

# CCM03 MK II



A new range of CCM03 connectors have been developed to interface with SIM/SAM cards as defined by GSM11-11 and ENV1375-1. The connectors are available with either hinged covers or fixed covers and have been designed to minimize the amount of space needed for PCB mounting.

## Features

### Hinged Cover

- Available with 6 or 8 contacts, with or without PCB locating pegs.
- Available with card presence switch.
- The cover springs open when unlocked while the card is in place.
- The molding is polarized so that the cover can only be closed if the card is correctly inserted.
- The cover can be replaced without removing the connector from the PCB
- Inspection slots allow an electrical test to be made without opening the cover.
- The overall height of the connector is only 2.5 mm. The amount of space needed to mount the connector is just 29.65 mm x 17.2 mm

### Fixed Cover

- Available with 6 or 8 contacts.
- The overall height of the connector is 2.85 mm max. Only 25.5 mm x 17.2 mm of board space is required to mount the connector.

### General

- With tape and reel packaging as standard, the connectors are designed to be automatically pick-and-placed.
- The high temperature thermoplastic moldings are suited for infrared and convection soldering processes.
- By using an inlay finish in the contact area the life of the precious metal is extended by over 10 times that of standard gold plating.
- Robustly formed printed circuit tails allow a co-planarity of  $\pm 0.05$  mm to be maintained.

## Construction

|          |                                                                       |
|----------|-----------------------------------------------------------------------|
| Contacts | Copper alloy                                                          |
| Plating  | Contact area : Gold alloy inlay<br>Terminals : Tin lead (2 $\mu$ min) |
| Moldings | High temp. thermoplastic UL 94V-0 rated                               |
| Spring   | Stainless steel                                                       |

## Mechanical data

|                                   |                                                                                                                                           |
|-----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| Number of Contacts                | 6 or 8                                                                                                                                    |
| Mechanical life, hinged cover     | 10,000 cycles min                                                                                                                         |
| Mechanical life, fixed cover      | 50,000 cycles                                                                                                                             |
| Durability of inlay, hinged cover | 10,000 cycles min (see note 1)                                                                                                            |
| Durability of inlay, fixed cover  | 5,000 cycles                                                                                                                              |
| Card insertion force              | Hinged cover: 1 N max<br>Fixed cover: 3 N max                                                                                             |
| Card extraction force             | Hinged cover: 1 N max<br>Fixed cover: 0.80 N min / 3 N max                                                                                |
| Contact force                     | 0.25 N min / 0.50 N max                                                                                                                   |
| Slide locking force               | 2 N min / 6 N max                                                                                                                         |
| Vibration                         | Frequency 10 to 500 Hz. Acceleration 50m/s <sup>2</sup><br>Duration 6 hours - amplitude 0.35 mm<br>Max electrical discontinuity 1 $\mu$ s |
| Shock                             | Peak value 500 m/s <sup>2</sup> - Duration 11 ms<br>3 shocks in each direction of each axis<br>Max electrical discontinuity 1 $\mu$ s     |

## Electrical data

|                        |                          |
|------------------------|--------------------------|
| Insulation resistance  | 1,000 M $\Omega$ min     |
| Contact resistance max | 100 m $\Omega$ max       |
| Switching current      | 10 $\mu$ A min / 1 A max |
| Dielectric strength    | 750 Vrms min             |

## Environmental data

|                       |                                                                                          |
|-----------------------|------------------------------------------------------------------------------------------|
| Operating temperature | -40°C to +85°C                                                                           |
| Soldering temperature | Temperature/time profile acc. to CECC00802 para. 6.1, Fig. 3 with peak temperature 250°C |
| Damp heat             | IEC 512 test number 11c (10 days)                                                        |
| Salt mist             | IEC 512 test number 11f (96 hours)                                                       |

Note 1: Inlay (precious metal) rating is based on a very abrasive card being used and is intended to represent worst case.

# CCM03 MK II

## Ordering code

| Part Number          | N° of Contacts | Cover  | PCB Locating Pegs (mm) | Stand off (mm) | Quantity per reel | Metal lock | Switch lock | Card Presence switch |
|----------------------|----------------|--------|------------------------|----------------|-------------------|------------|-------------|----------------------|
| CCM03-3001 R102      | 6              | Hinged | No                     | 0.00           | 1000              | Flat       | No          | No                   |
| CCM03-3002 R102      | 6              | Hinged | Yes                    | 0.00           | 1000              | Flat       | No          | No                   |
| CCM03-3003 R102      | 8              | Hinged | No                     | 0.00           | 1000              | Flat       | No          | No                   |
| CCM03-3004 R102      | 8              | Hinged | Yes                    | 0.00           | 1000              | Flat       | No          | No                   |
| CCM03-3005 R701**    | 6              | Hinged | No                     | 1.90           | 700               | Bump       | No          | No                   |
| CCM03-3006 R701**    | 6              | Hinged | Yes                    | 1.90           | 700               | Bump       | No          | No                   |
| CCM03-3007 R701**    | 8              | Hinged | No                     | 1.90           | 700               | Bump       | No          | No                   |
| CCM03-3008 R701**    | 8              | Hinged | Yes                    | 1.90           | 700               | Bump       | No          | No                   |
| New CCM03-3009 R102  | 6              | Hinged | No                     | 0.00           | 1000              | Bump       | No          | No                   |
| New CCM03-3013 R102  | 6              | Hinged | No                     | 0.00           | 1000              | Bump       | No          | Yes                  |
| CCM03-3504 R122      | 8              | Fixed  | No                     | 0.00           | 1200              | No         | No          | No                   |
| CCM03-3505 R122      | 6              | Fixed  | No                     | 0.00           | 1200              | No         | No          | No                   |
| New CCM03-3512 R102* | 6              | Hinged | No                     | 0.00           | 1000              | Bump       | No          | No                   |
| New CCM03-3514 R102  | 6              | Hinged | No                     | 0.00           | 1000              | Bump       | Yes         | No                   |

\*Note: Terminal width = 1 mm - Length = 1.5 mm. (For double reflow).

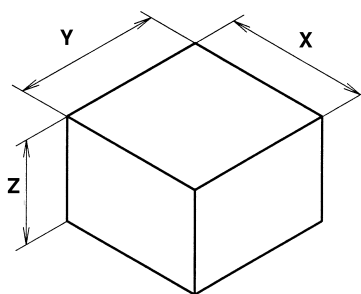
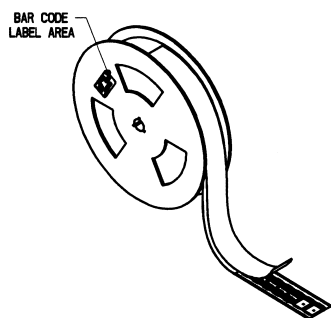
\*\*Note: On request - Depending on quantities.

## Packaging

CCM03 are packaged in accordance with EIA 481-3.

Standard packaging is on tape and reel.

A modification code is added to the part number that indicates reel packaging and the number of components per reel. There are 5 reels per box.



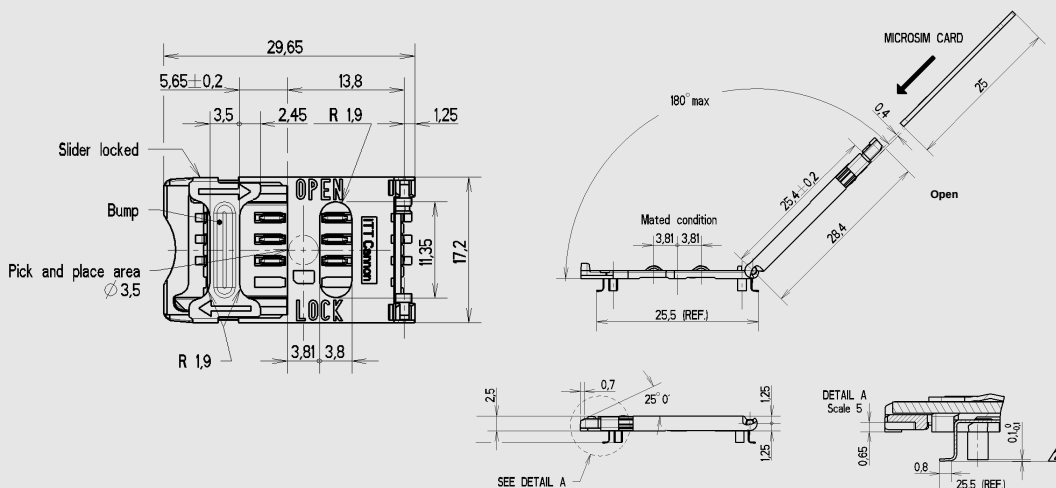
| Reel Diameter | Reel Width | X      | Y      | Z      |
|---------------|------------|--------|--------|--------|
| 360 mm        | 24.4 mm    | 344 mm | 350 mm | 152 mm |

## 29

# CCM03 MK II Hinged Cover

## Dimensional Drawings

Hinged Cover CCM03 - 3005 (6 contacts - with stand off 1.90 mm)

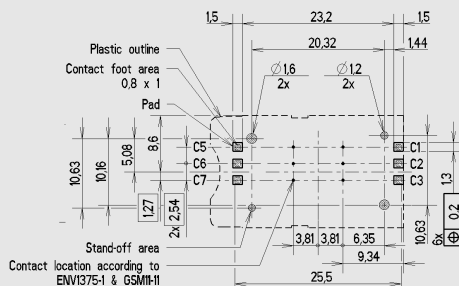


Note: Coplanarity of soldering surfaces:  $\pm 0.05$  mm

## PCB Layout

CCM03-3005

RECOMMENDED PC BOARD LAYOUT  
(Component side)



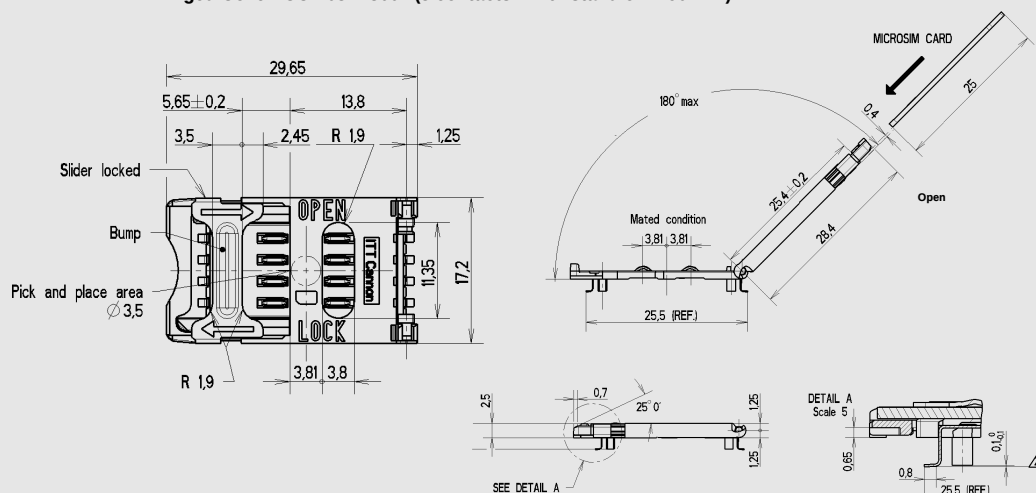
Unless otherwise stated, tolerances are  $\pm 0.10$  mm



# CCM03 MK II Hinged Cover

## Dimensional Drawings

Hinged Cover CCM03 - 3007 (8 contacts - with stand off 1.90 mm)

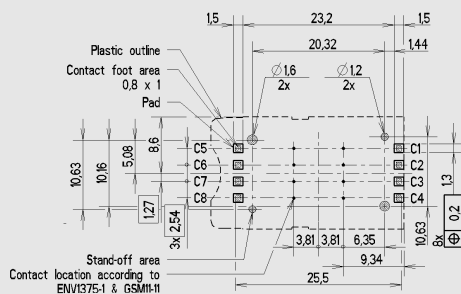


Note: Coplanarity of soldering surfaces:  $\pm 0.05$  mm

## PCB Layout

CCM03-3007

RECOMMENDED PC BOARD LAYOUT  
(Component side)

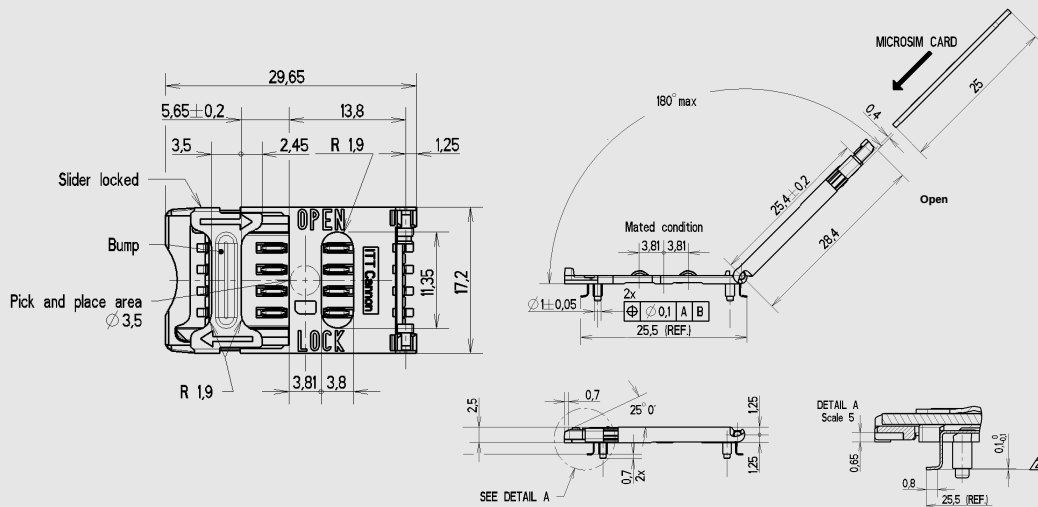


Unless otherwise stated, tolerances are  $\pm 0.10$  mm

# CCM03 MK II Hinged Cover

## Dimensional Drawings

Hinged Cover CCM03-3008 (8 contacts - with locating pegs 1.90 mm)

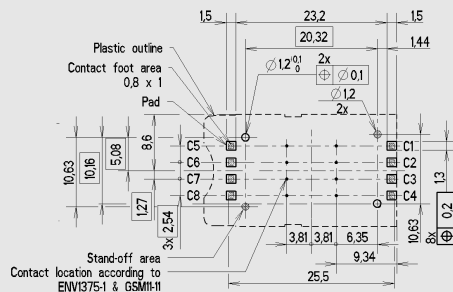


Note: Coplanarity of soldering surfaces:  $\pm 0.05$  mm

## PCB Layout

CCM03-3008

RECOMMENDED PC BOARD LAYOUT  
(Component side)



Unless otherwise stated, tolerances are  $\pm 0.10$  mm



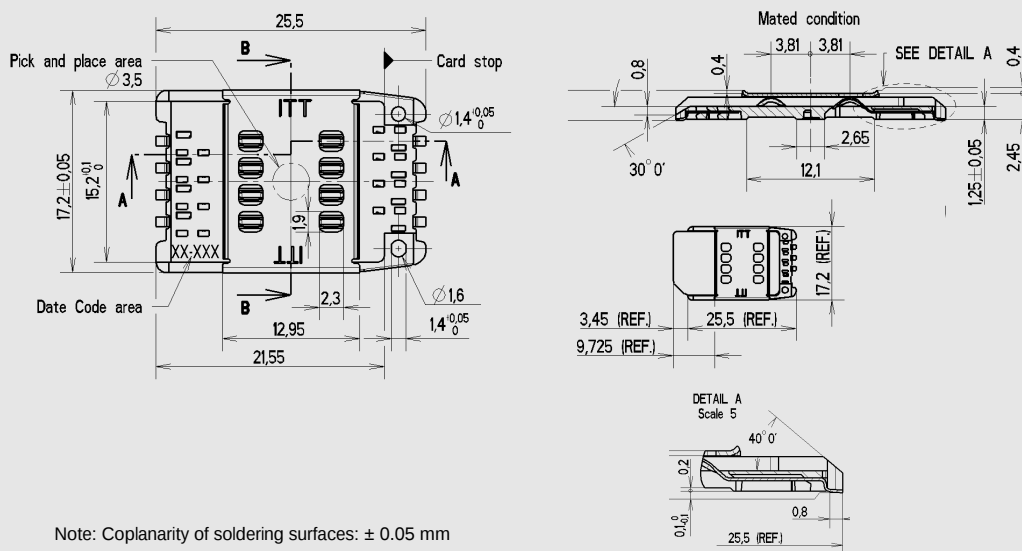
**New**

Note: Coplanarity of soldering surfaces:  $\pm 0.05$  mm

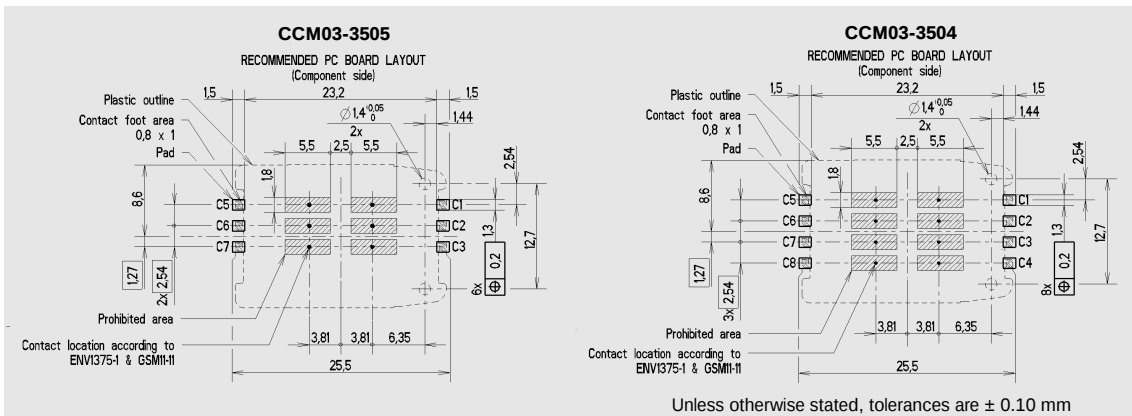
# CCM03 MK II Fixed Cover

## Dimensional Drawings

Fixed cover CCM03-3505 (6 contacts not shown) / CCM03-3504 (8 contacts)



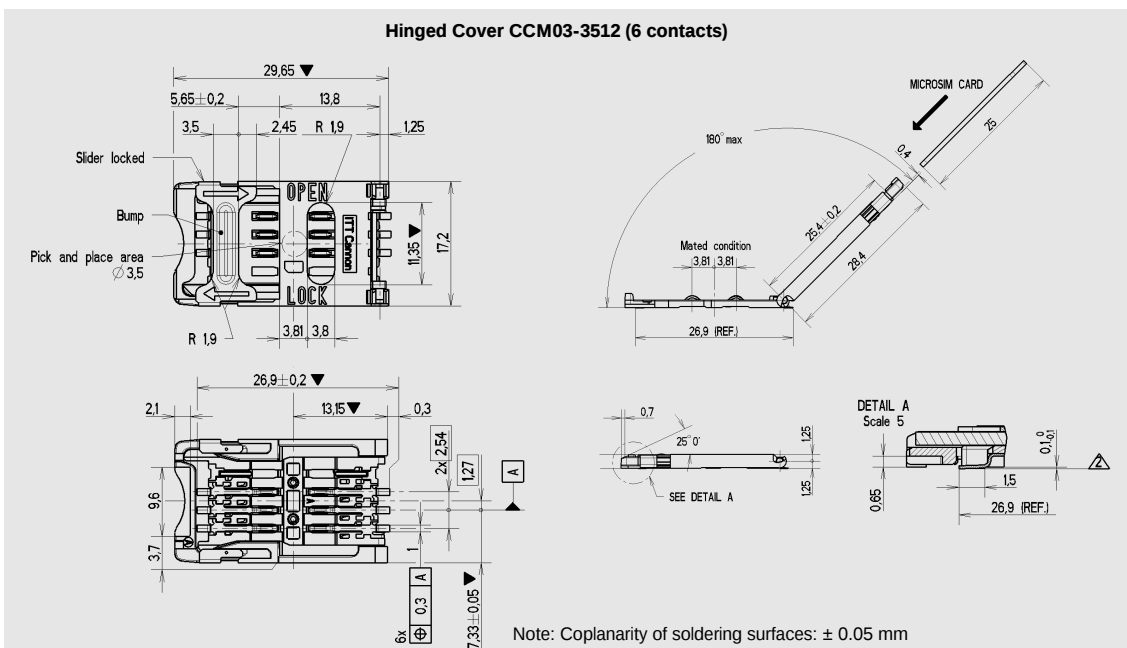
## PCB Layout



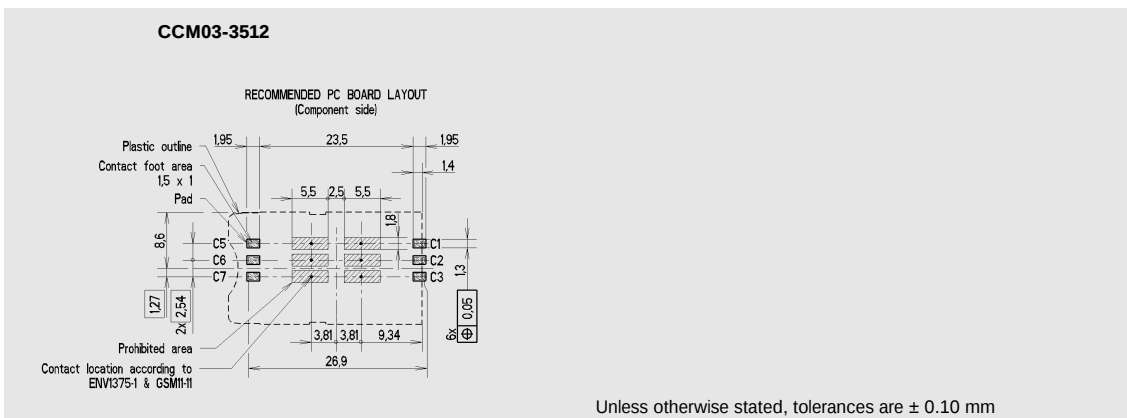
# CCM03 MK II Hinged Cover



## Dimensional Drawings



## PCB Layout





## CCM03 MK II with Auto Lock cover



A new range of CCM03 connectors have been developed to interface with SIM/SAM cards as defined by GSM11-11 and ENV1375-1. The connectors are available with a hinged metallic cover and have been designed to provide an easier open/lock function and side card entry.

### Features

- Available with 6 cross contacts which are designed to give a consistently reliable normal force over the life of the connector.
- The hinged metallic cover can automatically lock by pressure.
- Side entry of the card ensures easier positioning of the card into the connector.
- Blade switch version available for detection card when cover is closed.
- The molding is polarized so that the cover can only be closed if the card is correctly inserted.
- Inspection slots allow an electrical test to be made without opening the cover.

### General

- With tape and reel packaging as standard, the connectors are designed to be automatically pick-and-placed.
- The moldings are made from high temperature thermoplastics suited to infra-red and convection soldering processes.
- By using an inlay finish in the contact area the life of the precious metal is extended by over 10 times that of standard gold plating.
- Robustly formed printed circuit tails allow a co-planarity of  $\pm 0.05$  mm to be maintained.

### Construction

|                 |                                   |
|-----------------|-----------------------------------|
| Contacts        | Copper alloy                      |
| Contacts finish | Gold alloy inlay (Au/Ag/Pd)       |
| PC tail plating | Tin lead (2 $\mu$ min) Sn/Pb      |
| Molding         | High temp. thermoplastic, UL94V-0 |
| Cover           | Stainless steel                   |

### Mechanical data

|                     |                                                                                                                                                   |
|---------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| Number of Contacts  | 6                                                                                                                                                 |
| Mechanical life     | 10,000 cycles min                                                                                                                                 |
| Durability of inlay | 10,000 cycles min                                                                                                                                 |
| Contact force       | 0.25 N min / 0.50 N max                                                                                                                           |
| Vibration           | Frequency 10 to 500 Hz. Acceleration 50m/s <sup>2</sup><br>Duration 6 hours - amplitude 0.35 mm<br>(0.014) Max electrical discontinuity 1 $\mu$ s |

### Electrical data

|                            |                          |
|----------------------------|--------------------------|
| Insulation resistance      | 1,000 M $\Omega$ min     |
| Contact resistance         | 100 m $\Omega$ max       |
| Signal current rating      | 10 $\mu$ A min / 1 A max |
| Dielectric strength        | 750 Vrms min             |
| Card detection switch      | Normally open            |
| Switch contact resistance  | 100 m $\Omega$ max       |
| Dielectric strength switch | 250 Vrms min             |
| Switch current rating      | 1mA min / 10m A max      |
| Maximum switch power       | 0.2 VA                   |

### Environmental data

|                       |                                                                                          |
|-----------------------|------------------------------------------------------------------------------------------|
| Operating temperature | -40°C to +85°C                                                                           |
| Soldering temperature | Temperature/time profile acc. to CECC00802 para. 6.1, Fig. 3 with peak temperature 250°C |
| Damp heat             | IEC 512 test number 11c (10 days)                                                        |
| Salt mist             | IEC 512 test number 11f (96 hours)                                                       |

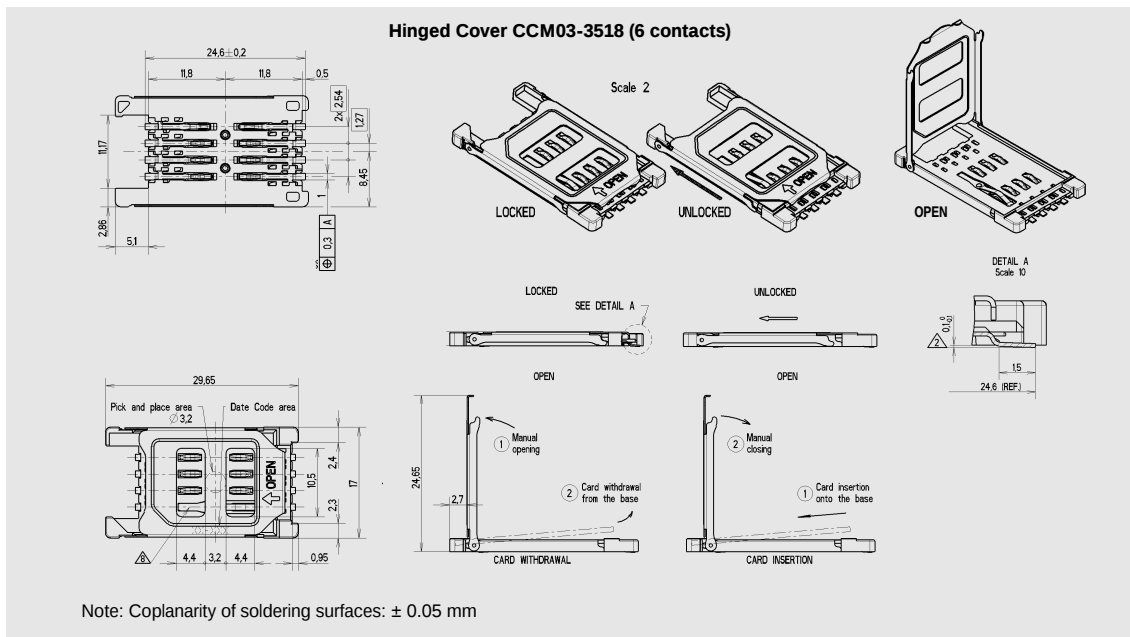
### Ordering Code

| Part Number | N° of Contacts | Cover  | Card Presence Switch | Quantity per reel |
|-------------|----------------|--------|----------------------|-------------------|
| CCM03-3517  | 6              | Hinged | No                   | 1300              |
| CCM03-3518  | 6              | Hinged | Yes                  | 1300              |

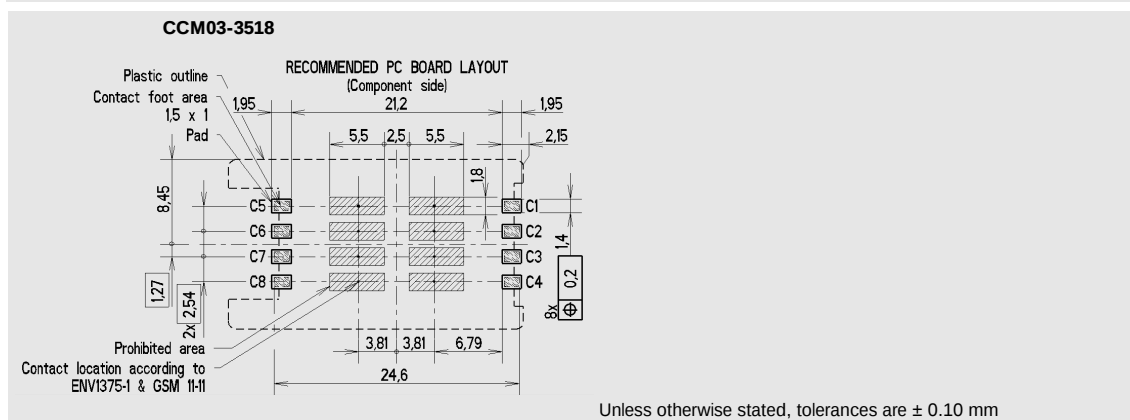


# CCM03 MK II with Auto Lock cover

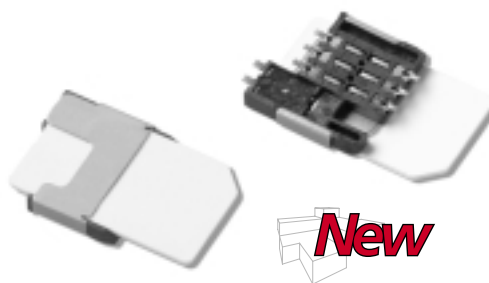
## Dimensional Drawings



## PCB Layout



## CCM03 MK III



Introducing the new CCM03 Series SIM/SAM Card Connector from ITT Cannon Switch Products, featuring an integrated card detection switch. This connector provides a competitive advantage to smart card reader device manufacturers by minimizing the space usage on the PCB, and features a side entry to offer convenient card access without opening the device. The unique design of this compact-size connector makes it ideal for telecommunications, portable electronics, POS terminals and similar applications, and meets GSM 11-11 and EMV specifications.

### Features

- Unique card-guiding design.
- 6 spoon-shaped, gold-alloyed contacts resist wear and improve connectivity.
- Sealed card detection switches reduce connectivity problems caused by dust or moisture.
- Switch design detects and holds the card while providing firm contact.
- Unique side entry design offers card access without opening the device.
- Stainless steel cover and UL 94V0 high-temperature thermoplastic insulator.

### Construction

|                 |                                         |
|-----------------|-----------------------------------------|
| Insulator       | High temperature thermoplastic UL 94V.0 |
| Contacts        | Copper Alloy                            |
| Contact finish  | Gold Alloy Inlay (Au / Ag / Pd)         |
| PC Tail plating | Tin lead (2 µm min) Sn / Pb             |

### Mechanical data

|                 |                                  |
|-----------------|----------------------------------|
| Mechanical life | 10,000 cycles minimum            |
| Precious metal  | 5000 cycles minimum (see note 1) |
| Contact force   | 0.25N min / 0.5N max             |

### Electrical data

|                        |                     |
|------------------------|---------------------|
| Insulation resistance  | 1000 MΩ min         |
| Contact resistance max | 100 mΩ max          |
| Switching current      | 10 µA min / 1 A max |
| Dielectric strength    | 500 Vrms min        |

### Environmental data

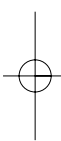
|                       |                                                                                    |
|-----------------------|------------------------------------------------------------------------------------|
| Operating temperature | -40°C to +85°C                                                                     |
| Soldering temperature | Temperature/time profile acc. to CECC00802 para. 6.1, Fig. 3 with peak temperature |
| Salt mist             | IEC 512 test number 11f (96 hours)                                                 |
| Damp heat             | IEC 512 test number 11c (10 days)                                                  |

Note 1: Inlay (precious metal) rating is based on a very abrasive card being used and is intended to represent worst case.

### Ordering Code

| Part Number     | N° of Contacts | Cover           | Switch Testing Hole | Ground Terminal | Quantity per reel |
|-----------------|----------------|-----------------|---------------------|-----------------|-------------------|
| CCM03-3752 R102 | 6              | Without chamfer | Yes                 | No              | 1000              |
| CCM03-3753 R102 | 6              | With chamfer    | No                  | No              | 1000              |
| CCM03-3754 R102 | 6              | With chamfer    | Yes                 | No              | 1000              |
| CCM03-3757 R102 | 6              | With chamfer    | No                  | Yes             | 1000              |
| CCM03-3758 R102 | 6              | With chamfer    | Yes                 | Yes             | 1000              |

## Dimensional Drawings



Dimensions are shown in mm  
Dimensions subject to change

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