

Mini Coax modules (press-in)

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The Mini Coax connector is a multi line RF connector for blind mating of board-to-board, board-to-cable or cable-to-cable applications. The Mini Coax connector is mainly used in both RF (Radio Frequency) and IF (Intermediate Frequency) signal transmission and is specified for a frequency range from DC to 2.5 GHz and beyond. Thanks to its compact size (a 10 coaxial contacts' connector is as small as a PC's enter key) and excellent crosstalk features, this connector system is ideal for high end equipment within cellular telecom infrastructure.

The isolated coaxial lines are implemented in a plastic housing that defines the module size in a metric scale from 1.00, 1.25 and 1.50 SU (SU = System Unit = 25 mm). The Mini Coax connectors are available as straight sockets and right angled plugs. Both types are executed in press-in technology for the PCB (Printed Circuit Board) termination. The straight modules are delivered with an inserted plastic cap that protects the coaxial

contacts against dust and dirt, as well as being used as an upper press-in tool. In this way, an easy and safe flat rock process is guaranteed.

In addition to the coaxial modules, an angled power connector with press-in termination is available. It is assembled in the same board drillings as the coaxial configuration, and can be loaded up to 15 A working current at 70 °C.

The low-profile Mini Coax right angled board connector and matched cable assemblies have the same RF performance as the standard Mini Coax connectors. Their slim interfaces, which provide a board-to-cable solution for the slim cabinet, are suitable for a minimum 15.2 mm slot width.

The Mini Coax single-row is another new development. The coaxial contacts of the connector are single line, as opposed to the standard connector. This delivers enhanced performance, especially in terms of isolation, and is also suitable for slim cabinet applications.

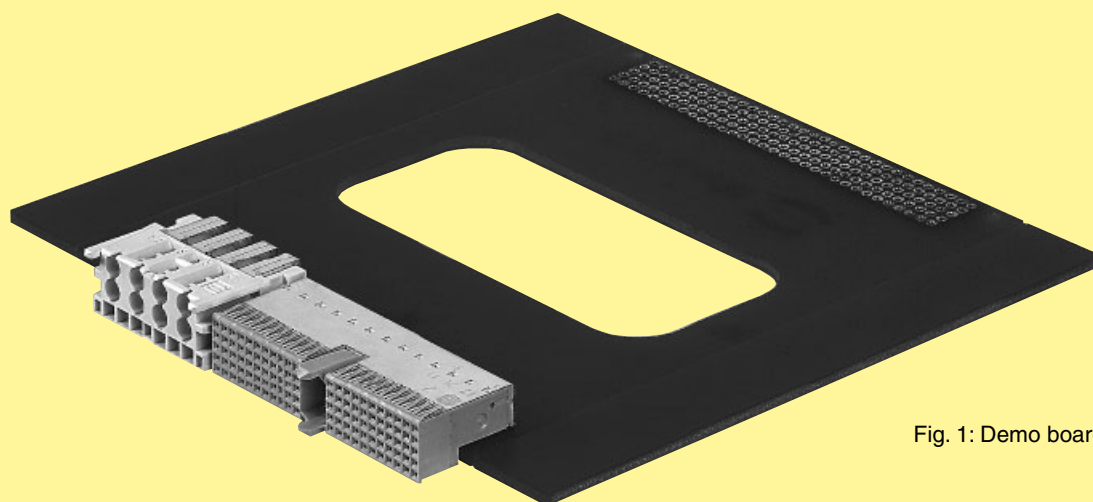


Fig. 1: Demo board

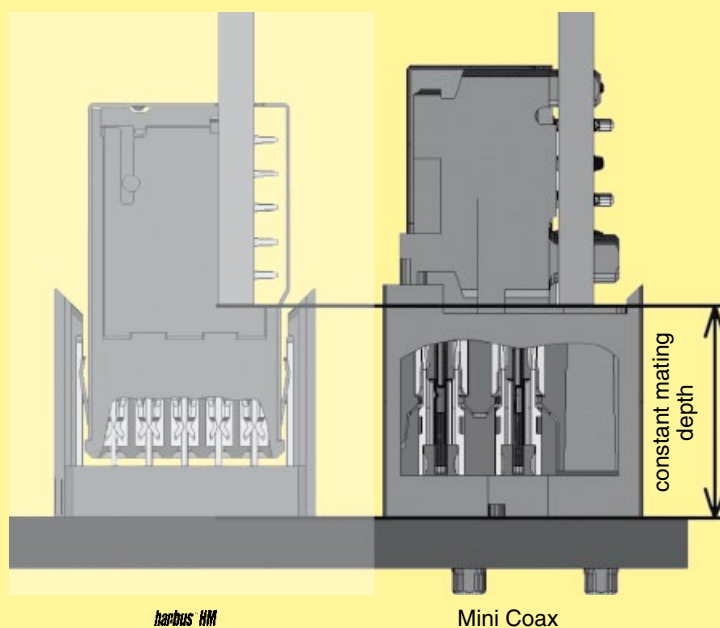


Fig. 2: Cross section of both connector types

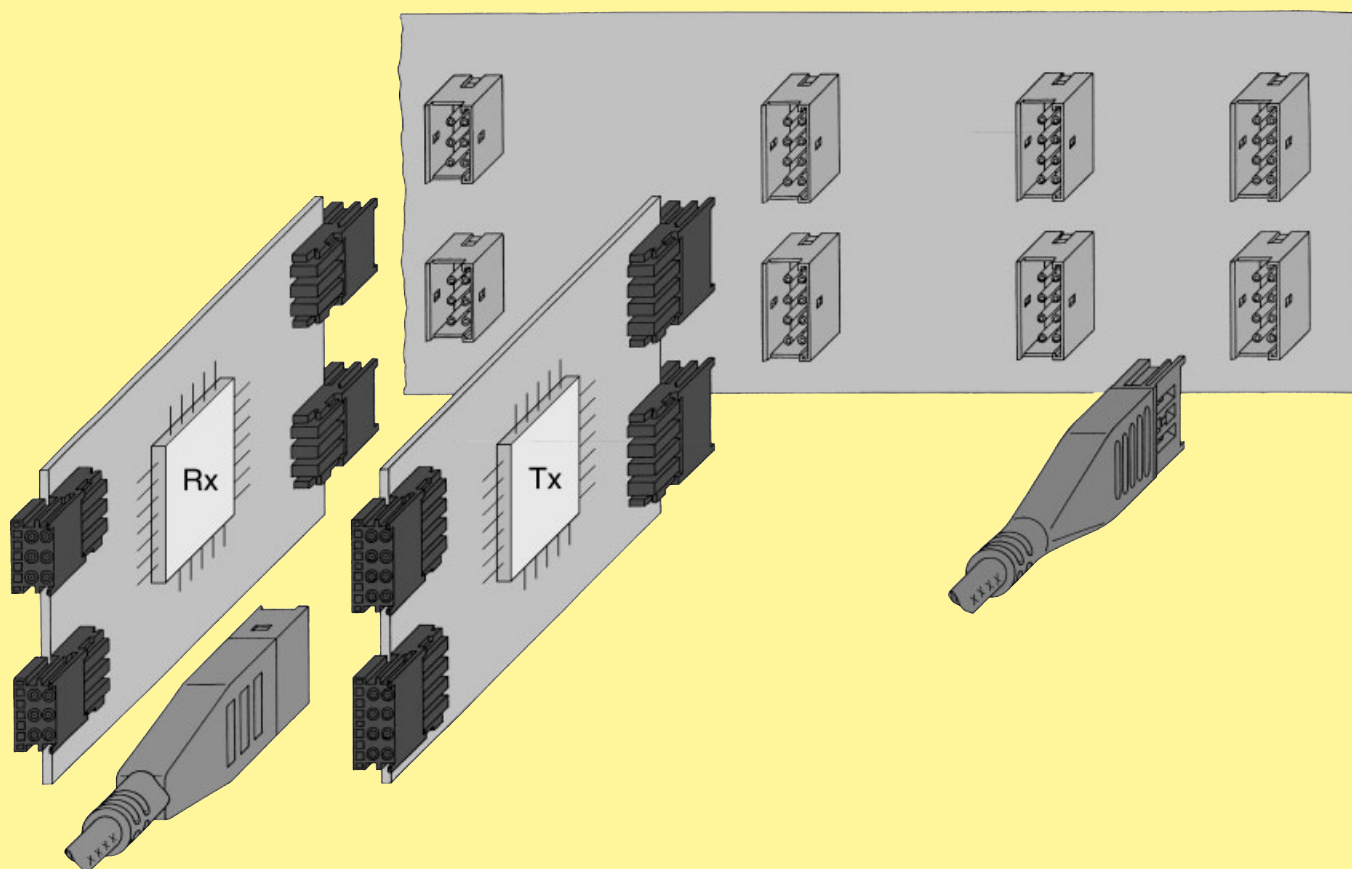


Fig. 3: Typical pcb configurations

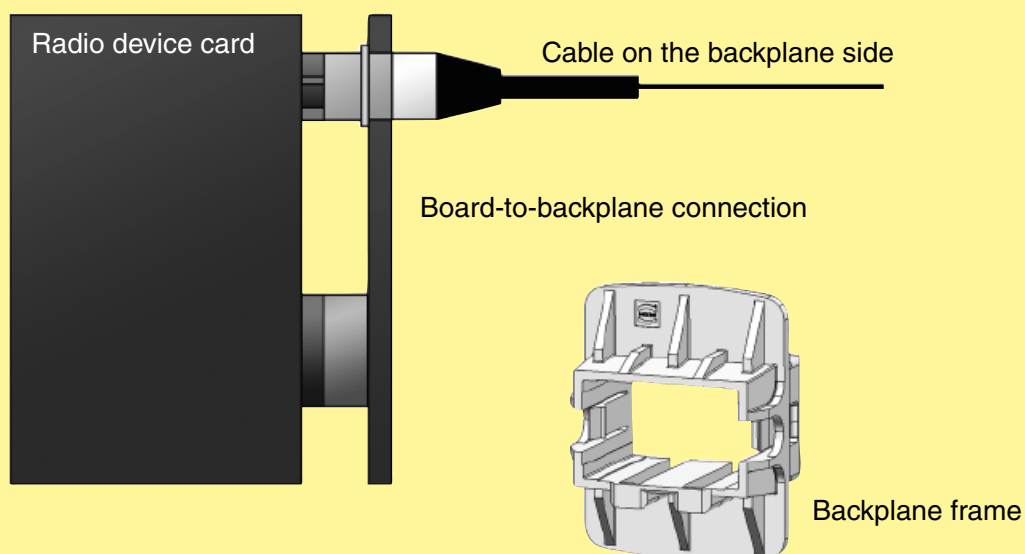


Fig. 4: Mini Coax backplane feed through

Number of contacts : 1, 2, 4, 6, 8 or 10 coaxial contacts
Grid pattern : 4.40 x 6.25 mm (within a twin x between twins);
8.80 mm for Mini Coax single-row connectors

Dielectric withstanding Voltage $U_{r.m.s.}$: $\leq 1000\text{ V}$ (for 60 s)
DC-contact resistance
Centre contact : $\leq 12\text{ m}\Omega$
Ground contact : $\leq 6\text{ m}\Omega$
Insulation resistance : $\geq 5000\text{ M}\Omega$

Power : $\leq 40\text{ W}$ (at 2.5 GHz)
Frequency range : DC ... 2.5 GHz
Nominal impedance : $50\text{ }\Omega$
Return loss : $< -20\text{ dB}$
VSWR : < 1.22
Insertion loss : $< 0.25\text{ dB}$

Near end crosstalk (NEXT) :

Pin distance	Board-to-Board	Board-to-Cable	Cable-to-Cable
$\Delta x = 4.40\text{ mm}$	50 dB	60 dB	90 dB
$\Delta x = 6.25\text{ mm}$	60 dB	70 dB	90 dB
$\Delta x = 7.64\text{ mm}$	75 dB	80 dB	90 dB
$\Delta x = 8.80\text{ mm}$	—	75 dB	—
$\Delta x = 12.50\text{ mm}$	90 dB	90 dB	90 dB

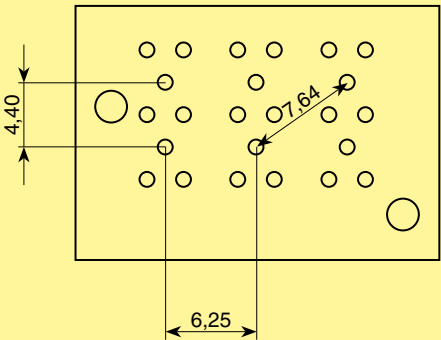


Fig. 5: Grid pattern
Mini Coax Standard

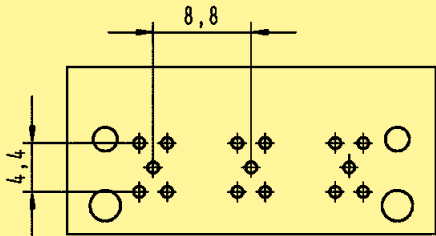


Fig. 6: Grid pattern
Mini Coax single-row

Temperature range : $-55\text{ }^{\circ}\text{C} \dots +125\text{ }^{\circ}\text{C}$

Moulding material : Liquid Cristal Polymer (LCP), UL 94-V0
Contact surface
Contact zone : Au
Termination area
Centre pin : Au
Ground pin : Ni

Mating cycles : max. 500

Recommended configuration
of plated through holes

<i>Tin plated PCB (HAL) acc. EN 60352-5</i>	Hole-Ø	1.15 $\pm$ 0.025 mm
	Cu	min. 25 µm
	Sn	max. 15 µm
	Plated hole-Ø	0.94-1.09 mm
<i>Chemical tin plated PCB</i>	Hole-Ø	1.15 $\pm$ 0.025 mm
	Cu	min. 25 µm
	Sn	min. 0.8 µm
	Plated hole-Ø	1.00-1.10 mm
<i>Au / Ni plated PCB</i>	Hole-Ø	1.15 $\pm$ 0.025 mm
	Cu	min. 25 µm
	Ni	3-7 µm
	Au	0.05-0.12 µm
	Plated hole-Ø	1.00-1.10 mm
<i>Silver plated PCB</i>	Hole-Ø	1.15 $\pm$ 0.025 mm
	Cu	min. 25 µm
	Ag	0.1-0.3 µm
	Plated hole-Ø	1.00-1.10 mm
<i>OSP copper plated PCB</i>	Hole-Ø	1.15 $\pm$ 0.025 mm
	Cu	min. 25 µm
	Plated hole-Ø	1.00-1.10 mm

PCB board thickness: ≥ 1.6 mm

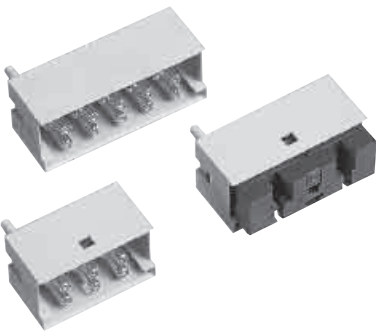
Mating force : ≤ 10 N/contact

Withdrawal force : > 1 N/contact

Mating distance : 12.5 ... 15 mm

Wiping length : 2.5 mm

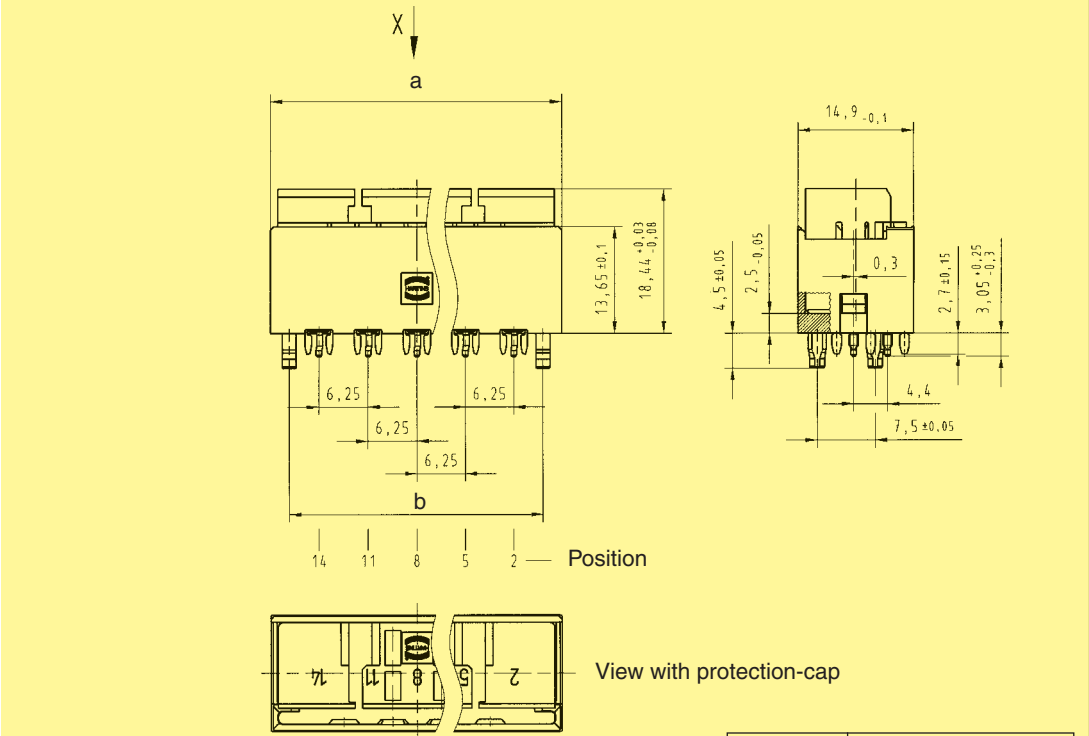
Acceptable radial mating offset : max. ± 1.5 mm



Straight modules

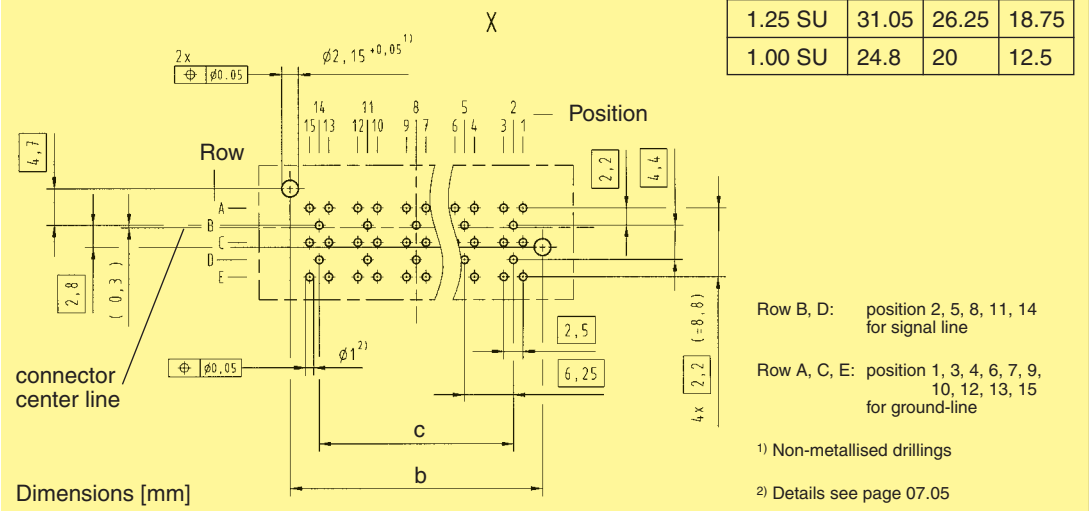
Identification	Number of contacts	SU	loaded positions	Part number
Mini Coax modules, press-in termination	10	1.50	2, 5, 8, 11, 14	07 11 100 0026
	8	1.25	2, 5, 8, 11	07 11 100 0024
	6	1	2, 5, 8	07 11 100 0023
	4	1	2, 8	07 11 900 0024
	2	1	2	07 11 900 0023

Dimensions



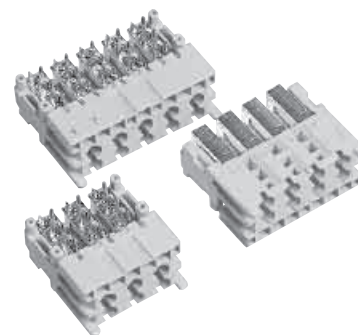
Straight module	Dimension [mm]		
	a	b	c
1.50 SU	37.3	32.5	25
1.25 SU	31.05	26.25	18.75
1.00 SU	24.8	20	12.5

Board drillings



Row B, D: position 2, 5, 8, 11, 14 for signal line
Row A, C, E: position 1, 3, 4, 6, 7, 9, 10, 12, 13, 15 for ground-line

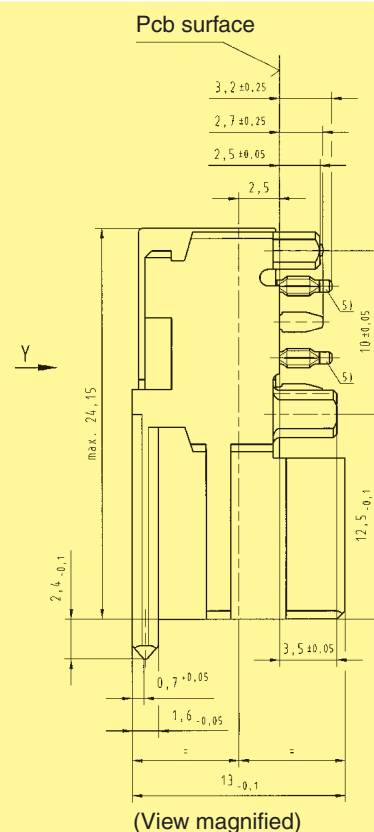
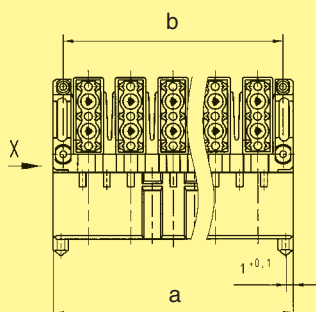
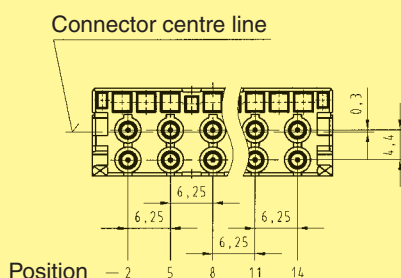
1) Non-metallised drillings
2) Details see page 07.05



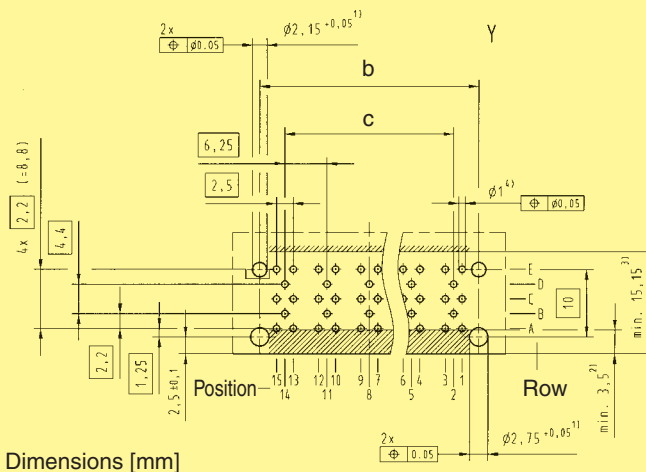
Angled modules

Identification	Number of contacts	SU	loaded positions	Part number
Mini Coax modules, press-in termination	10	1.50	2, 5, 8, 11, 14	07 31 100 0021
	8	1.25	2, 5, 8, 11	07 31 100 0020
	6	1	2, 5, 8	07 31 100 0019
	4	1	2, 8	07 31 900 0022
	2	1	2	07 31 900 0021

Dimensions



Board drillings



Angled module	Dimension [mm]		
	a	b	c
1.50 SU	35.45	32.5	25
1.25 SU	29.15	26.25	18.75
1.00 SU	22.9	20	12.5

Row B, D: position 2, 5, 8, 11, 14 for signal line

Row A, C, E: position 1, 3, 4, 6, 7, 9, 10, 12, 13, 15
for ground-line

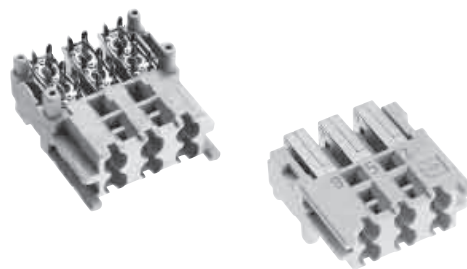
1) Non-metallised drillings

2) No tracks, except solder eyes

3) Limit area of components
(valid for both pcb-sides)

4) Details see page 07.05

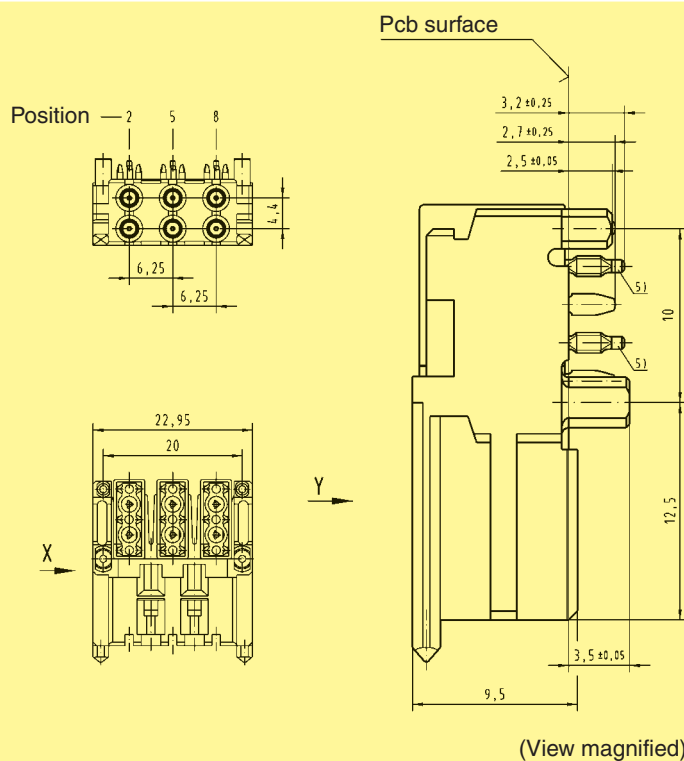
5) Press-in zone in any angular position related to it's longitudinal axis possible



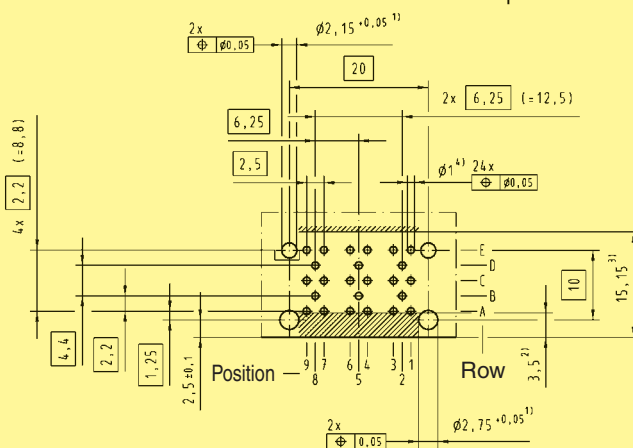
Angled modules

Identification	Number of contacts	SU	loaded positions	Part number
Mini Coax low-profile module, press-in termination	6	1	2, 5, 8	07 31 100 0027

Dimensions



Board drillings



Row B, D: position 2, 5, 8 for signal line

Row A, C, E: position 1, 3, 4, 6, 7, 9 for ground-line

1) Non-metallised drillings

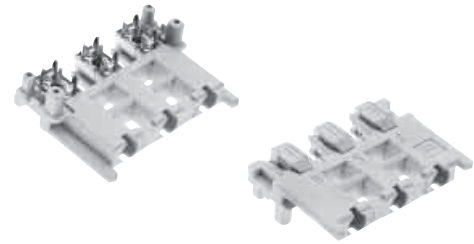
2) No tracks, except solder eyes

3) Limit area of components
(valid for both pcb-sides)

4) Details see page 07.05

5) Press-in zone in any angular position related to it's longitudinal axis possible

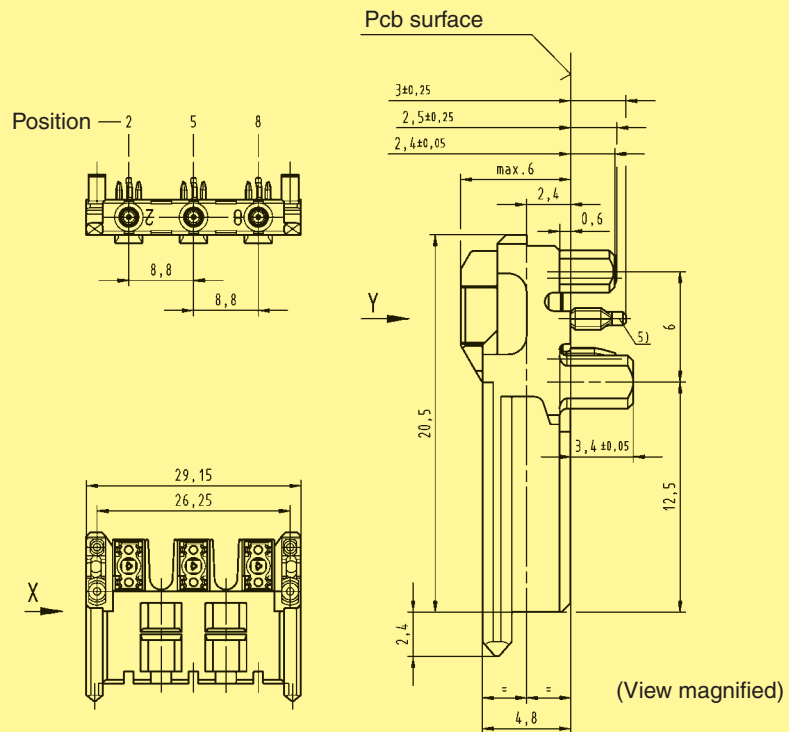
Dimensions [mm]



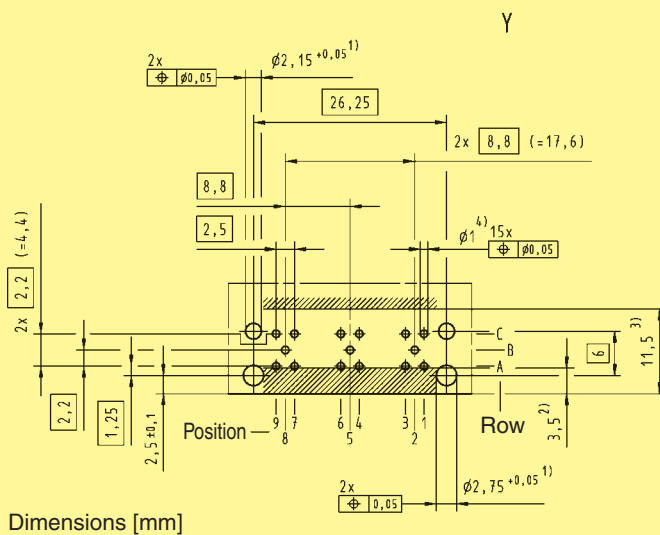
Angled modules

Identification	Number of contacts	SU	loaded positions	Part number
Mini Coax single-row module, press-in termination	3	1	2, 5, 8	07 31 100 0028

Dimensions



Board drillings



- Row B: position 2, 5, 8 for signal line
 - Row A, C: position 1, 3, 4, 6, 7, 9 for ground-line
- 1) Non-metallised drillings
 - 2) No tracks, except solder eyes
 - 3) Limit area of components
(valid for both pcb-sides)
 - 4) Details see page 07.05
 - 5) Press-in zone in any angular position
related to it's longitudinal axis possible

