance | 5mΩ MAX. | 5mΩ MAX. | 5mΩ MAX. | 5mΩ MAX. |
| Solder cup dia. | φ1.8 | φ1.8 | φ1.8 | φ1.5 |

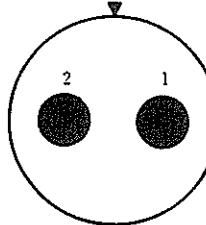
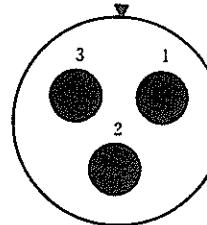
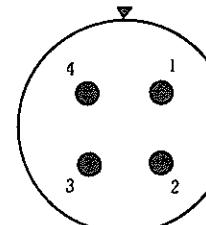
| Shell size | | | | |
|------------|---|---|---|---|
| 21 |  |  |  |  |

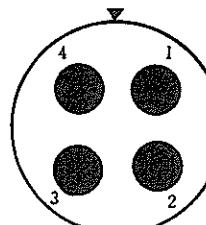
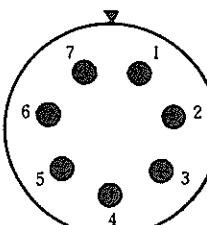
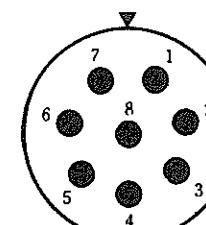
| | | | | | |
|-----------------------|------------------|------------------|------------------|-----------------|------------------|
| No. of pins | 2 | 3 | 4 | 5 | 6 |
| Withstanding voltage | AC1000V a minute | AC1000V a minute | AC1000V a minute | AC500V a minute | AC1000V a minute |
| Current rating | 10A | 10A | 10A | 10A | 7A |
| Insulation resistance | 1000MΩ MIN. | 1000MΩ MIN. | 1000MΩ MIN. | 1000MΩ MIN. | 1000MΩ MIN. |
| Contact resistance | 5mΩ MAX. | 5mΩ MAX. | 5mΩ MAX. | 5mΩ MAX. | 5mΩ MAX. |
| Solder cup dia. | φ2.0 | φ2.0 | φ2.0 | φ2.0 | φ1.5 |

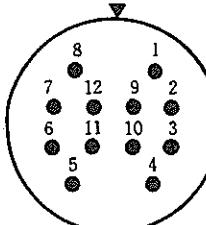
| Shell size | | | | |
|-----------------------|------------------|------------------|------------------|--|
| 21 | | | | |
| No. of pins | 7 | 8 | 10 | |
| Withstanding voltage | AC1000V a minute | AC1000V a minute | AC1000V a minute | |
| Current rating | 7A | 4A | 3A | |
| Insulation resistance | 1000MΩ MIN. | 1000MΩ MIN. | 1000MΩ MIN. | |
| Contact resistance | 5mΩ MAX. | 5mΩ MAX. | 5mΩ MAX. | |
| Solder cup dia. | φ1.5 | φ1.2 | φ1.5 | |

| Shell size | | | | |
|-----------------------|------------------|------------------|------------------|------------------|
| 25 | | | | |
| No. of pins | 2 | 3 | 4 | 5 |
| Withstanding voltage | AC1000V a minute | AC1000V a minute | AC1000V a minute | AC1000V a minute |
| Current rating | 10A | 10A | 10A | 10A |
| Insulation resistance | 1000MΩ MIN. | 1000MΩ MIN. | 1000MΩ MIN. | 1000MΩ MIN. |
| Contact resistance | 5mΩ MAX. | 5mΩ MAX. | 5mΩ MAX. | 5mΩ MAX. |
| Solder cup dia. | φ2.0 | φ2.0 | φ2.0 | φ2.0 |

| Shell size | | | | |
|-----------------------|------------------|------------------|------------------|------------------|
| 25 | | | | |
| No. of pins | 6 | 7 | 8 | 10 |
| Withstanding voltage | AC1000V a minute | AC1000V a minute | AC1000V a minute | AC1000V a minute |
| Current rating | 10A | 10A | 10A | 4A |
| Insulation resistance | 1000MΩ MIN. | 1000MΩ MIN. | 1000MΩ MIN. | 1000MΩ MIN. |
| Contact resistance | 5mΩ MAX. | 5mΩ MAX. | 5mΩ MAX. | 5mΩ MAX. |
| Solder cup dia. | φ2.0 | φ2.0 | φ2.0 | φ1.2 |

| Shell size |  |  |  |
|-----------------------|---|--|---|
| 28 | | | |
| No. of pins | 2 | 3 | 4 |
| Withstanding voltage | AC1000V a minute | AC1000V a minute | AC1000V a minute |
| Current rating | 30A | 30A | 7A |
| Insulation resistance | 1000MΩ MIN. | 1000MΩ MIN. | 1000MΩ MIN. |
| Contact resistance | 5mΩ MAX. | 5mΩ MAX. | 5mΩ MAX. |
| Solder cup dia. | φ5.0 (receptacle: φ6) | φ5.0 (receptacle: φ6) | φ1.8 (receptacle: φ1.5) |

| Shell size |  |  |  |
|-----------------------|--|---|--|
| 28 | | | |
| No. of pins | 4A | 7 | 8 |
| Withstanding voltage | AC1000V a minute | AC1000V a minute | AC1000V a minute |
| Current rating | 20A | 10A | 10A |
| Insulation resistance | 1000MΩ MIN. | 1000MΩ MIN. | 1000MΩ MIN. |
| Contact resistance | 5mΩ MAX. | 5mΩ MAX. | 5mΩ MAX. |
| Solder cup dia. | φ4.0 (receptacle: φ5) | φ2.0 | φ2.0 |

| Shell size |  |
|-----------------------|---|
| 28 | |
| No. of pins | 12 |
| Withstanding voltage | AC1000V a minute |
| Current rating | 4A |
| Insulation resistance | 1000MΩ MIN. |
| Contact resistance | 5mΩ MAX. |
| Solder cup dia. | φ1.2 |

| Shell size | 2 | 3 | 4 |
|-----------------------|-------------------------|-------------------------|------------------------|
| 35 | | | |
| No. of pins | 2 | 3 | 4 |
| Withstanding voltage | AC1000V a minute | AC1000V a minute | AC1000V a minute |
| Current rating | 40A | 40A | 20A |
| Insulation resistance | 1000MΩ MIN. | 1000MΩ MIN. | 1000MΩ MIN. |
| Contact resistance | 5mΩ MAX. | 5mΩ MAX. | 5mΩ MAX. |
| Solder cup dia. | Crimp contact dia. φ4.7 | Crimp contact dia. φ4.7 | φ4.0 (receptacle:φ3.0) |

| Shell size | 16 | 20 |
|-----------------------|------------------|------------------|
| 35 | | |
| No. of pins | 16 | 20 |
| Withstanding voltage | AC1000V a minute | AC1000V a minute |
| Current rating | 4A | 4A |
| Insulation resistance | 1000MΩ MIN. | 1000MΩ MIN. |
| Contact resistance | 5mΩ MAX. | 5mΩ MAX. |
| Solder cup dia. | φ1.2 | φ1.2 |

Note:

1. Contact arrangements are shown at the fitting section of Plug.
2. Insulation resistance is measured at DC 500V.
3. Contact resistance is measured at DC 1A.
4. Withstanding voltage is shown as test voltage, so that the preferable value for daily operation is about one-third of each figure.

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