

Coding system

1. PRODUCT SPECIFICATION

1.1 Catalogue numbers

Coding Box in SMT	1393702-1	old p/n.: V23552 - A2000 - Z299
Guiding Pin with solid press-fit termination	2-1393702-7	old p/n.: V23552 - B2090 - Z192
Guiding Pin screw version	2-1393702-6	old p/n.: V23552 - B2000 - Z192

1.2 Mechanical characteristics

1.2.1 Coding Box

General description

The coding box will be SMT soldered along the edge of the plug-in card and needs a spacing of 8mm minimum in the height of the PCB.

It is soldered to the PCB with 40 solder joints on 20 large solder paths to withstand the mechanical forces acting on it during a possible blocking operation. This firm attachment provides also the electrical connection between coding box and PCB.

On the coding box a plastic part has been mounted to allow automatic placing with a nozzle of maximum Ø7mm. It does not have to be removed after soldering.

The coding box can be equipped with coding keys according to IEC 1076-4-102.

1.2.1.1 Materials and plating

Material for retaining part:

LCP, glass fiber filled , high temperature grade, self extinguishing UL 94-V0

Color: dark gray, surface matt

Material for contacts and tails: copper alloy

Plating in contact area : Performance level Class II = Ni + PdNi + Au or Ni + Au

Plating in termination area : Ni + SnPb90/10

Contact lubrication: none

1.2.1.2 SMT characteristics

Co-planarity of all terminations = 0.1 mm max.

Misalignment of terminations lengthwise and crosswise = 0.2 mm max.

Weight of one coding box = 1.85 g

SMT terminations to be soldered on their cutting edge (rounded).

Resistance to SMT soldering heat

Maximum temperature is 240°C. Maximum time above 183°C is 60s. Maximum preheating temperature is 170°C. Maximum time above 120°C is 5min 30s.

The component shall withstand minimum two complete heat cycles in their maximum configuration.

No visual deterioration nor any change in the specification data may occur.

Solderability of SMT terminations

Solderability of the terminations shall be in accordance with IEC 68-2-58.

Retention forces

Resistivity to shear in plug-in (Z) direction > 250 N / coding box

Resistivity to shear in height (Y) direction > 200 N / coding box

Resistivity to tensile forces in width (X) direction > 100 N / coding box

Rework and manual placement

Two locating pegs assure a precise placement of the coding box during rework or manual placement of prototypes

1.2.1.3 Interconnection characteristics

Normal contact forces

Average force on shipping: 1.6 N

Average force after testing: 1.3 N

Min. force after testing 1.0 N

Insertion and withdrawal forces

Average insertion force 3 N

Max. insertion force 10 N

Withdrawal force 0.2N min.

1.2.1.4 Packaging details

Carrier tape on reel:

According to EIA-481-3. Tape width is 44 mm, pitch of 16 mm, height is 11.7 mm.

Surface resistance $R_o < 10 E4$, color black, thickness 0.5 mm. Pick-up area lays in the middle of two sprocket holes. Outer reel diameter = 330 mm max., smallest reel diameter = 100 mm. Quantity on one reel = 350

1.2.2 Guiding Pin

General description

The guiding pin is a steel turning part either with a solid press fit termination for a minimum card thickness of 4mm, or to be screwed with M2 screws onto the card.

The press-fit termination has an extension that fits accurately it the hole to position the pin under the press-in die.

The guiding pin can be equipped with coding keys according to IEC 1076-4-102.

1.2.2.1 Materials and plating

Material for guiding pin : steel

Plating in contact area : Performance Level Class II : Ni + Pd + Au or Ni + Au, lubricated

Plating in termination area : Ni + Pd + Au or Ni + Au, lubricated

1.2.2.2 Press-in characteristics

Press-in holes:

The finished press-in hole has a diameter of 2.7 to 2.8 mm.

The plating is maximum 15 μ m SnPb on minimum 25 μ m Cu.

The drilling hole grid position tolerance is 0,1 mm.

The conductor connection to the ring of the PTH should be at least 1 mm.

Press-in and retention forces:

	Average value	Peak value in worst case
Press-in force	550 N	1200 N max.
Push-out force	400 N	40 N min.

1.2.2.3 Characteristics of screw version

Holes:

The finished press-in hole has a diameter of 2.7 to 2.85 mm. The drilling hole is $2.9 + 0.05$ mm.
The plating is maximum 15 μm SnPb on minimum 25 μm Cu.
The drilling hole grid position tolerance is 0,1 mm.

1.2.2.4 Packaging details

The guiding pins are packed in plastic bags per 500 pieces.

1.3 Electrical characteristics

1.3.1 Contact resistance

10 m Ω max.

Resistance increase after testing 3 m Ω max. related to initial value

1.3.2 Current carrying capacity

15 A min. at 70°C environmental temperature

1.4 Environmental characteristics

Operating temperature range:

Upper operating temperature 125 °C, lower operating temperature - 55 °C

Industrial atmosphere:

4 days of exposure.

Composition of polluting gas is 0.2 ppm SO₂ + 0.2 ppm NO₂ + 0.01 ppm H₂S+ 0.01 ppm Cl₂.

Mechanical endurance:

250 mating cycles, half number before and half number after industrial atmosphere exposure.

Mould growth:

All plastics used are certified to be resistant to mould growth.

Flammability:

The plastic used is registered to be flame retarding according to UL 94 V0.

2. CUSTOMER DRAWINGS

2.1 Dimensional drawings

Information:

Outer dimensions and shape.

2.1.1 Coding Box

C 1393702-1

old drawing nr.: V23552-A2000-Z299-*-7627

2.1.2 Guiding pin

C 2-1393702-7 for press fit termination

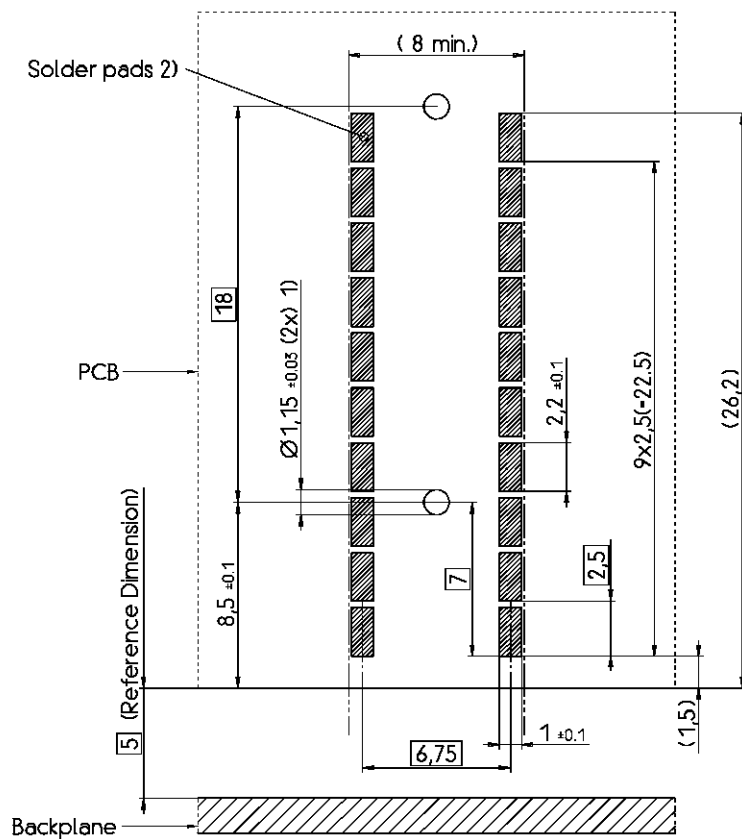
old drawing nr.: V23552-B*090-Z19*-7627

C 2-1393702-5 for screw version

old drawing nr.: V23552-B*000-Z19*-7627

2.2 PCB footprint layout

2.2.1 Plug-in card



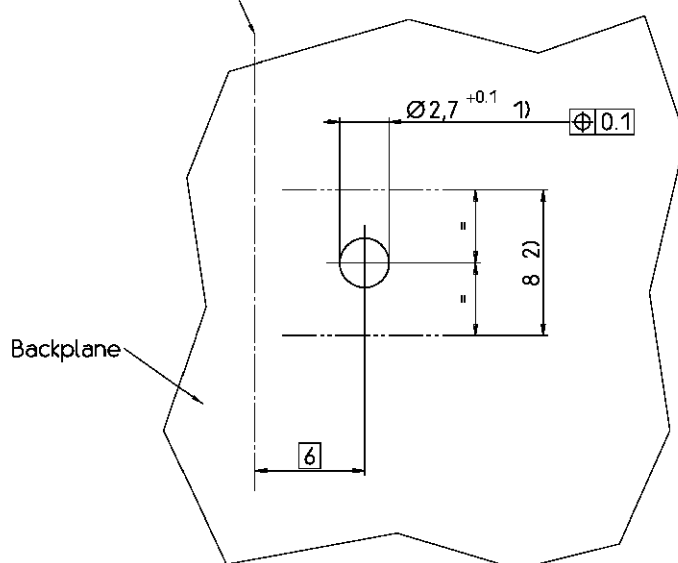
Position Tolerances 0.1

1) not plated through

2) Cu 0.015mm min + SnPb 0.015mm max + Solder paste 0.15mm min

2.2.2 Backplane

Reference plane : top of plug-in unit



- 1) Plated through : max. 15 µm SnPb on min. 25 µm Cu
2) Minimum spacing for coding system

2.3 Application tools

Press-in dies for guiding pin : to be determined depending on press-in machine.
Instruction sheet : 408-90002

3. TEST PROGRAM

3.1 Electromechanical tests

3.1.1 Test Program

Test groups:

- Group P : Preliminary testing sequence
- Group A : Dynamic/Climatic testing sequence
- Group B : Mechanical endurance testing sequence
- Group D : Electrical load testing sequence
- Group E : Mechanical resistivity testing sequence
- Group F : Derating Curve
- Group G : Mechanical endurance with electrical load testing sequence
- Group H : Fretting Corrosion

3.1.2 Additional Test Program

Press-in connection