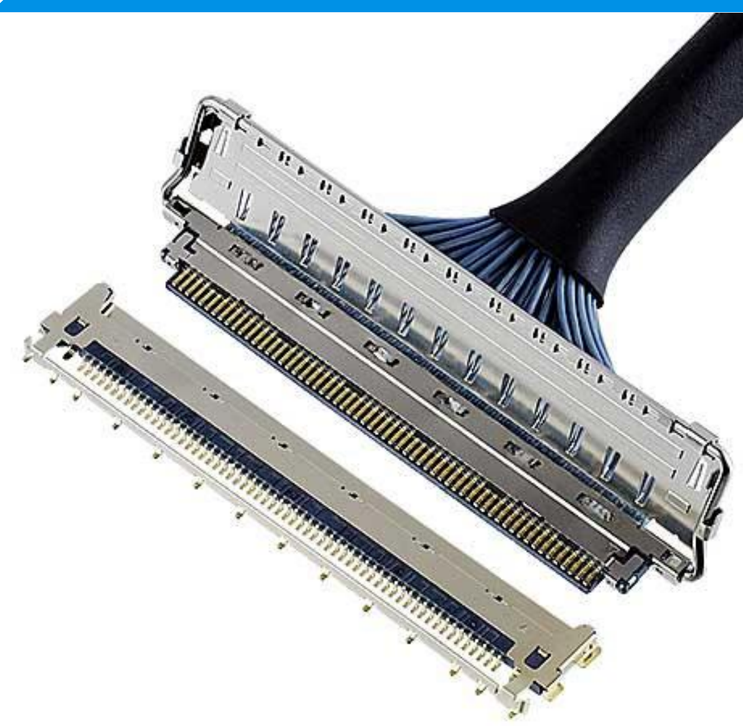
# CABLINE®-CA II PLUS



Fully-shielded with mechanical lock, suitable for high-data-rate transfer (32 Gbps/lane), 0.4 mm pitch, horizontal mating type micro-coaxial connector

*For higher data rate up to 64 Gbps PAM4, please review CABLINE-CA IIP PLUS harness solution that mates to current CABLINE-CA II PLUS receptacle (20790-060E-01/-02).

**Product Specifications:**

| | | |
|---|---|---|
| Mating Type | | Horizontal |
| Board Pitch | | 0.4 mm |
| Contact Mating Length | | 0.54 mm |
| Mated Size | Height | 0.95 +0.25/-0.15 mm |
| | Width | 6.95 + (0.4 x pin count) mm |
| | Depth | 6.7 mm |
| Available Pin Count *1 | | 60 *2 |

**Applicable Cable Size:**

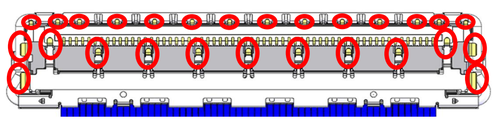
| | |
|---|---|
| Maximum O.D. | 0.4 mm |
| Micro-coaxial | AWG 36 *3, 38, 40, 42, 44 |
| Twinaxial | AWG 40, 42 |
| Discrete | AWG 34, 36 |

**Applicable Standards (Reference Only):**

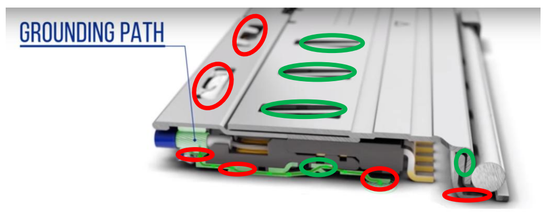
32 Gbps/lane,USB4 Gen4 (40 Gbps/lane PAM3) DP UHBR20 (20 Gbps/lane)

*1 Please inquire for pin counts not listed or outside of the pin count range.
*2 20, 30, 40, 50 pin are also available with CABLINE®-CA II (narrow space type).
*3 Characteristic impedance unmatching.

## ZenShield® fully-shielded with multi-point grounds is ideal for EMC solutions

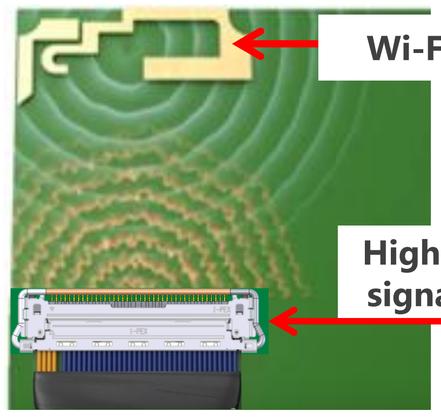


View From Back

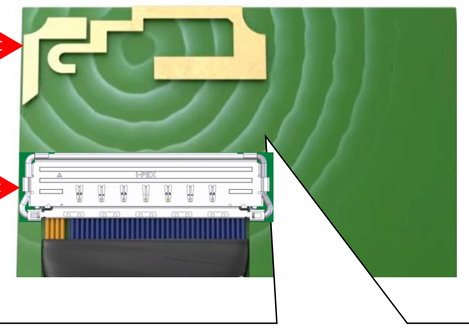



Soldered contacts
Mechanical contacts

**General Connector**

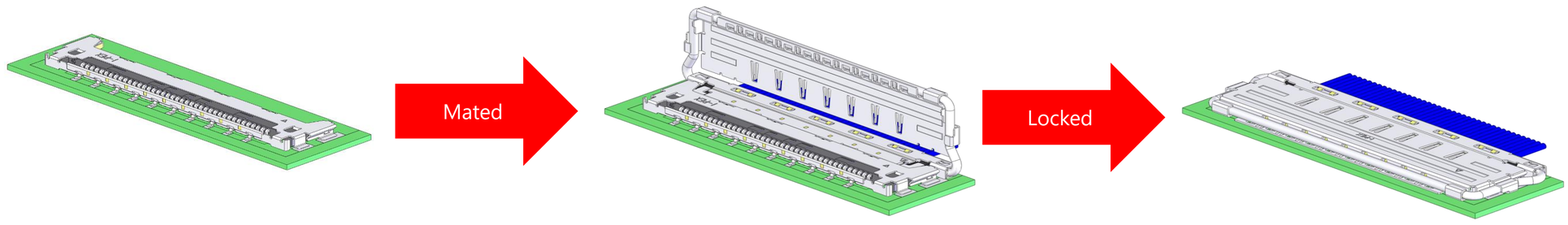



**ZenShield® Connector**

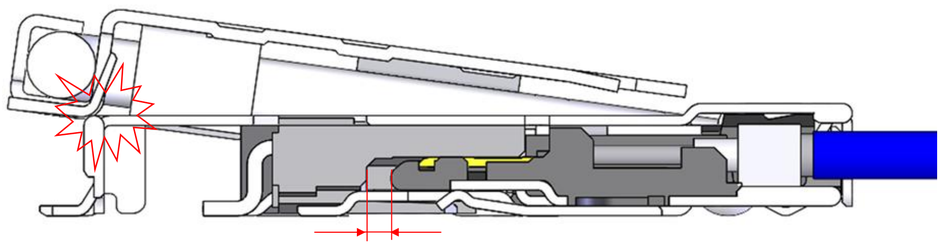


**Connectors can be placed closer to antenna**

## Mechanical locking cover prevents incomplete mating and back-out/unmating

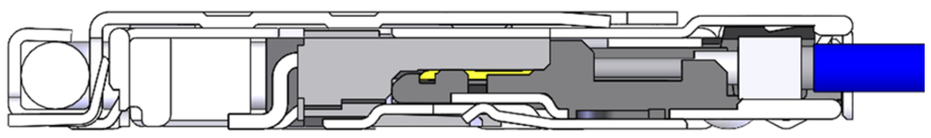



Unable to lock



incomplete mating

can only be locked when mating is complete



complete mating

## High-data-rate transfer, ideal for 32 Gbps/lane applications

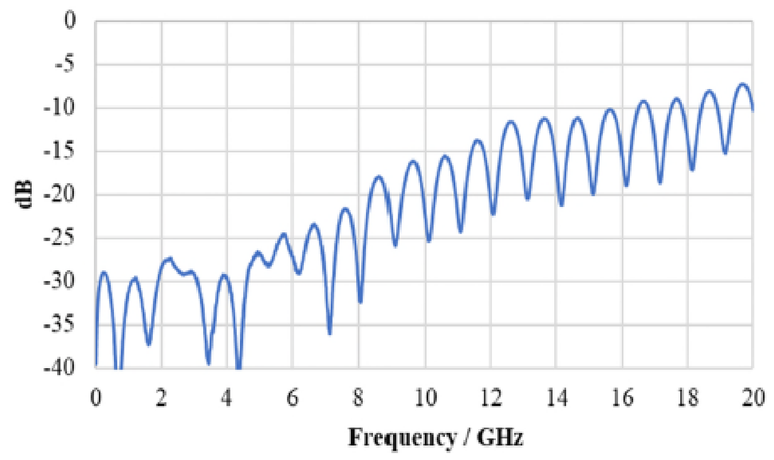
### Measurement results

Connector: CABLINE-CA II 40 pin

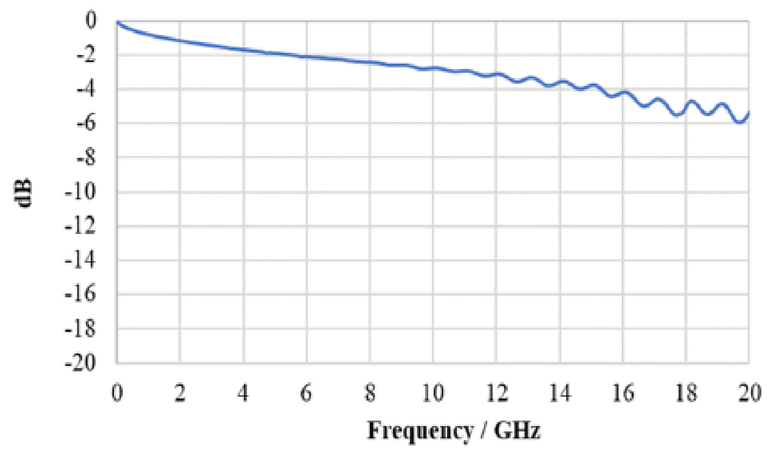
Cable: Micro-coaxial cable
AWG 40, 45ohm , Length : 100 mm

Pin Assignment: GSSGSSG

Return Loss (SDD11)



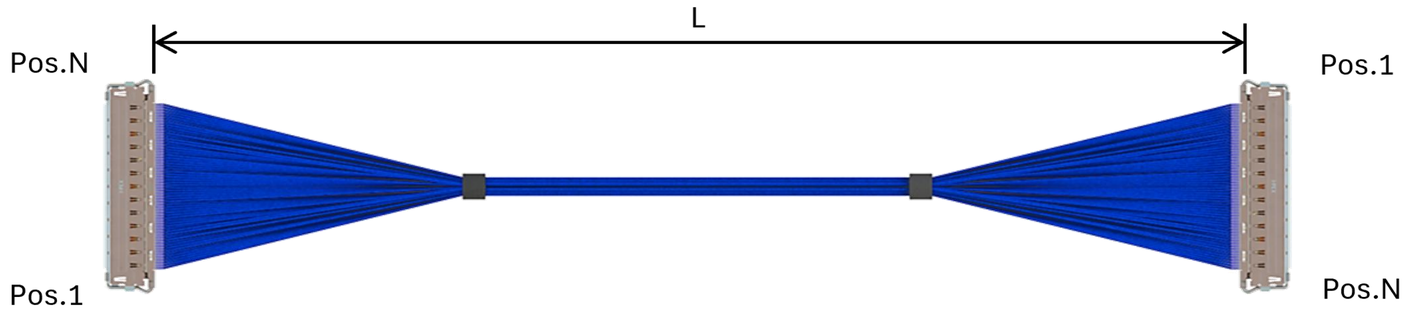

Insertion Loss (SDD21)



# CABLINE®-CA II PLUS standard harness

- Please click the part number to get its 2D drawing.
- Please be advised that if it becomes necessary to change the harness specifications, the part number will also need to be updated. The following part number is valid only when used with the harness specifications shown below.
- Please contact us via Inquiry form for other harness specifications.

## Pin Assignment : 1-N




| Part Number Description | Part Number (Link to Drawing) | Sample available |
|---|---|---|
| CABLINE-CA II PLUS HARNESS L=100mm 60pin 1-N | 82871-100B-02-D | Buy from Digikey |
| CABLINE-CA II PLUS HARNESS L=200mm 60pin 1-N | 81674-100B-02-D | Buy from Digikey |
| CABLINE-CA II PLUS HARNESS L=300mm 60pin 1-N | 82872-100B-02-D | Buy from Digikey |

## Pin Assignment : 1-1

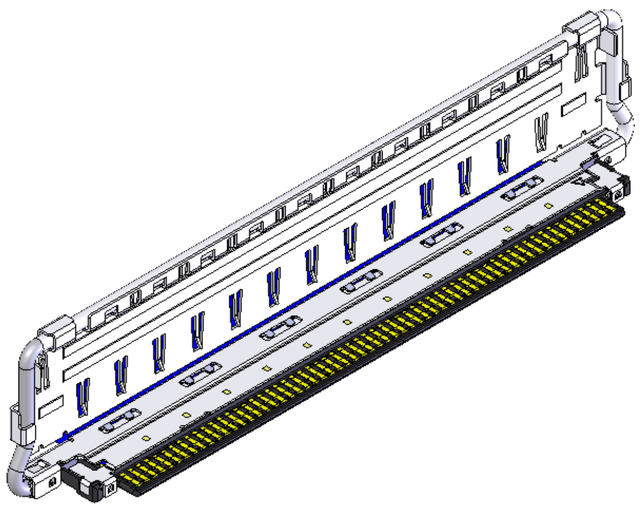



| Part Number Description | Part Number (Link to Drawing) | Sample available |
|---|---|---|
| CABLINE-CA II PLUS HARNESS L=100mm 60pin 1-1 | 82995-100B-01-D | Buy from Digikey |
| CABLINE-CA II PLUS HARNESS L=200mm 60pin 1-1 | 82996-100B-01-D | Buy from Digikey |
| CABLINE-CA II PLUS HARNESS L=300mm 60pin 1-1 | 82997-100B-01-D | Buy from Digikey |

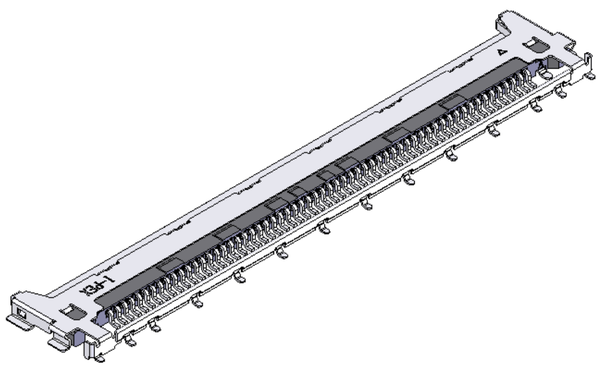
# Component Parts Details

## Component Parts

### Connector parts

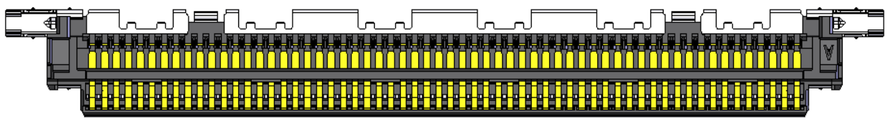


PLUG

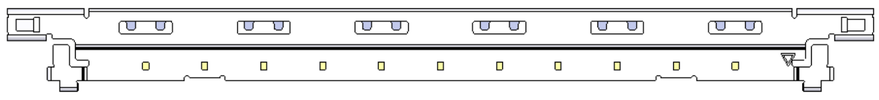


RECEPTACLE

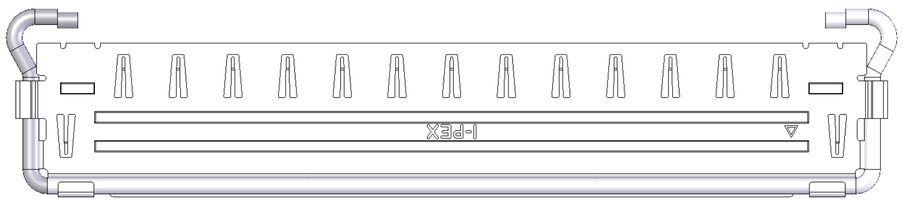
### Plug parts



PLUG HOUSING ASSEMBLY



PLUG SHELL-A

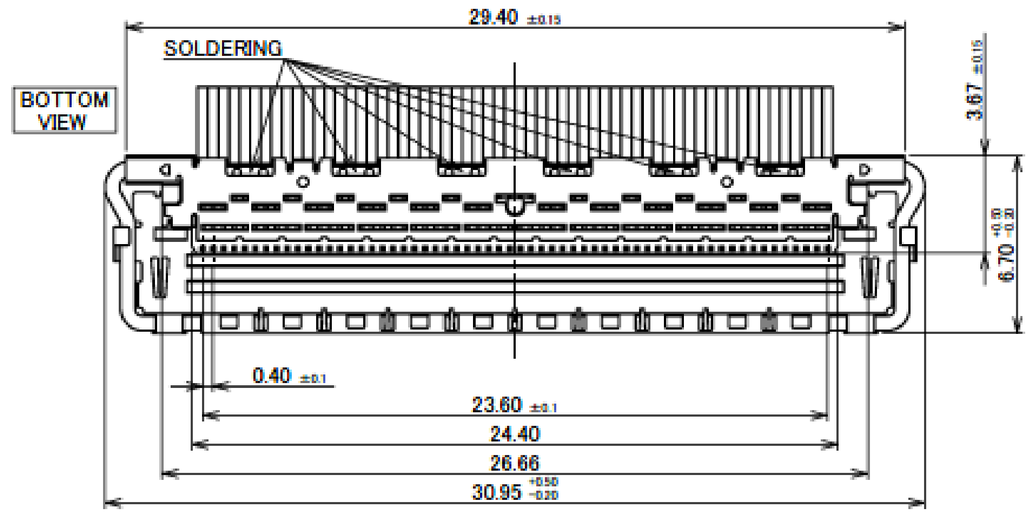


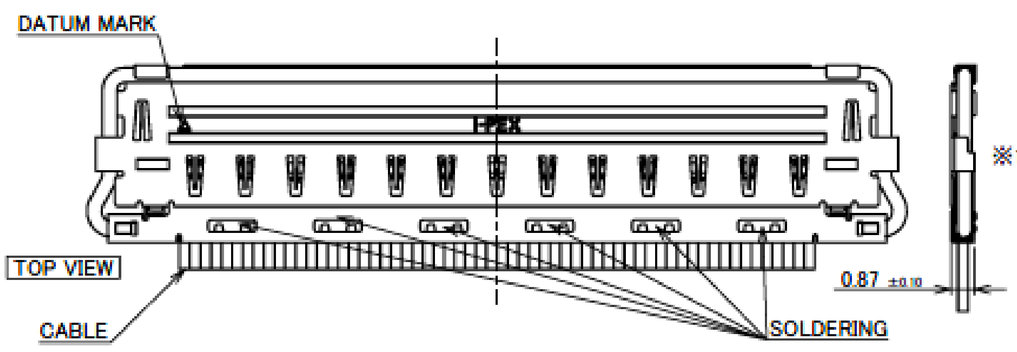

PLUG LOCK BAR ASSEMBLY

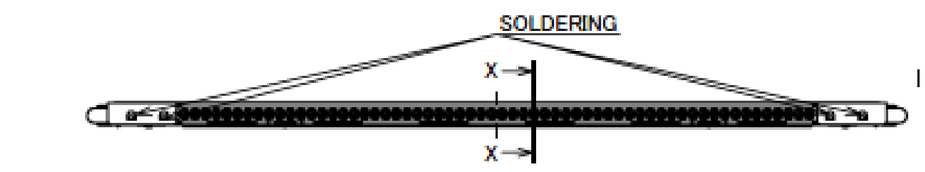
# Plug for Cable Assembly

| Recommended P/N | 20788-0**T-01 |
|---|---|

| PART NO. | Pos. |
|---|---|
| 20788-060T-01 | 60 |



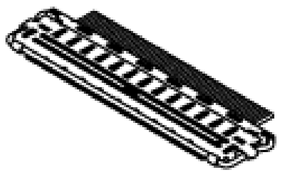



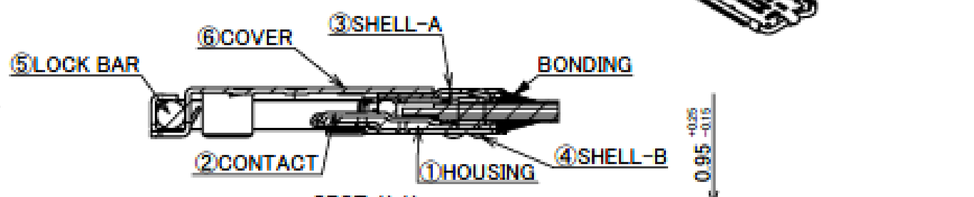

Halogen Free

RoHS Compliant

P/N : 20788-0 ** T-0 1

Pos.

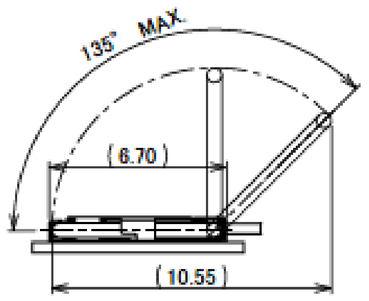





SECT. X-X
(S=10/1)




MATING CONDITION




LOCK BAR MOVEMENTS



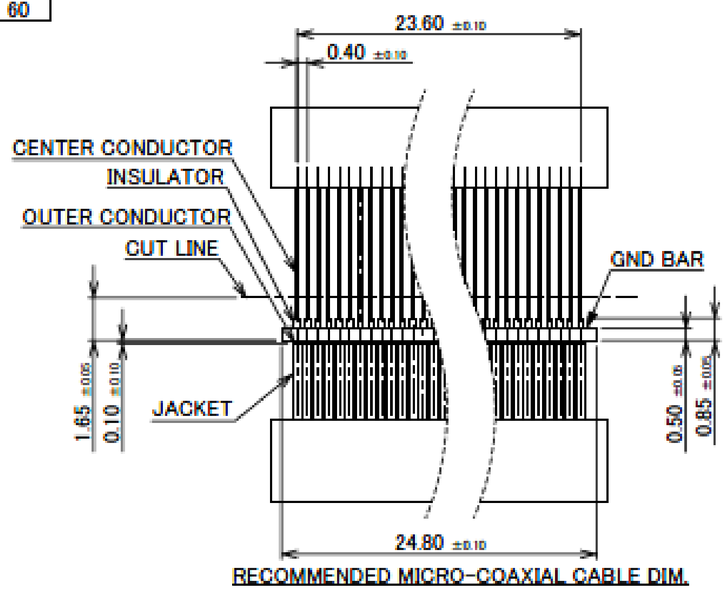

REFERENCE CABLE BENDING DIMENSIONS

※1 : THE BEND DIMENSIONS MAY VARY BASED ON THE SIZE AND QUANTITY OF CABLES.
PLEASE CONFIRM THE MINIMUM BENDING RADIUS WITH I-PEX OR THE HARNESS MANUFACTURER.

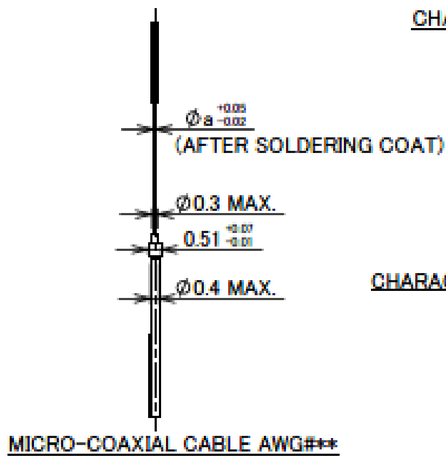
| NO. | DISCRIPTION | MATERIAL | FINISH , REMARKS |
|---|---|---|---|
| 6 | COVER | PHOSPHOR BRONZE | ALL OVER Ni 1.00 μm MIN. |
| 5 | LOCK BAR | SUS φ0.55 | – |
| 4 | SHELL-B | PHOSPHOR BRONZE | PARTIAL Au 0.003 μm MIN. OVER Ni 1.00 μm MIN. |
| 3 | SHELL-A | PHOSPHOR BRONZE | PARTIAL Au 0.003 μm MIN. OVER Ni 1.00 μm MIN. |
| 2 | CONTACT | PHOSPHOR BRONZE | ALL OVER Ni 1.00 μm MIN.<br>CONTACT & SOLDERING AREA : Au 0.03 μm MIN. |
| 1 | HOUSING | LCP | UL94V-0 ,BLACK |

Rev.15

| PART NO. | Pos. |
|---|---|
| 20788-060T-01 | 60 |




RECOMMENDED MICRO-COAXIAL CABLE DIM.




MICRO-COAXIAL CABLE AWG#**

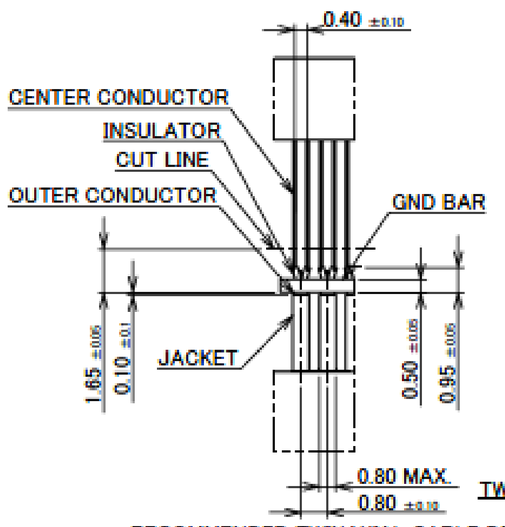
CHARACTERISTIC IMPEDANCE MATCHING MICRO-COAXIAL CABLE

| | a |
|---|---|
| #38 | 0.12 |
| #40 | 0.09 |
| #42 | 0.075 |
| #44 | 0.063 |

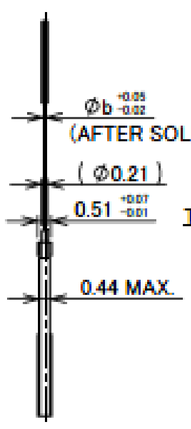
CHARACTERISTIC IMPEDANCE UN-MATCHING MICRO-COAXIAL CABLE

| | a |
|---|---|
| #36 | 0.15 |

MICRO-COAXIAL CABLE #36 : NOT RECOMMENDED FOR HIGH SPEED SIGNAL TRANSFER



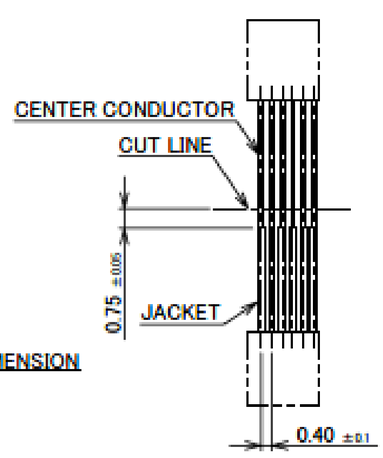

RECOMMENDED TWINAXIAL CABLE DIM.



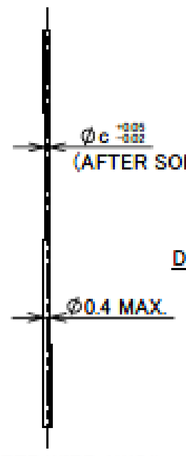

TWINAXIAL CABLE AWG#**

TWINAXIAL CABLE DIMENSION

| | b |
|---|---|
| #40 | 0.09 |
| #42 | 0.075 |




RECOMMENDED DISCRETE WIRE DIM.




DISCRETE WIRE AWG#**

DISCRETE WIRE DIMENSION

| | c |
|---|---|
| #34 | 0.192 |
| #36 | 0.15 |

Rev.15

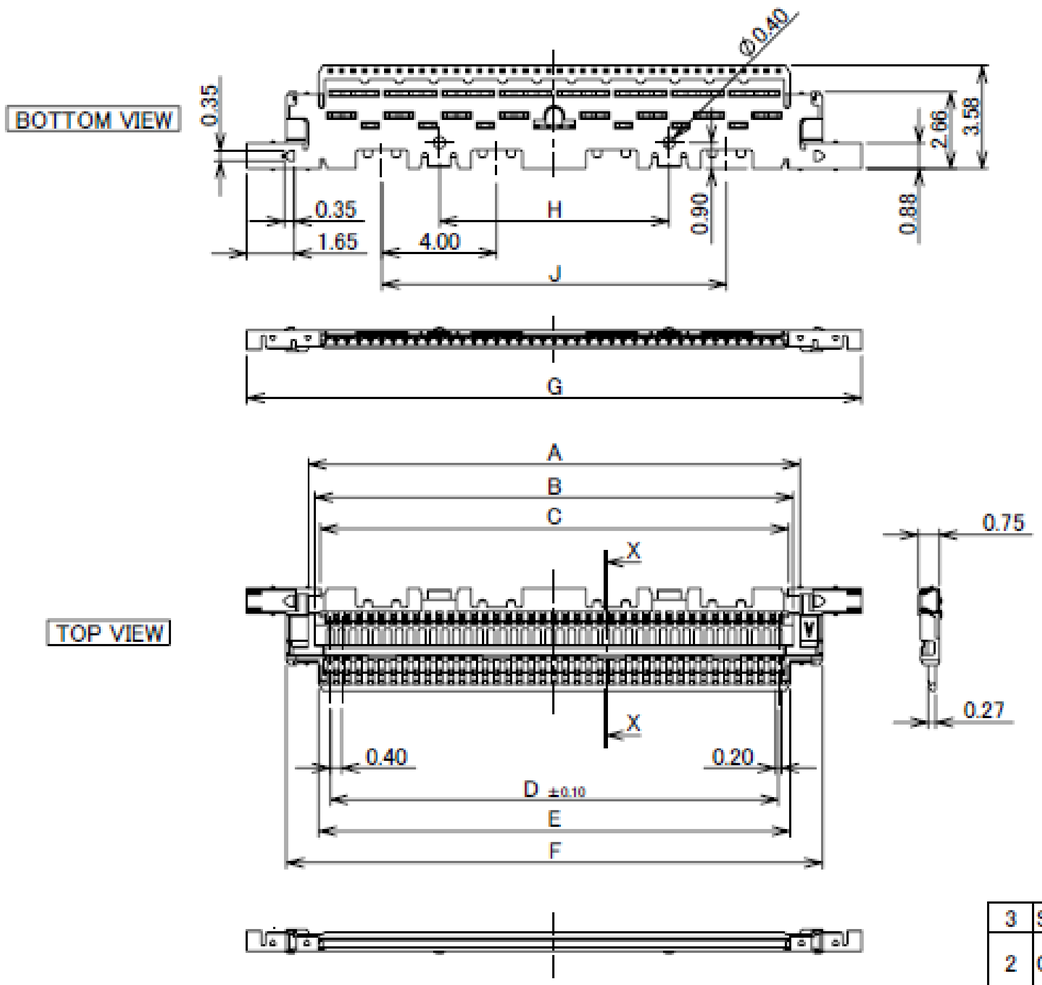
# Plug for Cable Assembly

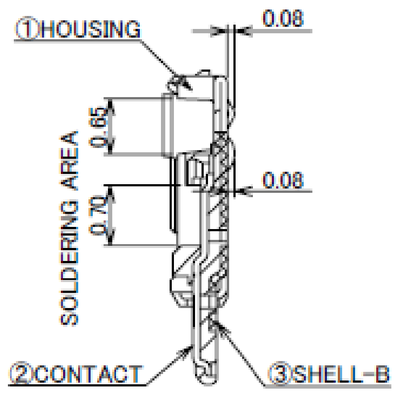
| ITEMS | SPECIFICATION |
|---|---|
| APPLICABLE CABLE | MICRO-COAXIAL CABLE : AWG #44 , 42 , 40 , 38 , 36<br>DISCRETE WIRE : AWG #36 , 34<br>TWINAXIAL CABLE : AWG #40 , 42 |
| RATED VOLTAGE | 100V AC (PER CONTACT PIN)<br>※THIS IS THE RATED VOLTAGE OF THE CONNECTOR.<br>PLEASE NOTE THAT THE RATED VOLTAGE MAY VARY IN THE HARNESS DEPENDING ON THE CABLES USED. |
| RATED AMPERAGE (FOR CONTACT) | 0.1A AC/DC [AWG #44] PER CONTACT PIN / UP TO 60 CONTACTS<br>0.24A AC/DC [AWG #42] PER CONTACT PIN / UP TO 60 CONTACTS<br>0.3A AC/DC [AWG #40] PER CONTACT PIN / UP TO 60 CONTACTS<br>0.5A AC/DC [AWG #38] PER CONTACT PIN / UP TO 18 CONTACTS<br>0.8A AC/DC [AWG #36] PER CONTACT PIN / UP TO 6 CONTACTS<br>1.0A AC/DC [AWG #34] PER CONTACT PIN / UP TO 6 CONTACTS<br>※TESTING BY REAL MACHINE IS RECOMMENDED BECAUSE TEMPERATURE RISE MAY AFFECTED BY ACTUAL SITUATION |
| OPERATING TEMPERATURE | 248 TO 378K (-40℃ TO 105℃) |
| OPERATING HUMIDITY | 85% MAX. |
| CONTACT RESISTANCE | INITIAL : 180mohm MAX.(AWG #34) / AFTER TEST : ⊿40mohm MAX.<br>275mohm MAX.(AWG #36)<br>360mohm MAX.(AWG #38)<br>600mohm MAX.(AWG #40)<br>700mohm MAX.(AWG #42)<br>1080mohm MAX.(AWG #44) |
| GROUND SHELL RESISTANCE | INITIAL : 50mohm MAX. / AFTER TEST : ⊿40mohm MAX. |
| INSULATION RESISTANCE | INITIAL : 1000Mohm MIN. / AFTER TEST : 500Mohm MIN. |
| DIELECTRIC WITHSTANDING VOLTAGE | AC250V 1min |
| DURABILITY | 30 CYCLES |
| MATING FORCE (INITIAL / AFTER 30 CYCLES) | 29.10N MAX. |
| UN-MATING FORCE (INITIAL / AFTER 30 CYCLES) | 6.0N MIN. |
| CABLE RETENTION FORCE | 29.40N MIN. |
| PRODUCT SPECIFICATION | PRS-2261 |
| TEST REPORT | TR-16075, TR-23031 |
| INSTRUCTION MANUAL | HIM-16028 |
| ASSEMBLY MANUAL | ASM-16004 |
| APPEARANCE CRITERIA NO. | QLS-A*** |

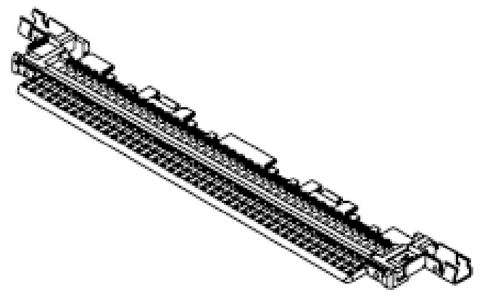
Rev.15

# Plug Housing Assembly

| Recommended P/N | 20680-0**T-01 | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| PART NO. | Pos. | A | B | C | D | E | F | G | H | J |
| 20680-020T-01 | 20 | 9.10 | 8.65 | 8.30 | 7.60 | 8.40 | 10.66 | 13.40 | – | 5.00 |
| 20680-030T-01 | 30 | 13.10 | 12.65 | 12.30 | 11.60 | 12.40 | 14.66 | 17.40 | 4.00 | 8.00 |
| 20680-040T-01 | 40 | 17.10 | 16.65 | 16.30 | 15.60 | 16.40 | 18.66 | 21.40 | 8.00 | 12.00 |
| 20680-050T-01 | 50 | 21.10 | 20.65 | 20.30 | 19.60 | 20.40 | 22.66 | 25.40 | 12.00 | 16.00 |
| 20680-060T-01 | 60 | 25.10 | 24.65 | 24.30 | 23.60 | 24.40 | 26.66 | 29.40 | 16.00 | 20.00 |



SECT. X-X
(S=15/1)

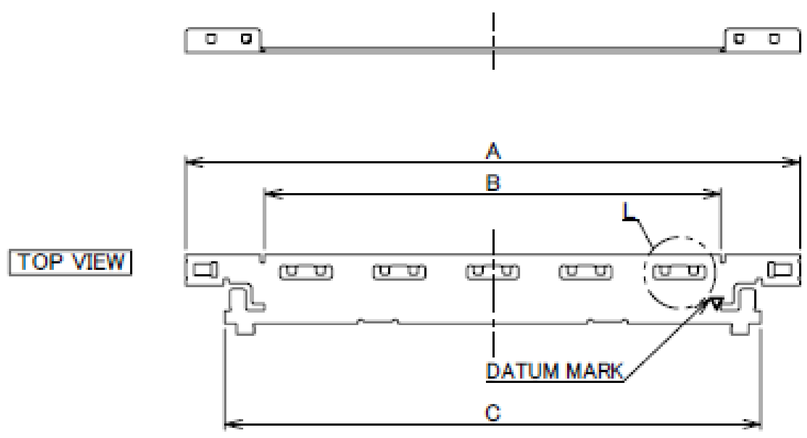
NOTES.
1. THIS PART IS ASSEMBLED WITH SHELL A(P/N 3204-0**1) AND LOCK BAR ASS'Y(P/N 20681-0**T-01) AFTER SOLDERED THE CABLE, AND IT BECOMES P/N 20679-0**T-01
2. THIS PART IS ASSEMBLED WITH SHELL A(P/N 3204-0**1) AND LOCK BAR ASS'Y(P/N 20789-0**T-01) AFTER SOLDERED THE CABLE, AND IT BECOMES P/N 20788-0**T-01

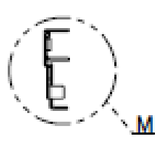
| NO. | DISCRIPTION | MATERIAL | FINISH , REMARKS |
|---|---|---|---|
| 3 | SHELL-B | PHOSPHOR BRONZE | PARTIAL Au 0.003 μm MIN. OVER Ni 1.00 μm MIN. |
| 2 | CONTACT | PHOSPHOR BRONZE | ALL OVER Ni 1.00 μm MIN.<br>CONTACT & SOLDERING AREA : Au 0.03 μm MIN. |
| 1 | HOUSING | LCP | UL94V-0 ,BLACK |

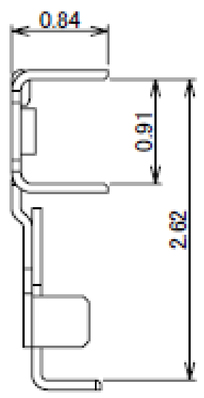
Rev.7

# Plug Shell-A

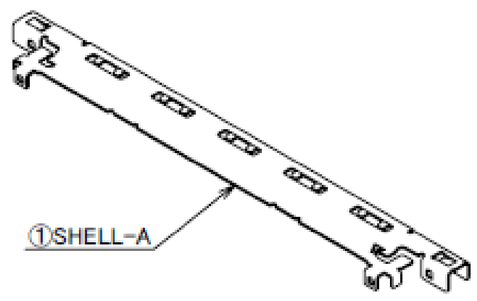
| Recommended P/N | 3204-0**1 | | | | | |
|---|---|---|---|---|---|---|
| PART NO. | Pos. | A | B | C | D | E |
| 3204-0201 | 20 | 13.40 | 7.88 | 10.66 | 2.50 | 5.00 |
| 3204-0301 | 30 | 17.40 | 11.88 | 14.66 | 3.00 | 9.00 |
| 3204-0401 | 40 | 21.40 | 15.88 | 18.66 | 3.25 | 13.00 |
| 3204-0501 | 50 | 25.40 | 19.88 | 22.66 | 3.40 | 17.00 |
| 3204-0601 | 60 | 29.40 | 23.88 | 26.66 | 4.00 | 20.00 |

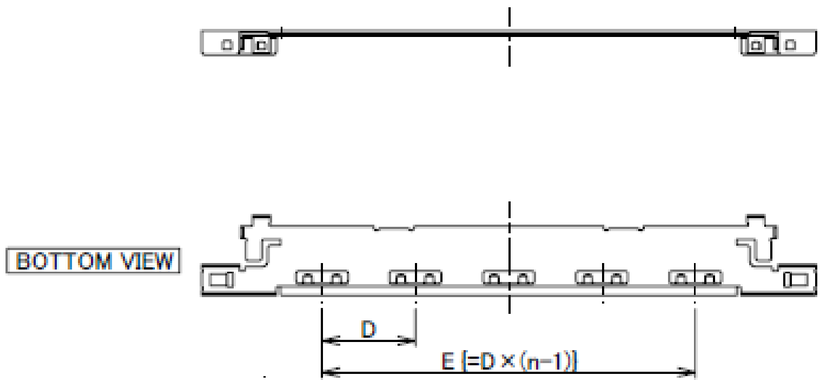


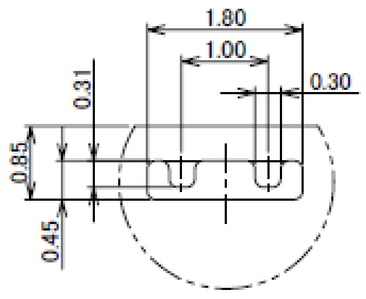




DETAIL M
(S=20/1)



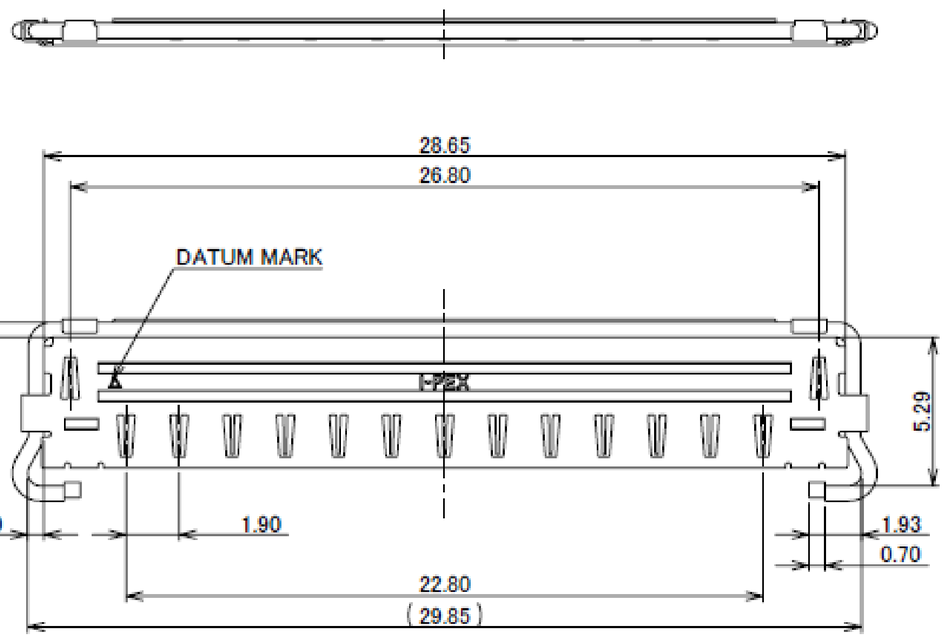

DETAIL L
(S=15/1)

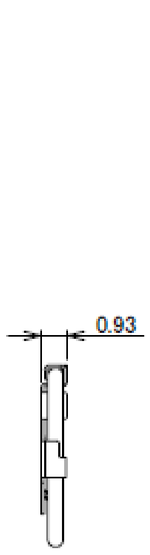
| 1 | SHELL-A | PHOSPHOR BRONZE | PARTIAL Au 0.003 μm MIN. OVER Ni 1.00 μm MIN. |
|---|---|---|---|
| NO. | DISCRIPTION | MATERIAL | FINISH , REMARKS |

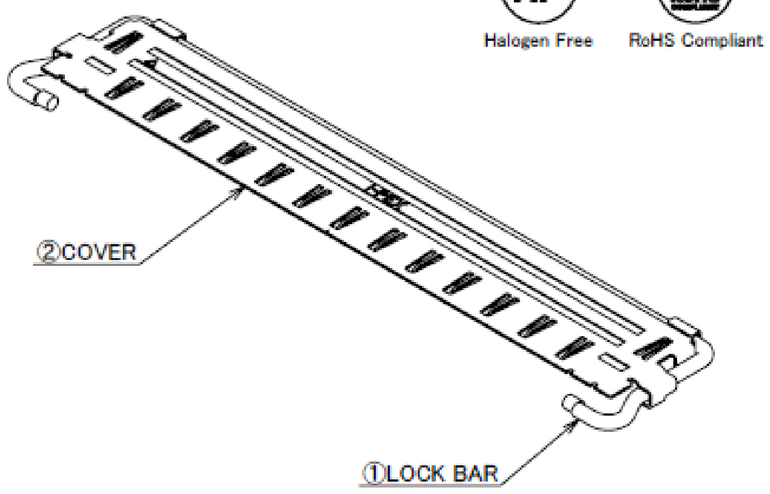
Rev.7

# Lock Bar Assembly

| Recommended P/N | 20789-0**T-01 |
|---|---|
| PART NO. | Pos. |
| 20789-060T-01 | 60 |

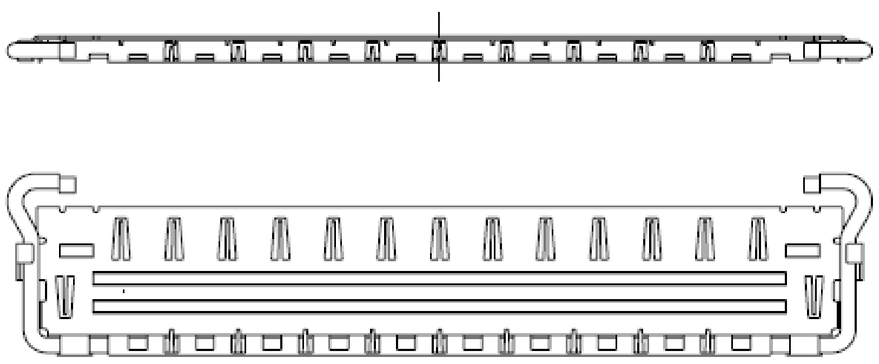



Halogen Free

RoHS Compliant



| 2 | COVER | PHOSPHOR BRONZE | ALL OVER Ni 1.00 μm MIN. |
|---|---|---|---|
| 1 | LOCK BAR | SUS ϕ0.55 | – |
| NO. | DISCRIPTION | MATERIAL | FINISH , REMARKS |

Rev.9

# Receptacle Assembly

| Recommended P/N | 20790-060E-02 |
|---|---|

| PART NO. | Pos. |
|---|---|
| 20790-060E-## | 60 |

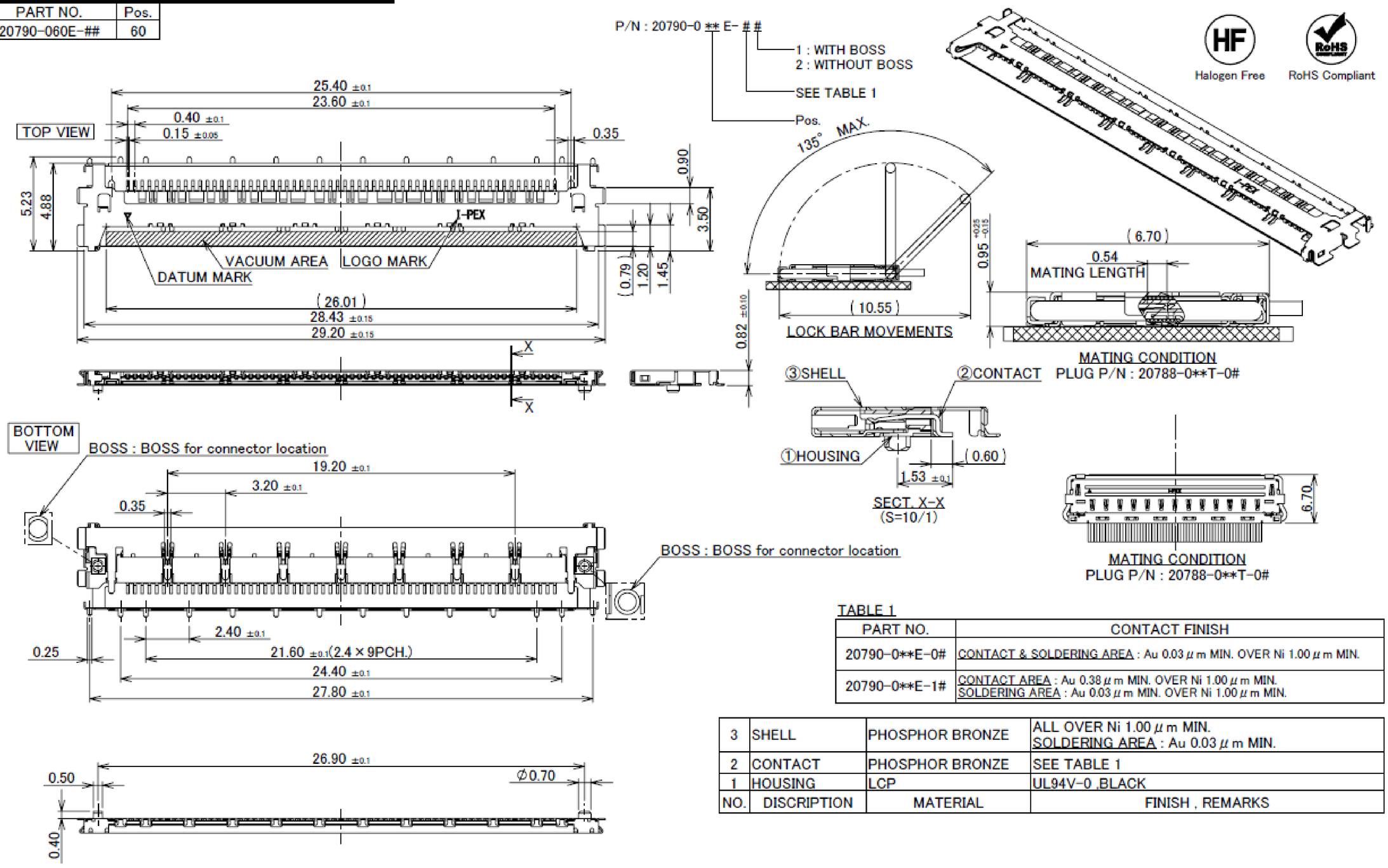
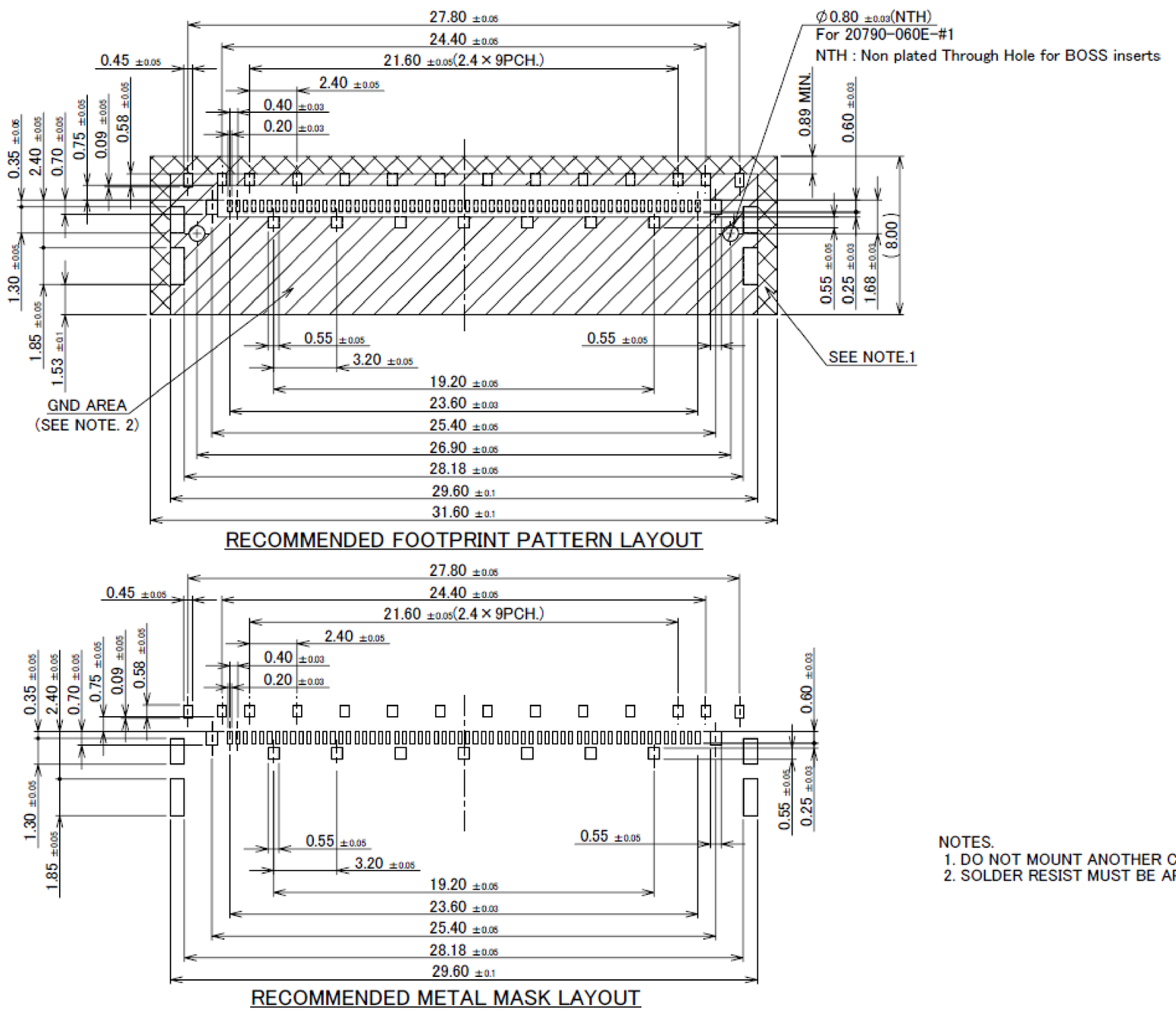



TABLE 1

| PART NO. | CONTACT FINISH |
|---|---|
| 20790-0**E-0# | CONTACT & SOLDERING AREA : Au 0.03 μm MIN. OVER Ni 1.00 μm MIN. |
| 20790-0**E-1# | CONTACT AREA : Au 0.38 μm MIN. OVER Ni 1.00 μm MIN.<br>SOLDERING AREA : Au 0.03 μm MIN. OVER Ni 1.00 μm MIN. |

| NO. | DISCRIPTION | MATERIAL | FINISH , REMARKS |
|---|---|---|---|
| 3 | SHELL | PHOSPHOR BRONZE | ALL OVER Ni 1.00 μm MIN.<br>SOLDERING AREA : Au 0.03 μm MIN. |
| 2 | CONTACT | PHOSPHOR BRONZE | SEE TABLE 1 |
| 1 | HOUSING | LCP | UL94V-0 ,BLACK |

Rev.20



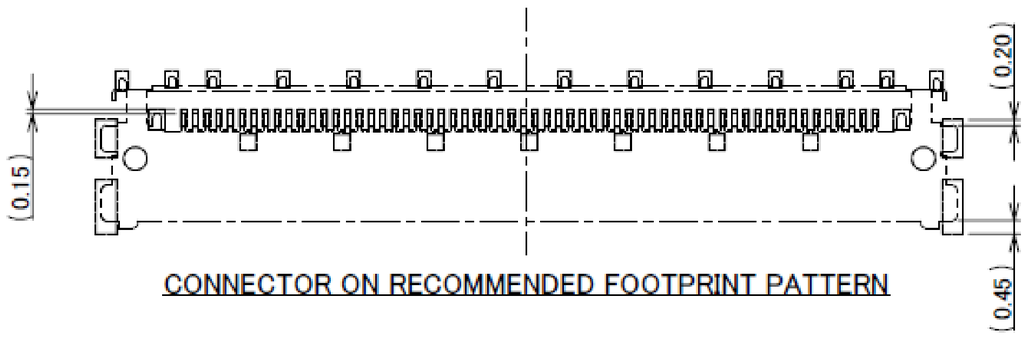




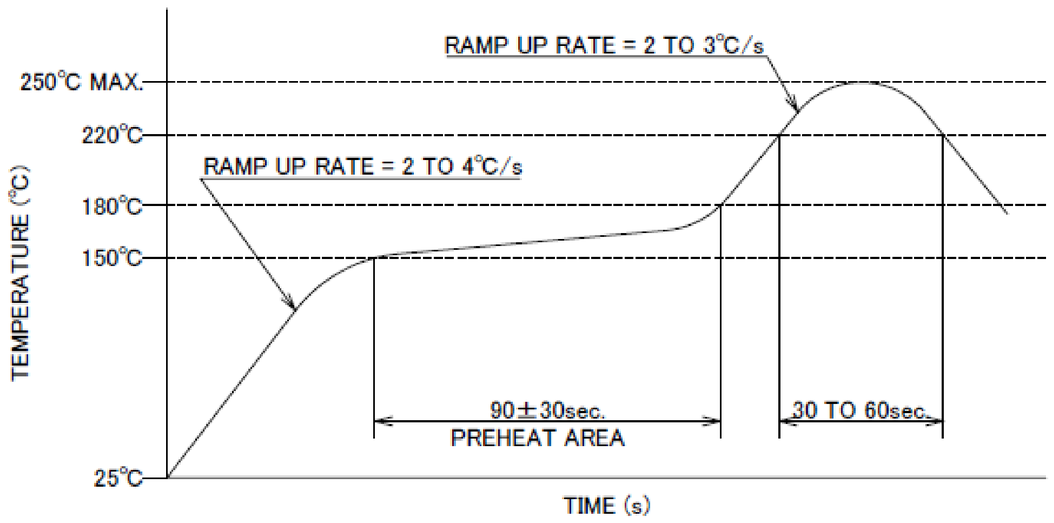
NOTES.
1. DO NOT MOUNT ANOTHER COMPONENT IN THIS AREA.
2. SOLDER RESIST MUST BE APPLIED TO THIS AREA.

Rev.20

# Receptacle Assembly




CONNECTOR ON RECOMMENDED FOOTPRINT PATTERN




REFLOW TEMPERATURE PROFILE
SENJU METAL INDUSTRY CO., LTD. : M705-SHF(Sn96.5 Ag3.0 Cu0.5)

FOR CABLINE-CA II PLUS PLUG CABLE ASSEMBLY (DWG. NO. 20788)

| ITEMS | SPECIFICATION |
|---|---|
| APPLICABLE CABLE | MICRO-COAXIAL CABLE : AWG #44 , 42 , 40 , 38 , 36<br>DISCRETE WIRE : AWG #36 , 34<br>TWINAXIAL CABLE : AWG #40 , 42 |
| RATED VOLTAGE | 100V AC (PER CONTACT PIN)<br>※THIS IS THE RATED VOLTAGE OF THE CONNECTOR.<br>PLEASE NOTE THAT THE RATED VOLTAGE MAY VARY IN THE HARNESS DEPENDING ON THE CABLES USED. |
| RATED AMPERAGE (FOR CONTACT) | 0.1A AC/DC [AWG #44] PER CONTACT PIN/UP TO 60 CONTACTS<br>0.24A AC/DC [AWG #42] PER CONTACT PIN/UP TO 60 CONTACTS<br>0.3A AC/DC [AWG #40] PER CONTACT PIN/UP TO 60 CONTACTS<br>0.5A AC/DC [AWG #38] PER CONTACT PIN/UP TO 18 CONTACTS<br>0.8A AC/DC [AWG #36] PER CONTACT PIN/UP TO 6 CONTACTS<br>1.0A AC/DC [AWG #34] PER CONTACT PIN/UP TO 6 CONTACTS<br>※TESTING BY REAL MACHINE IS RECOMMENDED BECAUSE TEMPERATURE RISE MAY AFFECTED BY ACTUAL SITUATION. |
| OPERATING TEMPERATURE | 233 TO 378K (-40℃ TO 105℃) |
| OPERATING HUMIDITY | 85% MAX |
| CONTACT RESISTANCE | INITIAL : 180mohm MAX.(AWG #34) / AFTER TEST : ⊿40mohm MAX.<br>275mohm MAX.(AWG #36)<br>360mohm MAX.(AWG #38)<br>600mohm MAX.(AWG #40)<br>700mohm MAX.(AWG #42)<br>1080mohm MAX.(AWG #44) |
| GROUND SHELL RESISTANCE | INITIAL : 50mohm MAX. / AFTER TEST : ⊿40mohm MAX. |
| INSULATION RESISTANCE | INITIAL : 1000Mohm MIN. / AFTER TEST : 500Mohm MIN. |
| DIELECTRIC WITHSTANDING VOLTAGE | AC250V 1min |
| DURABILITY | 30 CYCLES |
| MATING FORCE (INITIAL / AFTER 30 CYCLES) | 29.10N MAX. |
| UN-MATING FORCE (INITIAL / AFTER 30 CYCLES) | 6.0N MIN. |
| CABLE RETENTION FORCE | 29.40N MIN. |
| COPLANARITY | 0.10 MAX. |
| PRODUCT SPECIFICATION | PRS-2261 |
| TEST REPORT | TR-16075, TR-23031 |
| INSTRUCTION MANUAL | HIM-16028 |
| PACKING STANDARD | PST-16078 |
| APPEARANCE CRITERIA NO. | QLS-A*** |

# Custom Connectors Available

## RF Connectors

MHF® series





CABLINE® series

## Micro-Coaxial/Twinaxial Connectors

## Wire-to-Board Connectors/ Terminals

AP series



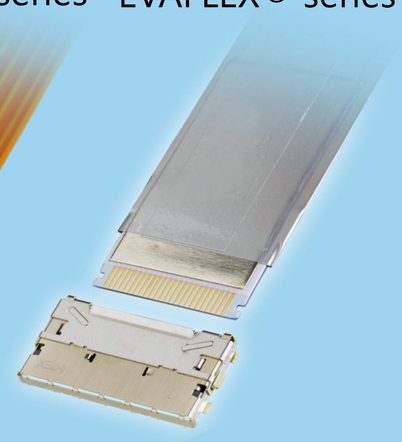
ISH® series



MINIFLEX® series



EVAFLEX® series

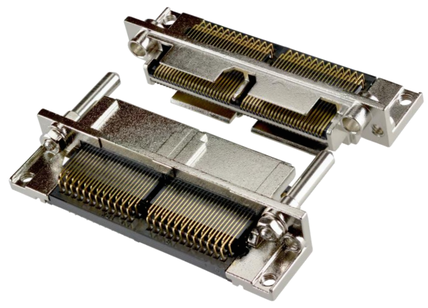


## FPC/FFC Connectors

NOVASTACK® series



MINIDOCK™ series



## Board-to-Board Connectors

Inquiry

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Contact your sales representative or more detailed information.

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