
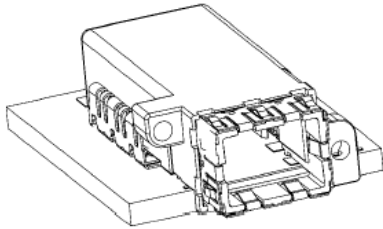


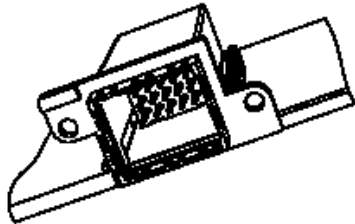
NUMBER GS-12-307	TYPE PRODUCT SPECIFICATION		
TITLE Metral Sofix® P/N : 72860-x0xLF, 52088-xxxLF, 72844-x0xLF, 72858-x0xLF, 10022805-x01LF, 10051941-x01LF & 72846-x0xLF		PAGE 1 of 74	REVISION E
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SHIELDED RIGHT ANGLE BOARD CONNECTOR



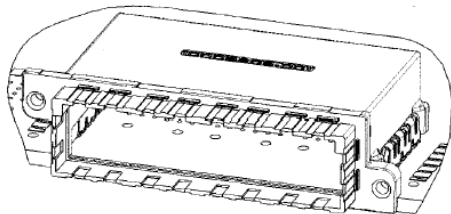
72860 LF (STB), 52088 LF (PIP)

2X4 SIGNAL



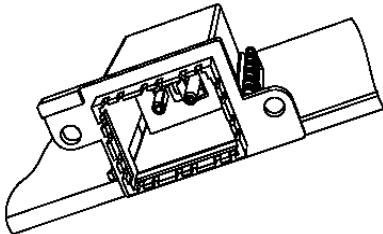
72844 LF (STB), 72858 LF (PIP)

4X6 SIGNAL




10022805-x01LF, 10051941-x01LF

3X24 SIGNAL



72846 LF (STB)


POWER

NUMBER GS-12-307	TYPE PRODUCT SPECIFICATION		
TITLE Metral Sofix® P/N : 72860-x0xLF,52088-xxxLF,72844-x0xLF,72858-x0xLF, 10022805-x01LF,10051941-x01LF & 72846-x0xLF		PAGE 2 of 74	REVISION E
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1. PART A-2x4 SIGNAL

1.1 General

1.1.1 General information

The specification is valid for the Lead Free/RoHS compatible products.

This document is describing a metric connector module for signal transmission use at printed circuit board (PCB).

Basic grid is 0,5 mm, with contact pins at a 2-mm grid.
Connection to the PCB is realised with solder connections in plated-through holes.

The connector module has 2 rows with up to 4 individual contact pins per row.

The connector shall be used with external shields and PCB cover according to fig.1

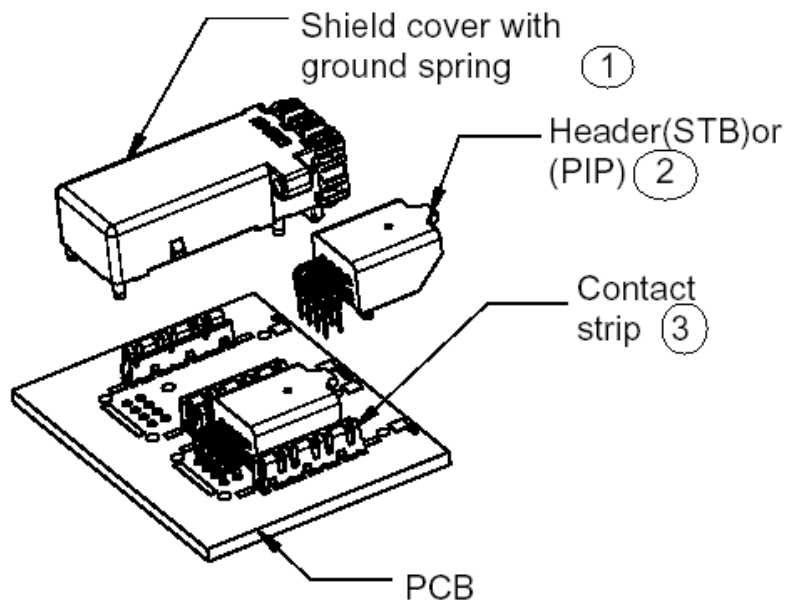


fig.1


NUMBER GS-12-307	TYPE PRODUCT SPECIFICATION		
TITLE Metral Sofix® P/N : 72860-x0xLF,52088-xxxLF,72844-x0xLF,72858-x0xLF, 10022805-x01LF,10051941-x01LF & 72846-x0xLF		PAGE 7 of 74	REVISION E
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Table 1

Pos	Product Name	Product Number	72860-x01LF	72860-x02LF	72860-x03LF	52088-x01LF	52088-x02LF	52088-x03LF
1	Shield cover with Ground spring (pitch 17.5 mm)	72857-001LF	1	1	1	1	1	1
2	Connector, solder	72830-x01LF	1	--	--	--	--	--
		72830-x02LF	--	1	--	--	--	--
		72830-x03LF	--	--	1	--	--	--
	Connector, PIP	52089-201LF	--	--	--	1	--	--
		52089-202LF	--	--	--	--	1	--
		52089-203LF	--	--	--	--	--	1
3	Contact strip	72815-001LF	2	2	2	2	2	2
	Mating IDC Connector		72861-201LF					
	Mating high Speed link		53389-001LF					

1.1.2 Ratings and characteristics

Table 2:

Rated Voltage	130 V r.m.s sinus (contact/contact) min.
Current rating at 70°C	0.3 A min.
Insulation resistance	5000MΩ min.

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1.1.3 Performance level:

Performance Level	
XXXXX-1xxLF	Telcordia Co
XXXXX-XxxLF	Customer Special

1.2 Dimensions and material

1.2.1 Connector dimensions (solder)

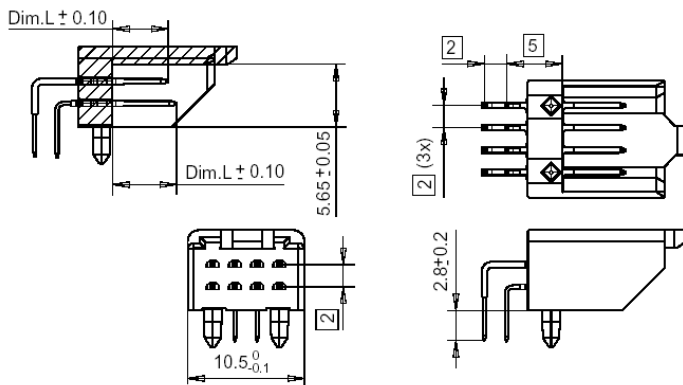
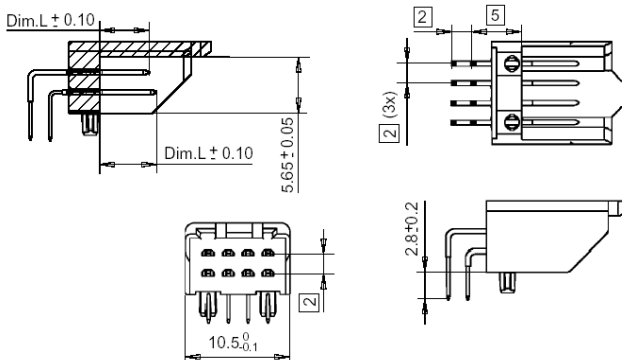



fig.2



Connector dimensions (PIP)

Fig.3

NUMBER GS-12-307	TYPE PRODUCT SPECIFICATION		
TITLE Metral Sofix® P/N : 72860-x0xLF,52088-xxxLF,72844-x0xLF,72858-x0xLF, 10022805-x01LF,10051941-x01LF & 72846-x0xLF		PAGE 9 of 74	REVISION E
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1.2.2 Material

1.2.2.1 Housing

Material: Liquid Crystal Polymer (Natural coloured LCP).
Flammability class UL94V-0.
Weight: 0,6 g/piece.

1.2.2.2 Shield cover

Material: Zinc alloy
Weight: 7,0 g/piece (for 17,5 mm pitch).

1.2.2.3 Ground spring


Material: Bronze.
Weight: 0,1 g/piece.

1.2.2.4 Contact strip

For the details refer the customer drawing-72815

1.2.2.5 Contact element

Material: Bronze.
Total weight of connector is 0,9 g/piece.

NUMBER GS-12-307	TYPE PRODUCT SPECIFICATION		
TITLE Metral Sofix® P/N : 72860-x0xLF, 52088-xxxLF, 72844-x0xLF, 72858-x0xLF, 10022805-x01LF, 10051941-x01LF & 72846-x0xLF		PAGE 10 of 74	REVISION E
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1.2.3 Housing dimensions

1.2.3.1 Outline dimensions (solder)

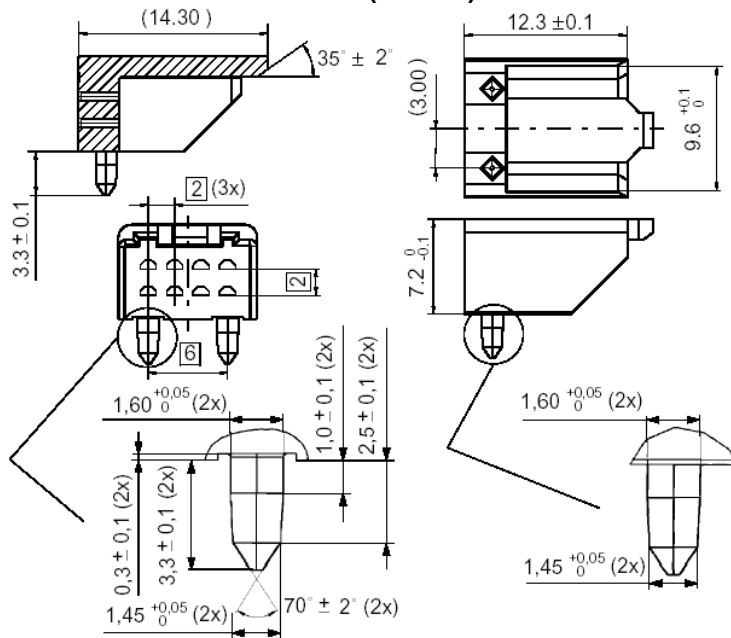


fig.4

Outline dimensions (PIP)

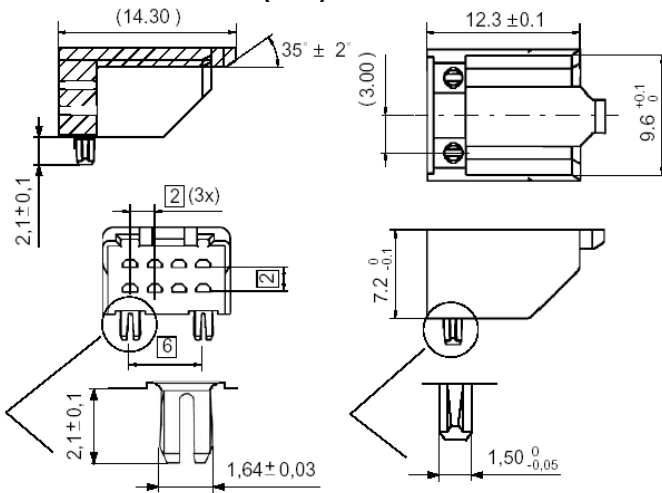



Fig.5

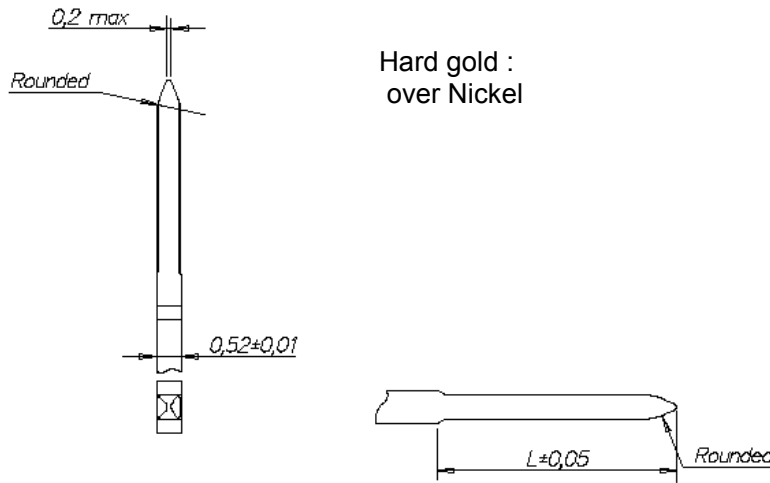
NUMBER GS-12-307	TYPE PRODUCT SPECIFICATION		
TITLE Metral Sofix® P/N : 72860-x0xLF, 52088-xxxLF, 72844-x0xLF, 72858-x0xLF, 10022805-x01LF, 10051941-x01LF & 72846-x0xLF		PAGE 11 of 74	REVISION E
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1.2.4 Contact dimensions and surface coating

1.2.4.1 Contact surface


The contact surface is specified in figure 6. The specified values must be fulfilled at the whole specified area.

1.2.4.1.1 Contact dimensions



L	5	5.75
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fig.6

NUMBER GS-12-307	TYPE PRODUCT SPECIFICATION		
TITLE Metral Sofix® P/N : 72860-x0xLF, 52088-xxxLF, 72844-x0xLF, 72858-x0xLF, 10022805-x01LF, 10051941-x01LF & 72846-x0xLF		PAGE 12 of 74	REVISION E
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1.2.4.2 Terminals

1.2.4.2.1 Surface coating

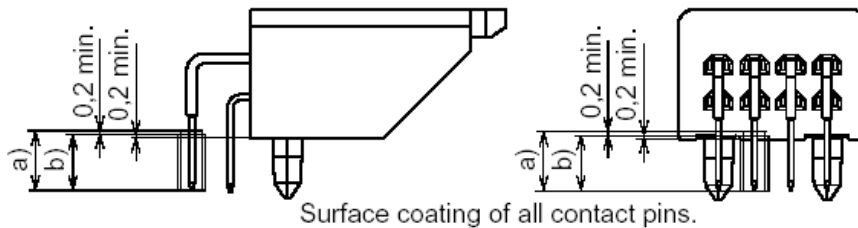


fig.7

Surface coating:
a) Ni $0,3_{-0/+1,7}\mu\text{m}$.
b) Pure Sn

1.2.4.3 Shield cover

1.2.4.3.1 Shield cover, 17,5 mm pitch (see customer drawing 72857-x01LF)

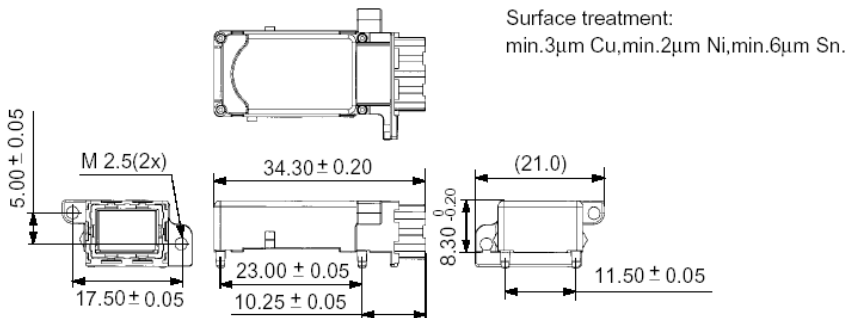


fig.8

1.2.4.4 Ground spring

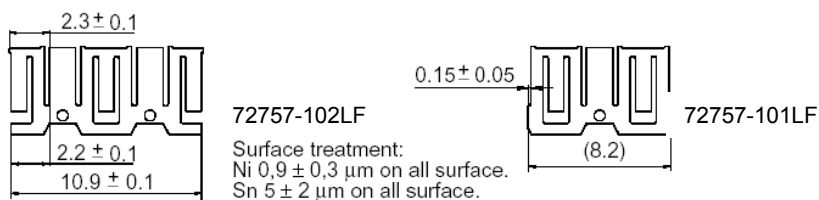



fig.9

NUMBER GS-12-307	TYPE PRODUCT SPECIFICATION		
TITLE Metral Sofix® P/N : 72860-x0xLF, 52088-xxxLF, 72844-x0xLF, 72858-x0xLF, 10022805-x01LF, 10051941-x01LF & 72846-x0xLF		PAGE 13 of 74	REVISION E
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1.2.5 Mounting information

No mating by cable connector without PCB cover mounted.

1.2.5.1 Assembly with metal cover and contact strips on PCB

Product	72857-x01LF
Dim. A	21.0
Dim. B	17.5

72860 SHOWN HERE

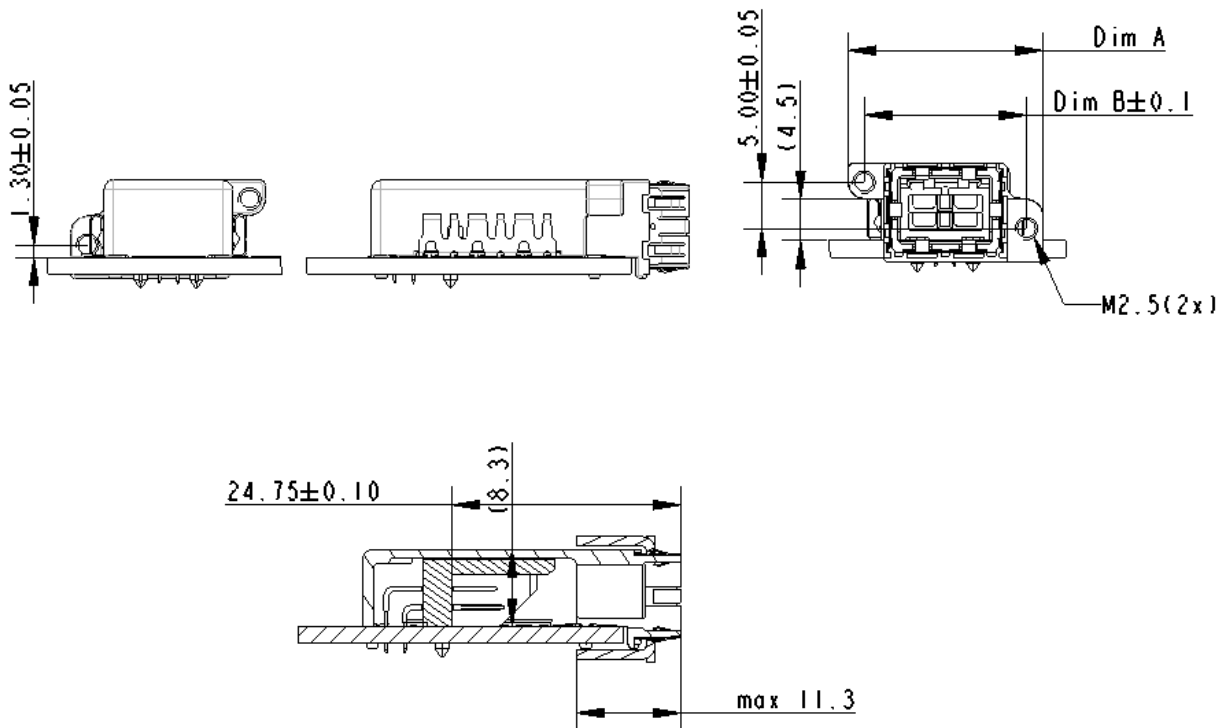



fig.10

NUMBER GS-12-307	TYPE PRODUCT SPECIFICATION		
TITLE Metral Sofix® P/N : 72860-x0xLF, 52088-xxxLF, 72844-x0xLF, 72858-x0xLF, 10022805-x01LF, 10051941-x01LF & 72846-x0xLF		PAGE 14 of 74	REVISION E
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1.2.5.2 Application tools

See GS-20-049.

1.2.5.3 Recommended hole pattern for 72860LF & 52088LF 17,5 mm pitch incl. PIP version

Information about termination on cable connector in generic product spec.

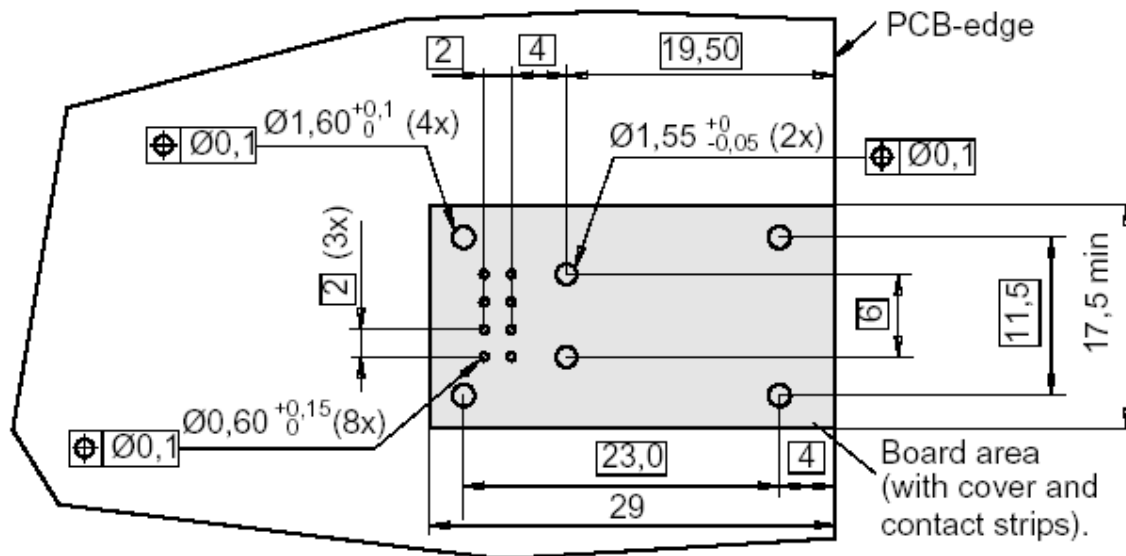



fig.11

NUMBER GS-12-307	TYPE PRODUCT SPECIFICATION		
TITLE Metral Sofix® P/N : 72860-x0xLF,52088-xxxLF,72844-x0xLF,72858-x0xLF, 10022805-x01LF,10051941-x01LF & 72846-x0xLF		PAGE 15 of 74	REVISION E
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1.2.5.4 Recommended plug-in unit front panel opening

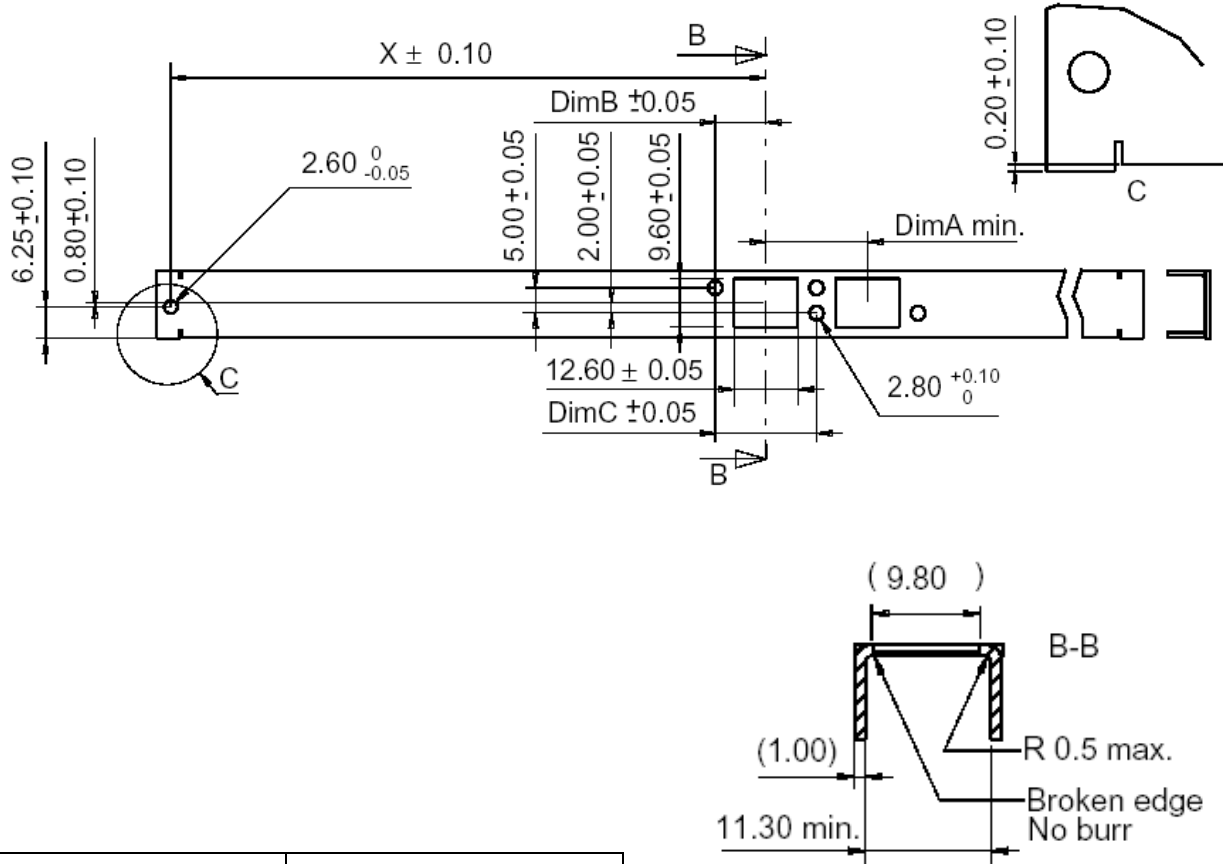



fig.12

Product	72860LF & 52088LF
Dim. A	17.5
Dim. B	8.75
Dim. C	17.5

NUMBER GS-12-307	TYPE PRODUCT SPECIFICATION		
TITLE Metral Sofix® P/N : 72860-x0xLF,52088-xxxLF,72844-x0xLF,72858-x0xLF, 10022805-x01LF,10051941-x01LF & 72846-x0xLF		PAGE 16 of 74	REVISION E
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1.3 Characteristics

1.3.1 General

All characteristics refer to 72860LF & 52088LF (with cover and contact strips) and, 72862-x01LF, 72864LF and 10008166-x01LF (mated pair of connectors).

1.3.2 Reference environment

According to IEC 68-1 clause 5.3.1.

Table 3

Temperature	15°-35°C
Rel. humidity	25% - 75%
Atmospheric pressure	86-106kPa

1.3.3 Climate Category

Table 4:

Storage	Max. temperature	50°C
	Min. temperature	-40°C
Range of uses	Max. temperature	70°C
	Min. temperature	-40°C

1.3.4 Electrical

1.3.4.1 Creepage and clearance distances

Minimum creepage and clearance distance between contacts 0,4mm.

1.3.4.2 Voltage proof

Initial voltage proof 1000 V r.m.s (contact/contact).
Voltage proof 1000 V r.m.s sinus min. after damp heat steady state test.

Conditions: IEC 512-2, Test 4a, 'Voltage Proof'.

NUMBER GS-12-307	TYPE PRODUCT SPECIFICATION		
TITLE Metral Sofix® P/N : 72860-x0xLF,52088-xxxLF,72844-x0xLF,72858-x0xLF, 10022805-x01LF,10051941-x01LF & 72846-x0xLF		PAGE 17 of 74	REVISION E
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1.3.4.3 Current carrying capacity

Current carrying capacity	Ambient temperature
0,3	70°C

Maximum increase in temperature 10°C at 0,3A, in all contacts.

Conditions:

IEC 512-3, Test 5b

Arrangement according to figure 13 in clause 1.4.2.

1.3.4.4 Contact resistance

Initial contact resistance according to Table 5.

Contact resistance max. increase 10 mΩ after heat ageing.

arrangement	row	resistance
Contact/contact	a	25 mΩmax
Contact/contact	b	35 mΩmax

Conditions:

IEC 512-2.

Arrangement according to figure 14 in clause 1.4.3.

1.3.4.5 Insulation resistance

Initial insulation resistance 5000 MΩ minimum.


Insulation resistance 1000 MΩ minimum, after damp heat steady state test.

Conditions:

IEC 512-2, Test 3a, 'insulation resistance'

1.3.4.6 Transfer impedance-EMC

Zt max. 50 mΩ from 0,3 MHz to 100 MHz (harnesses).

NUMBER GS-12-307	TYPE PRODUCT SPECIFICATION		
TITLE Metral Sofix® P/N : 72860-x0xLF,52088-xxxLF,72844-x0xLF,72858-x0xLF, 10022805-x01LF,10051941-x01LF & 72846-x0xLF		PAGE 18 of 74	REVISION E
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1.3.4.7 Signal transmission

Maximum reflections resulting from the female-male (2x4 signal cable-2x4 signal board) connector pair are less than 3% at 3ns rise time.

Worst case cross talk for one connector pair and four periodic differential signals at 3 ns rise time:
NEXT: 3% (-30dB) cross-mounted, 6% (-24dB) vertically mounted.
FEXT: 1% (-40dB) cross-mounted, 1% (-40dB) vertically mounted.

1.3.5 Mechanical

1.3.5.1 Mechanical operations

Number of operations: 200 minimum.

Conditions:
IEC 512-5, test 9a.
Standard atmospheric conditions.
Frequency of operations: 100 cycles/h.
Speed of operation: 10 mm/s maximum.
Rest 30s unmated.


1.3.5.2 Contact retention in insert

Force to be applied: 10N

Conditions:
IEC 512-8 test 15a.
Standard atmospheric conditions.
The maximum axial displacement after the force has been removed shall not exceed 0,1 mm.
Min. 10 readings per connector.
Fully equipped connectors.

1.3.6 Product safety

Requirement according to IEC 950 and UL 1950.

NUMBER GS-12-307	TYPE PRODUCT SPECIFICATION		
TITLE Metral Sofix® P/N : 72860-x0xLF,52088-xxxLF,72844-x0xLF,72858-x0xLF, 10022805-x01LF,10051941-x01LF & 72846-x0xLF		PAGE 19 of 74	REVISION E
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1.4 Testing

1.4.1 General

The connector shall undergo the testing schedule described in IEC standards. This is a type testing and an approval will be the result. The manufacturing process and/or the vendors internal specification may not be changed after type testing and approval without permission from design responsible.

1.4.2 Current carrying capacity

For conditions see clause 1.3.4.3.

2x4 signal board connector connected to PCB, 2x4 signal board connector connected to 2x 4 signal cable connector.

Arrangement for measurement according to fig. 13.

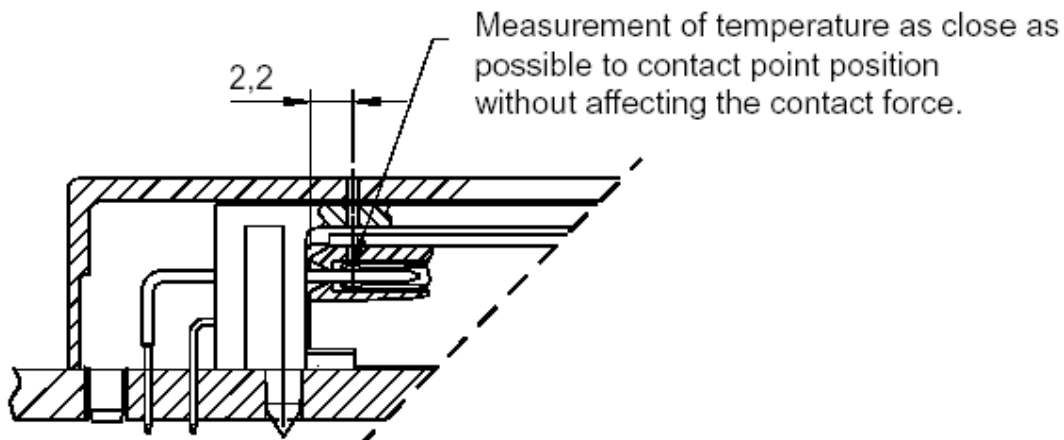



fig.13

NUMBER GS-12-307	TYPE PRODUCT SPECIFICATION		
TITLE Metral Sofix® P/N : 72860-x0xLF,52088-xxxLF,72844-x0xLF,72858-x0xLF, 10022805-x01LF,10051941-x01LF & 72846-x0xLF		PAGE 20 of 74	REVISION E
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1.4.3 Contact resistance

For conditions see clause 1.3.4.4.
Arrangement for measurement according to fig. 14.

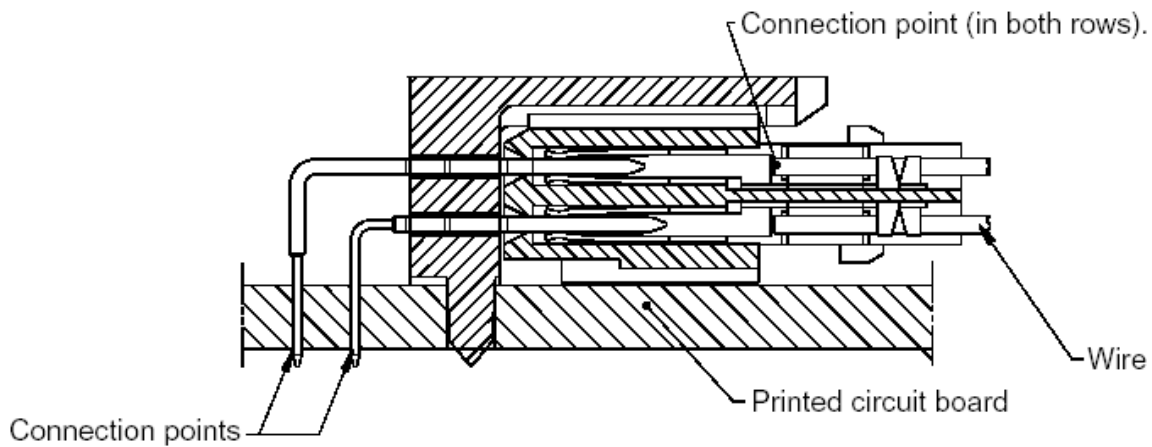



fig.14

NUMBER GS-12-307	TYPE PRODUCT SPECIFICATION		
TITLE Metral Sofix® P/N : 72860-x0xLF, 52088-xxxLF, 72844-x0xLF, 72858-x0xLF, 10022805-x01LF, 10051941-x01LF & 72846-x0xLF		PAGE 21 of 74	REVISION E
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1.5 Packing

1.5.1 Packing for transport

If the connector consist of two or more pieces, they shall be packed together. Packing shall be made with ESD protection so that:

- a no damage or deformation of the terminals will occur
- b no particles or parts from the packing will enter into the contacts cavities and no gases or acids from packing materials will harm the housing or the contact elements
- c the connectors can be removed without problems from the packing without touching the terminals or deforming them

The packing shall be marked with product number, manufacturer Code and packing date.

Recommended packing connector placed in tube 360205-001LF according to fig.15

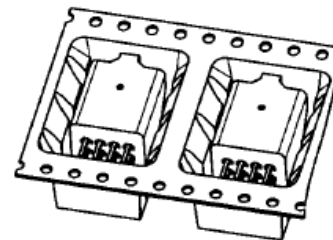
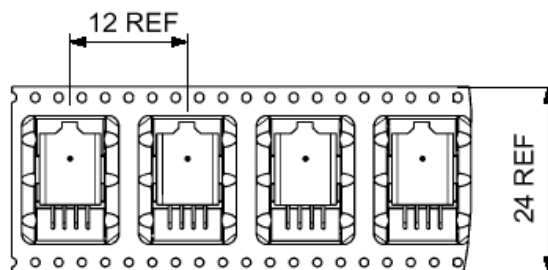
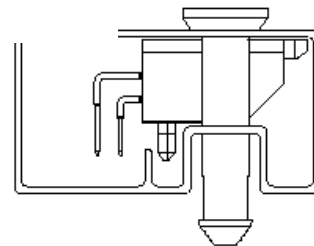



fig.15

Refer packaging spec EUR-14-010 for packaging details.

NUMBER GS-12-307	TYPE PRODUCT SPECIFICATION		
TITLE Metral Sofix® P/N : 72860-x0xLF, 52088-xxxLF, 72844-x0xLF, 72858-x0xLF, 10022805-x01LF, 10051941-x01LF & 72846-x0xLF		PAGE 22 of 74	REVISION E
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CLASSIFICATION UNRESTRICTED			

1.6. Product Number

1.6.1 Connector identification

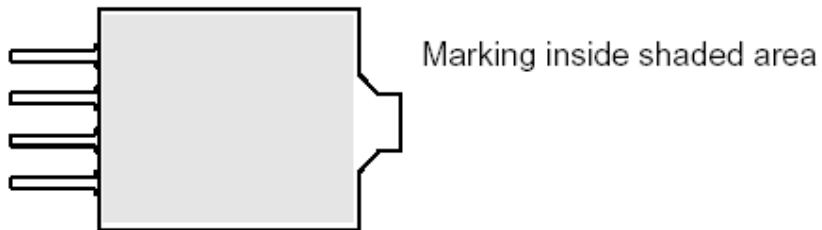



fig.16

- a) product number
- b) factory code
- c) manufacturing year
- d) manufacturing week

1.6.2 Cover identification


53229-001LF

Shield cover marked with product number and company logo.

NUMBER GS-12-307	TYPE PRODUCT SPECIFICATION		
TITLE Metral Sofix® P/N : 72860-x0xLF,52088-xxxLF,72844-x0xLF,72858-x0xLF, 10022805-x01LF,10051941-x01LF & 72846-x0xLF		PAGE 23 of 74	REVISION E
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CLASSIFICATION UNRESTRICTED			

1.7 References

IEC 68-1	Environmental testing, Part 1: General and guidance.
IEC 512	Electromechanical components for electronic equipment; basic testing procedures and measuring methods.
GS-20- 049	Application Specification.
IEC 609 50	Safety of information technology equipment.
UL 1950	Standard for safety of information technology equipment, 3rd edition.

NUMBER GS-12-307	TYPE PRODUCT SPECIFICATION		
TITLE Metral Sofix® P/N : 72860-x0xLF,52088-xxxLF,72844-x0xLF,72858-x0xLF, 10022805-x01LF,10051941-x01LF & 72846-x0xLF		PAGE 24 of 74	REVISION E
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CLASSIFICATION UNRESTRICTED			

2.PART B-4x6 SIGNAL

2.1 General

2.1.1 General information

The specification is valid for the Lead Free/RoHS compatible products.

This document is describing a metric connector module for signal transmission use at printed circuit board (PCB).

Basic grid is 0,5 mm, with contact pins at a 2-mm grid.
Connection to the PCB is realized with solder connections in plated- through holes.

The connector module has 4 rows with up to 6 individual contact pins per row.
The 1 module connector shall be used with external shields and PCB cover according to fig.1

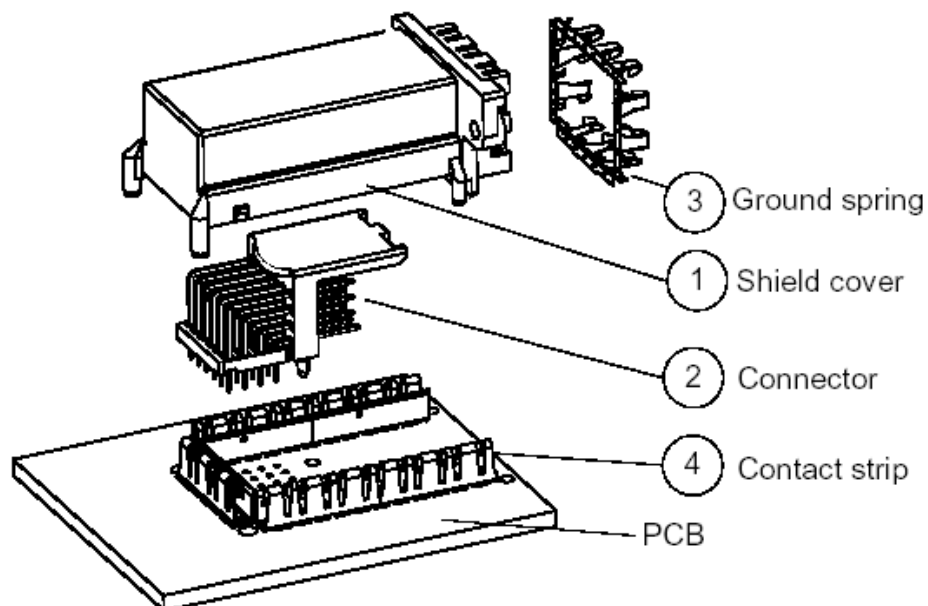



fig.1

NUMBER GS-12-307	TYPE PRODUCT SPECIFICATION		
TITLE Metral Sofix® P/N : 72860-x0xLF, 52088-xxxLF, 72844-x0xLF, 72858-x0xLF, 10022805-x01LF, 10051941-x01LF & 72846-x0xLF		PAGE 25 of 74	REVISION E
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2.1.2 Ratings and characteristics

Rated voltage	130V r.m.s sinus(contact/contact)min.
Current rating at 70 °C	0,3A min.
Insulation resistance	5000 MΩ min.
PCB thickness	1,4 mm -2,4 mm

2.1.3 Performance level

Performance Level	
XXXXX-1xxLF	Telcordia Co
XXXXX-XxxLF	Customer Special

2.2 Dimensions and material

2.2.1 Connector dimensions

2.2.1.1 72800LF(solder)

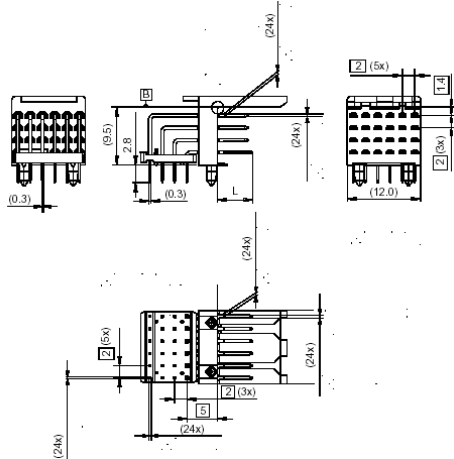



fig.2

NUMBER GS-12-307	TYPE PRODUCT SPECIFICATION		
TITLE Metral Sofix® P/N : 72860-x0xLF, 52088-xxxLF, 72844-x0xLF, 72858-x0xLF, 10022805-x01LF, 10051941-x01LF & 72846-x0xLF		PAGE 26 of 74	REVISION E
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2.2.1.2 72850LF(PIP)

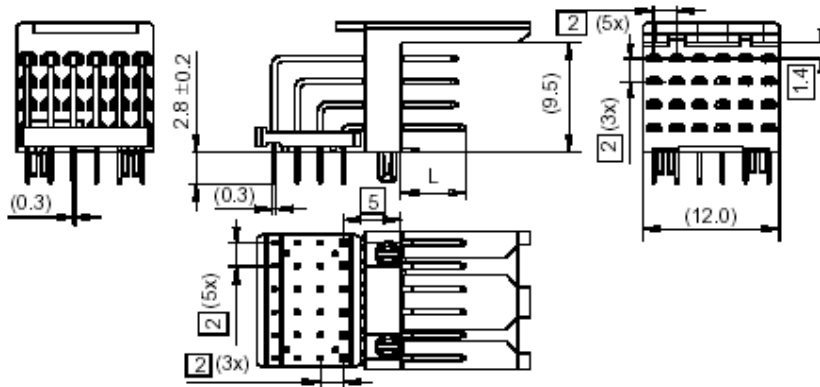


fig.3

2.2.1.3 Wafer dimensions

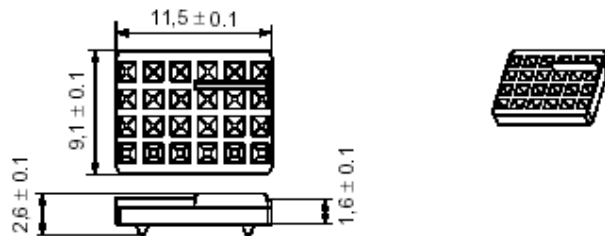


fig.4


2.2.2. Material

2.2.2.1 Housing

Material: Liquid Crystal Polymer (Natural coloured LCP).
Weight: 0,9 g/piece.

2.2.2.2 Wafer

Material: Liquid Crystal Polymer (Natural coloured LCP).
Weight: 0,2 g/piece.

NUMBER GS-12-307	TYPE PRODUCT SPECIFICATION		
TITLE Metral Sofix® P/N : 72860-x0xLF, 52088-xxxLF, 72844-x0xLF, 72858-x0xLF, 10022805-x01LF, 10051941-x01LF & 72846-x0xLF		PAGE 27 of 74	REVISION E
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2.2.2.3 Shield cover (1 module)

Material: Zinc alloy.
Weight: 10,5 g/piece.

2.2.2.4 Ground spring (1 module)

Material: Bronze.
Weight: 0,1 g/piece.

2.2.2.5 Contact strip

See customer-drawing 72815LF.

2.2.2.6 Contact element

Material: Bronze.
Total weight of connector is 2 g/piece.

2.2.3 Housing dimensions

2.2.3.1 Outline dimensions (solder)

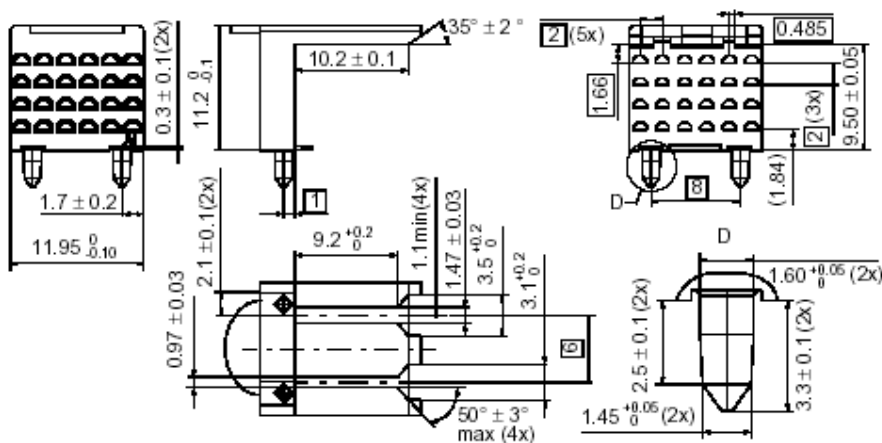



fig 5

NUMBER GS-12-307	TYPE PRODUCT SPECIFICATION		
TITLE Metral Sofix® P/N : 72860-x0xLF, 52088-xxxLF, 72844-x0xLF, 72858-x0xLF, 10022805-x01LF, 10051941-x01LF & 72846-x0xLF		PAGE 28 of 74	REVISION E
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CLASSIFICATION UNRESTRICTED			

2.2.3.2 Outline dimensions (PIP)

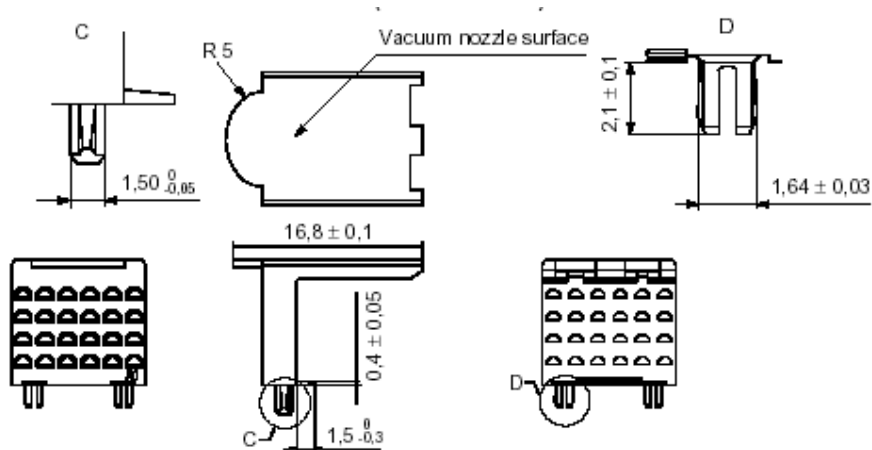


fig.6

2.2.4 Contact dimensions and surface coating

2.2.4.1 Contact surface

The contact surface is specified in figure 7. The specified values must be fulfilled at the whole specified area.

Contact dimensions

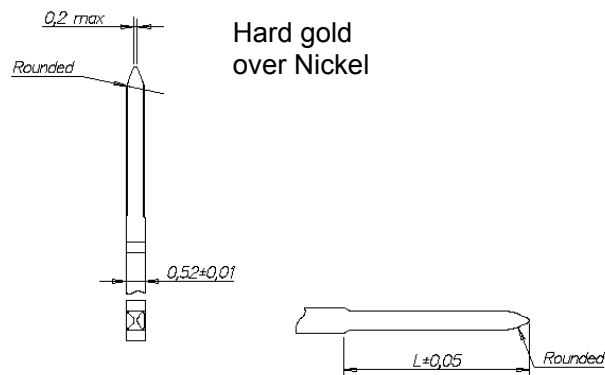

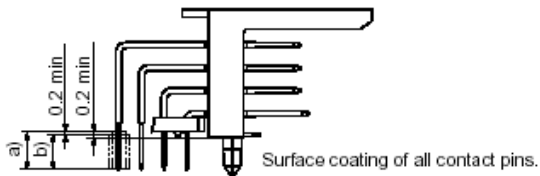


fig.7

NUMBER GS-12-307	TYPE PRODUCT SPECIFICATION		
TITLE Metral Sofix® P/N : 72860-x0xLF,52088-xxxLF,72844-x0xLF,72858-x0xLF, 10022805-x01LF,10051941-x01LF & 72846-x0xLF		PAGE 29 of 74	REVISION E
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CLASSIFICATION UNRESTRICTED			

2.2.4.2 Terminals

2.2.4.2.1 Surface coating



Surface coating:

a) Ni $0,3_{-0/+1,7} \mu\text{m}$

b) SnPb 90/10 $8,0 \pm 2 \mu\text{m}$ (min. 2% Pb)

fig.8

2.2.4.3 Shield Cover

2.2.4.3.1 Shield cover,1 module(see customer drawing 72808LF)

Surface treatment:

min.3 μm Cu,min.2 μm Ni,min.6 μm Sn.

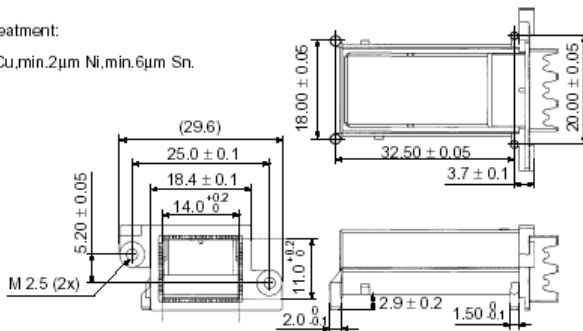


fig.9

2.2.4.4 Ground spring (See customer drawing 72811LF)

Surface treatment:
Ni $0,9 \pm 0,3 \mu\text{m}$ on all surface
Sn $5 \pm 2 \mu\text{m}$ on all surface

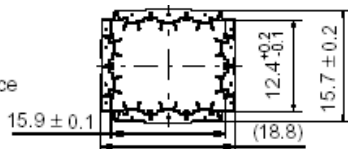



fig. 10

Surface coating:

a) Ni $0,3_{-0/+1,7} \mu\text{m}$.

NUMBER GS-12-307	TYPE PRODUCT SPECIFICATION		
TITLE Metral Sofix® P/N : 72860-x0xLF, 52088-xxxLF, 72844-x0xLF, 72858-x0xLF, 10022805-x01LF, 10051941-x01LF & 72846-x0xLF		PAGE 30 of 74	REVISION E
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CLASSIFICATION UNRESTRICTED			

2.2.5. Mounting information

2.2.5.1 Assembly, metal cover and contact strips on PCB

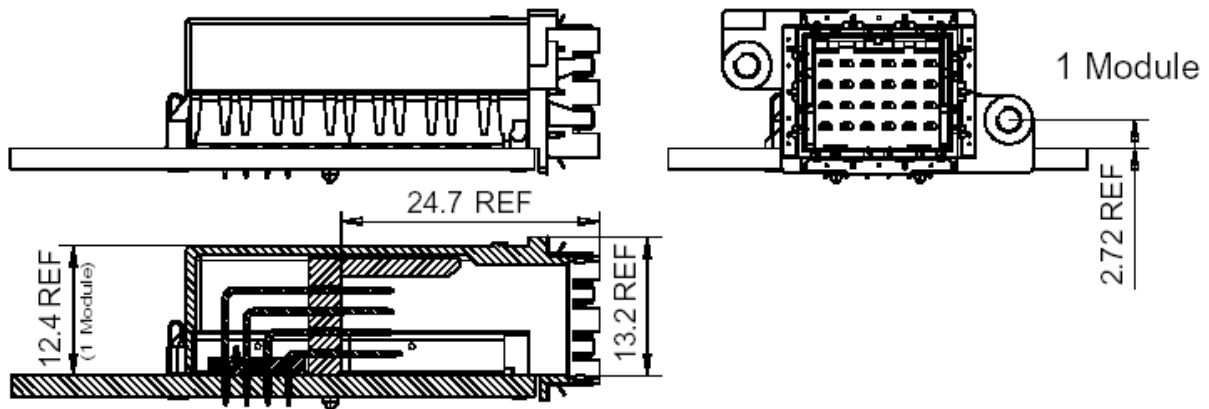


fig.11

2.2.5.2 Recommended hole pattern for 72844LF(STB)

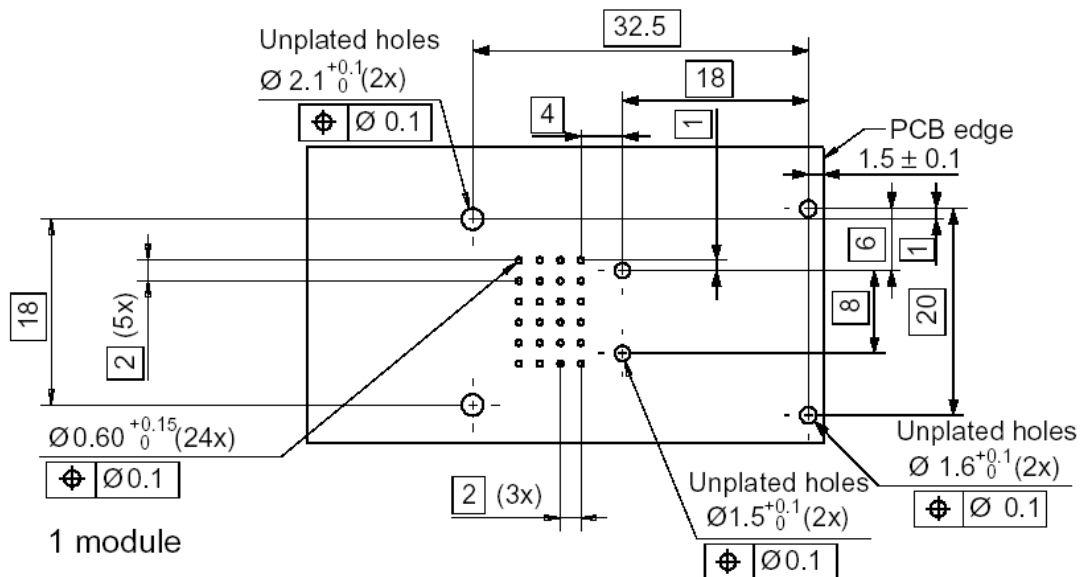


fig.12

NUMBER GS-12-307	TYPE PRODUCT SPECIFICATION	FCI	
TITLE Metral Sofix® P/N : 72860-x0xLF,52088-xxxLF,72844-x0xLF,72858-x0xLF, 10022805-x01LF,10051941-x01LF & 72846-x0xLF		PAGE 31 of 74	REVISION E
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2.2.5.3 Recommended hole pattern for 72858LF(PIP)

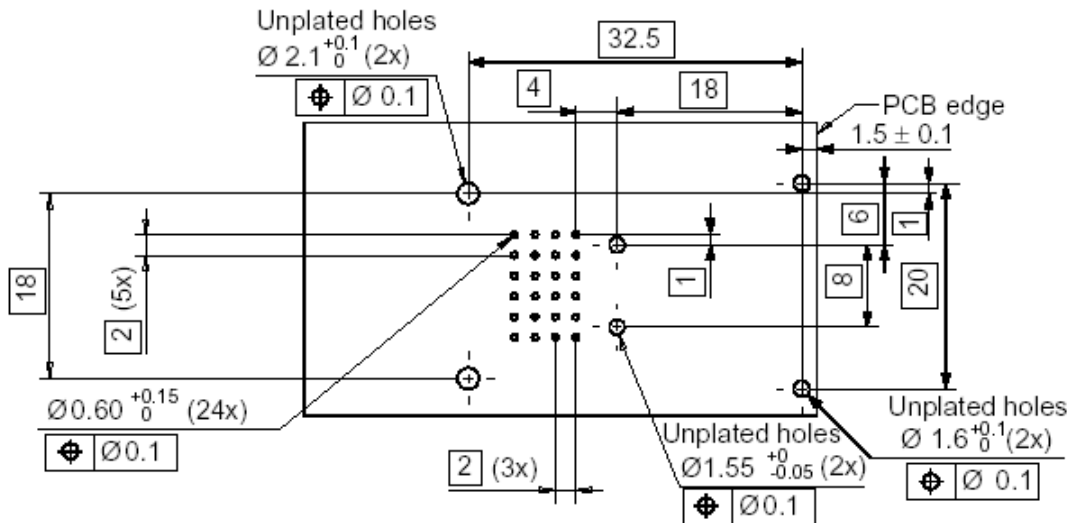


fig.13

2.2.5.4 Board area (with cover and contact strips)

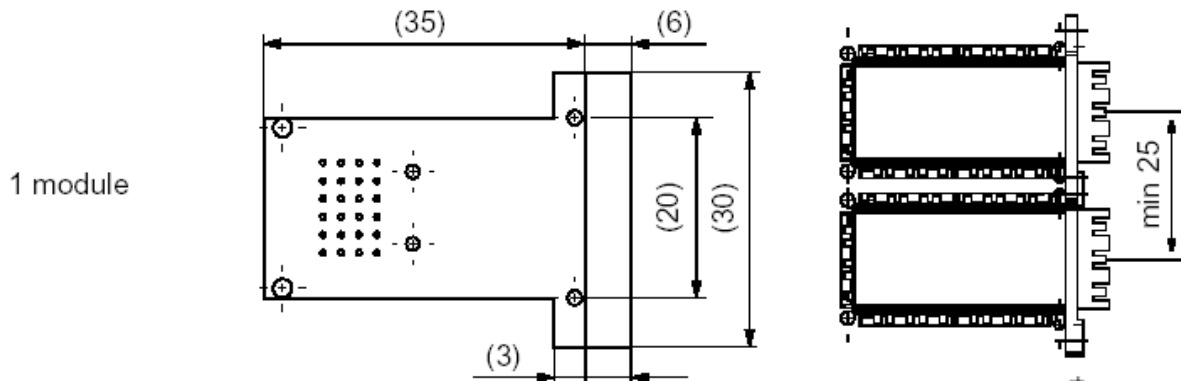



fig.14

NUMBER GS-12-307	TYPE PRODUCT SPECIFICATION		
TITLE Metral Sofix® P/N : 72860-x0xLF, 52088-xxxLF, 72844-x0xLF, 72858-x0xLF, 10022805-x01LF, 10051941-x01LF & 72846-x0xLF		PAGE 32 of 74	REVISION E
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2.2.5.5 Recommended plug-in unit front panel opening

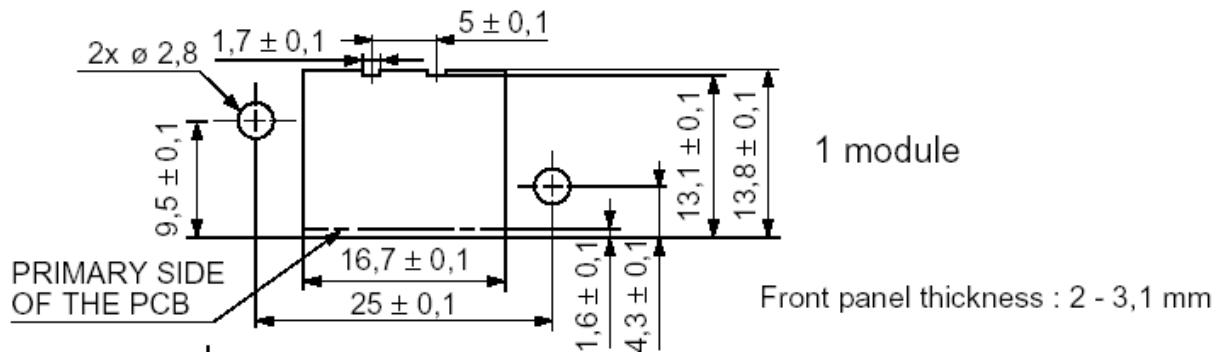



fig.15

2.2.6 Product safety

Housing and wafer: Flammability class UL94-V0.

NUMBER GS-12-307	TYPE PRODUCT SPECIFICATION		
TITLE Metral Sofix® P/N : 72860-x0xLF,52088-xxxLF,72844-x0xLF,72858-x0xLF, 10022805-x01LF,10051941-x01LF & 72846-x0xLF		PAGE 33 of 74	REVISION E
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2.3 Characteristics

2.3.1 General

All characteristics refer to 72844LF, 72858LF (with cover and contact strips) and HM1C16D2J110EBLF, 72817-x03LF AND 72817-x04LF (mated pair of connectors).

2.3.2 Reference environment

According to IEC 68-1 clause 5.3.1

Table 2:

Temperature	15°-35°C
Rel. humidity	25% - 75%
Atmospheric pressure	86-106kPa

2.3.3 Climate category

Table 3:

Storage	Max. temperature	50°C
	Min. temperature	-40°C
Range of uses	Max. temperature	70°C
	Min. temperature	-40°C

2.3.4 Electrical


2.3.4.1 Creepage and clearance distances

Minimum creepage and clearance distance between contacts 0,4mm.

2.3.4.2 Voltage proof

Initial voltage proof 1000 V r.m.s (contact/contact).
Voltage proof 1000 V r.m.s sinus min. after damp heat steady state test.

Conditions: IEC 512-2, Test 4a, "Voltage Proof".

NUMBER GS-12-307	TYPE PRODUCT SPECIFICATION		
TITLE Metral Sofix® P/N : 72860-x0xLF,52088-xxxLF,72844-x0xLF,72858-x0xLF, 10022805-x01LF,10051941-x01LF & 72846-x0xLF		PAGE 34 of 74	REVISION E
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CLASSIFICATION UNRESTRICTED			

2.3.4.3 Current carrying capacity

Current carrying capacity temperature	Ambient
0,3 A	70°C

Maximum increase in temperature 10°C at 0,3A, in all contacts.
Conditions: IEC 512-3,Test 5b
Arrangement according to figure 16 in clause 2.4.2

2.3.4.4 Contact resistance

Initial contact resistance according to table 4.
Contact resistance max increase 10mΩ after heat aging.

Table 4:


Arrangement	Row	Resistance
contact/contact	a	25 mΩ. max
contact/contact	b	35 mΩ. max
contact/contact	c	40 mΩ max
contact/contact	d	45 mΩ max

Conditions: IEC 512-2
Arrangement according to figure 17 in clause 2.4.3

2.3.4.5 Insulation resistance

Initial insulation resistance 5000 MΩ minimum.
Insulation resistance 1000 MΩ minimum, after damp heat steady state test.

Conditions: IEC 512-2,Test 3a,'insulation resistance"

NUMBER GS-12-307	TYPE PRODUCT SPECIFICATION		
TITLE Metral Sofix® P/N : 72860-x0xLF,52088-xxxLF,72844-x0xLF,72858-x0xLF, 10022805-x01LF,10051941-x01LF & 72846-x0xLF		PAGE 35 of 74	REVISION E
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		CLASSIFICATION UNRESTRICTED	

2.3.5 Mechanical

2.3.5.1 Mechanical operations


Number of operations: 200 minimum.

Conditions: IEC 512-5, test 9a
Standard atmospheric conditions
Frequency of operations: 100 cycles/h
Speed of operation: 10 mm/s maximum
Rest 30s unmated

2.3.5.2 Contact retention in insert

Force to be applied: 10N

Conditions :IEC 512-8 test 15a
Standard atmospheric conditions
The maximum axial displacement after the force has been removed
shall not exceed 0,1 mm.
Min. 10 readings per connector
Fully equipped connectors

NUMBER GS-12-307	TYPE PRODUCT SPECIFICATION		
TITLE Metral Sofix® P/N : 72860-x0xLF,52088-xxxLF,72844-x0xLF,72858-x0xLF, 10022805-x01LF,10051941-x01LF & 72846-x0xLF		PAGE 36 of 74	REVISION E
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2.4 Testing

2.4.1 General

The connector shall undergo the testing schedule described in IEC Standards. This is a type testing and an approval will be the result. The manufacturing process and/or the vendors internal specification may not be changed after type testing and approval without permission from design responsible.

2.4.2 Current carrying capacity

For conditions see clause 2.3.4.3

4 X6 board connector connected to PCB, 4 x 6 board connector connected to 4 x 6 cable connector.

Arrangement for measurement according to fig 16.

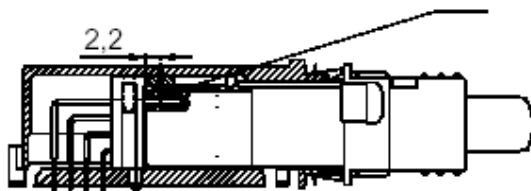


fig.16

Measurement of temperature as close as possible to contact point position without affecting the contact force.

2.4.3 Contact resistance

For conditions see clause 2.3.4.4

Arrangement for measurement according to fig 17.

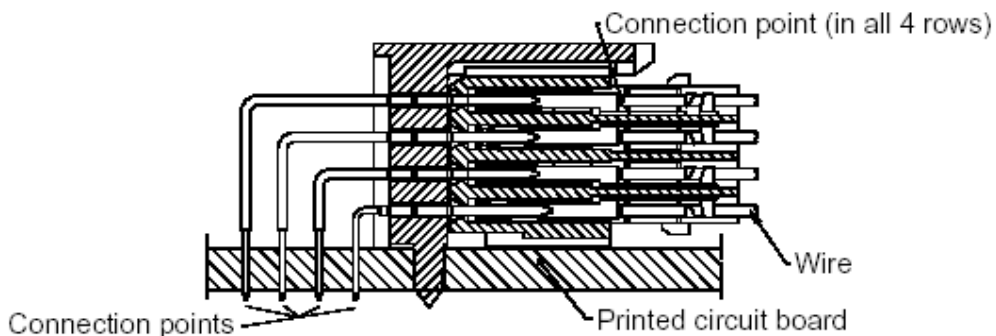



fig.17

NUMBER GS-12-307	TYPE PRODUCT SPECIFICATION		
TITLE Metral Sofix® P/N : 72860-x0xLF, 52088-xxxLF, 72844-x0xLF, 72858-x0xLF, 10022805-x01LF, 10051941-x01LF & 72846-x0xLF		PAGE 37 of 74	REVISION E
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2.5 Packing

2.5.1 Packing for transport

If the connector consist of two or more pieces, they shall be packed together. Packing shall be made with ESD protection so that:

- a. no damage or deformation of the terminals will occur
- b. no particles or parts from the packing will enter into the contacts cavities and no gases or acids from packing materials will harm the housing or the contact elements
- c. the connectors can be removed without problems from the packing without touching the terminals or deforming them
The packing shall be marked with product number, manufacturer code (given from Ericsson) and packing date.

Recommended packing connector placed 360204-001LF according to fig.18

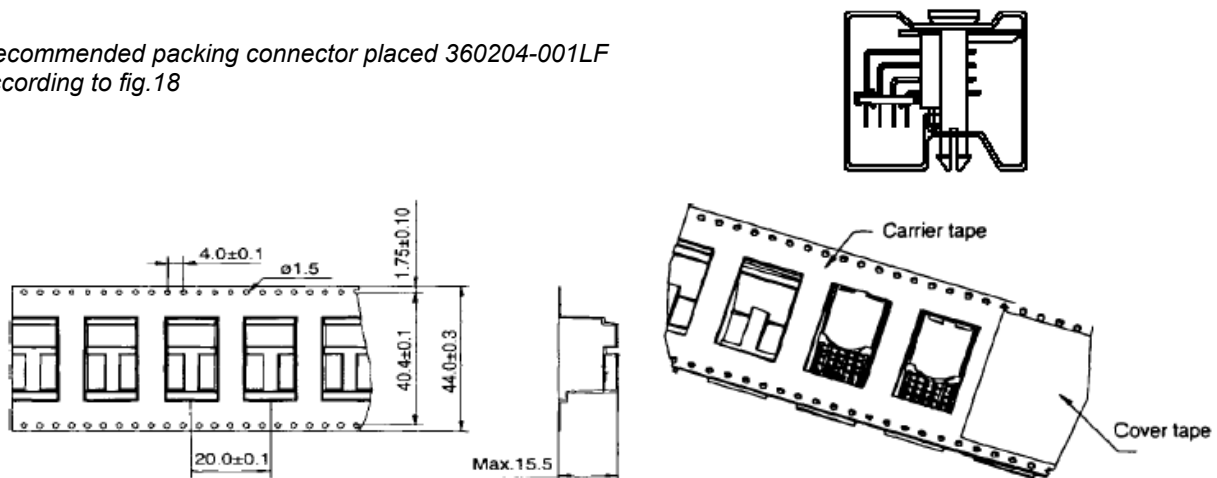



fig.18

Refer EUR-14-010 for packaging details.

NUMBER GS-12-307	TYPE PRODUCT SPECIFICATION		
TITLE Metral Sofix® P/N : 72860-x0xLF,52088-xxxLF,72844-x0xLF,72858-x0xLF, 10022805-x01LF,10051941-x01LF & 72846-x0xLF		PAGE 38 of 74	REVISION E
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2.6 Product number

2.6.1 Product identification

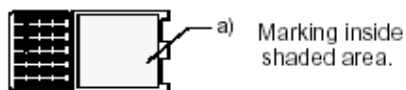


fig.19

- a) product number,
- b) factory code,
- c) manufacturing year and
- d) week.


2.6.2 Cover identification

72815-001LF

Shield cover marked with product number and company logo.

2.7 References

IEC 68-1	Environmental testing, Part 1: General and guidance.
IEC 512	Electromechanical components for electronic equipment; basic testing procedures and measuring methods.
GS-20- 049	Application Specification.
EUR-14-010	Packaging Specification.
IEC 609 50	Safety of information technology equipment.
UL-94V0	Standard for safety of information

NUMBER GS-12-307	TYPE PRODUCT SPECIFICATION		
TITLE Metral Sofix® P/N : 72860-x0xLF,52088-xxxLF,72844-x0xLF,72858-x0xLF, 10022805-x01LF,10051941-x01LF & 72846-x0xLF		PAGE 39 of 74	REVISION E
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3. PART C-3 X 24 SIGNAL

3.1 General

3.1.1 General information

The specification is valid for the Lead Free/RoHS compatible products

This document is describing a metric connector module for signal transmission use at printed circuit board (PCB).

Basic grid is 0,5 mm, with contact pins at a 2-mm grid.
Connection to the PCB is realized with solder connections in Plated - through holes.

The connector module has 4 rows with up to 6 individual contact pins per row.
The 3 module connector shall be used with external shields and PCB cover according to fig.1

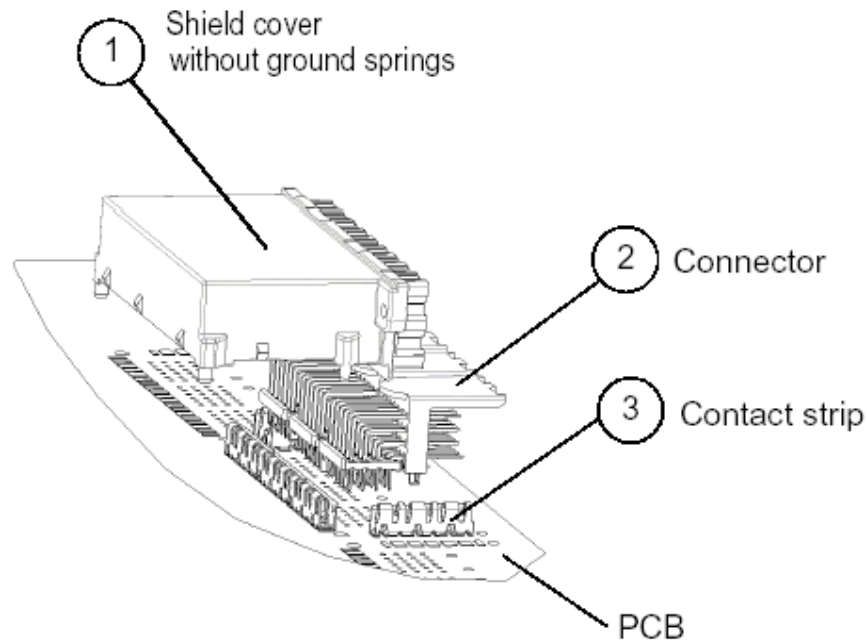


fig.1


NUMBER GS-12-307	TYPE PRODUCT SPECIFICATION		
TITLE Metral Sofix® P/N : 72860-x0xLF,52088-xxxLF,72844-x0xLF,72858-x0xLF, 10022805-x01LF,10051941-x01LF & 72846-x0xLF		PAGE 40 of 74	REVISION E
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CLASSIFICATION UNRESTRICTED			

Table 1:


Pos.	Product Name	Product Number	10022805-x01LF	10051941-x01LF
1	Shield cover Without ground springs	10009609-002LF	1	1
2	Connector solder	72800-211LF	3	--
	Connector PIP	72850-211LF	--	3
3	Contact strip	72815-001LF	5	5

3.1.2 Ratings and characteristics

Rated voltage	130V r.m.s sinus (contact/contact) min.
Current rating at 70°C	0,3A min.
Insulation resistance	5000MΩ min.
PCB thickness	1,4 mm -2,4 mm

3.1.3 Performance level

Performance Level	
XXXXX-1xxLF	Telcordia Co
XXXXX-XxxLF	Customer Special

NUMBER GS-12-307	TYPE PRODUCT SPECIFICATION		
TITLE Metral Sofix® P/N : 72860-x0xLF, 52088-xxxLF, 72844-x0xLF, 72858-x0xLF, 10022805-x01LF, 10051941-x01LF & 72846-x0xLF		PAGE 41 of 74	REVISION E
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CLASSIFICATION UNRESTRICTED			

3.2 Dimensions and material

3.2.1 Connector dimensions

3.2.1.1 72800LF(solder)

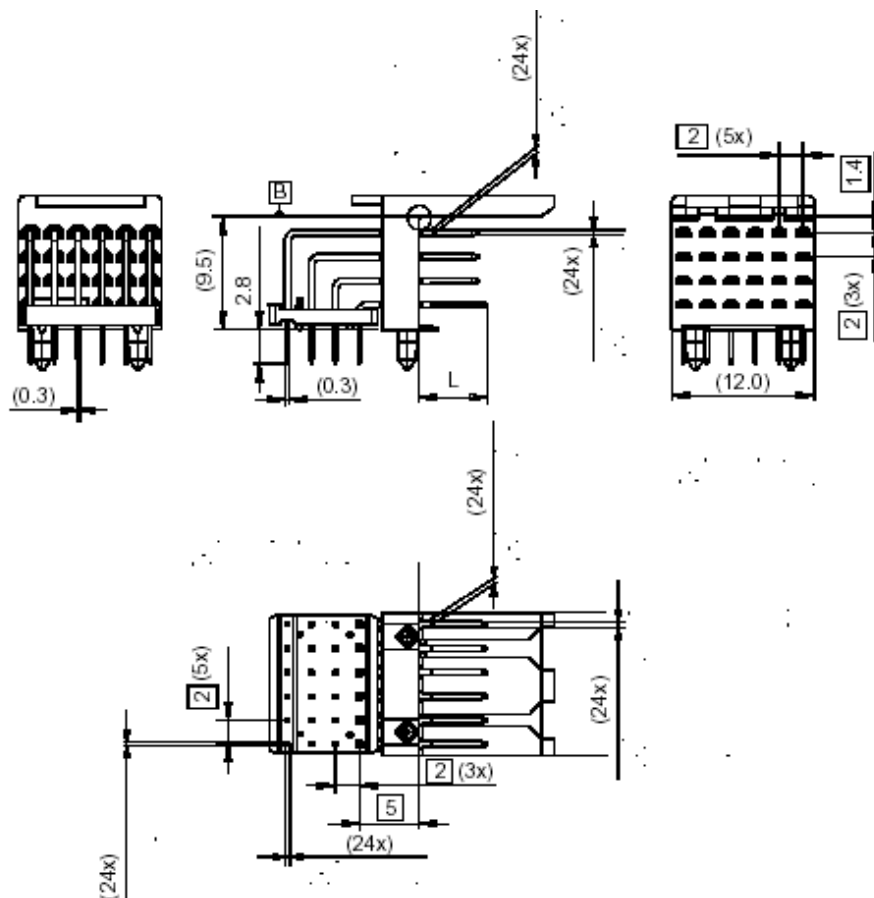



fig.2

NUMBER GS-12-307	TYPE PRODUCT SPECIFICATION		
TITLE Metral Sofix® P/N : 72860-x0xLF, 52088-xxxLF, 72844-x0xLF, 72858-x0xLF, 10022805-x01LF, 10051941-x01LF & 72846-x0xLF		PAGE 42 of 74	REVISION E
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3.2.1.2 72850LF(PIP)

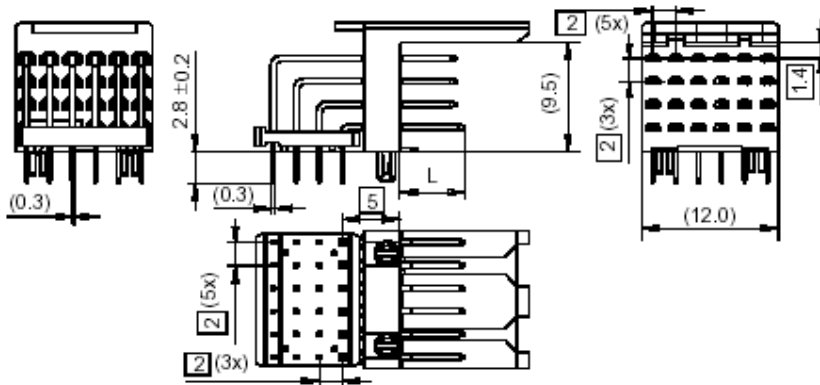


fig.3

3.2.1.3 Wafer dimensions

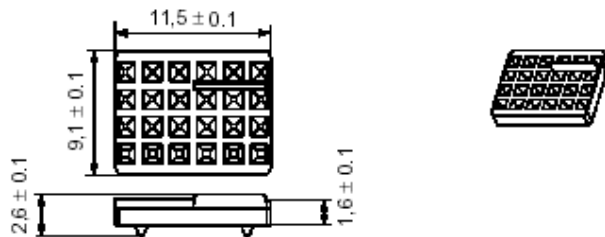



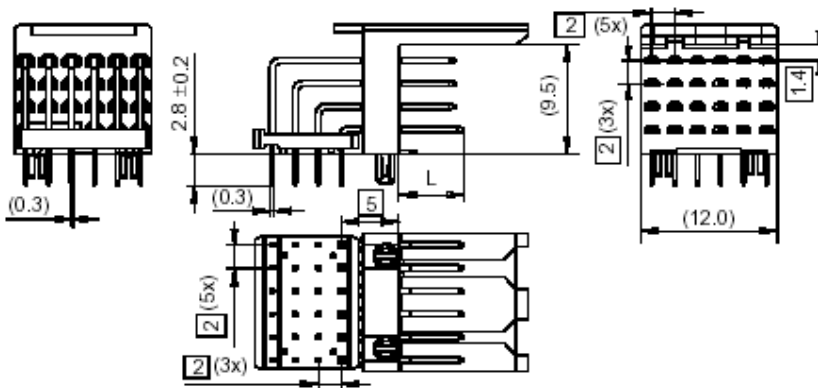
fig.4

NUMBER GS-12-307	TYPE PRODUCT SPECIFICATION		
TITLE Metral Sofix® P/N : 72860-x0xLF,52088-xxxLF,72844-x0xLF,72858-x0xLF, 10022805-x01LF,10051941-x01LF & 72846-x0xLF		PAGE 43 of 74	REVISION E
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CLASSIFICATION UNRESTRICTED			

3.2.2 Material

3.2.2.1 Housing

Material: Liquid Crystal Polymer (Natural coloured LCP).
Weight: 0,9g/piece.



3.2.2.2 Wafer

Material: Liquid Crystal Polymer (Natural coloured LCP).
Weight: 0,2g/piece.

3.2.2.3 Shield cover without ground springs (3 module)


Material: Zinc alloy.
Weight: 21g/piece.

3.2.2.4 Contact strip

See customer-drawing 72815LF.

3.2.2.5 Contact element

Material: Bronze.
Total weight of connector is 2 g/piece.

NUMBER GS-12-307	TYPE PRODUCT SPECIFICATION		
TITLE Metral Sofix® P/N : 72860-x0xLF, 52088-xxxLF, 72844-x0xLF, 72858-x0xLF, 10022805-x01LF, 10051941-x01LF & 72846-x0xLF		PAGE 44 of 74	REVISION E
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3.2.3 Housing dimensions

3.2.3.1 Outline dimensions (solder)

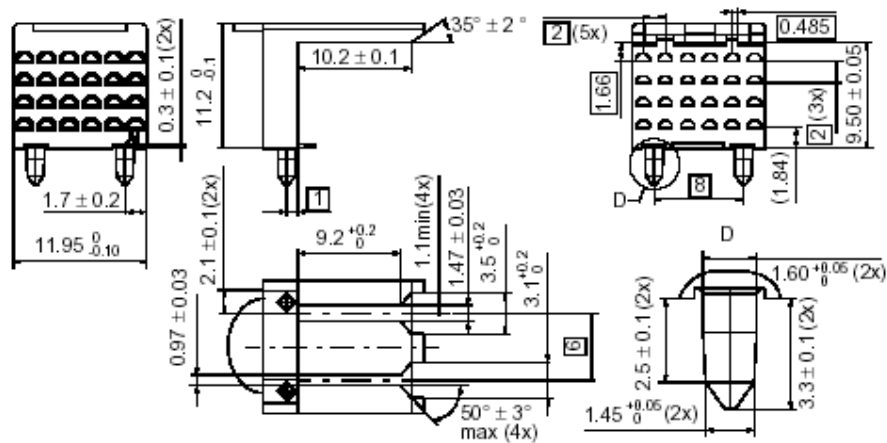


Fig.5

Outline dimensions (PIP)

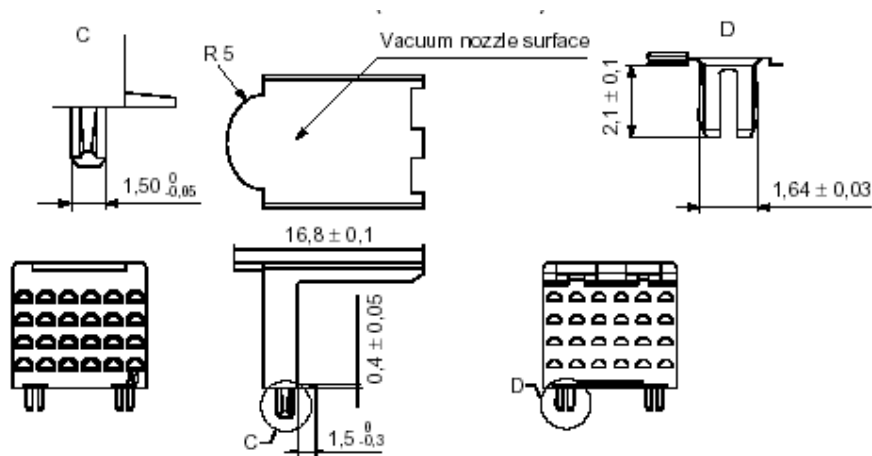



fig.6

NUMBER GS-12-307	TYPE PRODUCT SPECIFICATION		
TITLE Metral Sofix® P/N : 72860-x0xLF, 52088-xxxLF, 72844-x0xLF, 72858-x0xLF, 10022805-x01LF, 10051941-x01LF & 72846-x0xLF		PAGE 45 of 74	REVISION E
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3.2.4 Contact dimensions and surface coating

3.2.4.1 Contact surface

The contact surface is specified in figure 7. The specified values must be fulfilled at the whole specified area.

Contact dimensions

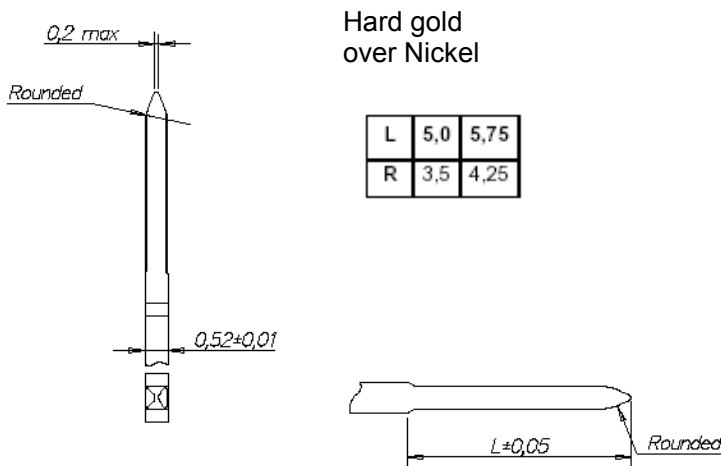
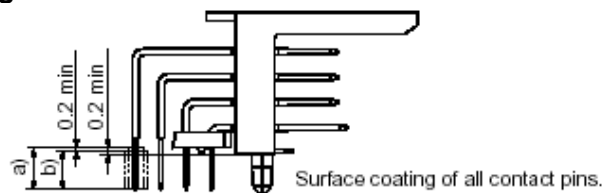


fig.7


3.2.4.2 Terminals

3.2.4.2.1 Surface coating



Surface coating:
a) Ni $0,3_{-0/+1,7} \mu \text{ m}$.
b) Pure Sn

fig.8

NUMBER GS-12-307	TYPE PRODUCT SPECIFICATION		
TITLE Metral Sofix® P/N : 72860-x0xLF, 52088-xxxLF, 72844-x0xLF, 72858-x0xLF, 10022805-x01LF, 10051941-x01LF & 72846-x0xLF		PAGE 46 of 74	REVISION E
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3.2.4.3 Shield Cover

3.2.4.3.1 Shield cover for 3 module (see customer drawing 10009609-002LF)

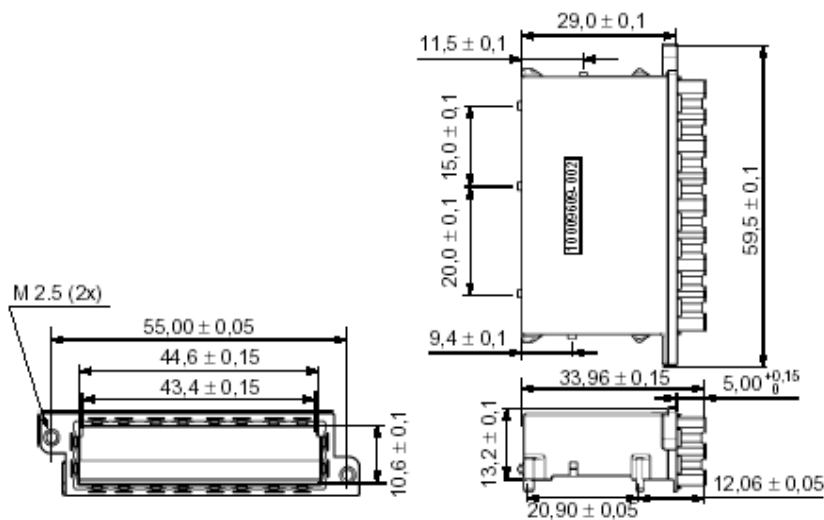


fig.9

3.2.5 Mounting information

3.2.5.1 Assembly, metal cover and contact strips on PCB

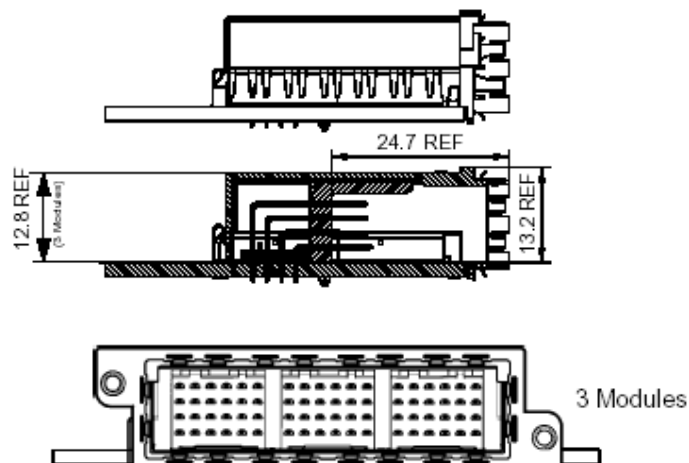



fig.10

NUMBER GS-12-307	TYPE PRODUCT SPECIFICATION		
TITLE Metral Sofix® P/N : 72860-x0xLF, 52088-xxxLF, 72844-x0xLF, 72858-x0xLF, 10022805-x01LF, 10051941-x01LF & 72846-x0xLF		PAGE 47 of 74	REVISION E
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3.2.5.2 Recommended hole pattern for 10022805-x01LF & 10051941-x01LF

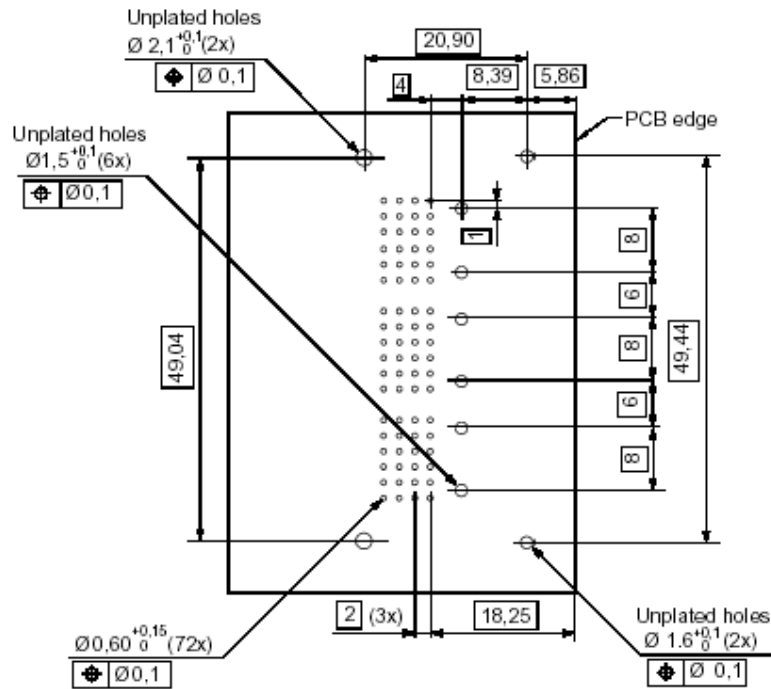



fig.11

NUMBER GS-12-307	TYPE PRODUCT SPECIFICATION		
TITLE Metral Sofix® P/N : 72860-x0xLF,52088-xxxLF,72844-x0xLF,72858-x0xLF, 10022805-x01LF,10051941-x01LF & 72846-x0xLF		PAGE 48 of 74	REVISION E
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3.2.5.3 Board area (with cover and contact strips)

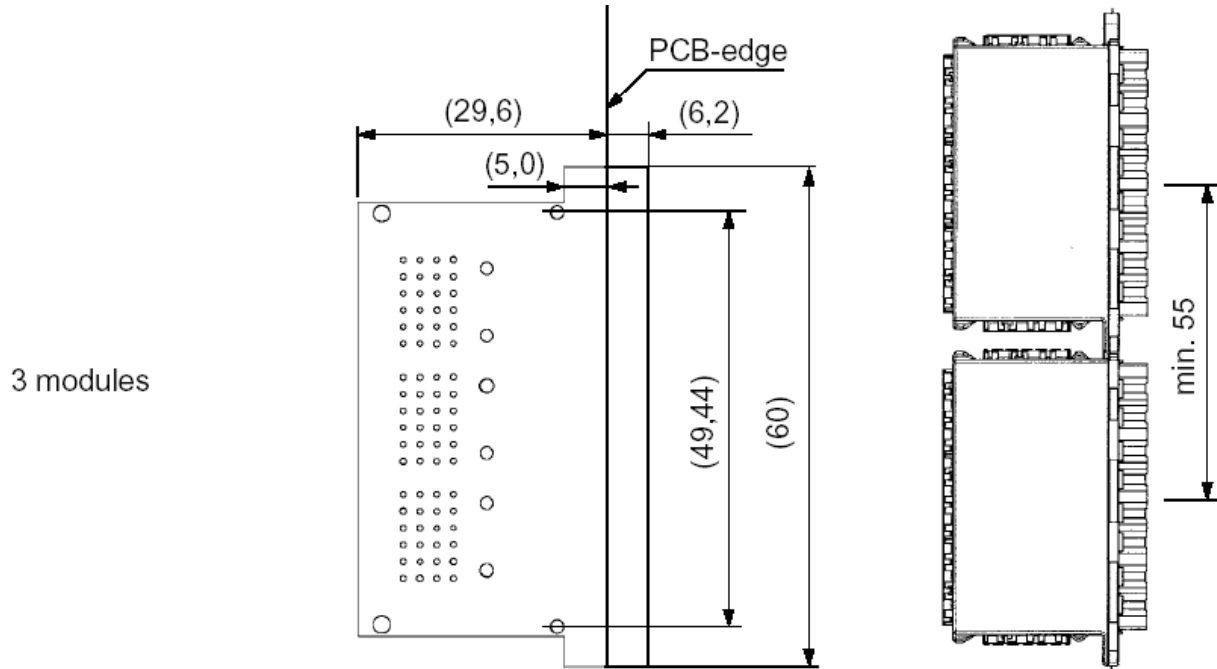


fig.12

3.2.5.4 Recommended plug-in unit front panel opening

Front panel thickness : 2 - 3,1 mm

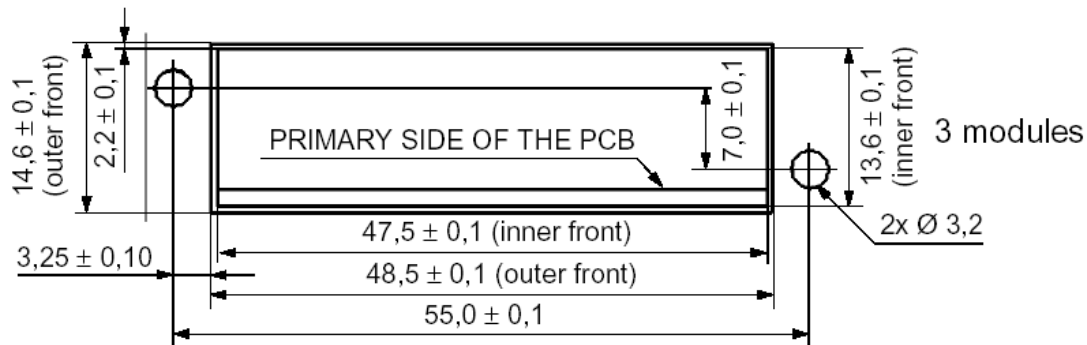



fig.13

3.2.6 Product safety

Housing and wafer: Flammability class UL94-V0.

NUMBER GS-12-307	TYPE PRODUCT SPECIFICATION		
TITLE Metral Sofix® P/N : 72860-x0xLF,52088-xxxLF,72844-x0xLF,72858-x0xLF, 10022805-x01LF,10051941-x01LF & 72846-x0xLF		PAGE 49 of 74	REVISION E
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3.3 Characteristics

3.3.1 General

All characteristics refer to 10022805-x01LF and 10051941-x01LF (with cover and contact strips) and 10013881-201LF. (mated pair of connectors).

3.3.2 Reference environment

According to IEC 68-1 clause 5.3.1

Table 2:

Temperature	15°-35°C
Rel.humidity	25%-75%
Atmospheric pressure	86-106kPa

3.3.3 Climate category

Table 3:

Storage	Max. temperature	50°C
	Min. temperature	-40°C
Range of uses	Max. temperature	70°C
	Min. temperature	-40°C

3.3.4 Electrical


3.3.4.1 Creepage and clearance distances

Minimum creepage and clearance distance between contacts 0,4mm.

3.3.4.2 Voltage proof

Initial voltage proof 1000 V r.m.s (contact/contact).
Voltage proof 1000 V r.m.s sinus min. after damp heat steady state test.

Conditions: IEC 512-2, Test 4a, "Voltage Proof".

NUMBER GS-12-307	TYPE PRODUCT SPECIFICATION		
TITLE Metral Sofix® P/N : 72860-x0xLF,52088-xxxLF,72844-x0xLF,72858-x0xLF, 10022805-x01LF,10051941-x01LF & 72846-x0xLF		PAGE 50 of 74	REVISION E
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3.3.4.3 Current carrying capacity

Current carrying capacity temperature	Ambiant
0,3 A	70°C

Maximum increase in temperature 10°C at 0,3A, in all contacts.
Conditions: IEC 512-3, Test 5b
Arrangement according to figure 14 in clause 3.4.2

3.3.4.4 Contact resistance

Initial contact resistance according to table 4.
Contact resistance max increase 10mΩ after heat aging.

Table 4:


Arrangement	Row	Resistance
contact/contact	a	25 mΩ. max
contact/contact	b	35 mΩ. max
contact/contact	c	40 mΩ max
contact/contact	d	45 mΩ max

Conditions: IEC 512-2
Arrangement according to figure 15 in clause 3.4.3

3.3.4.5 Insulation resistance

Initial insulation resistance 5000 MΩ minimum.
Insulation resistance 1000 MΩ minimum, after damp heat steady state test.

Conditions: IEC 512-2, Test 3a, 'insulation resistance'

NUMBER GS-12-307	TYPE PRODUCT SPECIFICATION		
TITLE Metral Sofix® P/N : 72860-x0xLF,52088-xxxLF,72844-x0xLF,72858-x0xLF, 10022805-x01LF,10051941-x01LF & 72846-x0xLF		PAGE 51 of 74	REVISION E
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3.3.5 Mechanical

3.3.5.1 Mechanical operations


Number of operations: 200 minimum.

Conditions: IEC 512-5, test 9a
Standard atmospheric conditions
Frequency of operations: 100 cycles/h
Speed of operation: 10 mm/s maximum
Rest 30s unmated

3.3.5.2 Contact retention in insert

Force to be applied: 10N

Conditions: IEC 512-8 test 15a
Standard atmospheric conditions
The maximum axial displacement after the force has been removed shall not exceed 0,1 mm.
Min. 10 readings per connector
Fully equipped connectors

NUMBER GS-12-307	TYPE PRODUCT SPECIFICATION		
TITLE Metral Sofix® P/N : 72860-x0xLF,52088-xxxLF,72844-x0xLF,72858-x0xLF, 10022805-x01LF,10051941-x01LF & 72846-x0xLF		PAGE 52 of 74	REVISION E
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3.4 Testing

3.4.1 General

The connector shall undergo the testing schedule described in IEC Standards. This is a type testing and an approval will be the result. The manufacturing process and/or the vendors internal specification may not be changed after type testing and approval without permission from design responsible.

3.4.2 Current carrying capacity

For conditions see clause 3.3.4.3

3 x24 board connector connected to PCB, 3 x 24 board connector connected to 3 x 24 cable connector.

Arrangement for measurement according to fig 14.

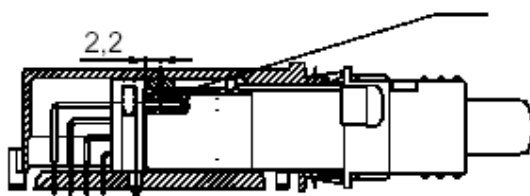


fig.14

Measurement of temperature as close as possible to contact point position without affecting the contact force.

3.4.3 Contact resistance

For conditions see clause 3.3.4.4

Arrangement for measurement according to fig 15.

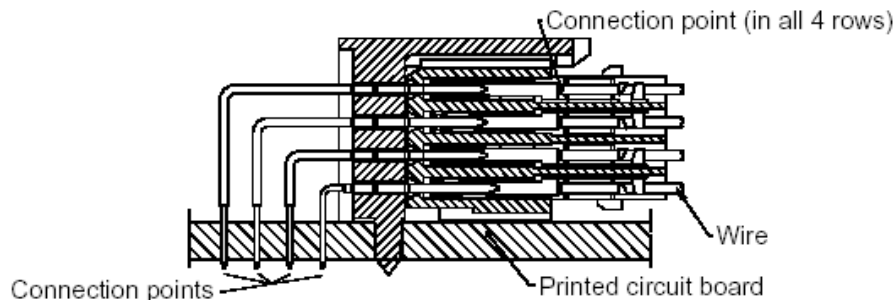



fig.15

NUMBER GS-12-307	TYPE PRODUCT SPECIFICATION		
TITLE Metral Sofix® P/N : 72860-x0xLF, 52088-xxxLF, 72844-x0xLF, 72858-x0xLF, 10022805-x01LF, 10051941-x01LF & 72846-x0xLF		PAGE 53 of 74	REVISION E
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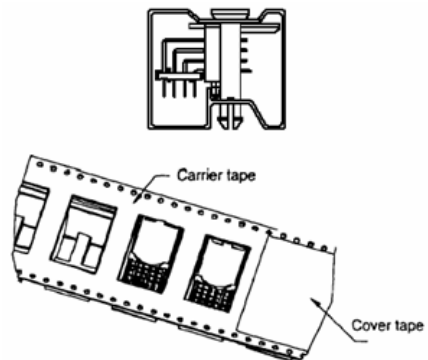
3.5 Packing

3.5.1 Packing for transport

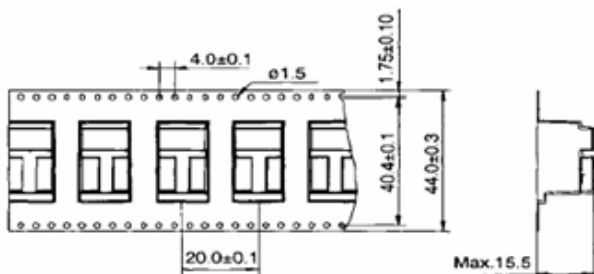
If the connector consist of two or more pieces, they shall be packed together. Packing shall be made with ESD protection so that:

- a no damage or deformation of the terminals will occur
 - b no particles or parts from the packing will enter into the contacts cavities and no gases or acids from packing materials will harm the housing or the contact elements
 - c the connectors can be removed without problems from the packing without touching the terminals or deforming them
- The packing shall be marked with product number, manufacturer code (given from Ericsson) and packing date.


Recommended packing: for STB connector (10022805LF)



Recommended packing: for PIP connector (10051941-x01LF)



Refer EUR-14-010 for packaging details.

NUMBER GS-12-307	TYPE PRODUCT SPECIFICATION		
TITLE Metral Sofix® P/N : 72860-x0xLF,52088-xxxLF,72844-x0xLF,72858-x0xLF, 10022805-x01LF,10051941-x01LF & 72846-x0xLF		PAGE 54 of 74	REVISION E
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3.6 Product number

3.6.1 Product identification

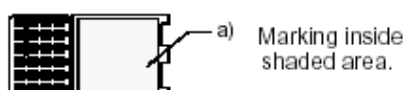


fig.17

- e) product number,
- f) factory code,
- g) manufacturing year and
- h) week.


3.6.2 Cover identification

72815-001LF

Shield cover marked with product number and company logo.

3.7 References

IEC 68-1	Environmental testing, Part 1: General and guidance.
IEC 512	Electromechanical components for electronic equipment; basic testing procedures and measuring methods.
GS-20- 049	Application Specification.
EUR-14-010	Packaging Specification.
IEC 609 50	Safety of information technology equipment.
UL-94V0	Standard for safety of information

NUMBER GS-12-307	TYPE PRODUCT SPECIFICATION		
TITLE Metral Sofix® P/N : 72860-x0xLF, 52088-xxxLF, 72844-x0xLF, 72858-x0xLF, 10022805-x01LF, 10051941-x01LF & 72846-x0xLF		PAGE 55 of 74	REVISION E
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4. PART D- POWER

4.1 General

4.1.1 General information

The specification is valid for the Lead Free/RoHS compatible products.
This document is describing a metric connector module for power transmission use at printed circuit board (PCB). Basic grid is 0,5 mm, with contact pins at a 2-mm grid.
Connection to the PCB is realized with solder connections in plated-through holes. The connector shall be used with external shields according to fig. 1.

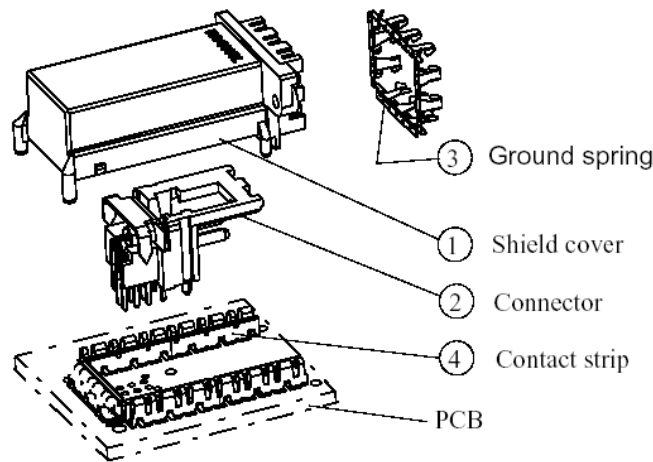



fig.1

Table 1

Pos	Product Name	Product Number	72860-x01LF	72860-x02LF	72860-x03LF	52088-x01LF
1	Shield cover	72808-001LF	1	1	1	1
2	Connector	72814-202LF	1	"	"	"
		72814-203LF	"	1	"	"
		72814-204LF	1	"	1	"
2	Connector	72814-205LF	"	1	"	1
3	Group spring	72811-001LF	1	1	1	1
4	Contact strip	72815-001LF	5	5	5	5

NUMBER GS-12-307	TYPE PRODUCT SPECIFICATION		
TITLE Metral Sofix® P/N : 72860-x0xLF,52088-xxxLF,72844-x0xLF,72858-x0xLF, 10022805-x01LF,10051941-x01LF & 72846-x0xLF		PAGE 56 of 74	REVISION E
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4.1.2 Ratings and characteristics

Table 2

Rated voltage	130V r.m.s sinus (contact/contact) min.
Current rating	As per 3.4.3
Insulation resistance	5000MΩ min.
Printed board thickness	1,8 mm -2,4 mm

4.1.3 Performance level

Performance Level	
XXXXX-1xxLF	Telcordia Co
XXXXX-XxxLF	Customer Special

4.2 Dimensions and material

4.2.1 Connector dimensions

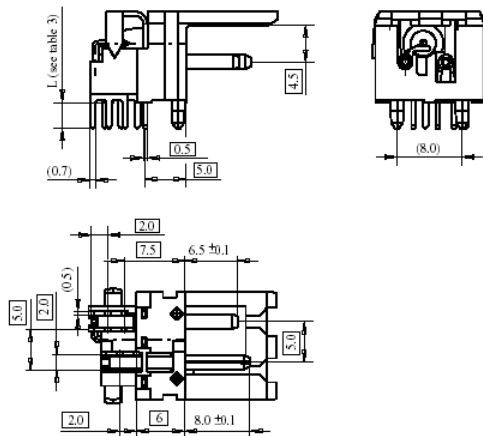



fig.2

Table 3

Product Number	Length(L)
72846-x02LF	2.2
72846-x03LF	2.7

NUMBER GS-12-307	TYPE PRODUCT SPECIFICATION		
TITLE Metral Sofix® P/N : 72860-x0xLF,52088-xxxLF,72844-x0xLF,72858-x0xLF, 10022805-x01LF,10051941-x01LF & 72846-x0xLF		PAGE 57 of 74	REVISION E
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4.2.2 Material

4.2.2.1 Housing

Material: Liquid Crystal Polymer (Natural coloured LCP).
Flammability class UL94V-0.
Weight: 1,1g/piece.

4.2.2.2 Shield cover

Material: Zinc alloy.
Weight: 10,5g/piece.

4.2.2.3 Ground spring

Material: Bronze.
Weight: 0,1 g/piece.

4.2.2.4 Earth pin

Material: Bronze.

4.2.2.5 Power pin

Material: Bronze.

4.2.2.6 Screen plate

Material: Bronze.

4.2.2.7 Copper wire


Material: Tinned copper wire.

4.2.2.8 Filter

Consists of: 1) The Power filter card (filter and a capacitor blank)
2) The Front Plate
3) The Mounting Plate

4.2.2.9 Contact strip

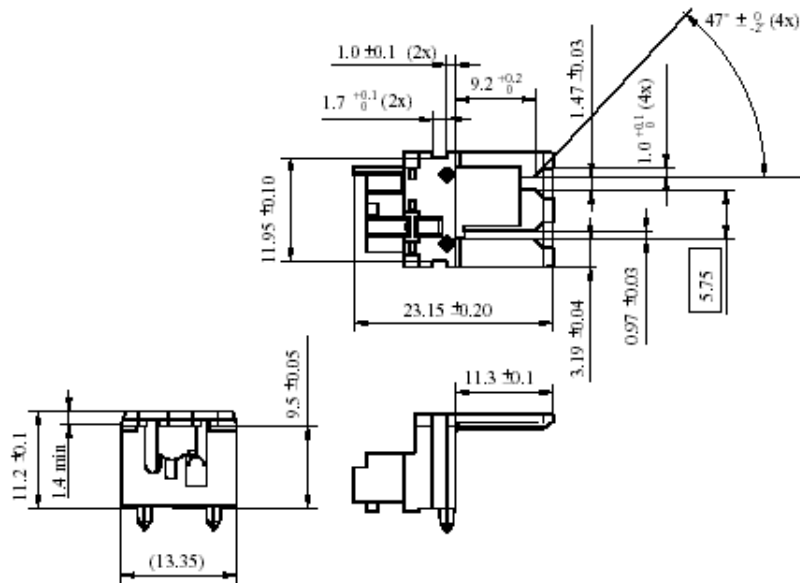
Material:Stainless Steel
Total weight of connector 72814 is 3,6 g.

NUMBER GS-12-307	TYPE PRODUCT SPECIFICATION		
TITLE Metral Sofix® P/N : 72860-x0xLF,52088-xxxLF,72844-x0xLF,72858-x0xLF, 10022805-x01LF,10051941-x01LF & 72846-x0xLF		PAGE 58 of 74	REVISION E
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4.2.3 Housing dimensions

4.2.3.1 Outline dimensions

fig.3



4.2.3.2 Application related dimensions

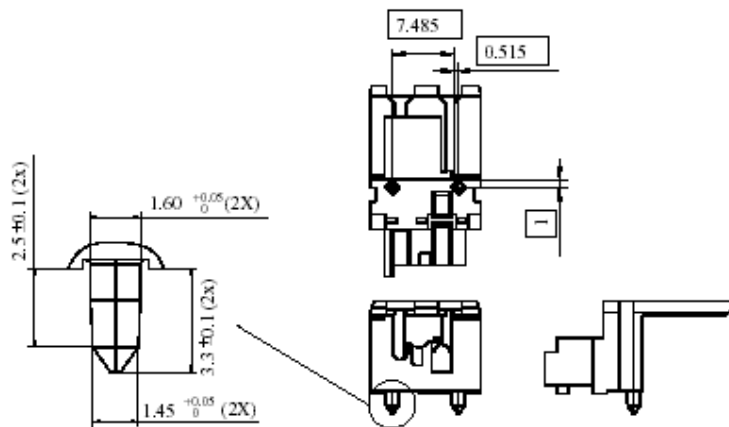



fig.4

NUMBER GS-12-307	TYPE PRODUCT SPECIFICATION		
TITLE Metral Sofix® P/N : 72860-x0xLF,52088-xxxLF,72844-x0xLF,72858-x0xLF, 10022805-x01LF,10051941-x01LF & 72846-x0xLF		PAGE 59 of 74	REVISION E
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4.2.4 Contact dimensions and surface coating

4.2.4.1 Contact surface

The contact surface is specified in figure 5. The specified values must be fulfilled at the whole-specified area.

4.2.4.1.1 Surface coating

Surface coating:

a) Hard gold

b) Ni 1,27 μm min.

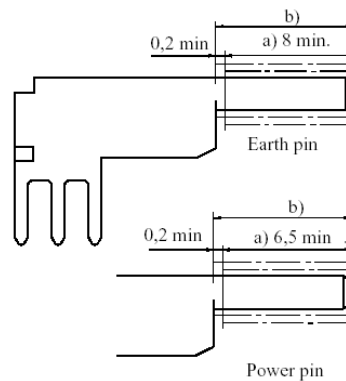


fig.5

4.2.4.1.2 Contact dimensions

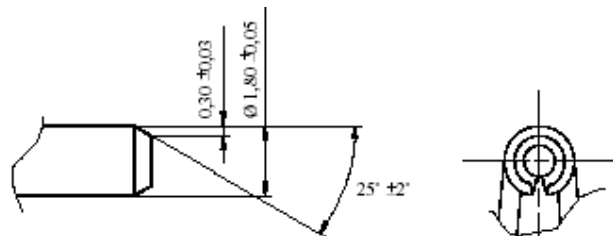


fig.6

4.2.4.1.3 Shield dimension

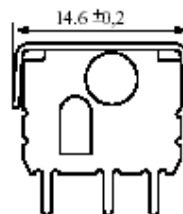



fig.7

NUMBER GS-12-307	TYPE PRODUCT SPECIFICATION		
TITLE Metral Sofix® P/N : 72860-x0xLF,52088-xxxLF,72844-x0xLF,72858-x0xLF, 10022805-x01LF,10051941-x01LF & 72846-x0xLF		PAGE 60 of 74	REVISION E
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4.2.4.2 Terminals

4.2.4.2.1 Surface coating for power- and earth pin.

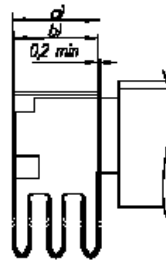


fig.8

4.2.4.2.2 Surface coating for further power pin

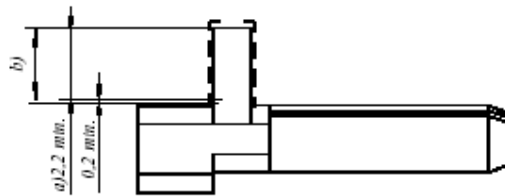


fig.9

4.2.4.2.3 Surface coating, shield

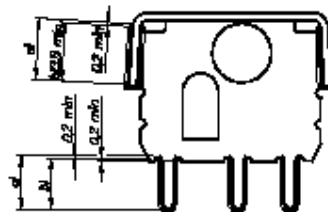



fig.10

According to fig 8,9 & 10

- a) Ni 2 +3- 0 μm .
- b) Pure Sn 90/10, 8,0 +/- 2 μm (min 2% Pb).

NUMBER GS-12-307	TYPE PRODUCT SPECIFICATION		
TITLE Metral Sofix® P/N : 72860-x0xLF,52088-xxxLF,72844-x0xLF,72858-x0xLF, 10022805-x01LF,10051941-x01LF & 72846-x0xLF		PAGE 61 of 74	REVISION E
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4.2.4.3 Shield cover (See 72808-001LF)

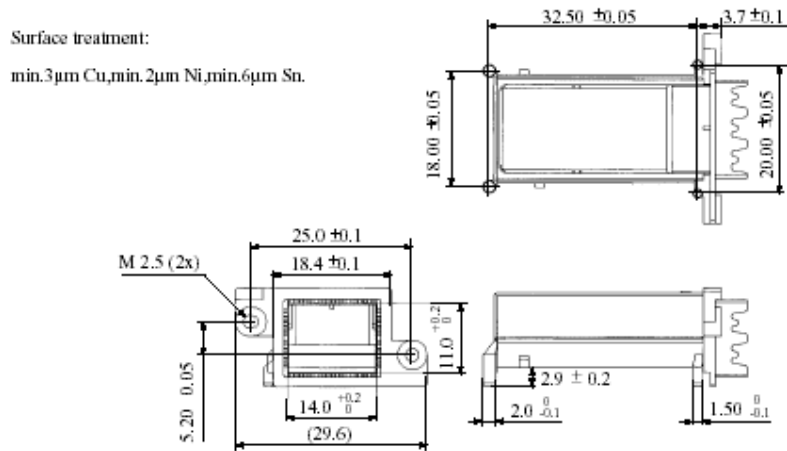


fig.11

4.2.4.4 Ground spring (72811-101LF)

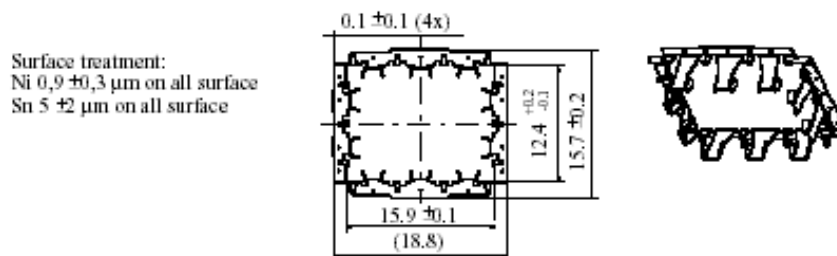

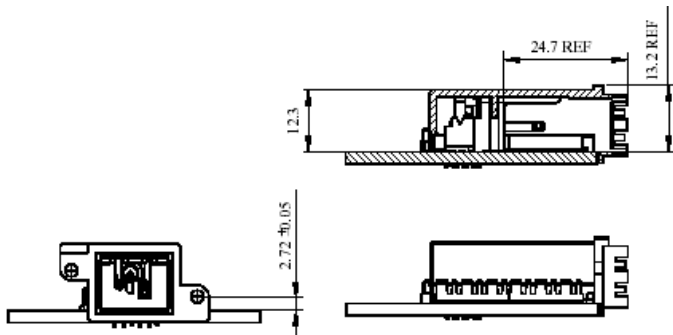


fig.12

NUMBER GS-12-307	TYPE PRODUCT SPECIFICATION		
TITLE Metral Sofix® P/N : 72860-x0xLF, 52088-xxxLF, 72844-x0xLF, 72858-x0xLF, 10022805-x01LF, 10051941-x01LF & 72846-x0xLF		PAGE 62 of 74	REVISION E
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4.2.5 Mounting information

4.2.5.1 Assembly with metal cover and contact strip on PCB



4.2.5.2 Recommended hole pattern

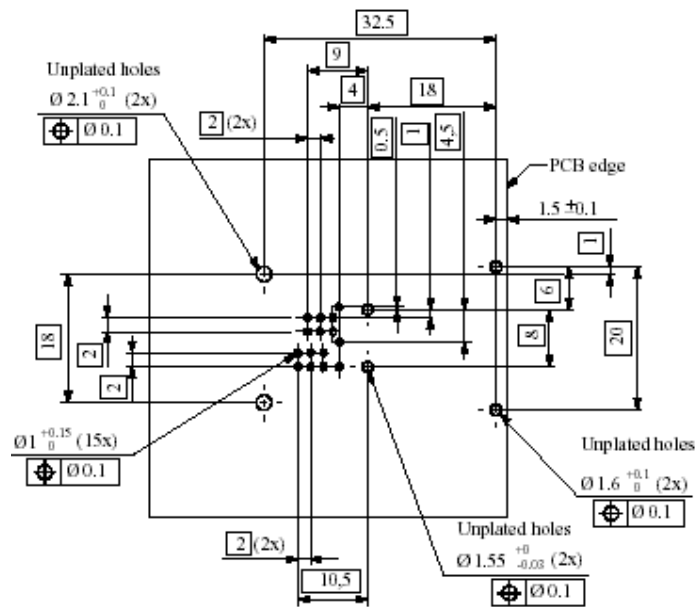



fig.14

NUMBER GS-12-307	TYPE PRODUCT SPECIFICATION		
TITLE Metral Sofix® P/N : 72860-x0xLF, 52088-xxxLF, 72844-x0xLF, 72858-x0xLF, 10022805-x01LF, 10051941-x01LF & 72846-x0xLF		PAGE 63 of 74	REVISION E
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4.2.5.3 Board area (with cover and contact strips)

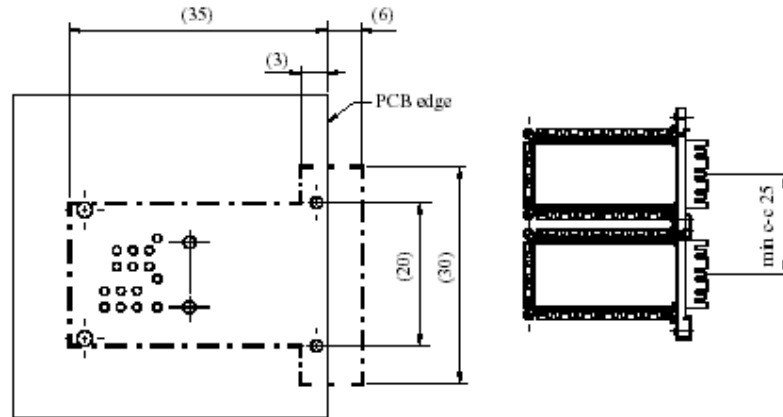


fig.15

4.2.5.4 Recommended plug-in unit front panel opening

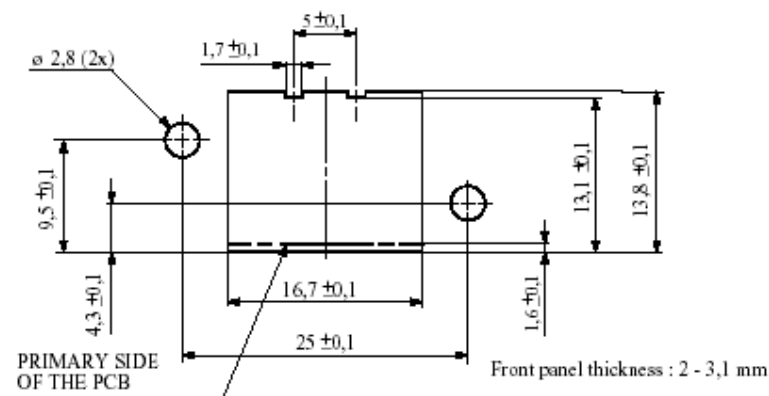



fig.16

NUMBER GS-12-307	TYPE PRODUCT SPECIFICATION		
TITLE Metral Sofix® P/N : 72860-x0xLF, 52088-xxxLF, 72844-x0xLF, 72858-x0xLF, 10022805-x01LF, 10051941-x01LF & 72846-x0xLF		PAGE 64 of 74	REVISION E
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4.2.5.5 Mounting mode

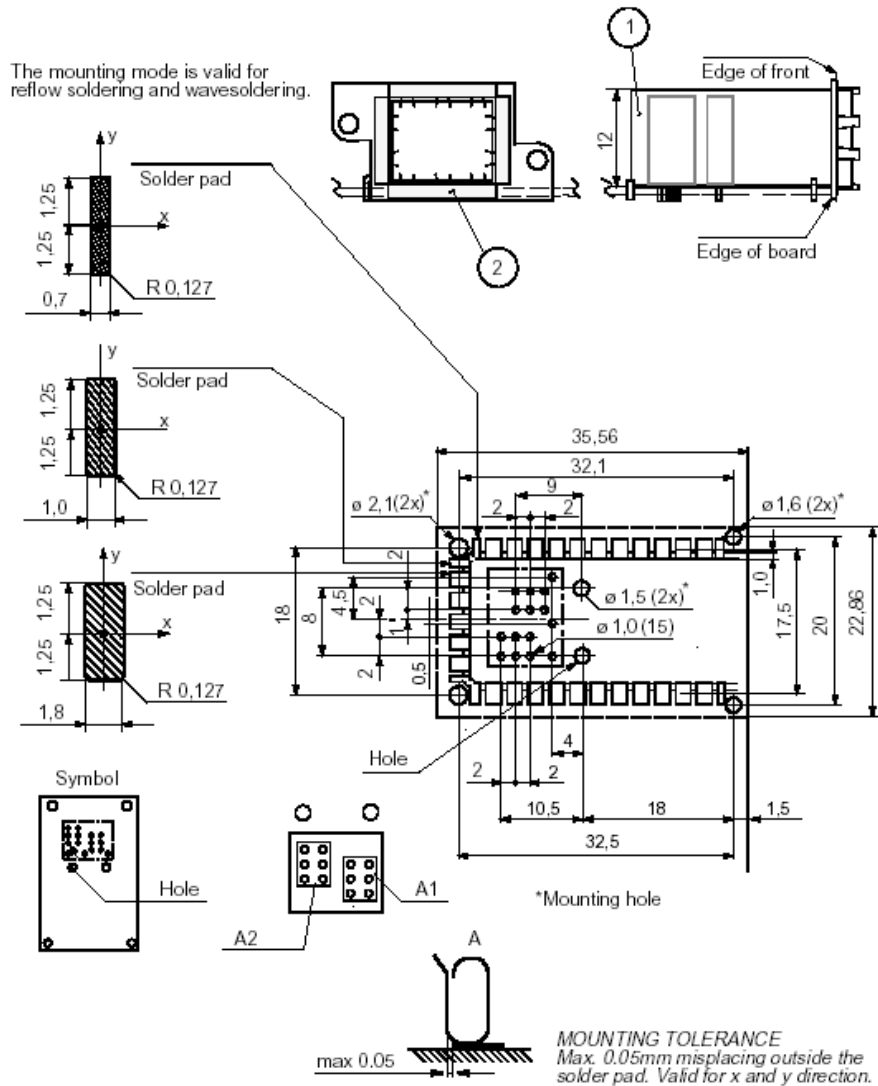



fig.17

4.2.5.6 Application tools

See GS-20-049

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4.3 Characteristics

4.3.1 General

All characteristics refer to 72846(Board Connector) and 72824-x01LF(cable connector)
(Mated pair of connectors).

4.3.2 Reference environment

According to IEC 68-1 clause 5.3.1.

Table 4:

Temperature	15°-35°C
Rel. humidity	25% 75%
Atmospheric pressure	86-106kPa

4.3.3 Climate category

Table 5:

storage	Max temperature	50°C
	Min temperature	-40°C
Range of uses	Max temperature	70°C
	Min temperature	-40°C

4.3.4 Electrical

4.3.4.1 Creepage and clearance distances

Minimum creepage and clearance distance between contacts 1,5mm.


4.3.4.2 Voltage proof

Initial voltage proof 1000 V r.m.s (contact/contact).

Voltage proof 1000 V r.m.s sinus min. after damp heat steady state test.

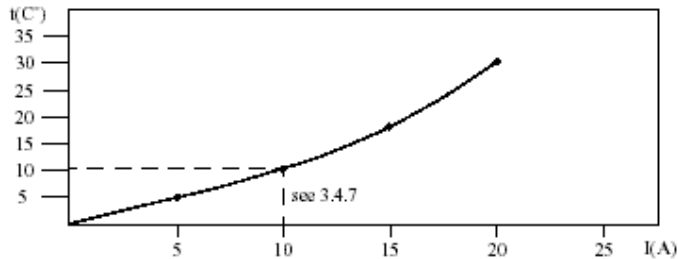
Conditions:

ETX 1056-104 clause 4.3.2.

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4.3.4.3 Current carrying capacity

Maximum temperature rise measurements acc. to IEC 512-3, test 5a.



Arrangement according to figure 18 in clause 4.4.2.

4.3.4.4 Current closing capacity

Approximately 1000A in 30 operations according to test described in clause 4.4.6.1.

The connector shall perform current carrying capacity and contact resistance after conditions as specified. Discolouring and damage of some of the contacts are allowed provided that the connector have redundant contact points.

4.3.4.5 Contact resistance

The increase of the contact resistance must not be more than 5 mΩ after heat ageing. The total contact resistance after heat ageing must not exceed 10 m.

Conditions:

ETX 1056-104 clause 4.2.1.

Arrangement according to fig.19 in clause 4.4.3.


4.3.4.6 Insulation resistance

Initial insulation resistance 5000MΩ minimum.

Insulation resistance 1000 MΩ minimum, after damp heat steady state test.

Conditions:

ETX 1056-104 clause 4.3.1.

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4.3.4.7 Filter

There are two types of filters. One is used in connectors intended for a -48 Vdc power system with 10 A distribution fuses, the other in connectors for a -48 Vdc power system with 15 A distribution fuses.

Minimum no load insertion loss (dB) at 25° C			
10 MHz	100 MHz	1 GHz	10 GHz
5	35	50	50

Connector type	I Continuous A(DC)	I max A(DC)	C min p F	Rated Voltage At 85°C V(DC)	Test Voltage At 25°C V(DC)
72814-x02LF, 72814-x03LF	10	10	1750	250	500
72814-x04LF, 72814-x05LF	10	15	3000	250	500

4.3.5 Mechanical

4.3.5.1 Mechanical operations

Number of operations: 200 minimum.

Conditions:

IEC 512-5, test 9a.

Standard atmospheric conditions.

Frequency of operations: 100 cycles/h.

Speed of operation: 10 mm/s maximum.

Rest 30s unmated.

4.3.5.2 Contact retention in insert

Force to be applied: 15N.

Conditions:


IEC 512-8 test 15a.

Standard atmospheric conditions.

The maximum axial displacement after the force has been removed shall not exceed 0,1 mm.

Min. 2 readings per connector.

Fully equipped connectors.

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4.3.5.3 Insertion and withdrawal forces

Total insertion/withdrawal force: $n \times 10$ N max
(n =number of contacts involved).

Conditions: IEC 512-7, test 13b.

Rate of engagement and separation: 2 mm/s maximum.

4.3.5.4 Contact spring force, EMC shield

4.3.5.4.1 Contact force

Initial contact spring force 3 N min.

Contact spring force 3 N min., after 3 mechanical operations.

Contact spring force 2,4 N min., after heat ageing.

Conditions: ETX 1056-104 clause 4.6.2.

According to fig.20 in clause 4.4.4.

4.3.5.4.2 Contact spring force, off centre

Initial contact spring force 2,35 N min.

Contact spring force 2,35 N min., after 3 mechanical operations.


Contact spring force 1,90 N min., after heat ageing.

Conditions: ETX 1056-104 clause 4.6.3.

According to fig.21 in clause 4.4.5.

4.3.6 Product safety

Requirements according to IEC 60 950 and UL 1950.

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4.4 Testing

4.4.1 General

The connector shall undergo the testing schedule described in ETX 1056-104. This is a type testing and an approval will be the result. The manufacturing process and/or the vendors internal specification may not be changed after type testing and approval without permission from design responsible.

4.4.2 Current carrying capacity

For conditions see clause 4.3.4.3.
72846 is soldered to PCB.

Arrangement for measurement according to fig.18.

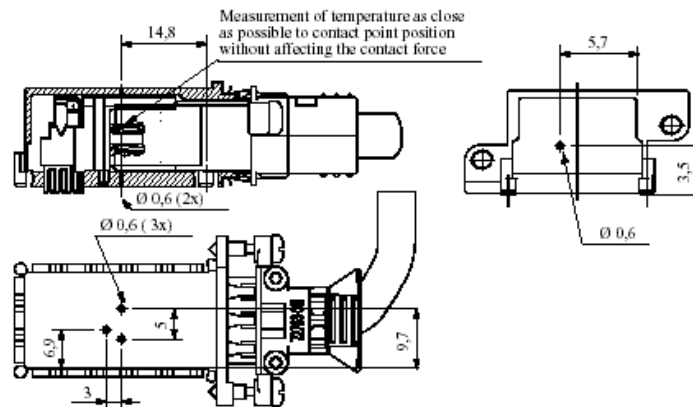


fig.18

4.4.3 Contact resistance

For conditions see clause 4.3.4.4.
Arrangement for measurement according to fig19.

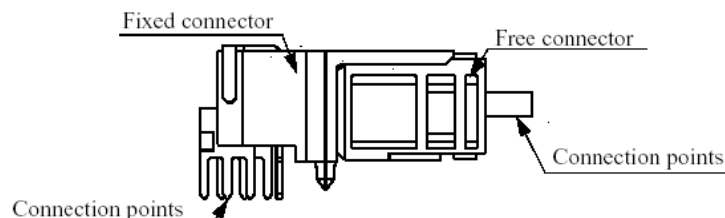



fig.19

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4.4.4 Contact spring force

For conditions see clause 4.3.5.4.1.
Arrangement for measuring according to fig.20.

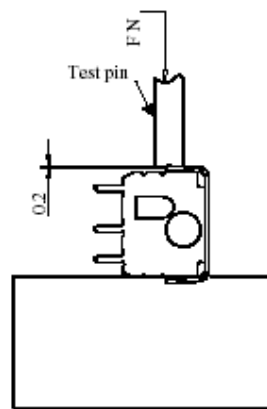


fig.20

4.4.5 Contact force, off center

For conditions see clause 4.3.5.4.2.
Arrangement for measuring according to fig. 21.

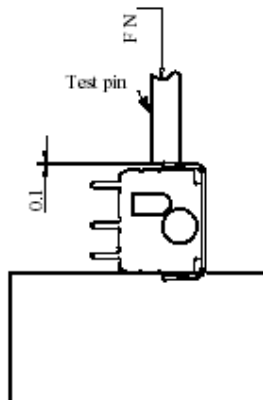



fig.21

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4.4.6 Current closing capacity

4.4.6.1 Connection

3 connectors to be mated 30 cycles (test circuit acc. to fig.22).

Visual inspection of all connectors:

Mixed flowing gas corrosion test acc. to IEC 600 68-2-60, test Ke, method 4,4 gases.

Measuring of contact resistance of all samples
(dry circuit,20mV,100mA)

Measuring of current carrying capacity all samples.

Test circuit for simulation of current transient with connection during load (capacitance charging).

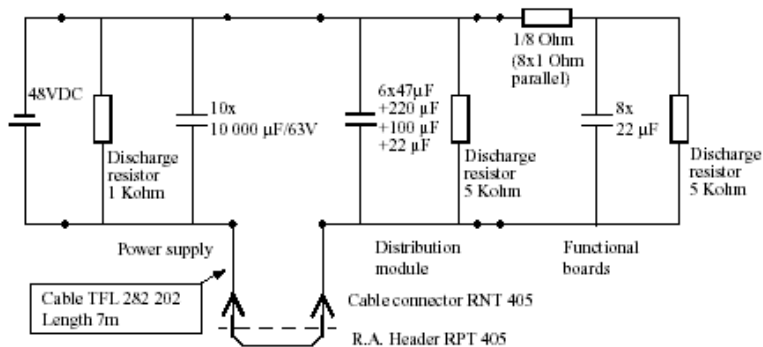


fig.22

4.4.6.2 Connect position

3 connectors,50 times.

Visual inspection of all connectors.

Corrosion test (21 days, gas mixture).

Continue measuring with 1 connector.

Measuring of contact resistance see clause 4.4.6.1.

Measuring of current carrying capacity see clause 4.4.6.1.

Test circuit for simulation of current transient with short-cut.

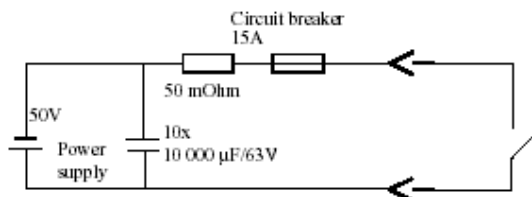



fig.23

NUMBER GS-12-307	TYPE PRODUCT SPECIFICATION		
TITLE Metral Sofix® P/N : 72860-x0xLF,52088-xxxLF,72844-x0xLF,72858-x0xLF, 10022805-x01LF,10051941-x01LF & 72846-x0xLF		PAGE 72 of 74	REVISION E
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4.5 Packing

4.5.1 Packing for transport

If the connector consist of two or more pieces, they shall be packed together. Packing shall be made with ESD protection so that:

- a. no damage or deformation of the terminals will occur
- b. no particles or parts from the packing will enter into the contacts cavities and no gases or acids from packing materials will harm the housing or the contact elements
- c. the connectors can be removed without problems from the packing without touching the terminals or deforming them.

The packing shall be marked with product number, manufacturer code and packing date.

Recommended packing: connector placed in tube 360204-001 according to fig.24.

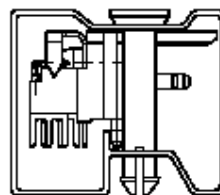



fig.24

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4.6 Product number

4.6.1 Product identification

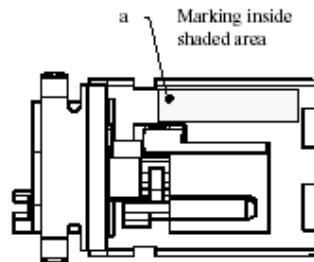



fig.25

- a) product number.
- b) factory code.
- c) manufacturing year.
- d) manufacturing week.

Shield cover marked with product number and company logo.

4.7 References

IEC 68-1	Environmental testing, Part 1: General and guidance.
IEC 60068-2-60	Flowing mixed gas corrosion test: Test KE.
IEC 512	Electromechanical components for electronic equipment; basic testing procedures and measuring methods.
IEC 60 950	Safety of information technology equipment.
ETX 1056-104	Type testing program and demands for electrical connectors.
UL 1950	Standard for safety of information technology equipment, 3rd edition.
GS-20-049	Application Specification
GS-12-308	Product Specification (72864-201) cable connector.

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5. Document Revision Record

REV	PAGE	DESCRIPTION	EC #	DATE
A	ALL	NEW DOCUMENT	LS05-0014	05-01-2005
B	ALL	NEW LOGO	LS06-0109	04-07-2006
C	ALL	UPDATE DOCUMENT FOR LF PN ADDED	LS07-0045	15-02-2007
D	All	NEW FRAME	LS07-0129	2007/06/08
E	ALL	ADD PERFORMANCE LEVELS	LS09-0018	2009/01/15