



C&K Components is a leader in interface and switch technology as well as smart card and high reliability connector products. C&K prides itself with its ability to turn customer needs into solutions by supplying the highest level of quality products that meet the diverse needs of original equipment manufacturers across a broad spectrum of industries. C&K is committed to advancing innovation into customer solutions through its investment in state of the art technology centers and reliable manufacturing on a global basis.

Products

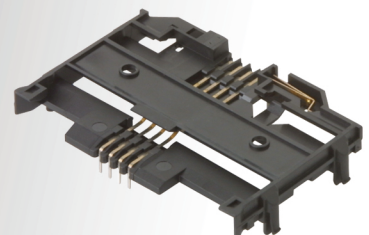
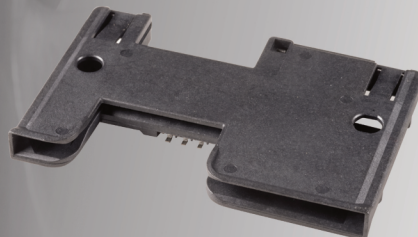
C&K offers more than 40,000 unique part numbers that are built, priced and delivered as standard catalog items, including tactile, navigation, detect, toggle, rocker, pushbutton, rotary, key, slide, DIP, thumbwheel and illuminated switch products, along with smart card and high-reliability connectors. C&K focuses on improving product performance and reliability through design, material selection, quality and state-of-the art production, and test facilities in Europe, North America and Asia.

Expertise

C&K serves more than 20,000 companies and distributors worldwide, so its sales and engineering teams are experienced in specifying and designing switches to fit a wide array of applications. C&K partners with all of the leading manufacturers of telecommunication equipment, computer and peripherals, handset devices and mobile communications, consumer, industrial and appliance products, instrumentation and test equipment, off-road and automotive products.

Design

When standard product does not meet a customers' exact design requirement, C&K responds quickly with customer service, design engineering and technical support personnel to help implement the right solution. C&K will adapt existing technology to meet a project's specific design and performance parameters, or building a custom component to one customer's specifications.



gy into Solutions

Service

C&K has built its reputation as a customer-focused organization, providing superior support, flexibility and solutions at competitive prices. Whether it's a standard, special or custom product, the company will deliver a cost-effective component for all application-specific requirements. C&K is committed to providing the best products backed by the most responsive and efficient service in the industry.

Worldwide

C&K maintains a global footprint that delivers on-the-ground support to its customers no matter where they are located. Manufacturing facilities are located in Europe, Asia and the Americas, and a worldwide network of sales representatives and stocking distributors ensures local support and product availability.

Quality

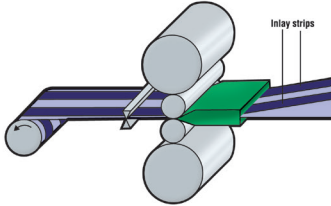
C&K's global design centers and in-house testing facilities provide the manufacturing flexibility of scaling production from prototype design through volume production. Coupled with world-class machining, precision high speed stamping, plastic and rubber molding, surface plating and overmolding, the company also offers a wide range of value-added solutions, from wire leads and harnesses to complete front panel assemblies.

C&K is focused on delivering total customer satisfaction with superior products, processes and services by offering leading edge component technology and a company-wide commitment to total customer satisfaction.



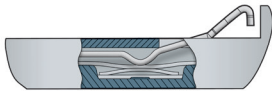
Design Features of C&K Smart Card Connectors

C&K Components has a successful track record of manufacturing innovative interconnect devices with a strong emphasis on reliability and flexibility. As a long established supplier of such devices for Smart Cards in a wide range of applications, we have extensive experience matching performance with the need to remain cost sensitive. We consider the true cost of the interconnect to be a function not just of price, but also the ease with which the device can be integrated into the customer's production process and its performance in the field. We have built in a number of features which set our products apart, such as:



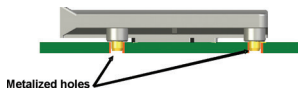
Inlay contact finish

A means of applying precious metal to the contact area utilizing pressure as opposed to conventional plating. We have found this to be the most durable finish available without compromising the electrical performance of the contact. Our research has shown that our inlay finish lasts over ten times as long as standard gold plating. Where we state the life of the precious metal this is intended to be the "worst case" scenario, because the test has been made using the most abrasive smart card that we can find on the market (given that the equipment maker can rarely control which smart cards are used). Note that the inlay finish is silver in color, being an alloy of gold, silver, and palladium.



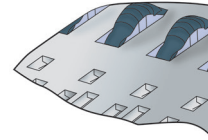
Card detection switches

As a manufacturer of switches as well as interconnects, we have been able to integrate high performance dome switches into many of our devices. These are variants of switch products which are already in high volume production as stand alone components.



Mechanical robustness

Four metal pegs, to be soldered in PCB metalized holes at the same time than the SMT terminals, have been designed on the smart card connectors in order to increase the resistance of the connector to card insertion force. This participates to the life time and to the overload resistance.



Contact design

The geometry of the contact has an important bearing on its electrical performance. Our contacts are designed to give an efficient wiping action and to maximize the stress between contact and card, thus minimizing the contact resistance. The "spooned" contact area is also shaped so as to protect it from damage during card insertion.



PCI (security standard for POS applications)

Two levels of PCI compatibility level are available:

PCI ready:

Specific features are designed in the connector in order to ease the integration of security devices around and below the connector.

PCI:

Additional accessories are integrated on the connector in order to avoid access to the data contacts and to detect any connection attempt.

Materials

The contact material has been chosen because of its resistance to atmospheric pollution, solderability and performance over time in giving a consistent normal force. Since all of our new interconnects are designed for surface mounting, the plastic materials used must withstand high temperature soldering processes without deforming or adversely affecting performance.

FULL SIZE CARD CONNECTORS

			
Series	CCM01	CCM02	CCM04
Applications	Professional	Professional	Consumer/Professional
PCI*	PCI ready	PCI/PCI ready	
EMV	•	•	
Insertion force	40N max	40N max	10N max
Overload	250N	180N	40N
Card guide	•	•	
Sealed switch	•	•	
Operating life	100,000 cycles	500,000 cycles	>50,000 cycles
Contact plating	inlay	inlay	gold
Number of contacts	8	8	6 or 8
Contact type	friction	friction	friction/vandal proof
Page No.	7	12	19

SIM / SAM CARD CONNECTORS

	
Series	CCM03
Applications	Consumer/Professional
Cover	hinged / fixed
Operating life	10,000 to 50,000 cycles
Sealed switch	•
Contact plating	inlay / gold
Card end travel switch	with / without
Number of contacts	6 or 8
Page No.	26

* PCI

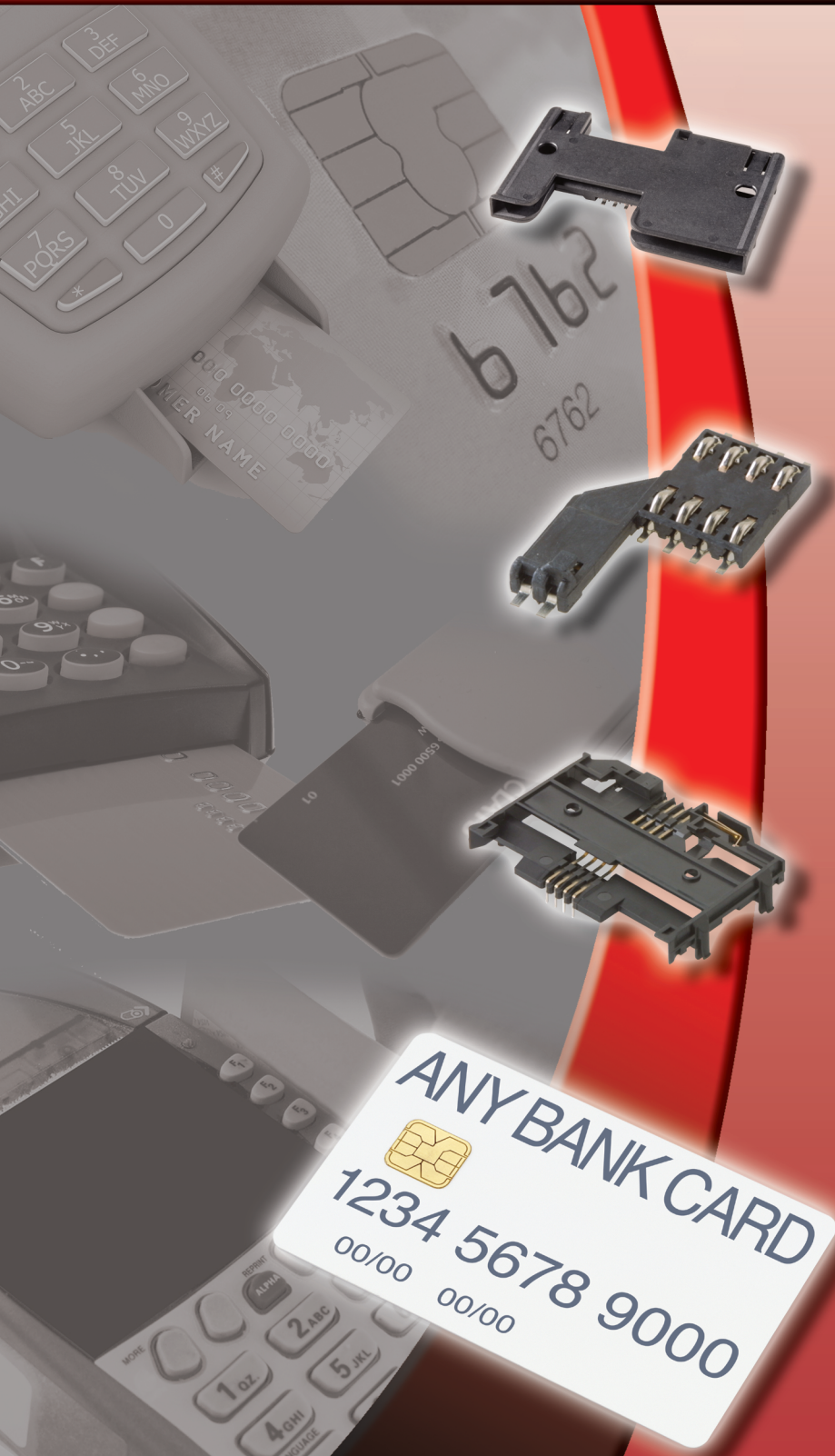
PCI ready: specific features are designed into the connector in order to ease the integration of security devices around and below the connector.

PCI: specific additional accessories are integrated on the connector in order to avoid access to the data contacts and to detect any connection attempt.

The logo for C&K, featuring the letters 'C' and 'K' in a bold, red, italicized sans-serif font, with an ampersand '&' in a smaller, black, sans-serif font between them. A registered trademark symbol (®) is located at the top right of the 'K'.

C&K[®]

Full Size Cards



Features

- Operating life up to 600,000 cycles
- 40N card insertion force
- EMV
- Card detection sealed switch

Typical Applications

- Transaction
- Identification
- POS



Mechanical

Number of Contacts	8
Mechanical life	Up to 500,000 cycles
Card insertion force	40N max.
Card extraction force	1 N min / 10 N max
Contact force	0,2N / 0,60 N max
Card detection switch	0,8 N max for actuation (end travel switch actuation force actuates when card is 0,9mm from card stop)
	1,8 N max for complete depression
Vibration Frequency	10 to 500 Hz. Acceleration 50m/s ²
	Duration 6 hours - amplitude 0,35mm
Max elect. discontinuity	1µs
Shock	Peak value 500 m/s ² – Duration 11 ms
	3 shocks in each direction of each axis

Packaging

Tray 25 parts / Cartons 300 parts

Soldering

Compatible with lead free SMT reflow soldering process
According to JEC61766-1:2006

Contact Electrical Data

Insulation resistance	1,000 MΩ min
Resistance	100 mΩ max
Current rating	<10 mA
Dielectric strength	750 Vrms min

Switch Electrical Data

Card detection switch	Normally open
Contact resistance	100 mΩ max
Dielectric strength	250 Vrms min
Current rating	50 µA min / 10 mA max
Maximum power	0.2 VA

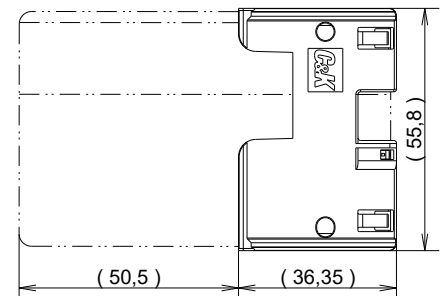
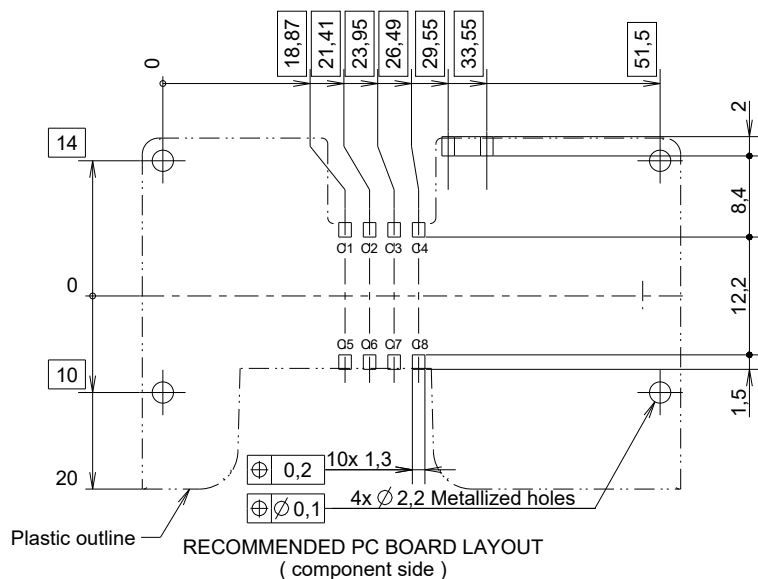
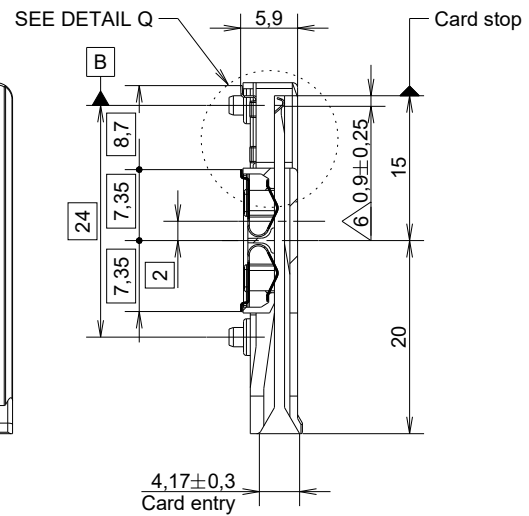
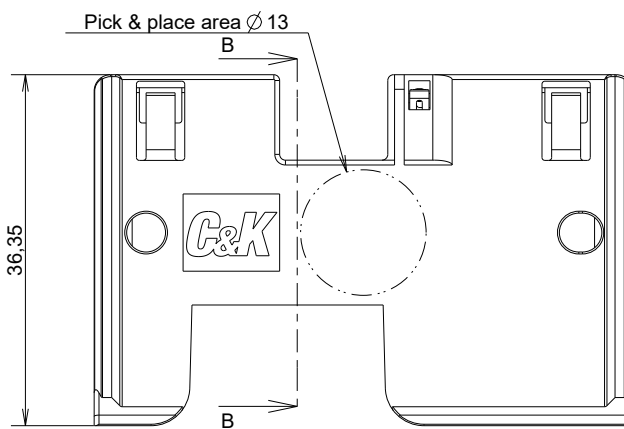
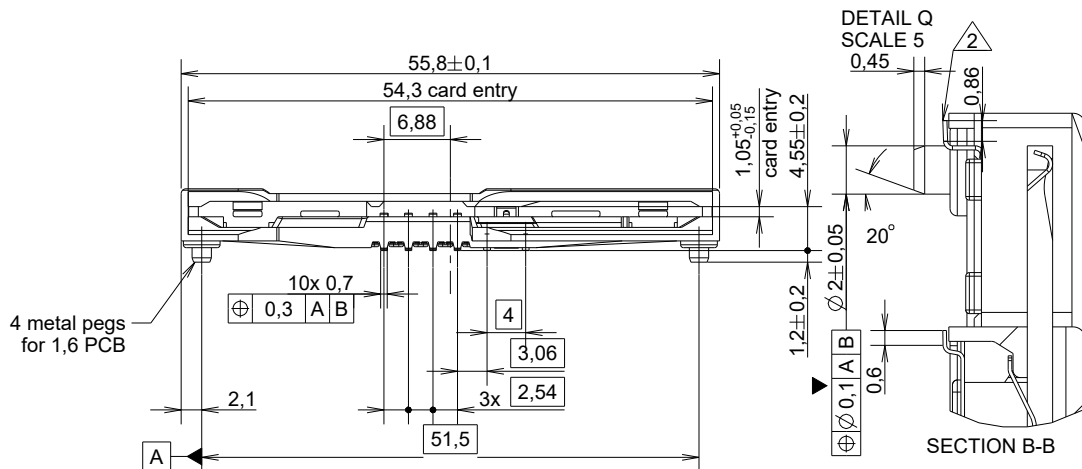
Environmental Data

Operating temperature	-40°C to +85°C
Card detection switch	IP50
RoHS compliant	

Designation	Termination	Operating Life	Card Insertion Force
CCM01-2327LFT	SMT	600,000 cycles	40N

CCM01 MK4 Series

CCM01-2327 LFT



Features/Benefits

- Operating life 500,000 cycles
- Low profile 4 mm and 3.2 mm height
- Card detection sealed switch

Typical Applications

- Transaction
- Identification
- POS
- MPOS



Full Size

Mechanical

NUMBER OF CONTACTS:	8
MECHANICAL LIFE:	500,000 cycles
CARD INSERTION FORCE:	10 N max.
CARD EXTRACTION FORCE:	1 N min. / 10 N max.
CONTACT FORCE:	0,2 N / 0,60 N max.

Packaging

Tray 25 parts or Reel 350 parts

Soldering

Compatible with lead free SMT reflow soldering process

Contact Electrical Data

INSULATION RESISTANCE:	1,000 M Ω min.
CONTACT RESISTANCE:	100 m Ω max.
CURRENT RATING:	10 μ A min. / 1A max.
DIELECTRIC STRENGTH:	750 Vrms min.

Switch Electrical Data

CARD DETECTION SWITCH:	Normally open
CONTACT RESISTANCE:	100 m Ω max.
DIELECTRIC STRENGTH:	250 Vrms min.
CURRENT RATING:	1 mA min. / 10 mA max.
MAXIMUM POWER:	0.2 VA

Environmental Data

OPERATING TEMPERATURE:	-40°C to + 85°C
CARD DETECTION SWITCH:	Sealed against dust
RoHS compliant	

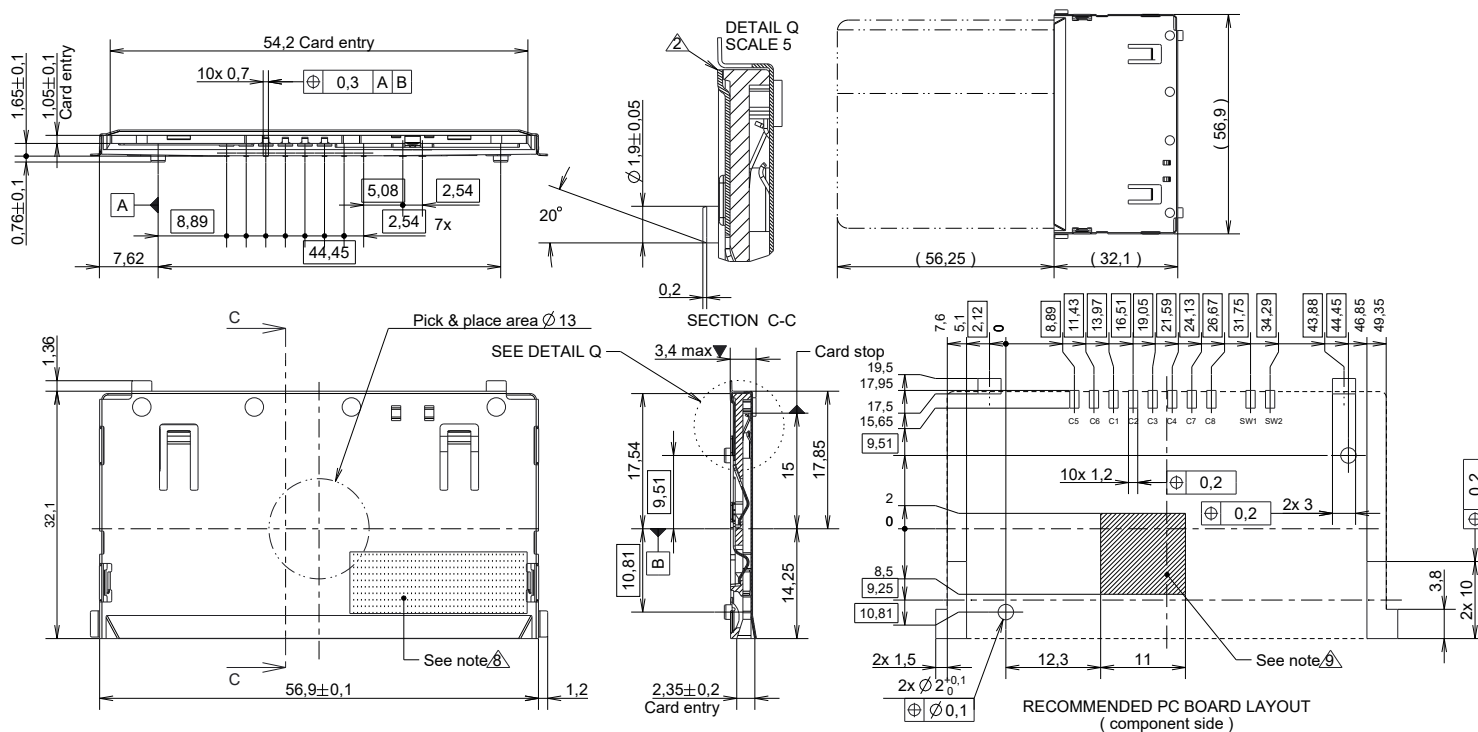
How To Order

To order, simply select desired option from each category and place in the appropriate box. For additional options not shown in catalog, consult our Customer Service Center.

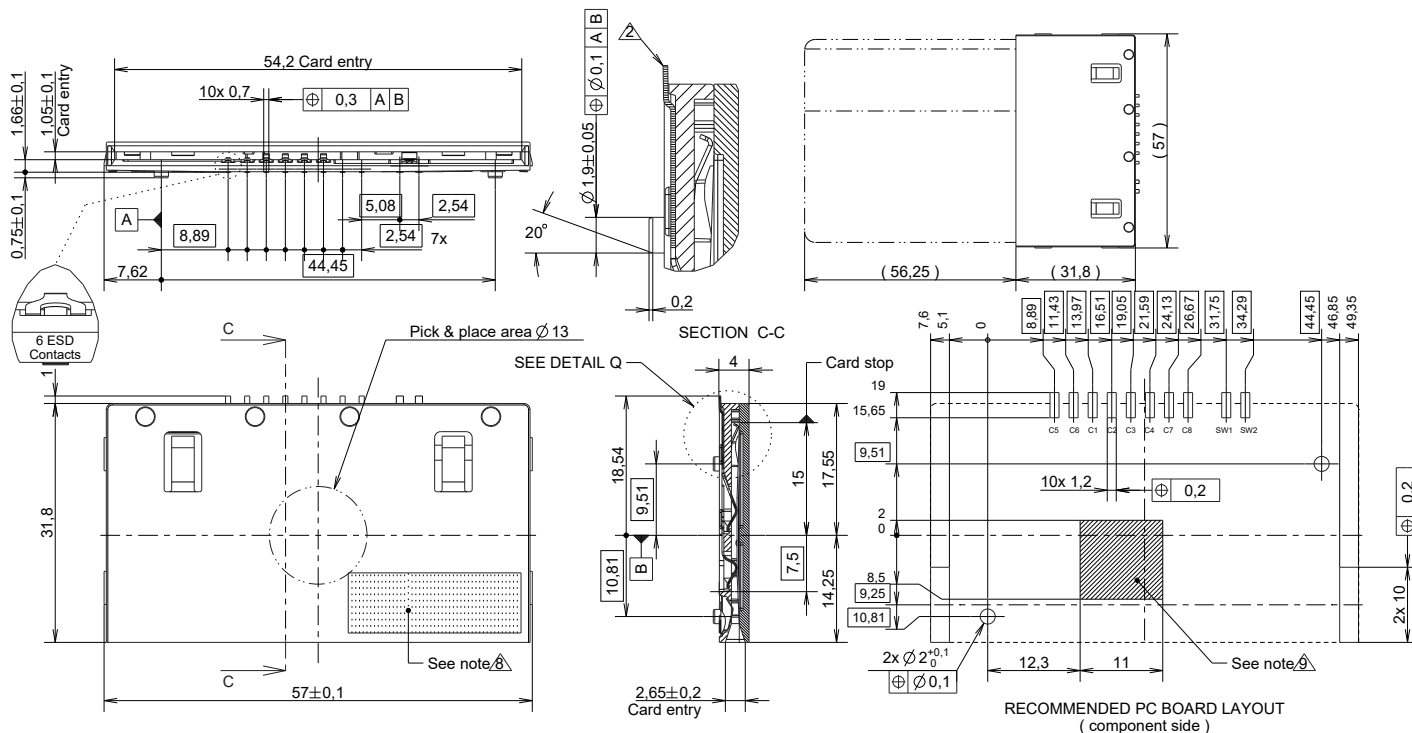
C C M 0 1 - 2 Cover Material 5 Plastic, 4.0 mm height 6 Metal, 3.2 mm height Contact Tail on PCB 2 Long CMS + 2 metal pegs (40N overload) 5 Long CMS (accessible, easy rework) 6 Short CMS, recessed (best for PCI) ESD Protection 3 Full ESD protection (card edge & IC) 4 Card edge ESD (only for metal version) 5 Low cost ESD (card edge for plastic cover)	L F T Lead Free RoHS LFT Tin plated terminals	Packaging T25 Pack tray 25 parts R351 Pack reel 350 parts
---	---	---

CCM01 MK5 Series

CCM01-2664 LFT T25 Metal cover, short tails



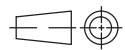
CCM01-2553 LFT T25 Plastic cover, long tails, full ESD protection



Full Size

C&K

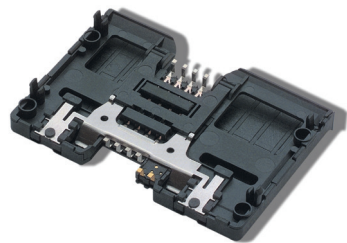
11



Dimensions are shown in mm
Specifications and dimensions subject to change

www.ckswitches.com

CCM02 MK2 Series



Features

- Operating life 500,000 cycles
- Insertion force 40N
- EMV
- PCI & PCI ready
- Card detection sealed switch

Typical Applications

- Transaction
- Identification
- POS

Mechanical

Number of Contacts	8
Mechanical life	500,000 cycles min
Card insertion force	10N to 40N
Card extraction force	1N min / 10N max
Contact force	0,2N / 0,50N max
Card detection switch	0,8 N max for actuation (end travel switch actuation force actuates when card is 0,9mm from card stop)
	1,8 N max for complete depression
Vibration Frequency	10 to 500 Hz. Acceleration 50m/s ²
	Duration 6 hours - amplitude 0,35mm
Max elect. discontinuity	1µs
Shock	Peak value 500 m/s ² – Duration 11 ms
	3 shocks in each direction of each axis

Packaging

Tray 30 parts / Cartons 300 parts
Reel 120 parts

Soldering

Compatible with lead free reflow soldering process
For version with security cover, please contact Customer Service for soldering recommendations.

Contact Electrical Data

Insulation resistance	1,000 MΩ min
Resistance	100 mΩ max
Current rating	10 µA min / 1 A max
Dielectric strength	750 Vrms min

Switch Electrical Data

Card detection switch	Normally open
Contact resistance	100 mΩ max
Dielectric strength	250 Vrms min
Current rating	1 mA min / 10 mA max
Maximum power	0.2 VA

Environmental Data

Operating temperature	-40°C to +85°C
Damp heat	IEC 512 test number 11c (10 days)
Salt mist	IEC 512 test number 11f (96 hours)

Card detection switch	Sealed against dust
RoHS compliant	

PCI Features					Total Height (mm)	Dimension	PCB version	Packaging
Designation	Termination	Contact Type	I/O Protect	Security Cover				
CCM02-2503LFT	THT	landing			6,25	38,5 X 55,6	4 clips	Tray
CCM02-2504LFT	SMT	landing			6,25	38,5 X 55,6	4 clips	Tray
CCM02-2508LFT	SMT	landing			6,25	38,5 X 55,6	4 clips	Tray
CCM02-F508LFT	SMT	friction			6,25	36,5 X 55,6	2 plastic pegs	Tray
CCM02-F844LFT	SMT	friction	Yes	Yes	6,6	40,5 X 58	4 metal pegs	Tray / Reel
CCM02-F788LFT	SMT	friction	Yes		6,25	38,5 X 55,6	2 plastic pegs	Tray

PCI: I/O Protect

Definition

Special accessory in order to avoid and detect frontal access to data contact. It is electrically connected to the PCB through spring finger contacts.

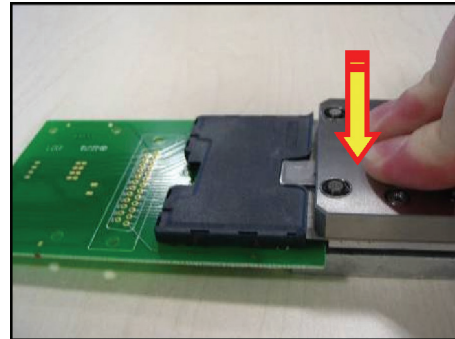
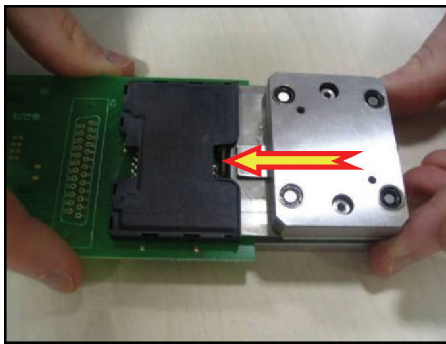
Process

It must be in open position during the reflow soldering of the connector and has to be locked in closed position after soldering.



I/O Protect locking tool

C&K is proposing a manual tool to lock the I/O protect accessory after soldering.
Ordering code: C-CM02-E50



PCI: Security Cover



Definition

It is a multilayer cover placed over the connector to avoid and detect data contact access, especially from the top. It is connected to the PCB through 6 SMT terminals that are soldered at the same time as the other smart card terminals.

Process

Please contact your Sales Representative for advice and recommendations about soldering this version.

Full Size

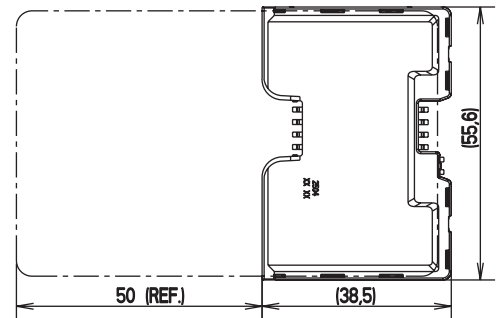
CCM02-2503 LFT



www.ckwitches.com

Full Size

CCM02-2504 LFT

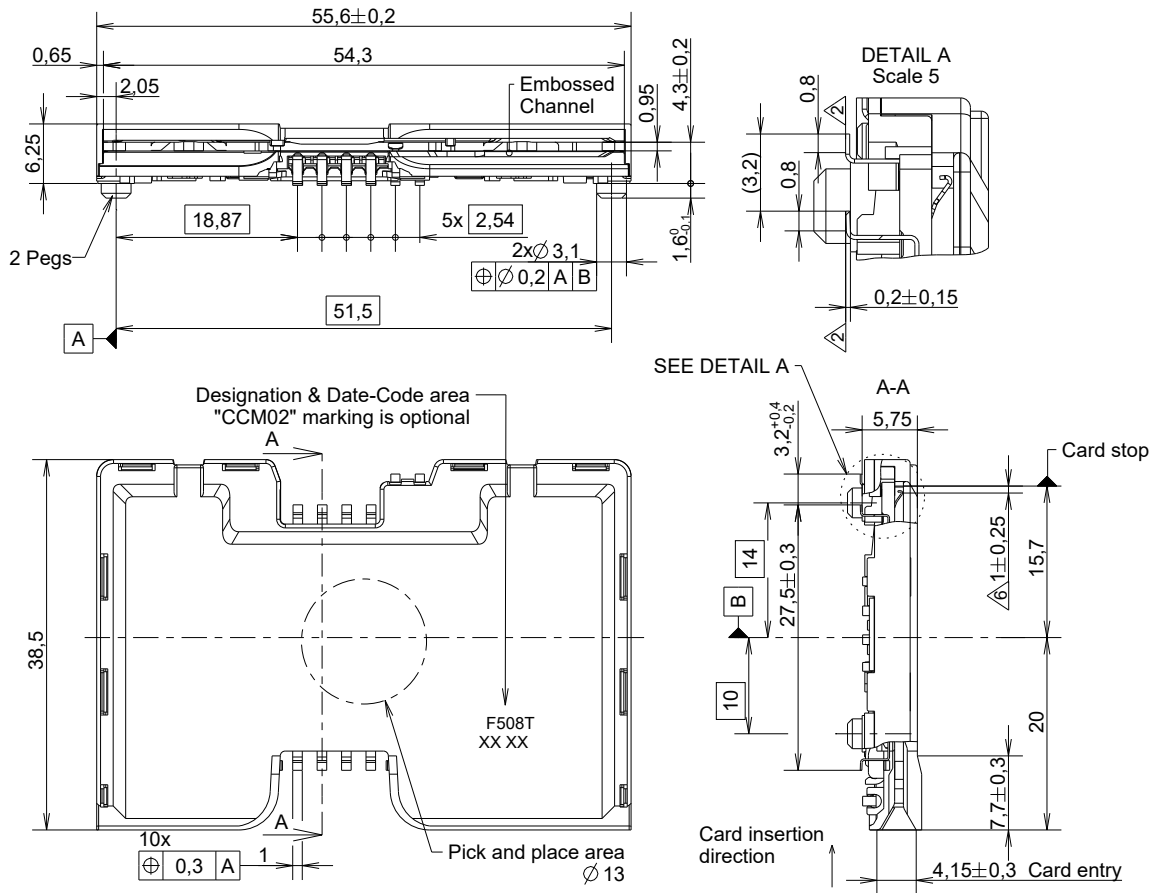


www.ckwitches.com

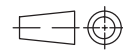
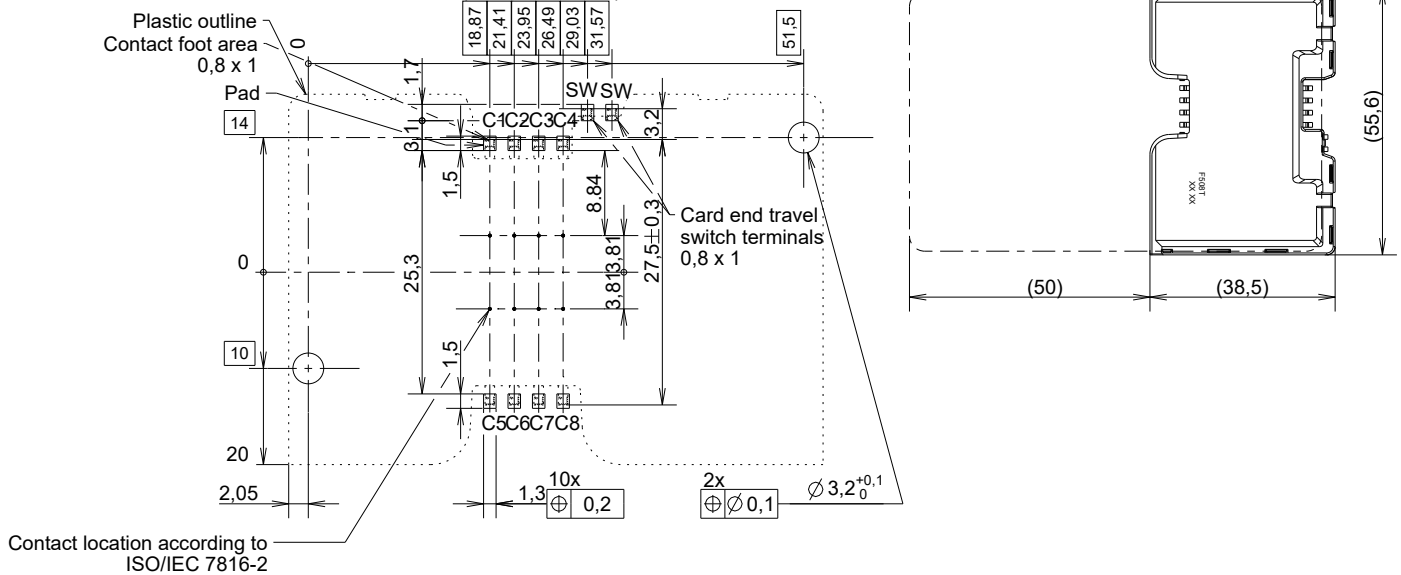
CCM02 MK2 Series

CCM02-2508 LFT / CCM02 F508 LFT

Full Size



RECOMMENDED PC BOARD LAYOUT (Component side)



First Angle
Projection

Dimensions are shown in mm
Specifications and dimensions subject to change

www.ckwitches.com

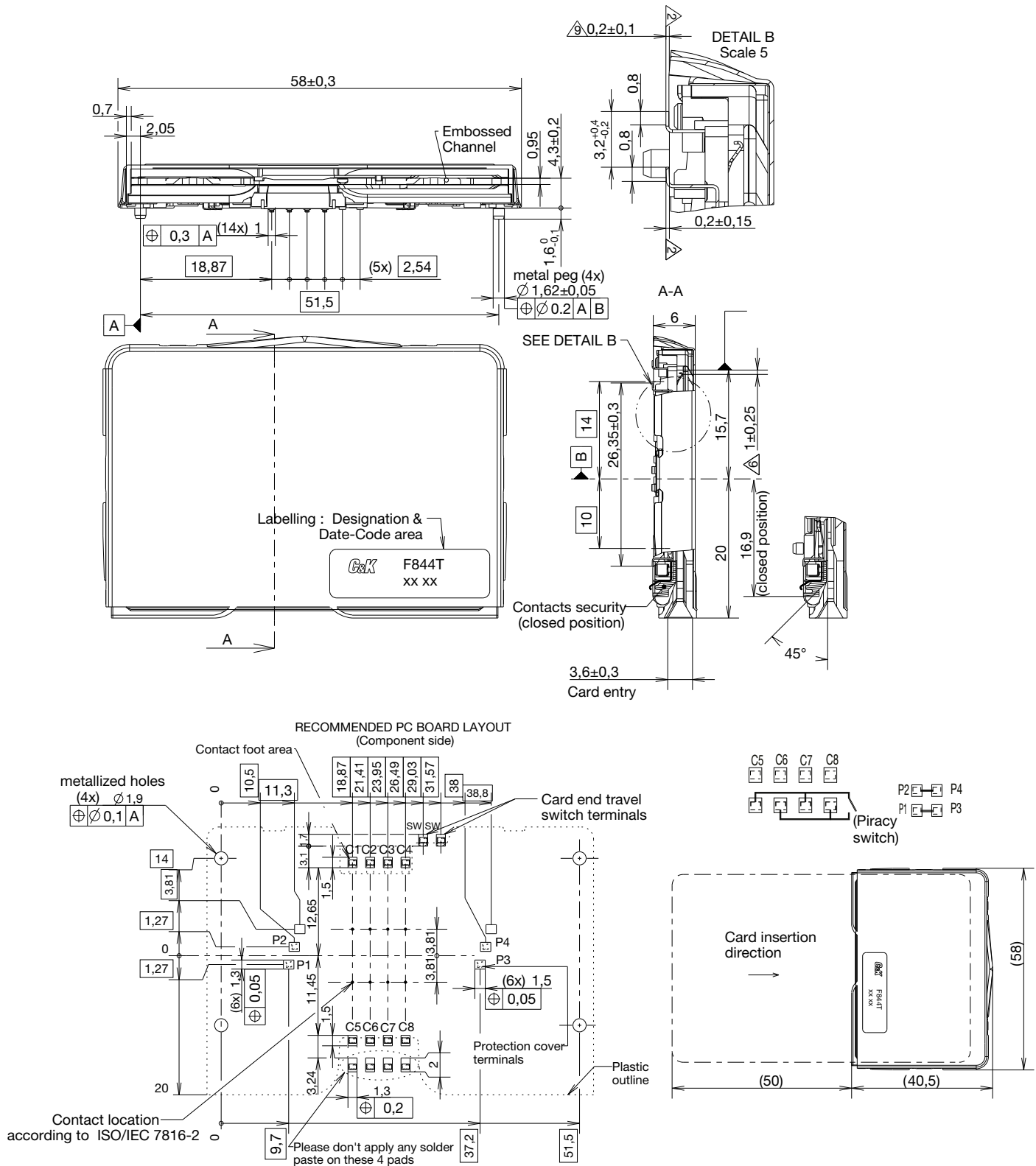
C&K

11 Nov 19

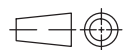
CCM02 MK2 Series

CCM02-F844A LFT / CCM02-F844B LFT

Full Size



11 Nov 19

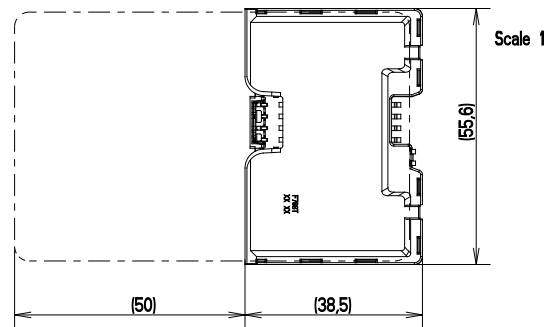


First Angle
Projection

Dimensions are shown in mm
Specifications and dimensions subject to change

www.ckwitches.com

Full Size

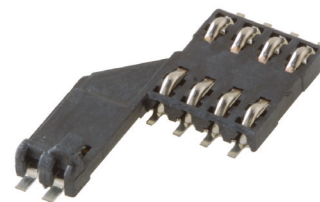
[illegible]

Features

- ID1 full size card acceptance
- Card detection sealed switch
- Compatible with pick and place and lead free soldering

Typical Applications

- Transaction
- POS
- Identification



Mechanical

Number of contacts	6 or 8
Mechanical life	50,000 cycles
Card insertion force	10N max
Card extraction force	1N min / 10N max
Contact force	0,4N to 0,7N
Card detection switch	0,8 N max for actuation (end travel switch actuation force actuates when card is 0,9mm from card stop) 1,8 N max for complete depression
Vibration Frequency	10 to 500 Hz. Acceleration 50m/s ² Duration 6 hours - amplitude 0,35mm
Shock	Peak value 500 m/s ² - Duration 11 ms 3 shocks in each direction of each axis
Max elect. discontinuity	1µs

Packaging

See table below

Soldering Process

Compatible with lead free SMT reflow soldering process

Contact Electrical Data

Insulation resistance	1000 MΩ min
Contact resistance max	100 mΩ max
Switching current	10 µA min / 1 A max
Dielectric strength	750 Vrms min

Switch Electrical Data

Card detection switch	Normally open
Rc card detection switch	100 mΩ max
Dielectric strength	250 Vrms min
Switch current rating	1 mA min / 10 mA max
Maximum switch power	0.2 VA

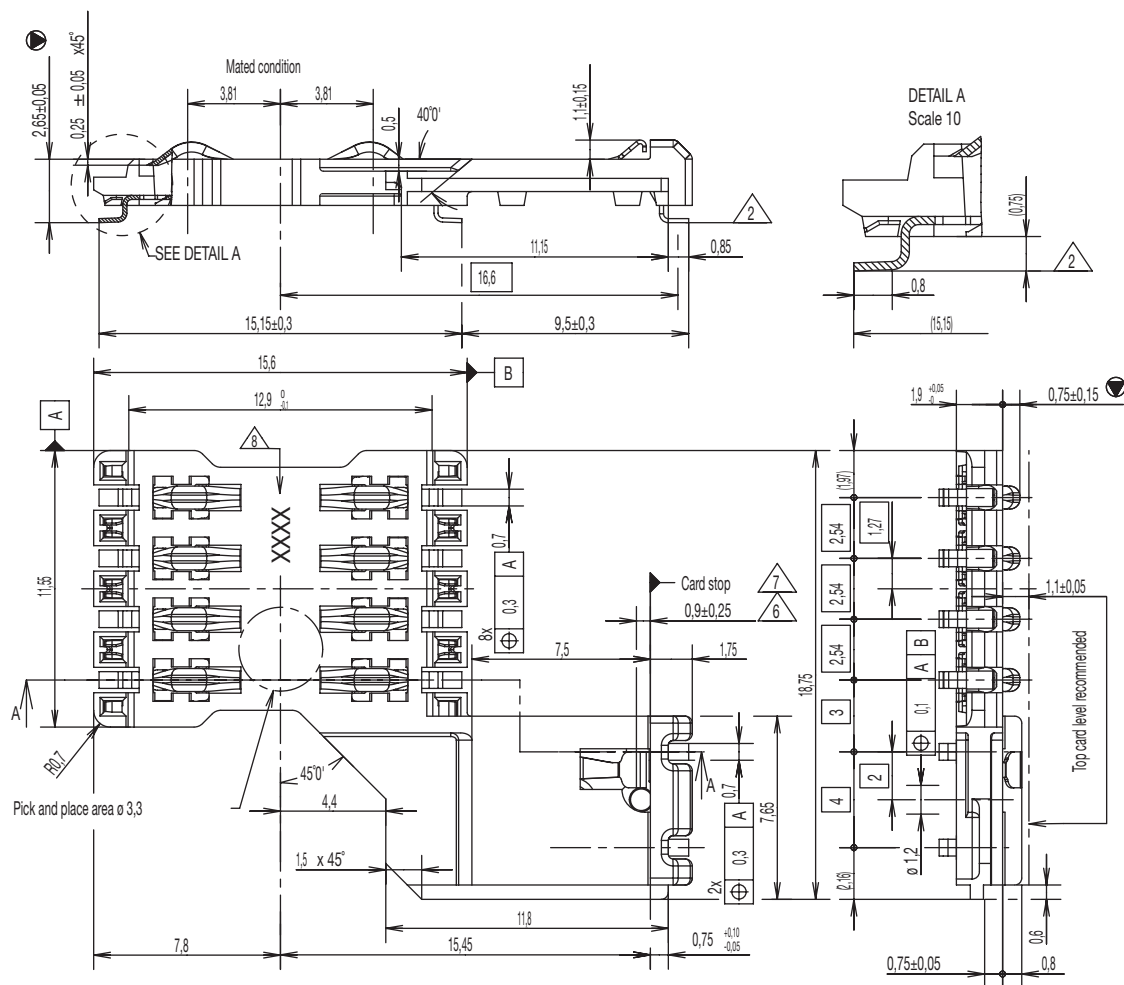
Environmental Data

Operating temperature	-40°C to +85°C
Salt mist	IEC 512 test number 11f (96 hours)
Damp heat	IEC 512 test number 11c (10 days)
Card detection switch	Sealed against dust
RoHS compliant	

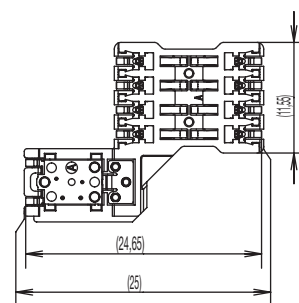
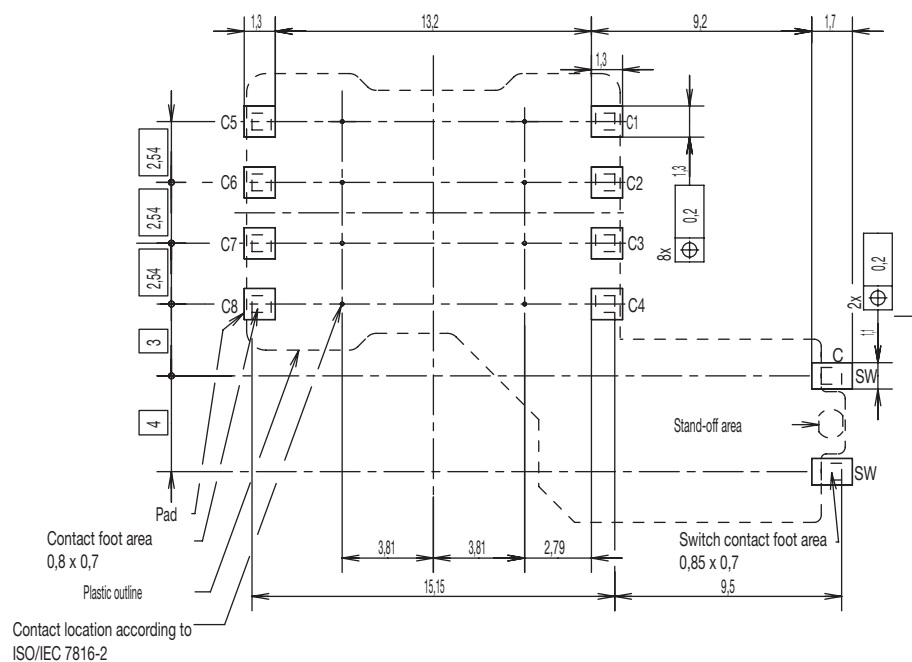
Designation	Housing Type	# of Contacts	Contact Force	Total Height (mm)	Total Dim. (mm)	Packaging
CCM04-5427LFT	standard	8	0,4N to 0,7N	2,65	18,75 X 25	reels of 1,000 pcs
CCM04-5436LFT	standard	8	0,4N to 0,7N	0,90	18,75 X 26,9	reels of 1,000 pcs
CCM04-5454LFT	standard	8	0,4N to 0,7N	0,90	18,75 X 26,9	reels of 1,000 pcs
CCM04-5455LFT	standard	8	0,4N to 0,7N	0,90	18,75 X 26,9	reels of 1,000 pcs

Full Size

CCM04-5427 LFT

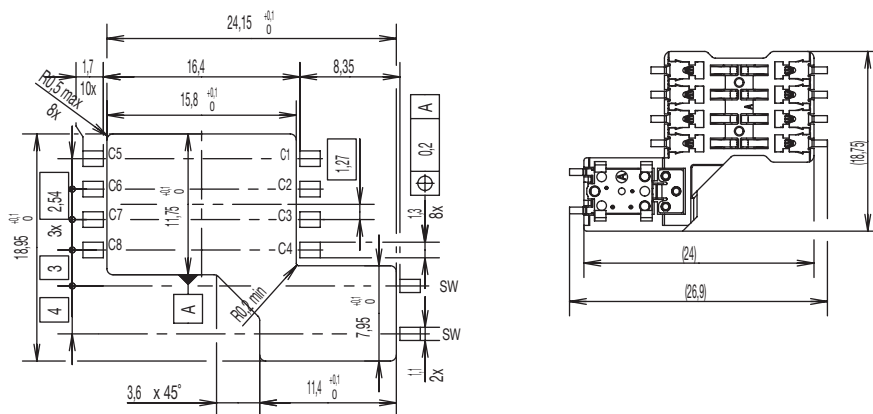


RECOMMENDED PC BOARD LAYOUT (Component side)



Full Size

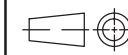
CCM04-5436 LFT



www.ckwitches.com

Full Size

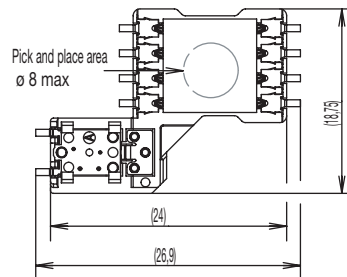
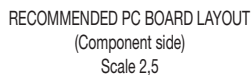
CCM04-5454 LFT

[illegible]

www.ckwitches.com

Full Size

CCM04-5455 LFT





C&K[®]



SIM / SAM Cards



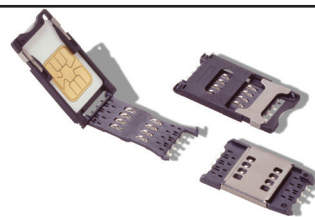
CCM03 MK2 Series

Features

- **SIM/SAM card acceptance**
- **Hinged and fixed covers**
- **Compatible with pick and place and lead free soldering**

Typical Applications

- **Handheld products**
- **Identification**
- **POS**
- **Automotive**



Mechanical

Number of Contacts	6 or 8
Mechanical life, hinged cover	10,000 cycles min
Mechanical life, fixed cover	50,000 cycles
Card insertion force	Hinged cover: 1N max Fixed cover: 3N max
Card extraction force	Hinged cover: 1N max Fixed cover: 0,80N min / 3N max
Contact force	0,25N min / 0,50N max
Slide locking force	2N min / 6N max 1,8N max. for complete depression
Vibration Frequency	10 to 500 Hz. Acceleration 50m/s ² Duration 6 hours - amplitude 0,35 mm

Contact Electrical Data

Insulation resistance	1,000 MΩ min
Resistance	100 mΩ max
Current rating	10 μA min / 1 A max
Dielectric strength	750 Vrms min

Switch Electrical Data

Card detection switch	Normally open
Contact resistance	100 mΩ max
Dielectric strength	250 Vrms min
Current rating	1 mA min / 10m A max
Maximum power	0.2 VA

Environment Data

Operating temperature	-40°C to +85°C
Damp heat	IEC 512 test number 11c (10 days)
Salt mist	IEC 512 test number 11f (96 hours)
RoHS compliant	

Soldering Process

Compatible with lead free SMT soldering process



Designation	Contact Plating	Cover	# of Contacts	PCB Version	Card Presence Switch	Operating Life	Total Height (mm)	Dim. (mm)	Packaging
CCM03-3001LFT	inlay	hinged	6		without	10,000	2,55	17,2 x 29,65	reels of 1,000 pcs
CCM03-3002LFT	inlay	hinged	6	2 plastic pegs	without	10,000	2,55	17,2 x 29,65	reels of 1,000 pcs
CCM03-3003LFT	inlay	hinged	8		without	10,000	2,55	17,2 x 29,65	reels of 1,000 pcs
CCM03-3004LFT	inlay	hinged	8	2 plastic pegs	without	10,000	2,55	17,2 x 29,65	reels of 1,000 pcs
CCM03-3009LFT	gold	hinged	6		without	10,000	2,55	17,2 x 29,65	reels of 1,000 pcs
CCM03-3010LFT	gold	hinged	6	2 plastic pegs	without	10,000	2,55	17,2 x 29,65	reels of 1,000 pcs
CCM03-3011LFT	gold	hinged	8		without	10,000	2,55	17,2 x 29,65	reels of 1,000 pcs
CCM03-3012LFT	gold	hinged	8	2 plastic pegs	without	10,000	2,55	17,2 x 29,65	reels of 1,000 pcs
CCM03-3013LFT	gold	hinged	6		with	10,000	2,55	17,2 x 29,65	reels of 1,000 pcs
CCM03-3013 TP LFT	gold	hinged	6		with	10,000	2,55	17,2 x 29,65	reels of 1,000 pcs
CCM03-3512LFT	gold	hinged	6	Large soldering pads*	without	10,000	2,55	17,2 x 29,65	reels of 1,000 pcs
CCM03-3504LFT	gold	fixed	8		without	50,000	2,85	17,2 x 25,5	reels of 1,000 pcs
CCM03-3505LFT	gold	fixed	6		without	50,000	2,85	17,2 x 25,5	reels of 1,000 pcs

* Can go through reflow upside down



6 Feb 19

Dimensions are shown in mm
Specifications and dimensions subject to change

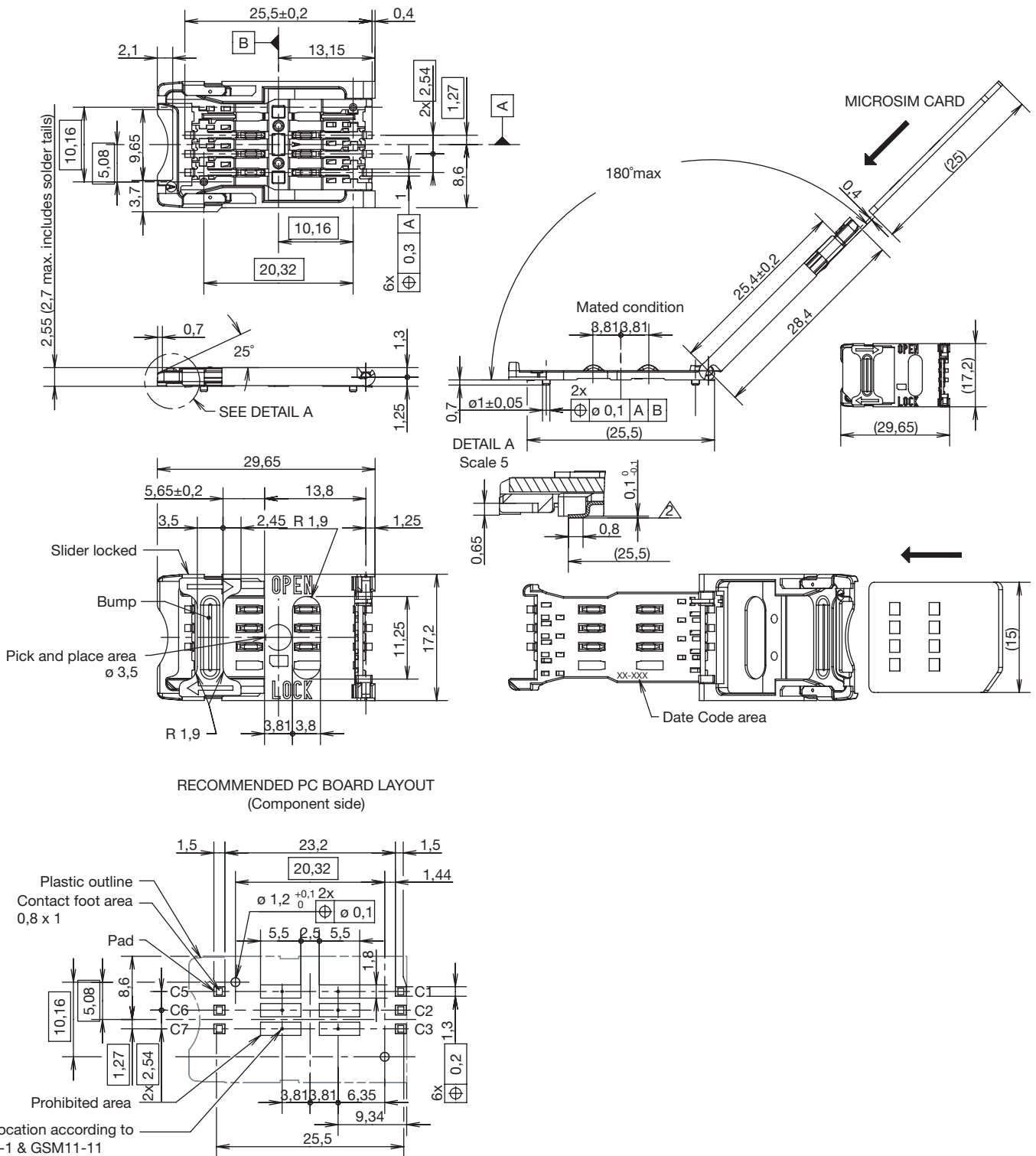
www.ckswitches.com

CCM03-3001 LFT / CCM03-3009 LFT



CCM03 MK2 Series

CCM03-3002 LFT / CCM03-3010 LFT

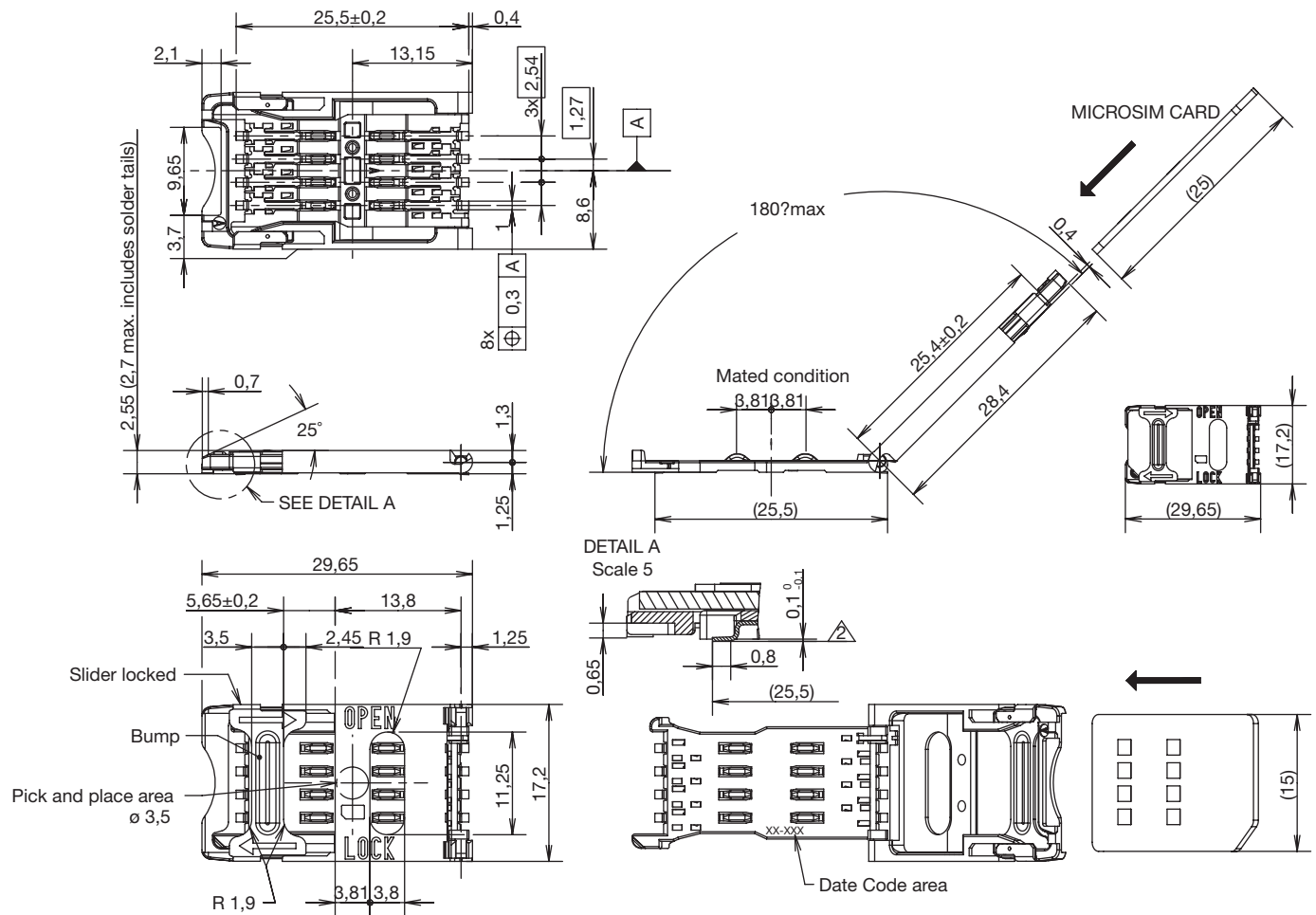


First Angle Projection

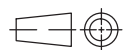
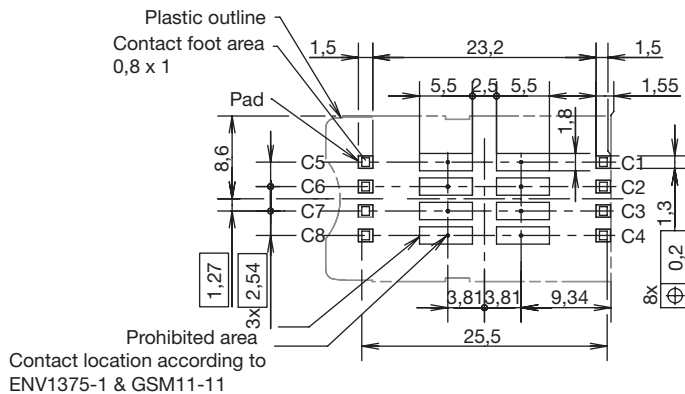
Dimensions are shown in mm
Specifications and dimensions subject to change

www.ckswitches.com

CCM03-3003 LFT



RECOMMENDED PC BOARD LAYOUT (Component side)



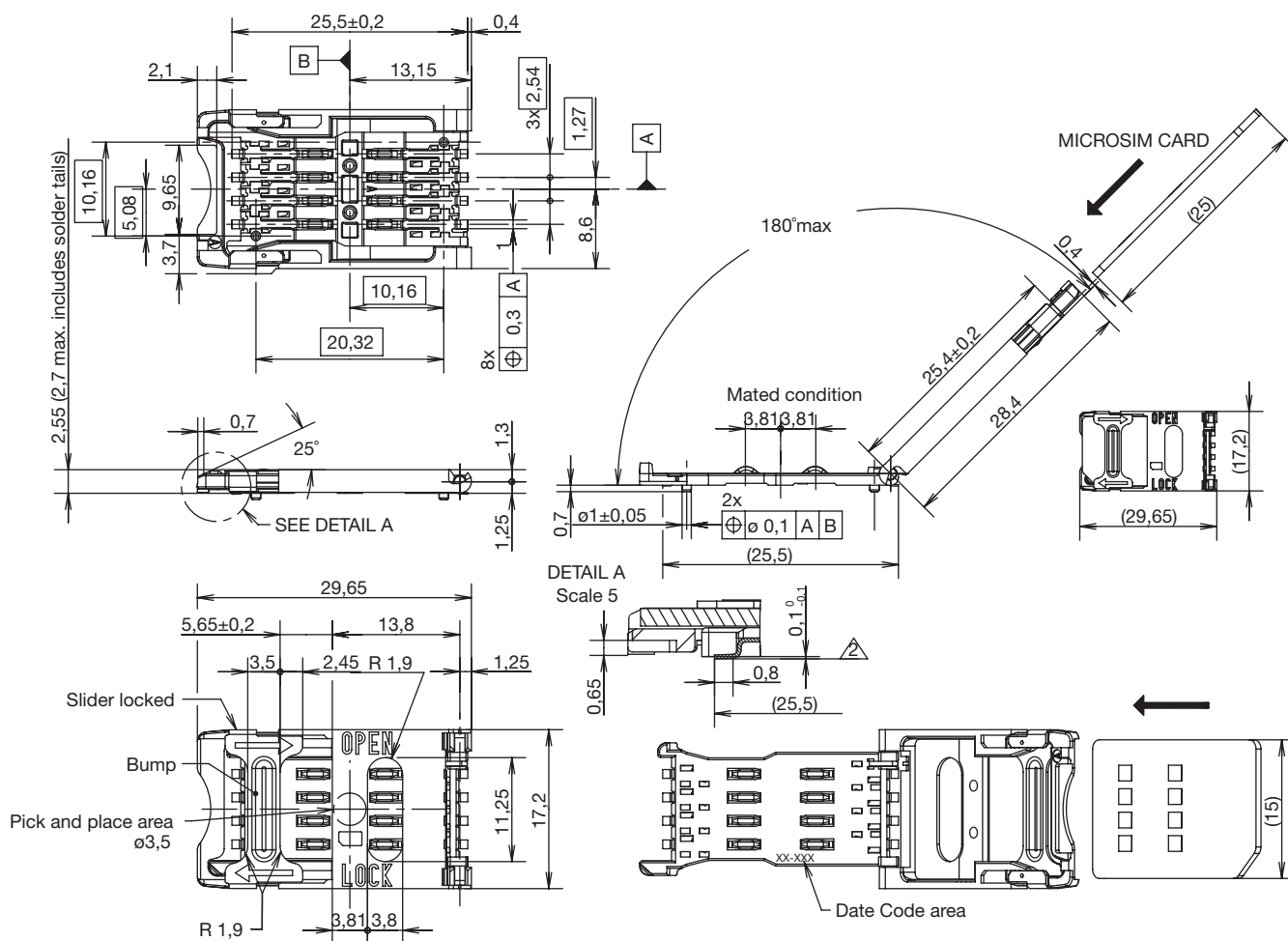
First Angle Projection

Dimensions are shown in mm
Specifications and dimensions subject to change

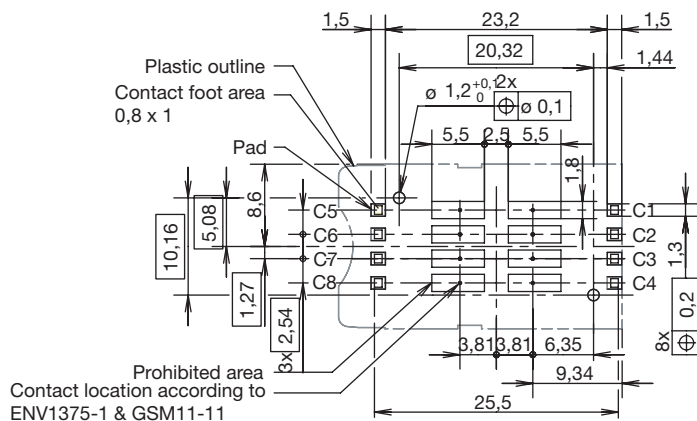
www.ckswitches.com

SIM/SAM

1000



RECOMMENDED PC BOARD LAYOUT (Component side)



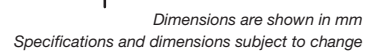
Dimensions are shown in mm
Specifications and dimensions subject to change

www.ckswitches.com

CCM03-3011 LFT



SIM/SAM

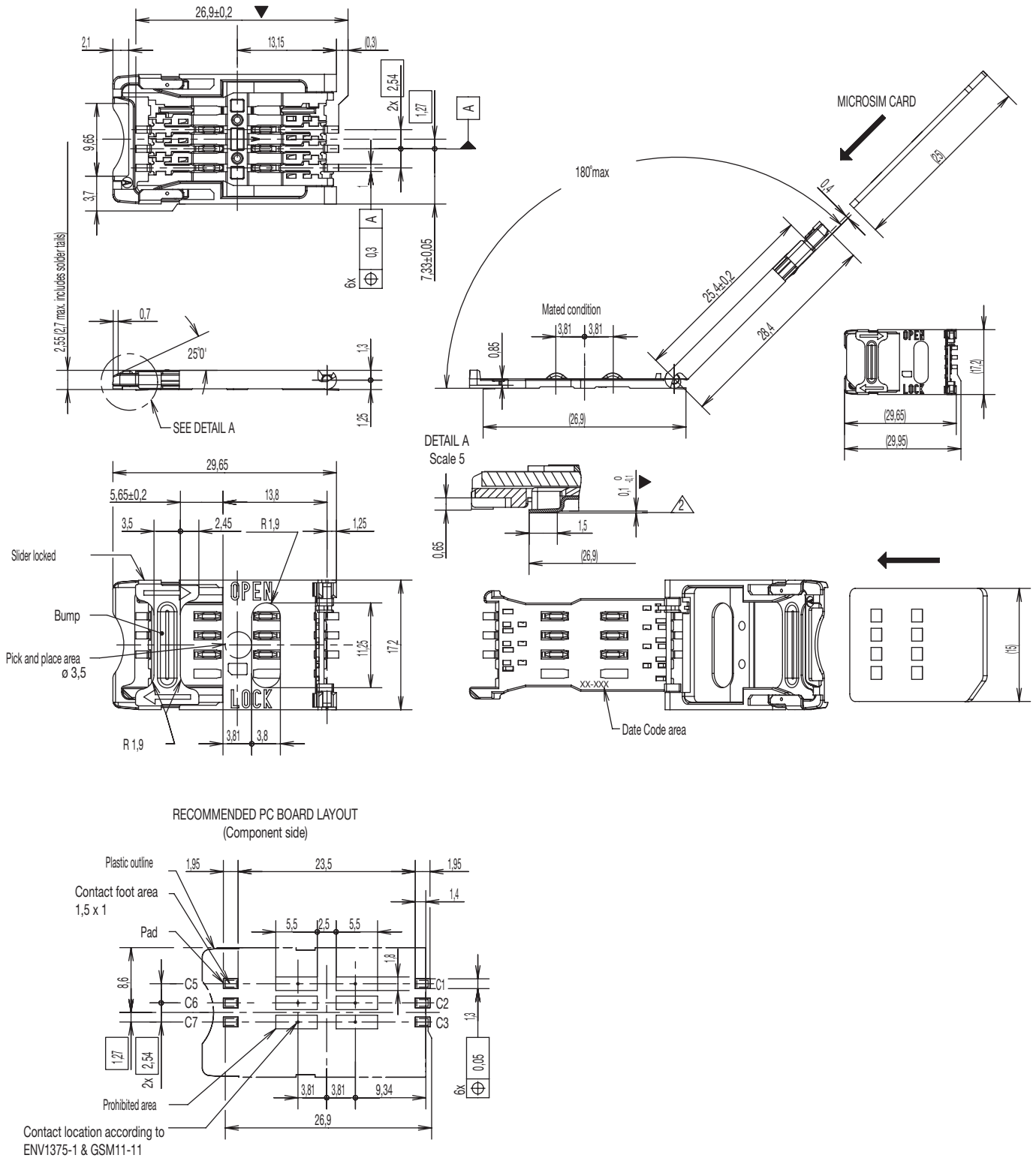
[illegible][illegible]

CCM03-3013 LFT & CCM03-3013 TP LFT



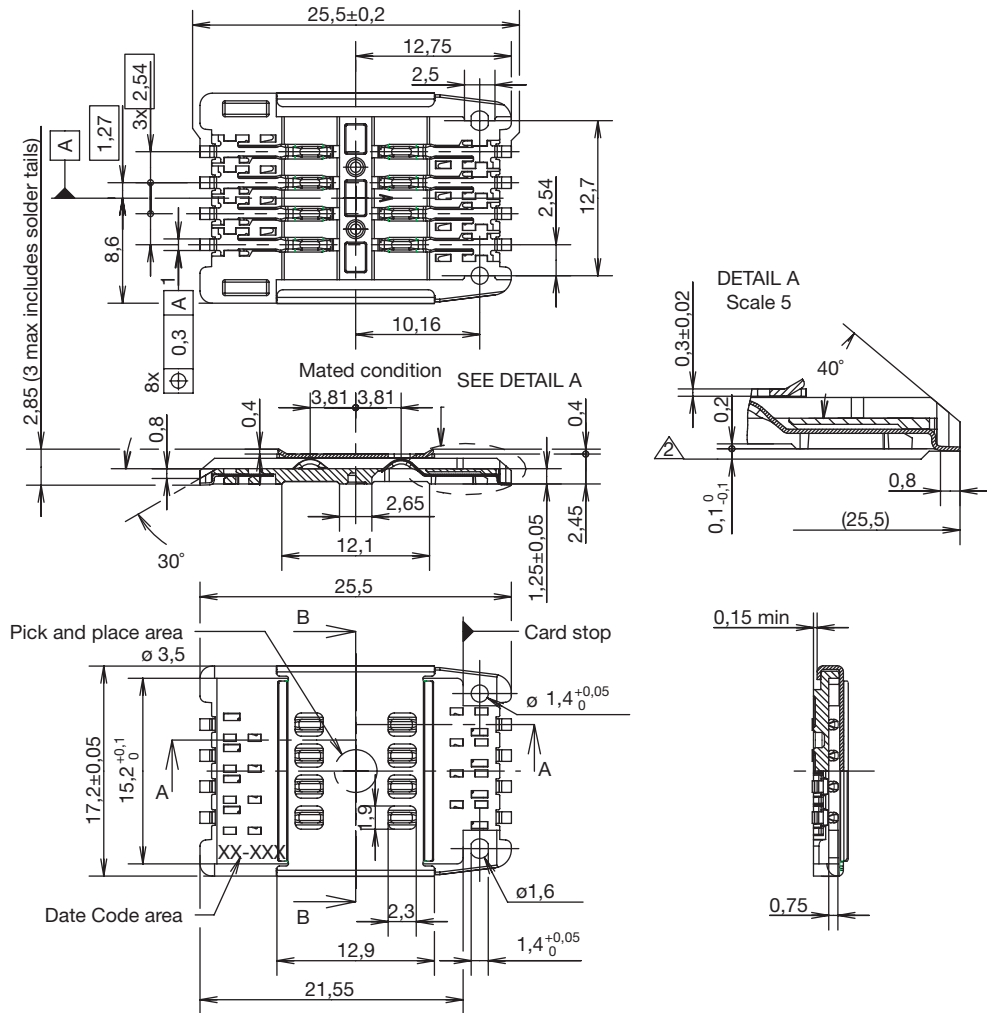
CCM03 MK2 Series

CCM03-3512 LFT

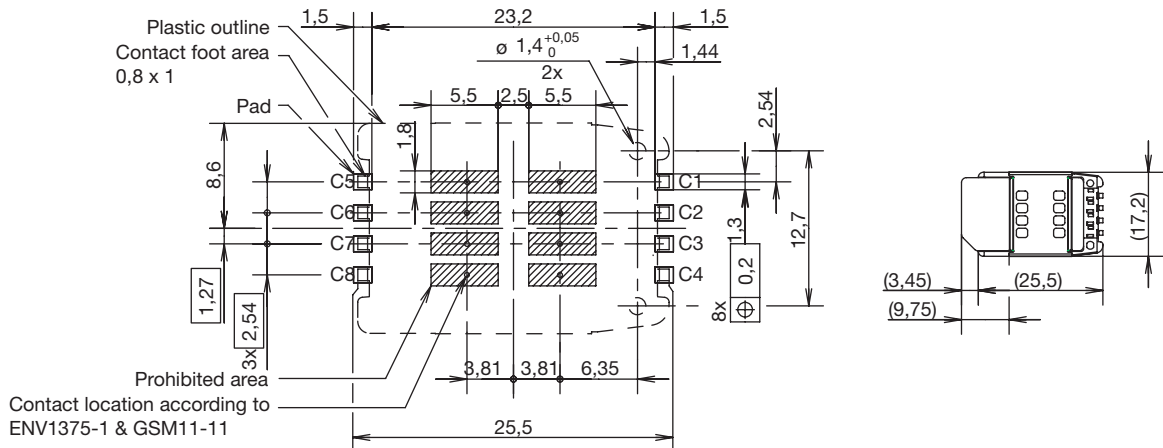


Dimensions are shown in mm
Specifications and dimensions subject to change

www.ckswitches.com



RECOMMENDED PC BOARD LAYOUT
(Component side)



CCM03 MK3 Series

Features

- **SIM/SAM card acceptance**
- **Fixed covers**
- **Compatible with pick and place and lead free soldering**

Typical Applications

- **Handheld products**
- **Identification**
- **POS**
- **Automotive**



Mechanical

Number of Contacts	6
Mechanical life, fixed cover	50,000 cycles
Card insertion force	Fixed cover: 3N max
Card extraction force	Fixed cover: 0,80N min / 3N max
Contact force	0,25N min / 0,50N max
Slide locking force	1,8N max. for complete depression
Vibration Frequency	10 to 500 Hz. Acceleration 50m/s ² Duration 6 hours - amplitude 0,35 mm
Max electrical discontinuity	1µs
Shock	Peak value 500 m/s ² – Duration 11 ms 3 shocks in each direction of each axis

Contact Electrical Data

Insulation resistance	1,000 MΩ min
Resistance	100 mΩ max
Current rating	10 µA min / 1 A max
Dielectric strength	750 Vrms min

Switch Electrical Data

Card detection switch	Normally open
Contact resistance	100 mΩ max
Dielectric strength	250 Vrms min
Current rating	1 mA min / 10m A max
Maximum power	0.2 VA

Environment Data

Operating temperature	-40°C to +85°C
Damp heat	IEC 512 test number 11c (10 days)
Salt mist	IEC 512 test number 11f (96 hours)
RoHS compliant	

Soldering Process

Compatible with lead free SMT soldering process



Designation	Contact Plating	Cover	# of Contacts	PCB Version	Card Presence Switch	Operating Life	Total Height (mm)	Dim. (mm)	Packaging
CCM03-3754LFT	inlay	fixed	6		with	10,000	3,5	16,5 x 18,05	reels of 1,000 pcs
CCM03-3760LFT	inlay	fixed	6		without	10,000	3,45	16,5 x 15,85	reels of 1,000 pcs
CCM03-3764LFT	inlay	none	6		with	10,000	2,9	16,5 x 15,85	reels of 1,000 pcs

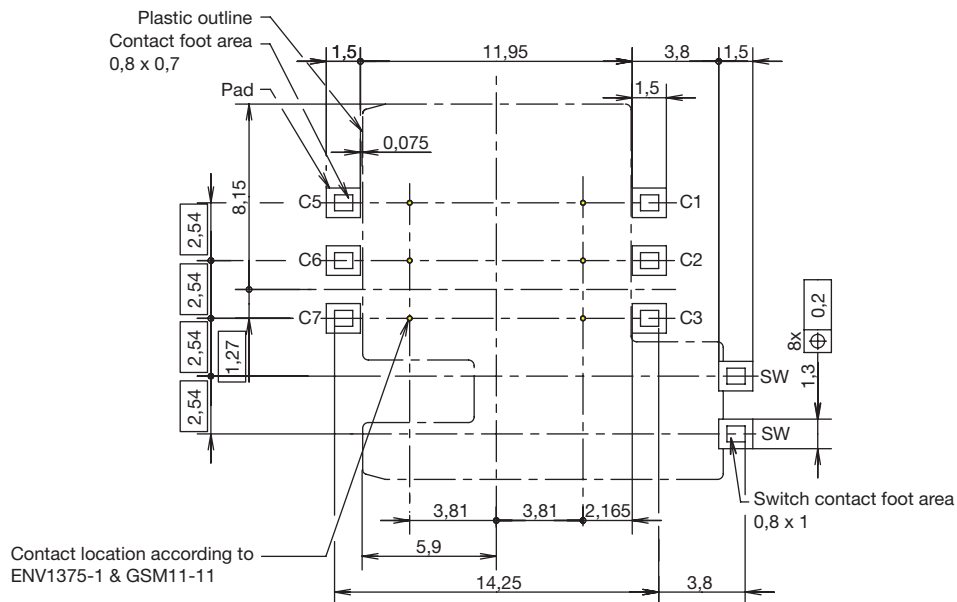
* Can go through reflow upside down

CCM03-3754 LFT

CCM03-3754 LFT

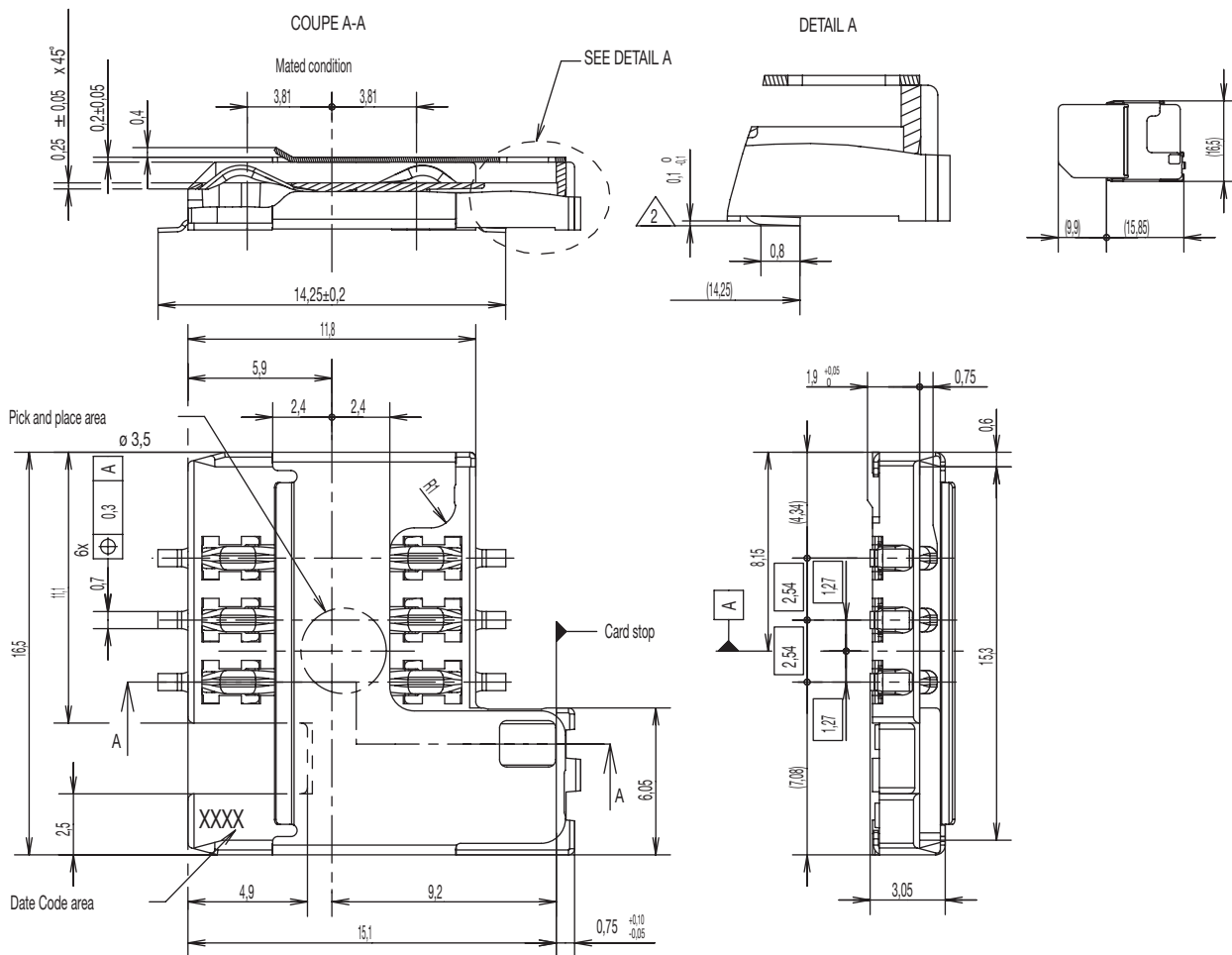


RECOMMENDED PC BOARD LAYOUT (Component side)

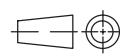
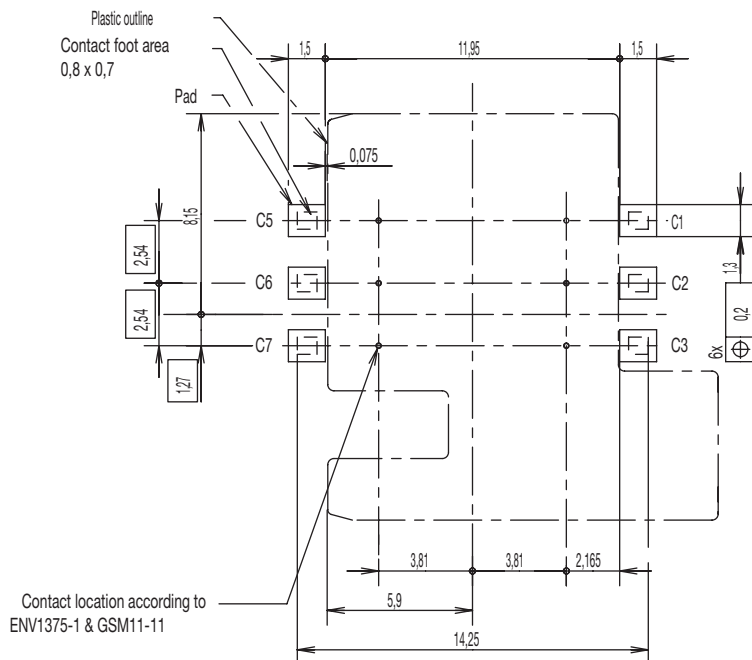


CCM03 MK3 Series

CCM03-3760 LFT



RECOMMENDED PC BOARD LAYOUT
 (Component side)



First Angle
 Projection

Dimensions are shown in mm
 Specifications and dimensions subject to change

www.ckswitches.com

