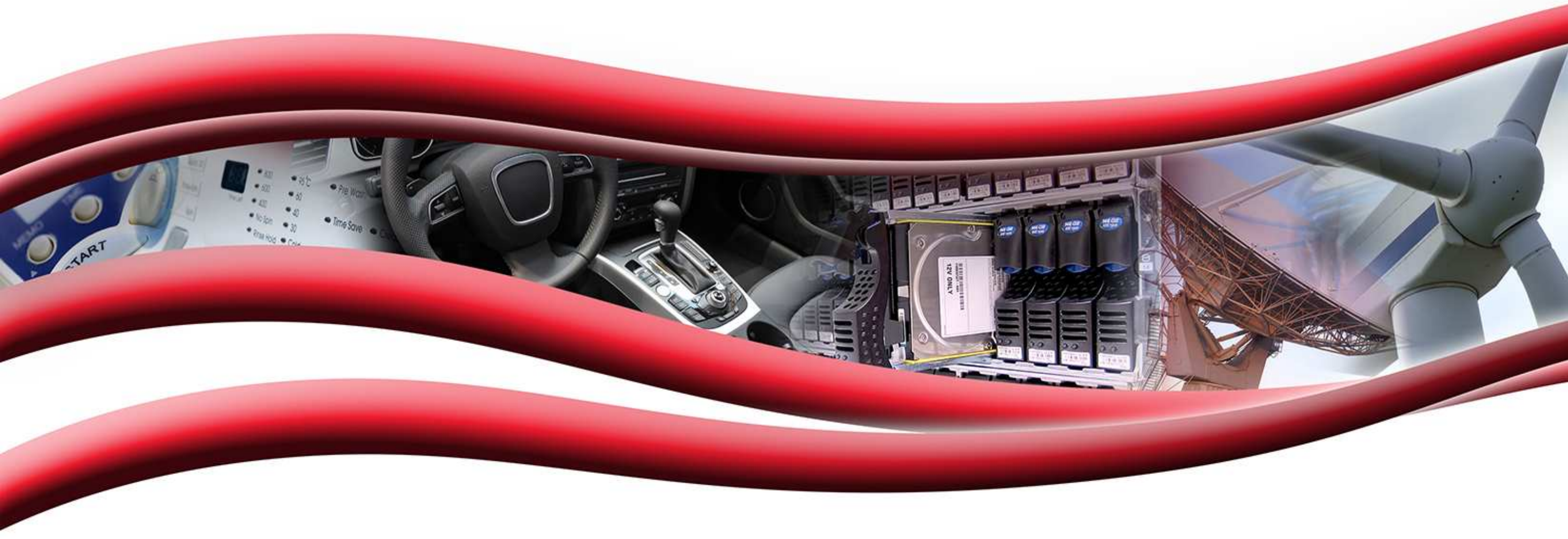
C&K Switches Catalog

Pushbutton
Tactile
Navigation
Keyswitch
Detect
Toggle
Rocker
Dip
Slides
Snap
Rotary
Rotary (Encoder)
Switchlock
Thumbwheel
Smartcard Connector



Pushbutton
Product Selection Guide

Pushbutton									
Series	**ELUM**	**EP**	**TP**	**E020**	**8020**	**E010**	**8060**	**8500**	**KM**
Switch Type	Mom./ Latching	Tiny	Tiny	Snap-acting Mom.	Snap-acting Mom.	Miniature	Alternate Action	Sub-miniature	Sub-miniature
Poles/Throws	SPDT	SPST, SPDT, DPST	SPST, SPDT, DPST	SPDT, DPDT	SPDT, DPDT, 3PDT, 4PDT	SPDT	SPDT, DPDT	SPST	SPST, SPDT
Max. Current	3.5 VA	1 Amp	1 Amp	1 Amp	1 Amp	4 Amps	6 Amps	3 Amps	1 Amp
Process Sealed		•		•		•			
Illuminated	•				•		•	•	
PCB Mount Options									
Thru-hole	•	•	•	•	•	•	•	•	•
Vertical		•	•	•	•	•	•	•	•
Right Angle	•	•	•	•	•	•	•	•	•
Surface Mount	•	•							
Panel Mount			•		•	•	•	•	•
Page No.	A-4	A-9	A-15	A-21	A-29	A-46	A-52	A-62	A-67

Pushbutton							
Series	**8600**	**8700**	**GP**	**PN**	**PHB**	**F**	**NE-18**
Switch Type	Micro-miniature	Over Travel	Ultra-miniature	Alternate & Mom. Action	Short Stroke	Alternate & Mom. Action	Mains / Power
Poles/Throws	SPST	SPST	SPST, SPDT	SPDT, DPDT, 4PDT	DPDT, 4PDT	DPDT, 4PDT, 6PDT, 8PDT, 10PDT	DPST, DPDT Varied
Max. Current	500 mA	1 Amp	0.4 VA	200 mA	100 mA	500 mA	6 A
Process Sealed			•				
PCB Mount Options							
Thru-hole	•	•	•	•	•	•	•
Vertical	•	•	•				
Right Angle			•	•	•	•	•
Surface Mount			•				
Panel Mount	•	•				•	•
Page No.	A-71	A-74	A-77	A-81	A-84	A-87	A-96

Pushbutton
Product Selection Guide

Pushbutton								
Series	**FP**	**AP**	**APB**	**HP**	**NP**	**PBA**	**PB**	**PS**
Switch Type	Ultra Miniature	Industrial	Industrial	Hall Effect	Sealed Power	Snap-acting Mom.	Miniature	Sub-miniature Microminiature
Poles/Throws	SPST	SPST	SPST	Linear Output	SPDT	DPST	DPDT 4PDT	SPDT DPDT
Max. Current	0.4 VA	400mA	400mA	10 mA	5 Amp	250mA	0.3A / 1A	0.1 / 1A 0.3 / 2A
Process Sealed	•	IP67	IP67	IP68	IP68			
PCB Mount Options								
Thru-hole	•	•	•		•	•	•	•
Vertical	•	•	•	•	•			•
Right Angle	•					•	•	•
Panel Mount		•	•	•	•			•
Wire Leads		•	•	•	•			
Solder Lug		•	•					
Surface Mount								
Quick Connect								
Page No.	A-105	A-108	A-114	A-118	A-120	A-127	A-131	A-139

ELUM™ Series
Right Angle Illuminated Latching Pushbutton

LEAD FREE COMPATIBLE OPTION

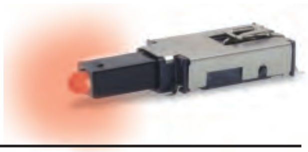
Features/Benefits

- *SPDT (N.O. & N.C.)*
- *Low height above PCB*
- *Reliable self-cleaning contact*
- *Surface-mount or thru-hole PCB*
- *Standard or custom actuator*
- *Central LED illumination*
- *Latching or Momentary*
- *Long travel. Smooth feel*
- *RoHS compliant and compatible*

Typical Applications

- *Telecom network equipment*
- *Automotive electronics*
- *Consumer electronics*
- *Computer, server, modem, data storage*
- *Professional instrumentation, medical*

Patent Numbers
6,974,924 B2 US
EP1583118B1 Europe



Materials

FIXED CONTACTS: Stainless steel, silver plated with gold flash
TERMINALS: Stainless steel, silver plated
MOVABLE CONTACTS: Copper alloy, silver plated with gold flash
BASE: Glass filled LCP (UL94V-0)
ACTUATOR: Glass filled nylon 4/6 (UL94V-0)
COVER: Stainless steel

Electrical

MAXIMUM POWER: 3.5 VA
MIN./MAX. VOLTAGE: 20 mV – 50 VDC
MIN./MAX. CURRENT: 0.01 mA – 250 mA
DIELECTRIC STRENGTH: ≥ 250 Vrms
CONTACT RESISTANCE: ≤ 50 mΩ
INSULATION RESISTANCE: ≥ 10^9 Ω
BOUNCE TIME: ≤1 ms
LED SPECIFICATIONS: See page A-5

Mechanical

OPERATING FORCE: 2.5 N at Full Travel
SWITCHING TRAVEL: .067" (1.7 mm)
LATCH TRAVEL: .131" (3.6 mm)
FULL TRAVEL: .200" (5.1 mm)

Operating Environment

OPERATING TEMPERATURE: -40°C TO 80°C.
STORAGE TEMPERATURE: -40°C TO 80°C.
RELATIVE HUMIDITY: 90% R.H. @ 80°C.
OPERATING LIFE: 30,000 Cycles.
VIBRATION: Per EIA 186-E Method
MECHANICAL SHOCK: Per EIA 186-E Method 12.
OVERLOAD: Withstands 40 N for 1 minute without damage

Process Environment

SOLDERABILITY: According to Mil STD 202F Method 208D or EIA RS-186E Method 9.
LEAD FREE PROCESS COMPATIBLE: 260°C peak, 10 seconds Max. above 250° C.
WASHING PROCESS: No clean process compatible (SMT) Bottom wash compatible (Thru-hole)
SHEAR TEST (SWITCH/PCB): > 40 N

Packaging

"SA" Terminal Style SMT: Tape and reel per EIA 481-2 (450/reel)
"TH" Terminal Style PC: Tray (60/tray)

NOTE: Any models supplied with Q, contact material are RoHS compliant.

NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, please contact Customer Service.

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box.

E L U M – ☐☐ – ☐☐ – Q – ☐ – ☐☐☐

Designation
ELUM ELUM Series

Switch Function
OA Momentary
OC*** Momentary short travel
EE Latching (push-push)

Terminal Style
TH Right Angle, PC thru-hole
SA Right Angle, surface mount

Contact Material*
Q Silver with gold flash

Illumination
(NONE) Models without illumination
1 LED White
2 LED Bi-color – Red (Green)
3 LED Red
5 LED Amber
6 LED Green
7 LED Blue
8 LED Bi-Color – Amber (Green)

Actuator Style**
C02 Black without window
C12 Black with window
C22 Black with window and snap feature for custom actuators

* Other plating options available, please contact Customer Service.
** Custom actuators available, please contact Customer Service.
*** Short travel available in momentary only.

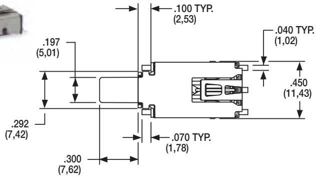
Third Angle Projection

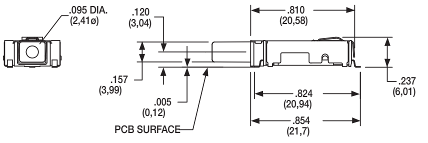
ELUM™ Series
Right Angle Illuminated Latching Pushbutton

STANDARD OPTIONS

ELUMEESAQ7C12

SURFACE MOUNT

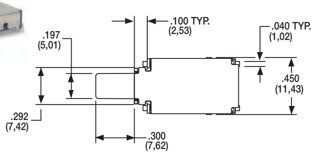


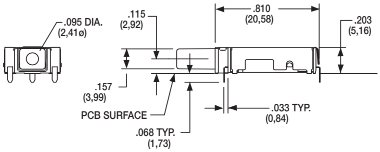


ACTUATOR SHOWN EXTENDED POSITION

ELUMOATHQ6C12

PC THRU-HOLE

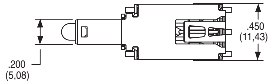


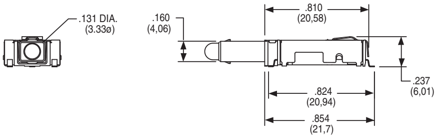


ACTUATOR SHOWN EXTENDED POSITION

ELUMEESAQ3C22

SURFACE MOUNT



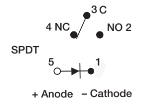


ACTUATOR SHOWN EXTENDED POSITION

DESIGNATION E L U M ☐☐–☐☐–☐–☐–☐☐☐

ELUM ELUM SERIES, Illuminated Latching Pushbutton

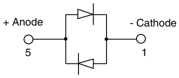
SWITCH FUNCTION ■■■■–☐☐–☐☐–☐–☐–☐☐☐

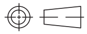
OPTION CODE	NO. OF POLES	POSITION 1 SWITCH FUNCTION	POSITION 1 CONNECTED TERMINALS	POSITION 2 SWITCH FUNCTION	POSITION 2 CONNECTED TERMINALS	SCHEMATIC
OA / OC	SP Momentary	ON	3 – 4	ON (Mom.)	3 – 2	SPDT 
EE	SP Latching (Push-Push)	ON	3 – 4	ON	3 – 2	

For SPST N.O. function, only terminals 3 & 2 are used.
For SPST N.C. function, only terminals 3 & 4 are used.
Circuit: Make before break

LED pins 1 & 5 are independent of switch function.

NOTE:
For bi-color LED's the polarity must be reversed to alternate the color



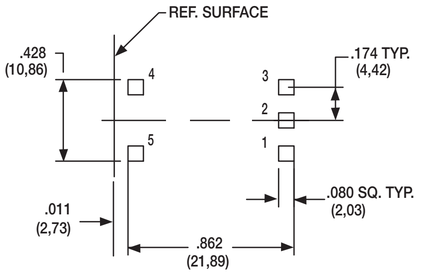


Third Angle Projection

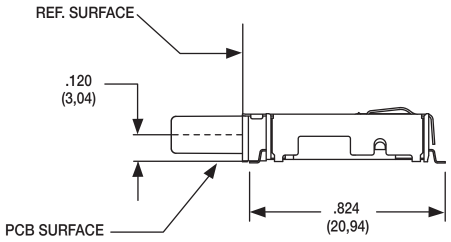
ELUM™ Series
Right Angle Illuminated Latching Pushbutton

TERMINAL STYLE

SA RIGHT ANGLE, SURFACE MOUNT

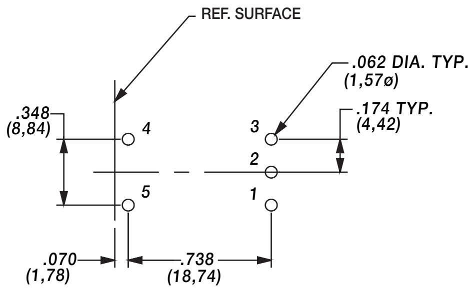


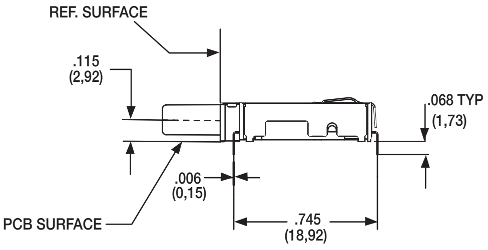
PCB MOUNTING



Terminal 5 = LED Anode

TH RIGHT ANGLE, PC THRU-HOLE





Terminal 5 = LED Anode

CONTACT MATERIAL

OPTION CODE	CONTACT MATERIAL	TERMINAL PLATING	RATINGS
Q	SILVER WITH GOLD FLASH	SILVER	250 mA

* Note: See Technical Data section of this catalog for RoHS compliant and compatible definitions and specifications.

FIXED CONTACTS AND TERMINALS: Stainless steel, silver plated with gold flash
MOVABLE CONTACTS: Copper alloy, silver plated with gold flash

NOTE: Any models supplied with Q, contact material are RoHS compliant.

ILLUMINATION

OPTION CODE	ILLUMINATION TYPE	TYPICAL INTENSITY* MIN	MAX	PEAK WAVELENGTH	Vf Forward Voltage
		(mcd)		(nm)	
0	Model without illumination	N/A		N/A	
1	LED Super White	4,000	5,000	N/A	3.5
2	LED Bi-Color – Red (Green)	10	20	635/565	2.0
3	LED Red	4	8	700	2.0
5	LED Amber	35	50	610	2.0
6	LED Green	35	50	565	2.0
7	LED Super Blue	800	1,500	470	3.8
8	LED Bi-Color – Amber (Green)	10	10	585/565	2.0

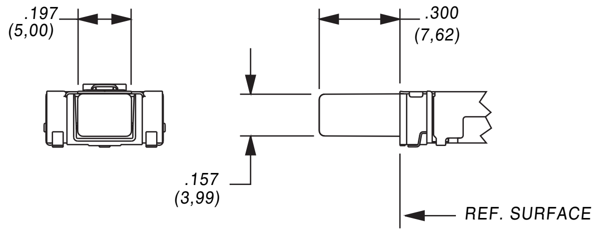
*LED FORWARD CURRENT: 20 mA
LED FORWARD VOLTAGE: see chart above
LED REVERSE VOLTAGE: 5.0 V MAX

* For information on specific and custom LED, please contact Customer Service.

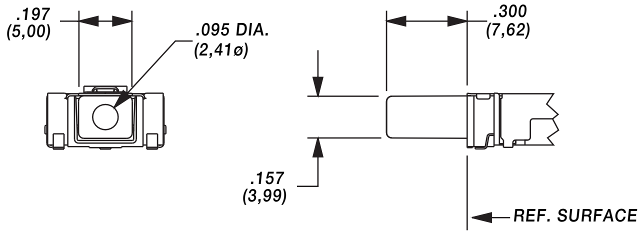
Third Angle Projection

ACTUATOR STYLE*

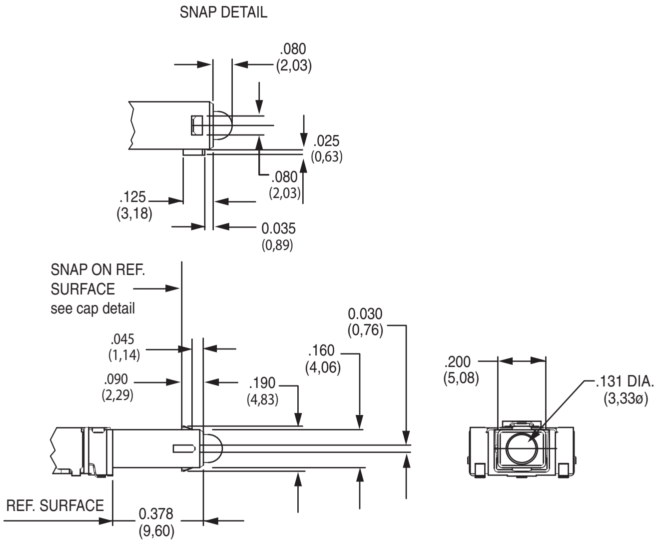
C02 BLACK WITHOUT WINDOW



C12 BLACK WITH WINDOW

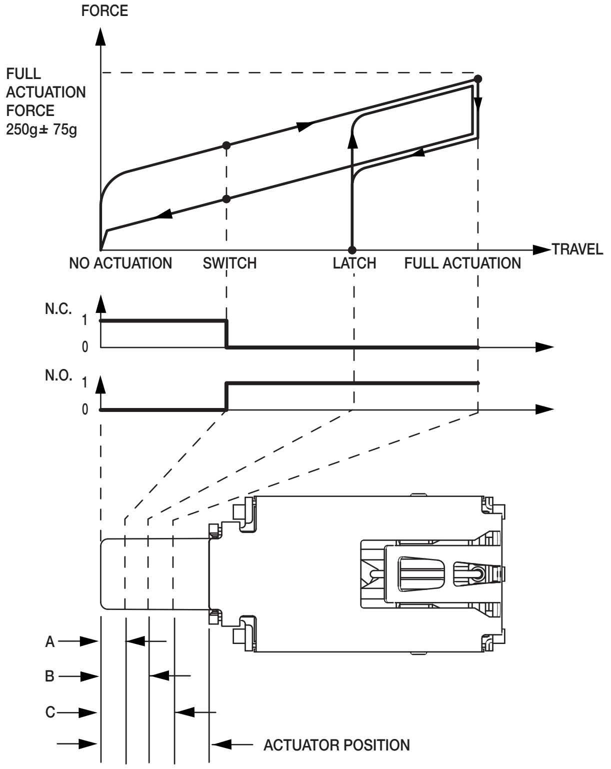


C22 BLACK WITH WINDOW AND SNAP FEATURE TO ACCEPT CUSTOM CAP



* Custom actuators available, please contact Customer Service.

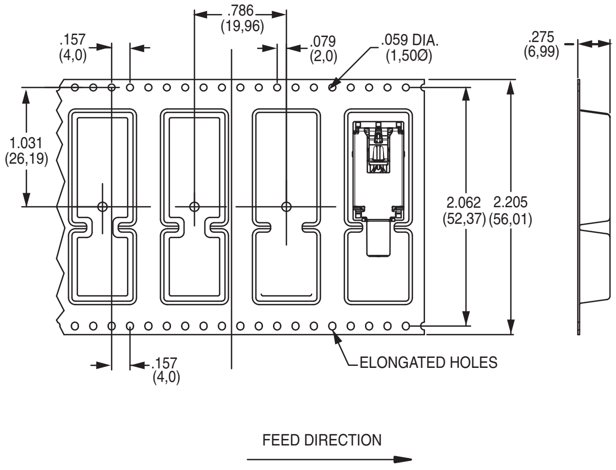
FORCE TRAVEL DIAGRAM



	OA, EE	**ACTUATOR POSITION**	
A	SWITCH POINT	.067 ±.020	1,7 ± 0.5mm
B	LATCH	.131 ±.020	3,3 ± 0.5mm
C	FULL ACTUATION	.200 ±.020	5,1 ± 0.5mm

	OC	**ACTUATOR POSITION**	
A	SWITCH POINT	.067 ±.020	1,7 ± 0.5mm
C	FULL ACTUATION	.098 ±.020	2,5 ± 0.5mm

TAPE & REEL



Third Angle
Projection

ELUM™ Series
Right Angle Illuminated Latching Pushbutton

AVAILABLE HARDWARE

Cap

PART NO.

957C00000 High temperature black cap with universal standby symbol

956C02000 High temperature black cap with no symbol

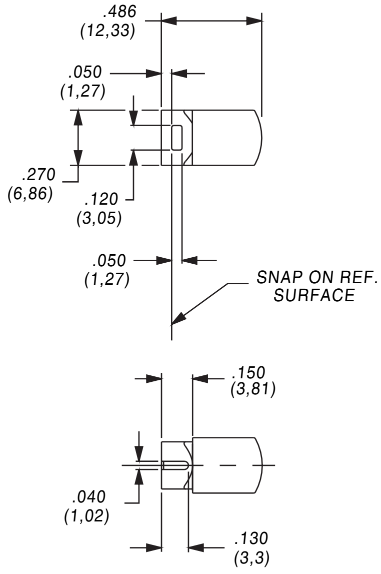
Material: 4/6 Nylon SMT compatible

Cap

PART NO.

181D01000 Paint and Laser Etched with black paint and universal standby symbol

Material: Clear polycarbonate



Cap

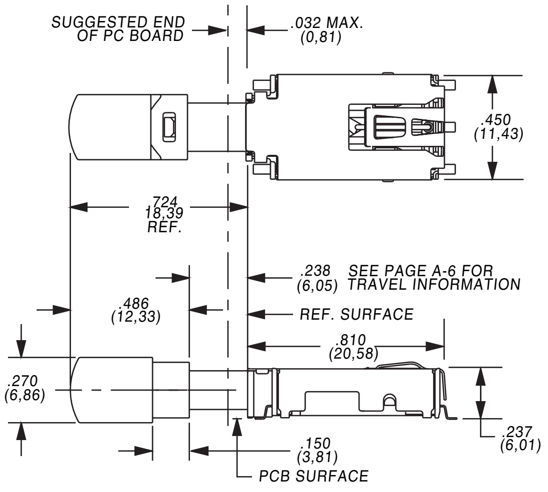
PART NO.

181D00000 Paint and laser etched with white paint underlay and black paint with universal standby symbol.

Material: Clear polycarbonate

NOTE: Caps are for use with the C22 actuator style. Other colors and symbols available, consult Customer Service Center.

CAP INSTALLATION



VIEW WITH 957C CAP INSTALLED

Third Angle
Projection

Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

EP Series
Sealed Tiny Pushbutton Switches

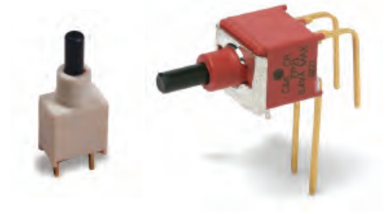
Features/Benefits

- ***Sealed against solder & cleaning processes***
- ***Thru-hole and surface mount models***
- ***Snap-fitting actuator accepts standard caps***
- ***Tape & reel packaging available***
- ***RoHS compliant models available***

Models Available

Typical Applications

- ***Telecommunications and networking equipment***
- ***Computers and peripherals***
- ***Instrumentation and controls***



Specifications

CONTACT RATING: B contact material: 0.4 VA max. @ 20 V AC or DC max. See page A-13 for additional ratings.

ELECTRICAL LIFE: EP11, EP21 models: 60,000 make-and-break cycles at full load. EP12 models: 30,000 cycles.

CONTACT RESISTANCE: Below 20 mΩ typ. initial @ 2-4 V DC, 100 mA, for both silver and gold plated contacts.

INSULATION RESISTANCE: 10^9 Ω min.

DIELECTRIC STRENGTH: 1000 Vrms min. @ sea level.

OPERATING TEMPERATURE: –30ºC to 85ºC.

SOLDERABILITY: Per MIL-STD-202F method 208D, or EIA RS-186E method 9 (1 hour steam aging).

DEGREE OF PROTECTION: IP57; Protection against harmful dust deposit, full-scale voltage protection, temporary immersion.

PACKAGING: Surface mount switches standard in anti-static tape and reel packaging per EIA 481-3, see page A-14 for drawings and reel information. Tape and cover strip are conductive for use near statically sensitive components, consult Customer Service Center.

Materials

CASE & BUSHING: High temperature material, glass filled nylon 4/6, flame retardant, heat stabilized (UL 94V-0) on EP11 / EP12 models; glass filled nylon 6/6 on EP21.

PLUNGER: Thermoplastic polyester or glass filled nylon (UL 94V-0), with internal o-ring seal. SA surface mount: High temperature material, glass filled LCP (UL 94V-0).

SWITCH SUPPORT: Brass, matte-tin plated.

CONTACTS & TERMINALS: B contact material: Copper alloy, with gold plate over nickel plate. See page A-13 for additional contact materials.

TERMINAL SEAL: Epoxy.

NOTE: Any models supplied with Q, B, P, S, R or G contact material are RoHS compliant.

NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

CAUTION: PC mounting layouts and pads as shown are designed to be compatible with the latest equipment and reflow techniques. Care should be taken in the design and location of PC lands to suit individual needs. Orientation relative to reflow direction may significantly impact solder joint integrity.

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages A-10 thru A-14. For additional options not shown in catalog, consult Customer Service Center. All models are process sealed to withstand machine soldering temperatures and pressure wash cleaning methods.

Switch Function

EP11	SPST Off-Mom.
EP12	SPDT On-Mom.
EP21	DPST Off-Mom.

Plunger

S	.215" high
S1	.110" high
S2	.465" high
FP	Flush
R	Snap-fitting, .215 high

Bushing

D1	Unthreaded

Terminations

A	Right angle, PC thru-hole
C	PC Thru-hole
AV	Vertical right angle, PC thru-hole
AV3	Vertical right angle, snap-in, PC thru-hole
SA	Right angle, surface mount
SA1	Right angle, surface mount rear facing
V3	Vertical mount, v-bracket
V31	Vertical mount, v-bracket, snap-in (EP11 & EP12 only)
W	Wire wrap

Contact Material

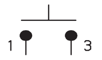
B	Gold
P	Gold, matte-tin
Q	Silver
S	Silver, matte-tin
G	Gold over silver
R	Gold over silver, matte tin

Seal

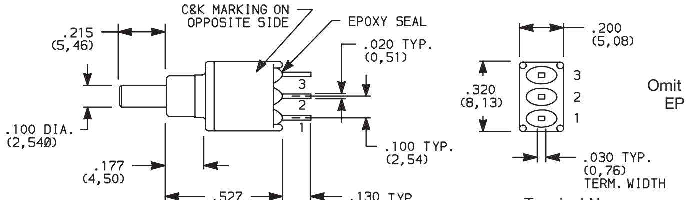
E	Epoxy

EP Series
Sealed Tiny Pushbutton Switches

SWITCH FUNCTION

NO. POLES	MODEL NO.	SWITCH FUNCTION POS. 1	SWITCH FUNCTION POS. 2	CONNECTED TERMINALS POS. 1	CONNECTED TERMINALS POS. 2	SCHEMATIC
		C&K marking on opposite side		C&K marking on opposite side		
SP	**EP11**	OFF	MOM.	OPEN	1-3	SPST 
	EP12	ON	MOM.	2-1	2-3	SPDT 

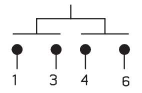
SPDT



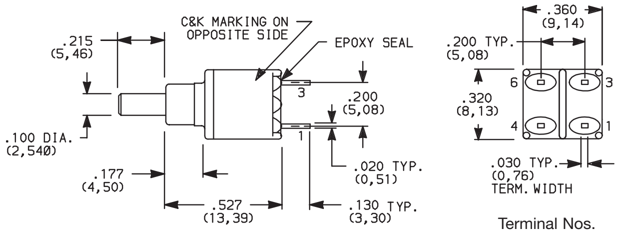
Omit terminal 2 for EP11 models.

Terminal Nos.
For Reference Only

Part number shown: EP12SD1CBE

NO. POLES	MODEL NO.	SWITCH FUNCTION POS. 1	SWITCH FUNCTION POS. 2	CONNECTED TERMINALS POS. 1	CONNECTED TERMINALS POS. 2	SCHEMATIC
DP	**EP21**	OFF	MOM.	OPEN	1-3,4-6	DPST 

DPST



Terminal Nos.
For Reference Only

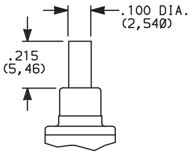
Part number shown: EP21SD1CBE

MOM. = Momentary

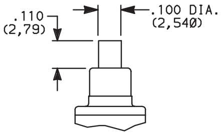
All models cULus with all options when ordered with G, Q, R or S contact material.

PLUNGER

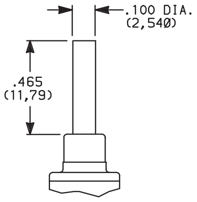
S .215" HIGH



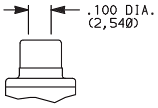
S1 .110" HIGH



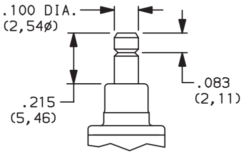
S2 .465" HIGH



FP FLUSH PLUNGER



R SNAP-FITTING



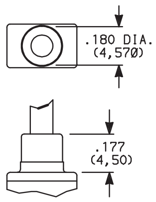
S1& S2 actuators are not available with EP12 & EP21 models.

FP & R actuators are not available with EP21 model.

NOTE: Caps available for plunger options, see page A-14.

BUSHING

D1 UNTHREADED



NOTE: Internal actuator o-ring standard.

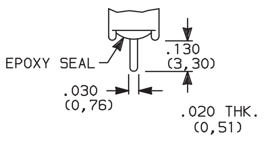
Third Angle Projection

Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

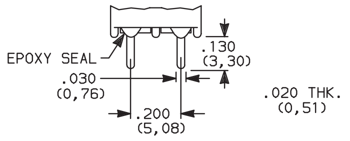
TERMINATIONS

C PC THRU-HOLE

SP

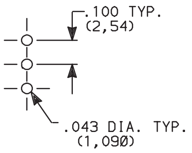


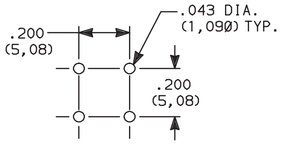
DP



PC MOUNTING

EP11 - Omit center hole.

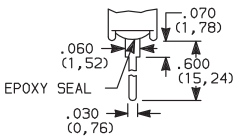




SP and DP

W WIRE WRAP

SP



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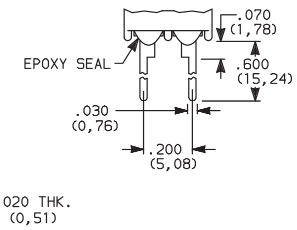
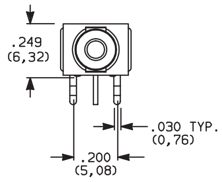
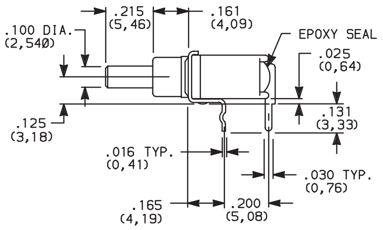
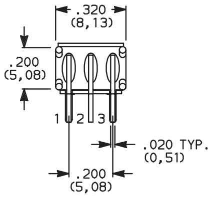


SP and DP

A RIGHT ANGLE, PC THRU-HOLE

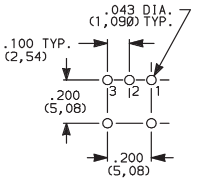






EP11 Models: omit terminal 2.

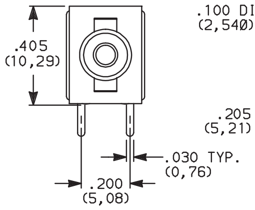
PC MOUNTING

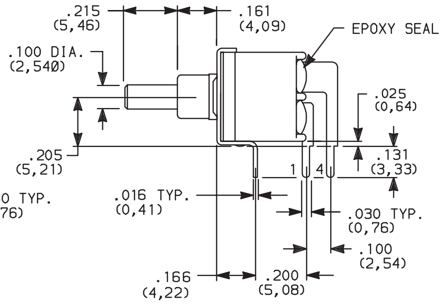


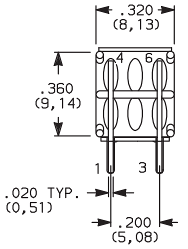
EP11 Models: omit thru-hole 2.

EP12SD1ABE
SPDT

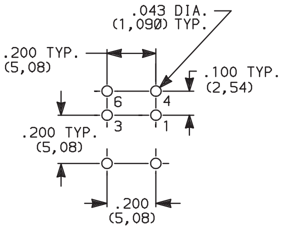
A RIGHT ANGLE, PC THRU-HOLE

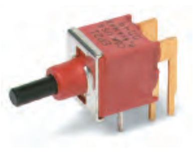






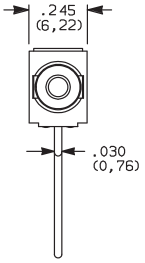
PC MOUNTING

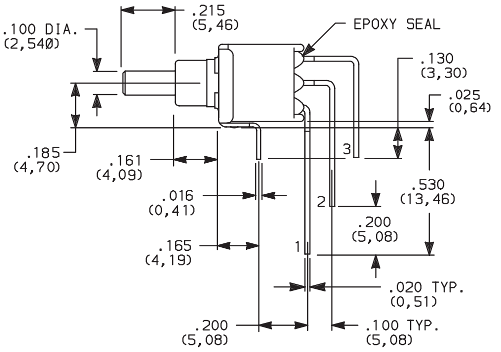


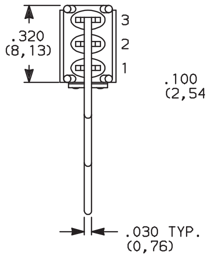


EP21SD1ABE
DPST

AV VERTICAL RIGHT ANGLE, PC THRU-HOLE

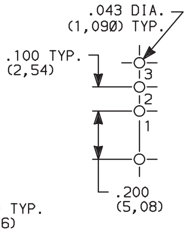






EP11 Models: omit terminal 2.

PC MOUNTING



EP11 Models: omit hole 2.

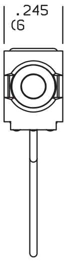
EP12SD1AVBE
SPDT

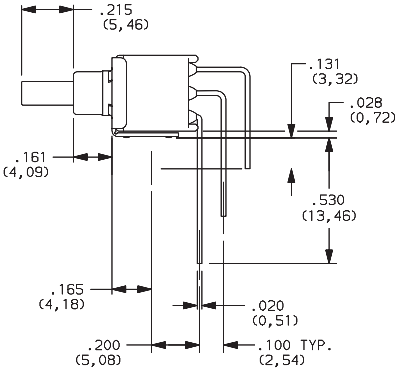
NOTE: Terminal bend radii and lead-in manufacturing option.

Third Angle Projection

Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

TERMINATIONS





CCM01 MK2 Series

Features

- ***Operating life up to 100,000 cycles***
- ***40N card insertion force***
- ***EMV***
- ***PCI ready***
- ***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 / 0,50 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 30 parts / Cartons 300 parts
Reel 200 parts / Cartons 1,000 parts

Soldering

Compatible with lead free SMT reflow soldering process

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

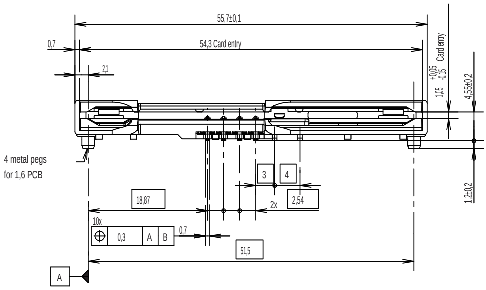
Operating temperature	-40°C to +85°C
Damp heat	IEC 512 test number 11c (10 days)
Salt mist	IEC 512 test number 11f (96 hours)
Card detection switch	Sealed against dust
RoHS compliant	

Designation	Termination	Operating Life	Card Insertion Force
CCM01-2027LFT	SMT	100,000 cycles	40N

C&K

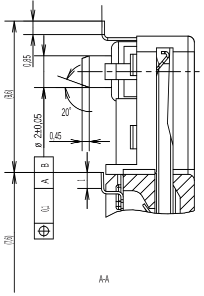
CCM01 MK2 Series

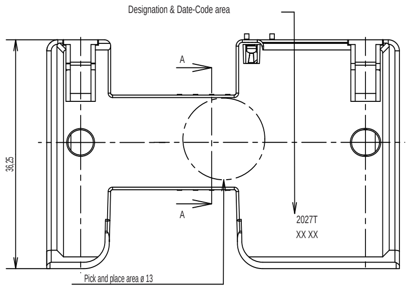
CCM01-2027 LFT

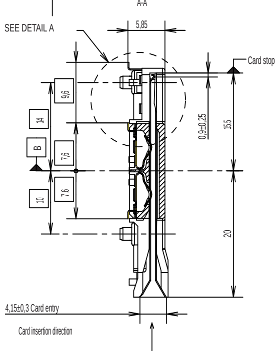


DETAIL A

Scale 5

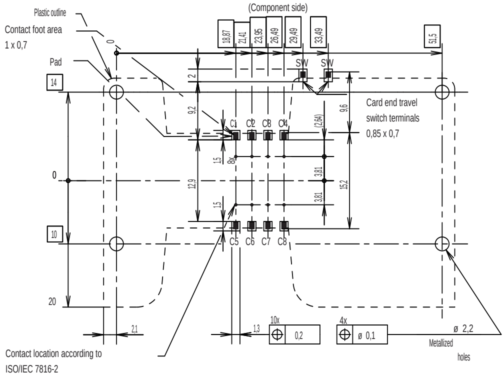


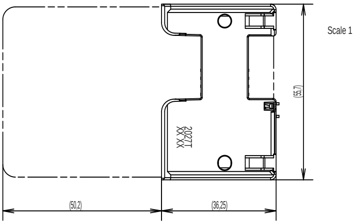




RECOMMENDED PC BOARD LAYOUT

(Component side)





CCM01 MK5 Series

Full Size

Features/Benefits

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

Typical Applications

- ***Transaction***
- ***Identification***
- ***POS***
- ***MPOS***

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 µA 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 ☐ ☐ ☐ L F T ☐ ☐ ☐ ☐ ☐

Cover Material

5	Plastic, 4.0 mm height
6	Metal, 3.2 mm height
7	Plastic, I/0

Contact Tail on PCB

0	Short, recessed (best for PCI)
1	Long (accessible, easy rework)
2	Long + 2 metal pegs (40 N overload)
3	Short, no pegs

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)

Lead Free RoHS

LFT	Tin plated termnals

Packaging

T25	Pack tray 25 parts
R351	Pack reel 350 parts

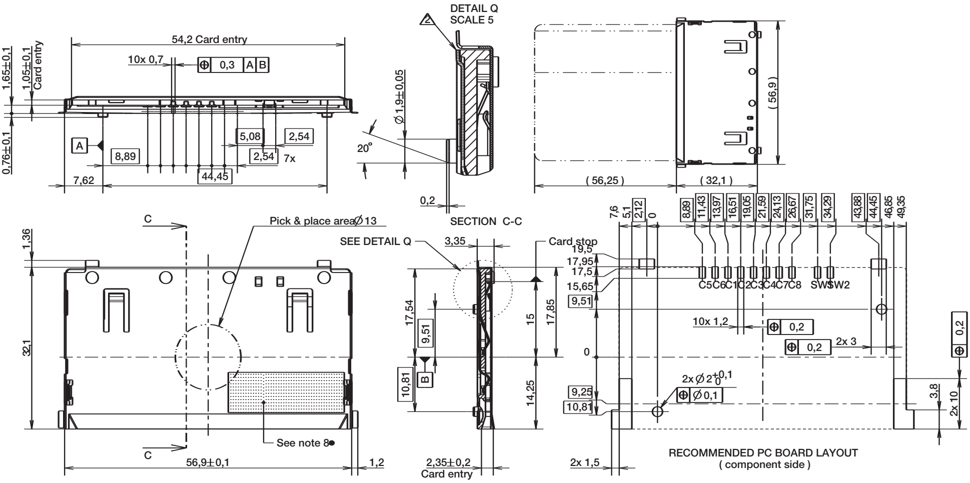
NONE	Leave blank
AE	only applicable with metal pegs option (CCM01-2x2x)

First Angle Projection

CCM01 MK5 Series

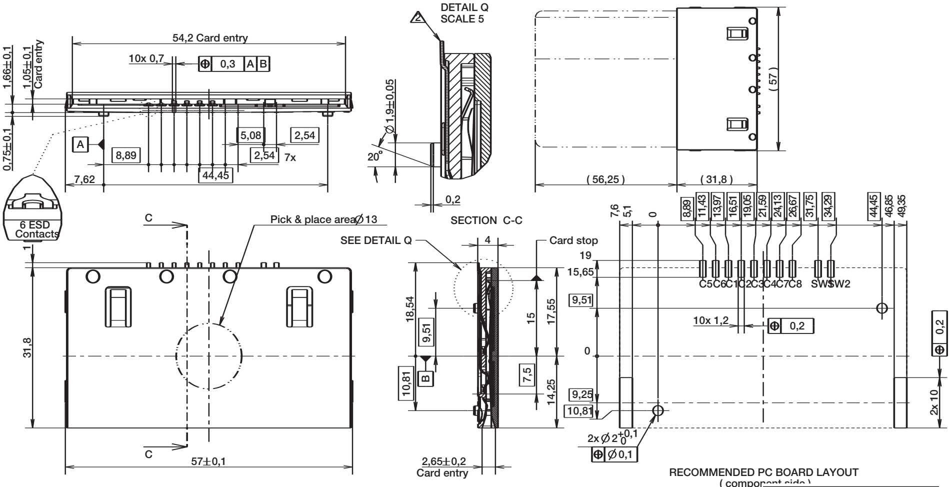
CCM01-2604 LFT T25

Metal cover, short tails



CCM01-2513 LFT T25

Plastic cover, long tails, full ESD protection

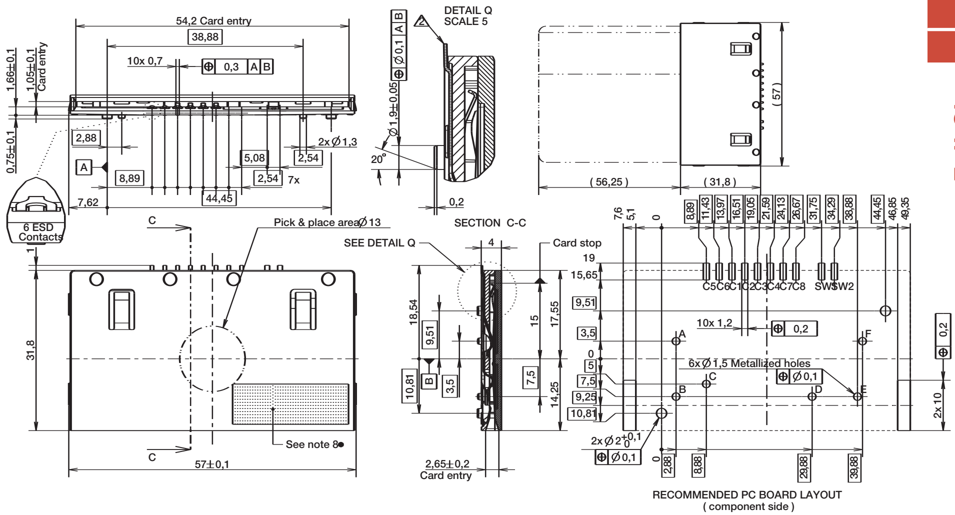


First Angle Projection

Dimensions are shown in mm
Specifications and dimensions subject to change

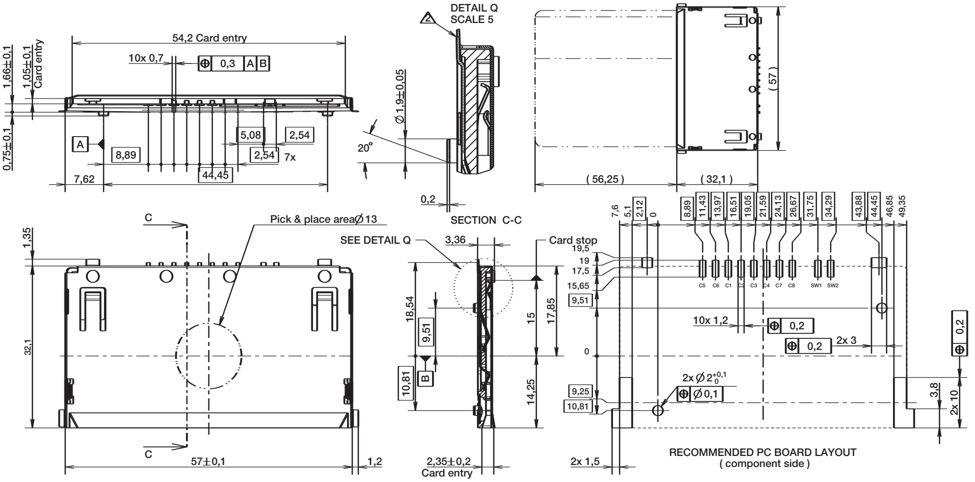
CCM01-2523 LFT T25

Plastic cover, long tails, metal pegs



CCM01-2614 LFT T25

Metal cover, long tails, no ESD protection



First Angle Projection

Dimensions are shown in mm

Specifications and dimensions subject to change

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				
Designation	**Termination**	**Contact Type**	**I/O Protect**	**Security Cover**	**Total Height (mm)**	**Dimension**	**PCB version**
CCM02-2503LFT	THT	landing			6,25	38,5 X 55,6	4 clips
CCM02-2504LFT	SMT	landing			6,25	38,5 X 55,6	4 clips
CCM02-F503LFT	THT	friction			6,25	38,5 X 55,6	4 clips
CCM02-F504LFT	SMT	friction			6,25	38,5 X 55,6	4 clips
CCM02-F844LFT	SMT	friction	Yes	Yes	6,6	40,5 X 58	4 metal pegs

Dimensions are shown in mm
Specifications and dimensions subject to change

PCI: I/O Protect

Definition

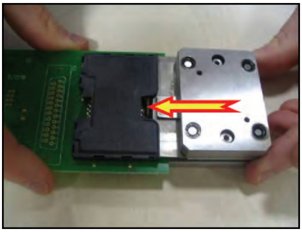
Special accessory in order to avoid and detect frontal access to data contact. It is electrically connected to the PCB through spring finger contacts.

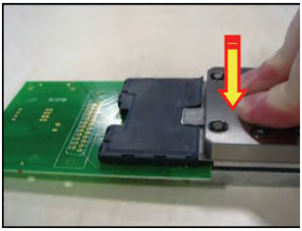
Process

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

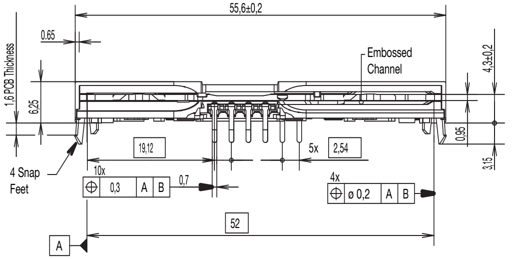
It is a multilayer cover placed over the connector to avoid and detect data contact access, especially from the top. It is connected to the PCB through 6 SMT terminals that are soldered at the same time as the other smart card terminals.

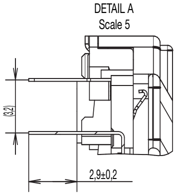
Process

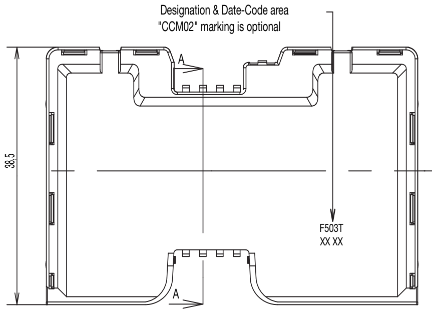
Please contact your Sales Representative for advice and recommendations about soldering this version.

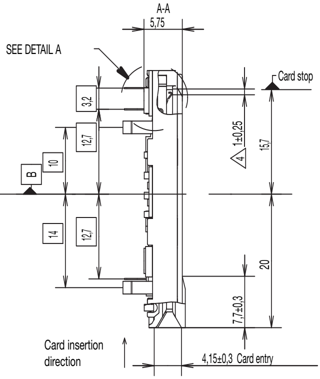
CCM02 MK2 Series

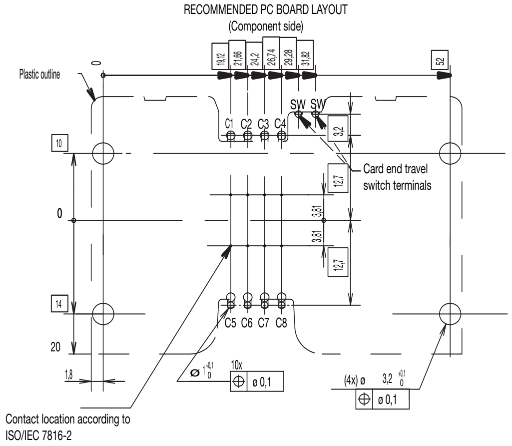
CCM02-2503 LFT / CCM02-F503 LFT

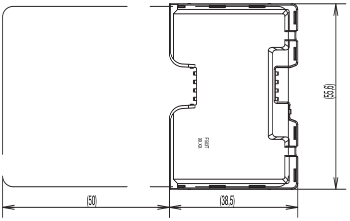








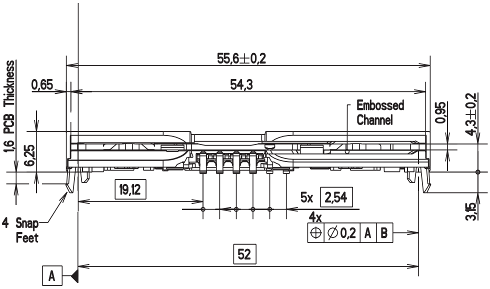


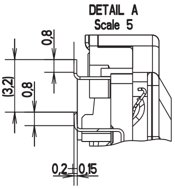


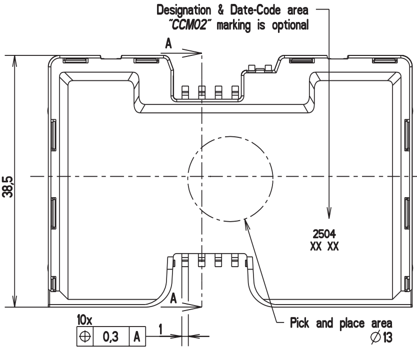
First Angle Projection

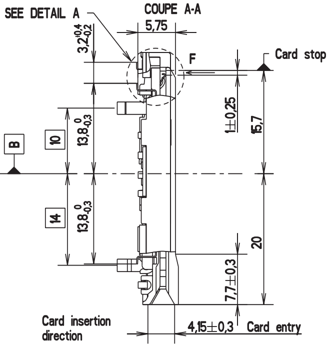
Dimensions are shown in mm
Specifications and dimensions subject to change

CCM02-2504 LFT / CCM02-F504 LFT



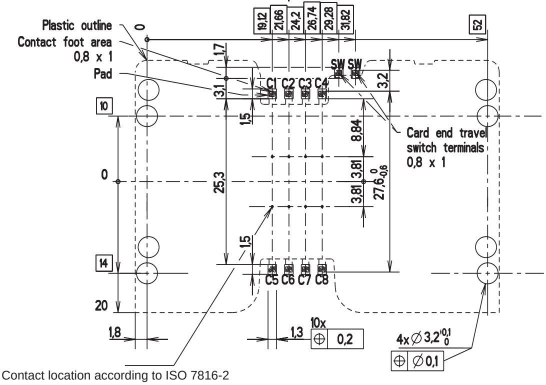




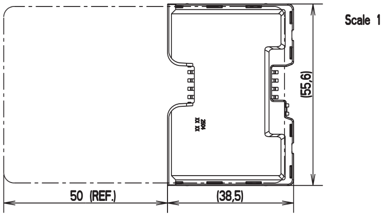


RECOMMENDED PC BOARD LAYOUT

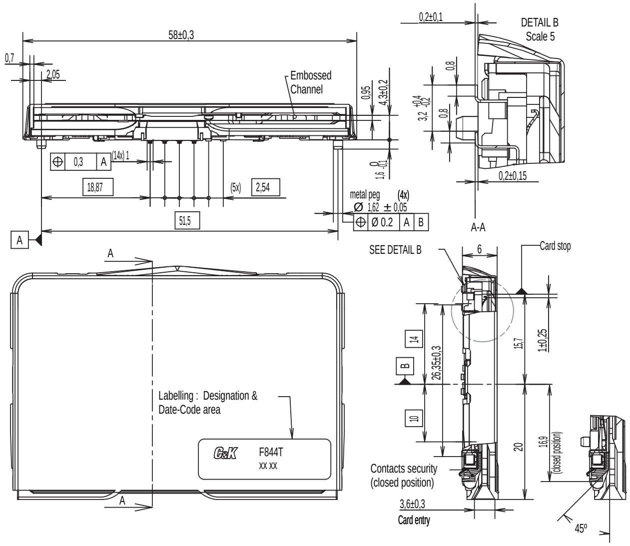
(Component side)

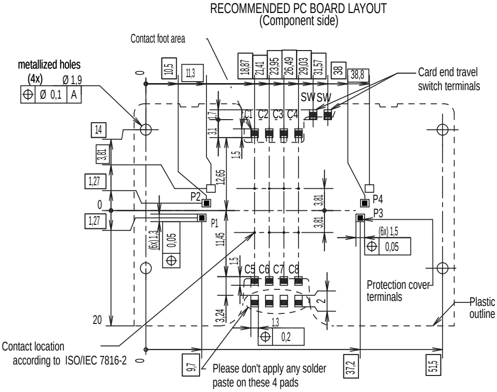


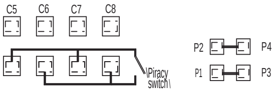
Contact location according to ISO 7816-2

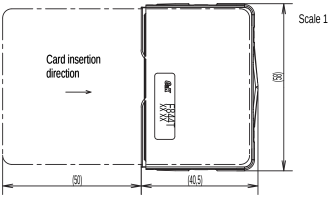


CCM02-F844A LFT / CCM02-F844B LFT









First Angle Projection

Dimensions are shown in mm
Specifications and dimensions subject to change

CCM04 MK4 Series

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	

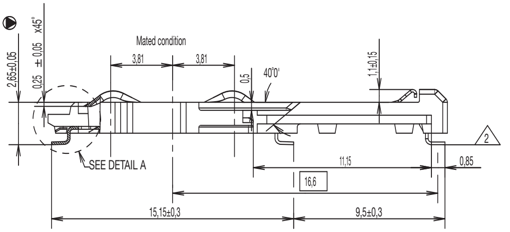
Designation	Housing Type	# of Contacts	Contact Force	Total Height (mm)	Total Dim. (mm)	Packaging
CCM04-5427LFT	standard	8	0,4N to 0,7N	2,65	18,75 X 25	reels of 1,000 pcs
CCM04-5436LFT	standard	8	0,4N to 0,7N	0,90	18,75 X 26,9	reels of 1,000 pcs
CCM04-5468LFT	stand-off	8	0,4N to 0,7N	3,5	18,75 X 24	reels 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

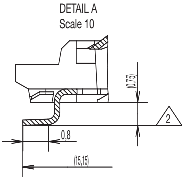
Dimensions are shown in mm
Specifications and dimensions subject to change

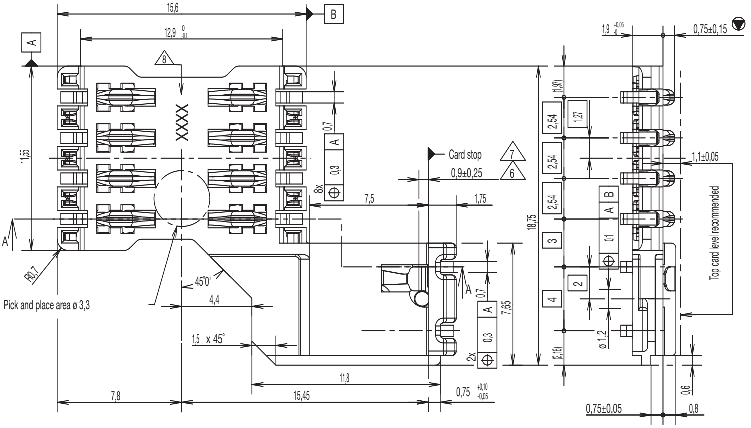
CCM04 MK4 Series

CCM04-5427 LFT

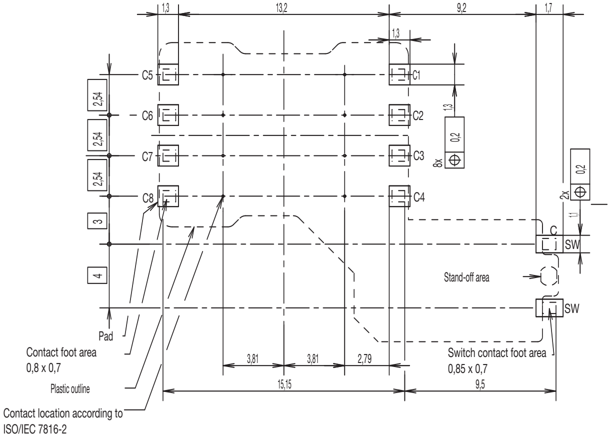
Full Size

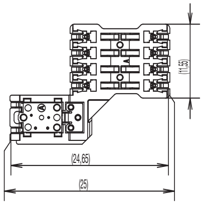




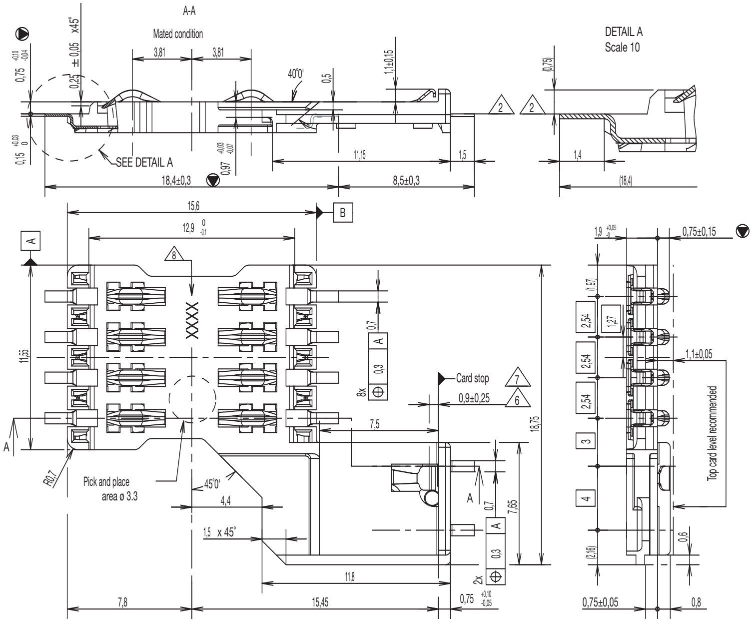


RECOMMENDED PC BOARD LAYOUT
(Component side)

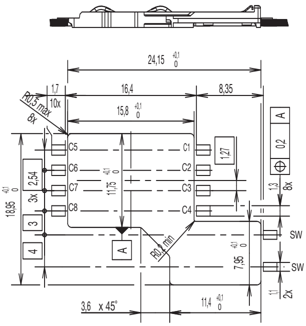


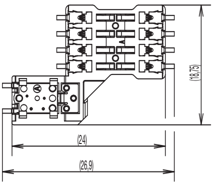


CCM04-5436 LFT



RECOMMENDED PC BOARD LAYOUT
(Component side)

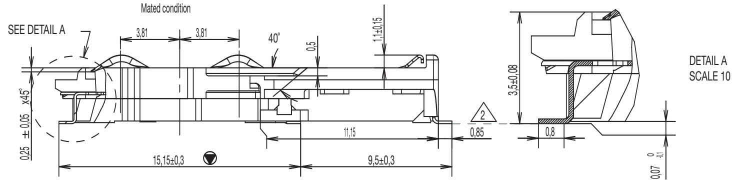


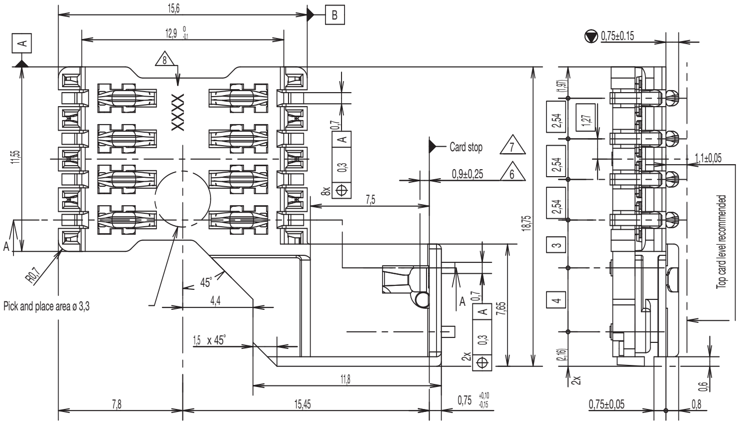


First Angle
Projection

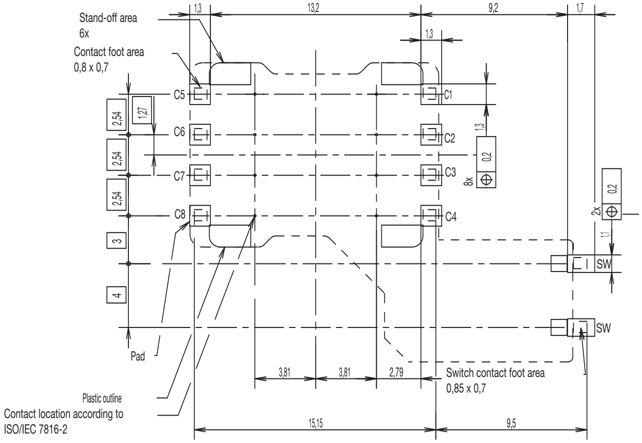
Dimensions are shown in mm
Specifications and dimensions subject to change

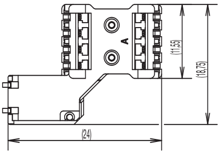
CCM04-5468 LFT





RECOMMENDED PC BOARD LAYOUT
(Component side)

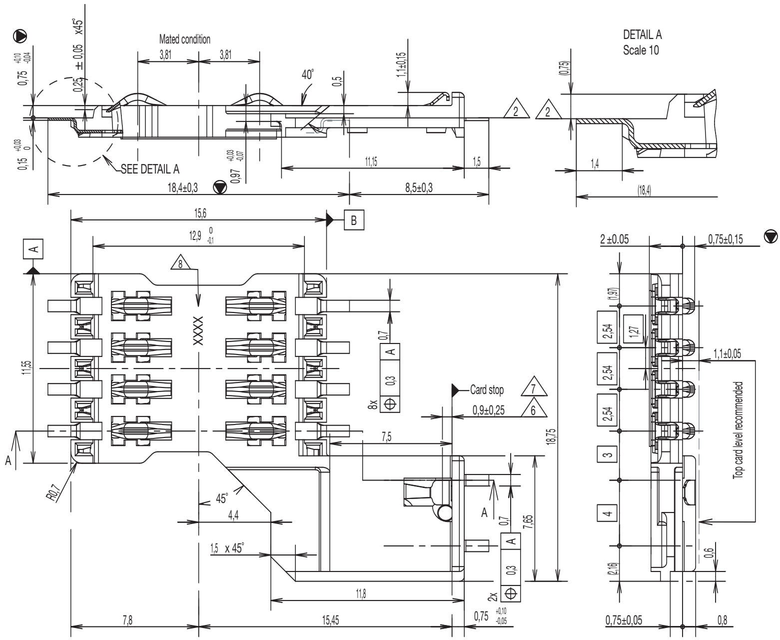




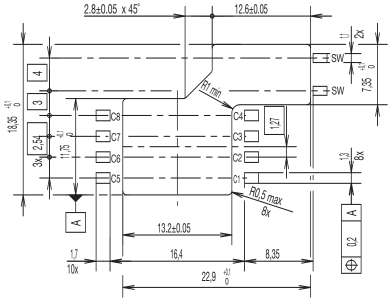
First Angle Projection

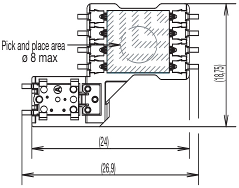
Dimensions are shown in mm
Specifications and dimensions subject to change

CCM04-5454 LFT



RECOMMENDED PC BOARD LAYOUT
(Component side)
Scale 2,5





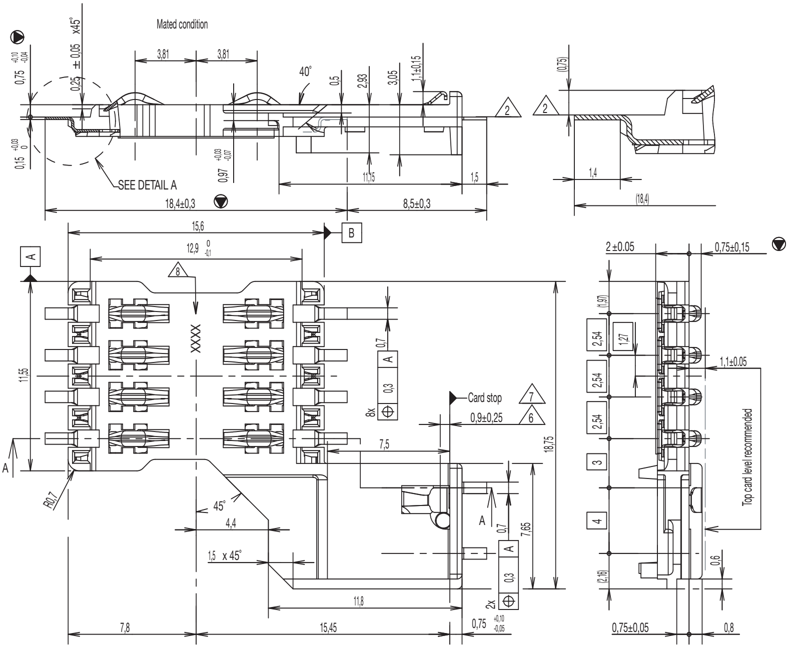
First Angle
Projection

Dimensions are shown in mm
Specifications and dimensions subject to change

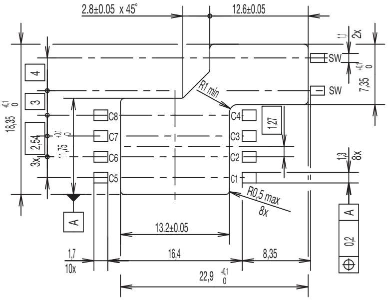
CCM04 MK4 Series

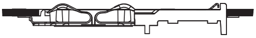
CCM04-5455 LFT

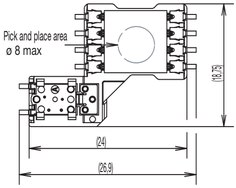
Full Size



RECOMMENDED PC BOARD LAYOUT
(Component side)
Scale 2,5







First Angle
Projection

Dimensions are shown in mm
Specifications and dimensions subject to change

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
Max electrical discontinuity	1µs
Shock	Peak value 500 m/s^2 – Duration 11 ms 3 shocks in each direction of each axis

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

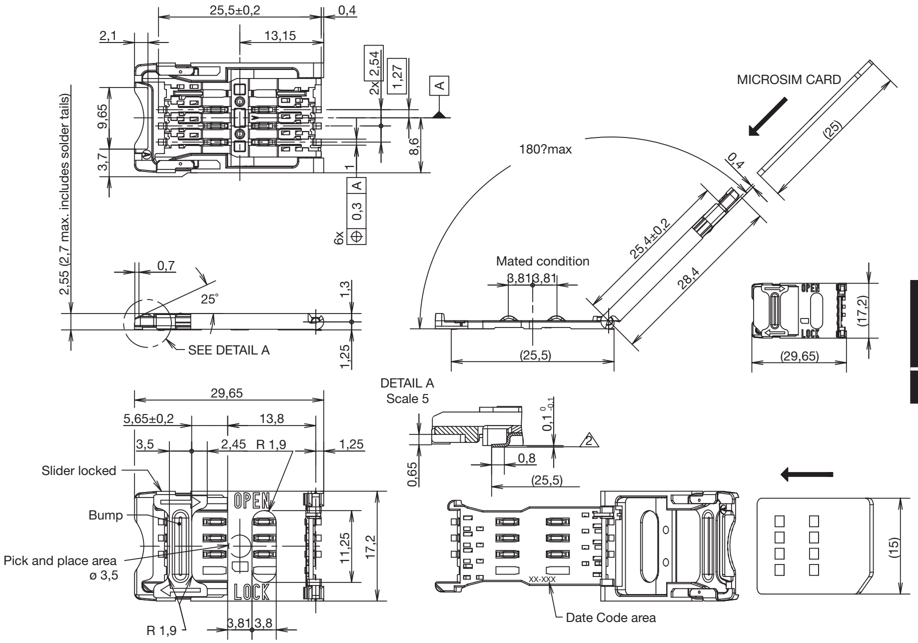
Contact Electrical Data

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

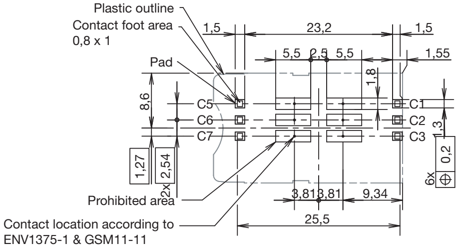
Designation	Contact Plating	Cover	# of Contacts	PCB Version	Card Presence Switch	Operating Life	Total Height (mm)	Dim. (mm)	Packaging
CCM03-3001LFT	inlay	hinged	6		without	10,000	2,55	17,2 x 29,65	reels of 1,000 pcs
CCM03-3002LFT	inlay	hinged	6	2 plastic pegs	without	10,000	2,55	17,2 x 29,65	reels of 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
CCM03-3512LFT	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
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

CCM03-3001 LFT / CCM03-3009 LFT

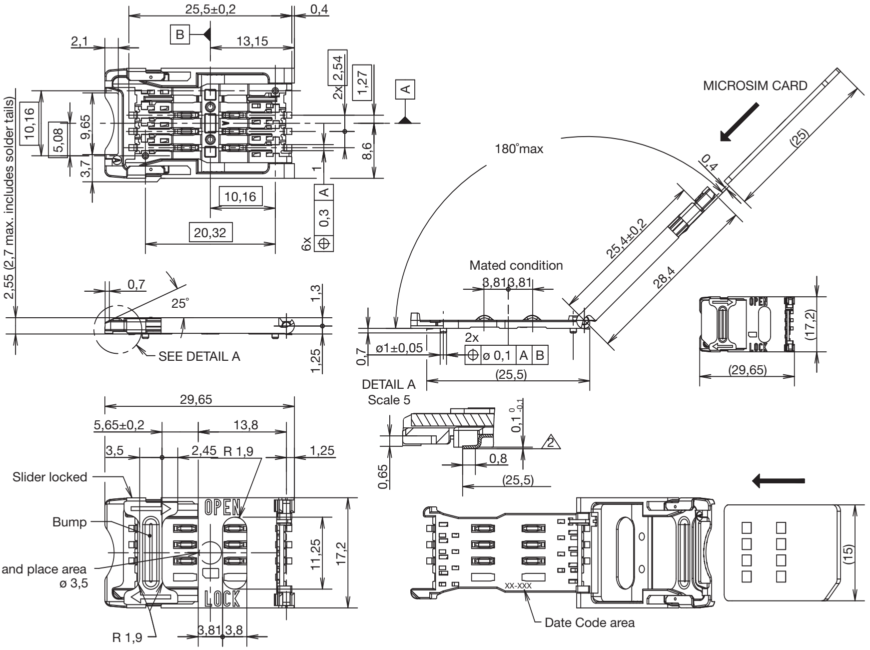


RECOMMENDED PC BOARD LAYOUT
(Component side)

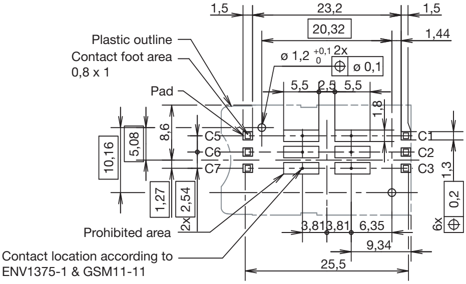


CCM03 MK2 Series

CCM03-3002 LFT / CCM03-3010 LFT



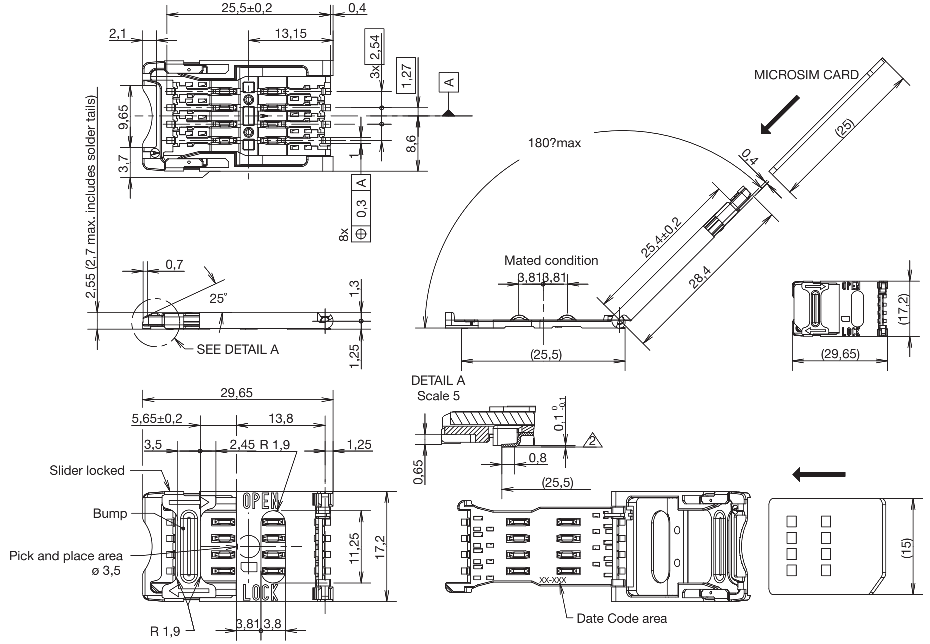
RECOMMENDED PC BOARD LAYOUT
(Component side)



First Angle Projection

Dimensions are shown in mm
Specifications and dimensions subject to change

CCM03-3003 LFT



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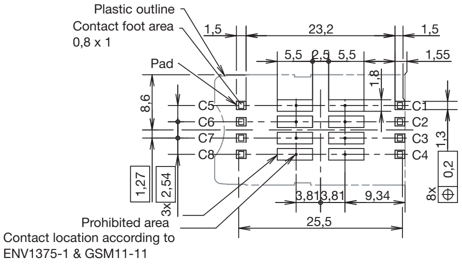
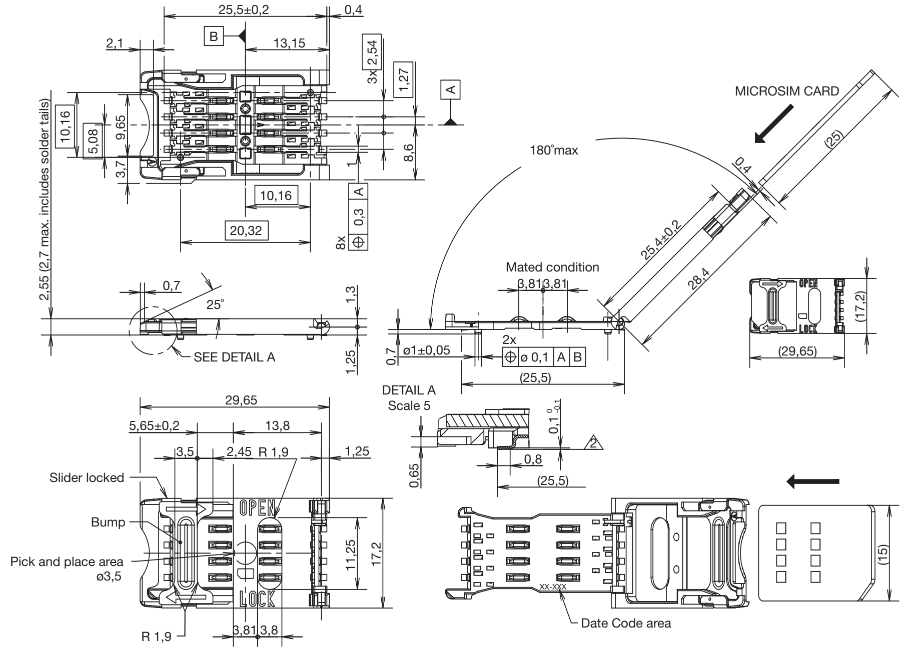


First Angle
Projection

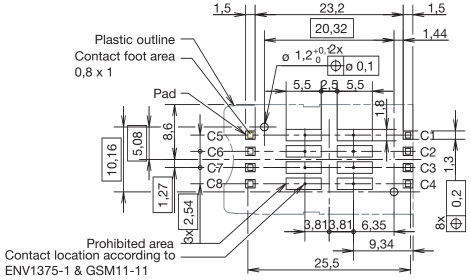
Dimensions are shown in mm
Specifications and dimensions subject to change

CCM03 MK2 Series

CCM03-3004 LFT



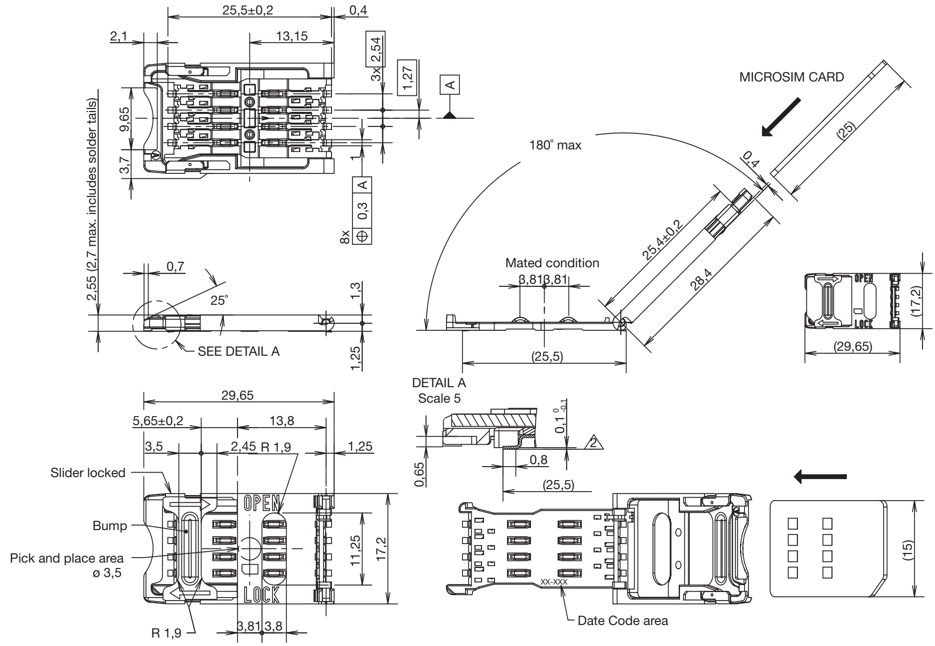
RECOMMENDED PC BOARD LAYOUT
(Component side)



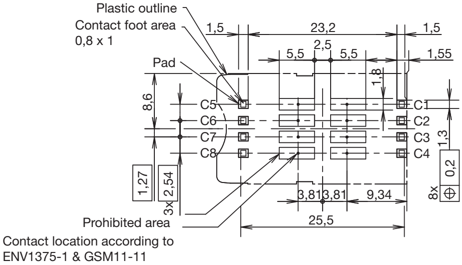
First Angle Projection

Dimensions are shown in mm
Specifications and dimensions subject to change

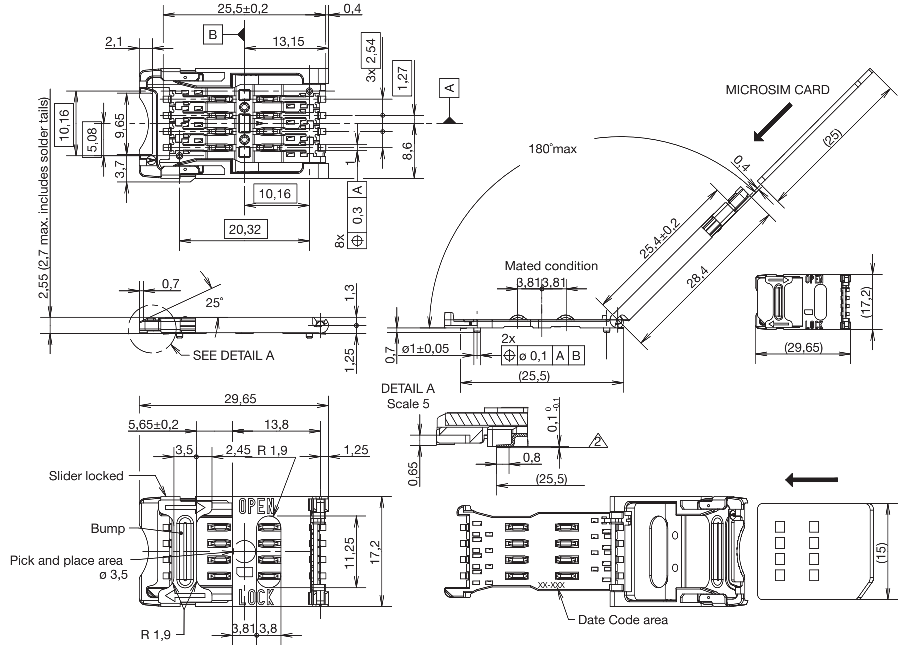
CCM03-3011 LFT



RECOMMENDED PC BOARD LAYOUT
(Component side)



CCM03-3012 LFT



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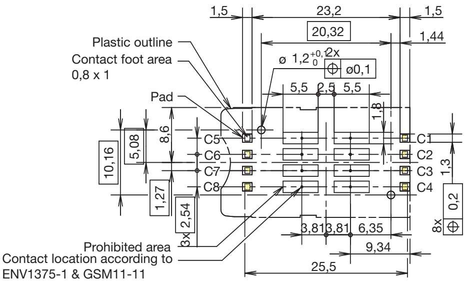
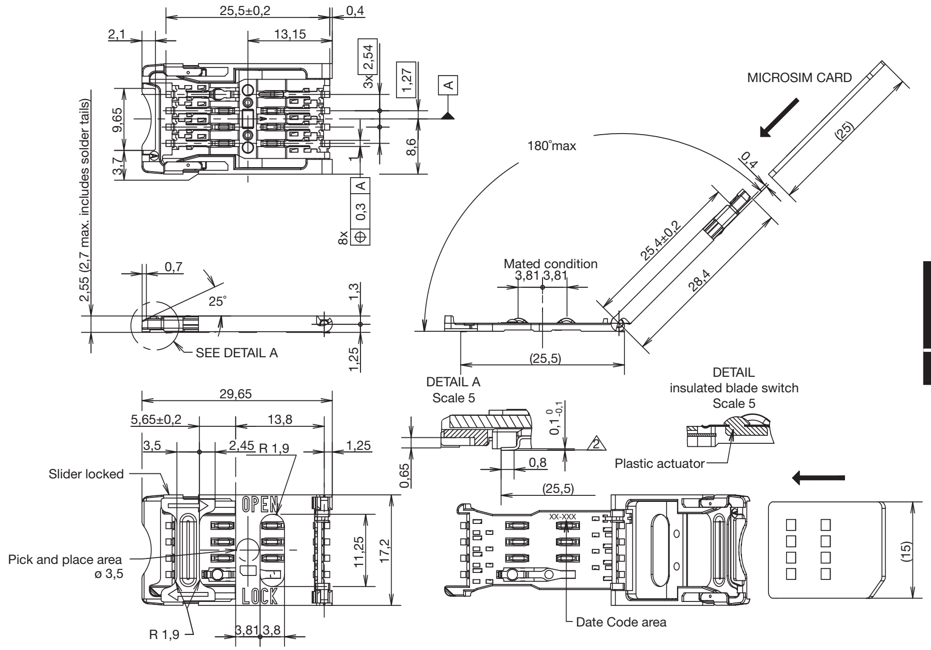


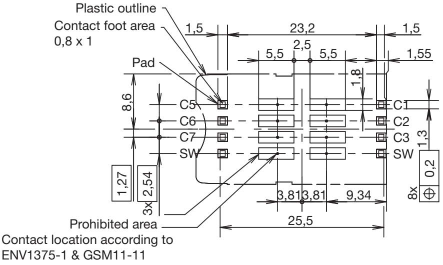
First Angle
Projection

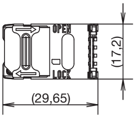
Dimensions are shown in mm
Specifications and dimensions subject to change

CCM03-3013 LFT



RECOMMENDED PC BOARD LAYOUT
(Component side)

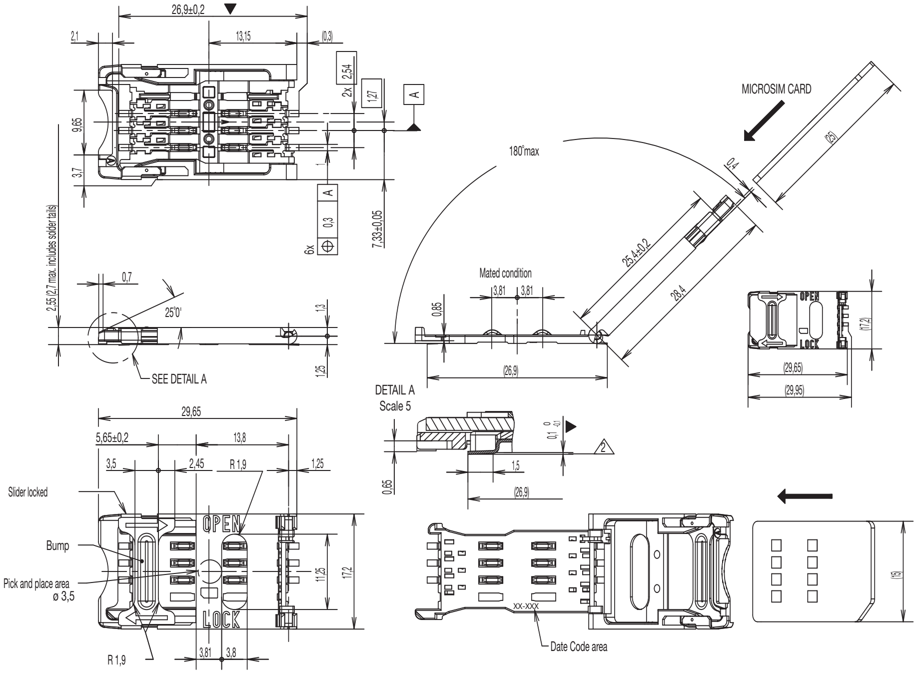




First Angle
Projection

CCM03 MK2 Series

CCM03-3512 LFT



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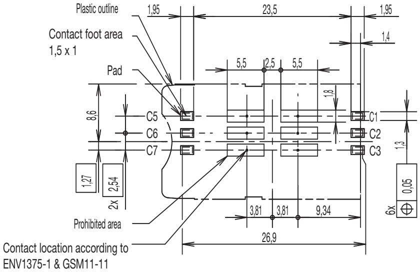
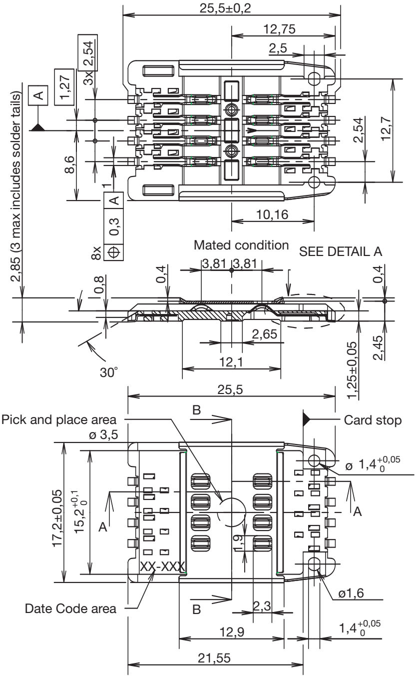
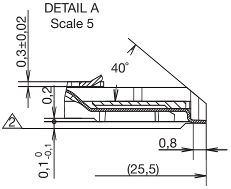


First Angle
Projection

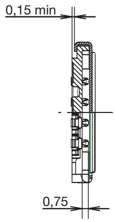
Dimensions are shown in mm
Specifications and dimensions subject to change

CCM03-3504 LFT / CCM03-3505 LFT

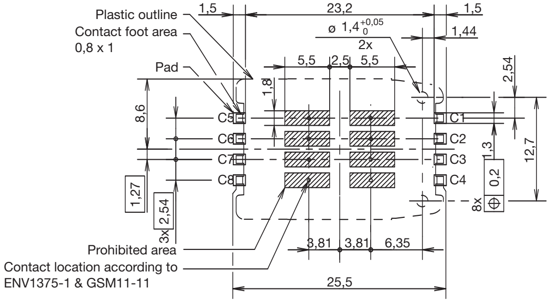


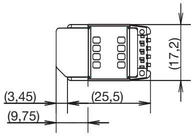


DETAIL A
Scale 5



RECOMMENDED PC BOARD LAYOUT
(Component side)





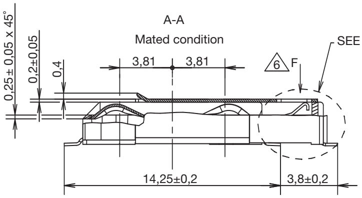
First Angle
Projection

Dimensions are shown in mm
Specifications and dimensions subject to change

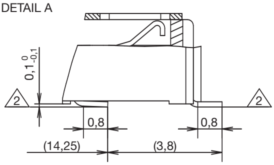
CCM03 MK2 Series

CCM03-3754 LFT

A-A
Mated condition



DETAIL A



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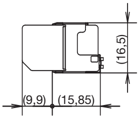
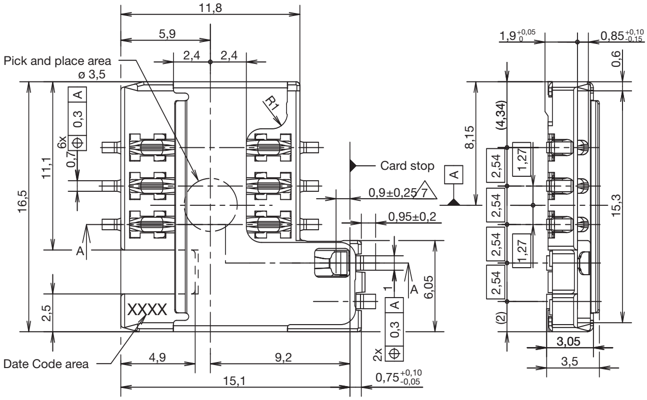
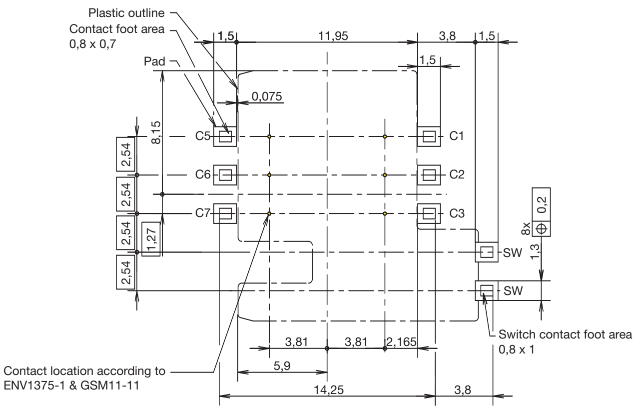




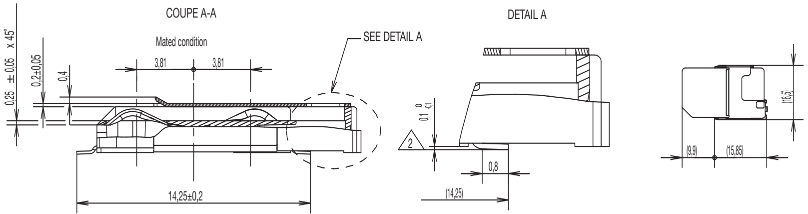
RECOMMENDED PC BOARD LAYOUT
(Component side)

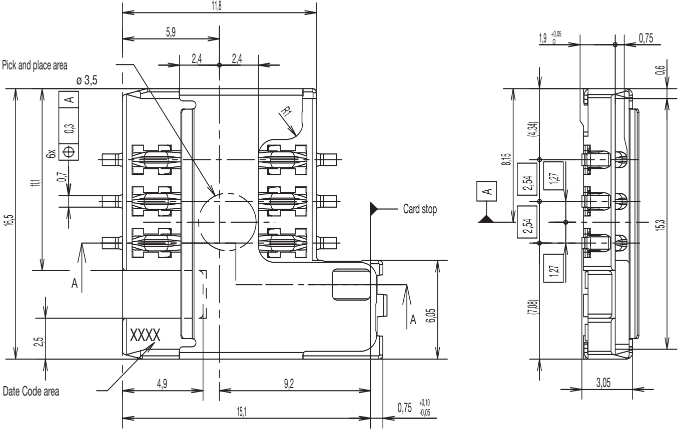


First Angle Projection

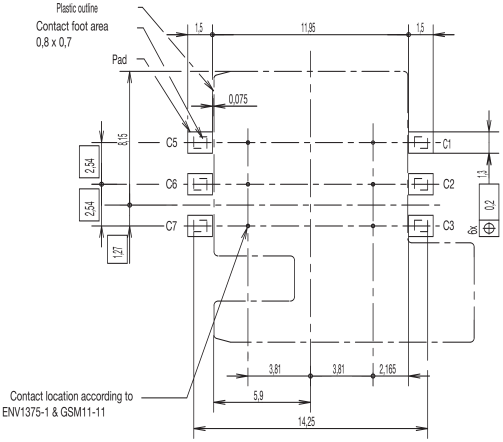
Dimensions are shown in mm
Specifications and dimensions subject to change

CCM03-3760 LFT





RECOMMENDED PC BOARD LAYOUT
(Component side)

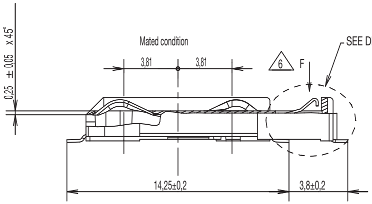


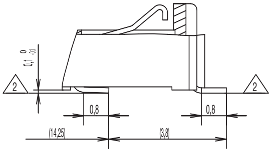
First Angle
Projection

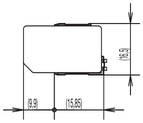
Dimensions are shown in mm
Specifications and dimensions subject to change

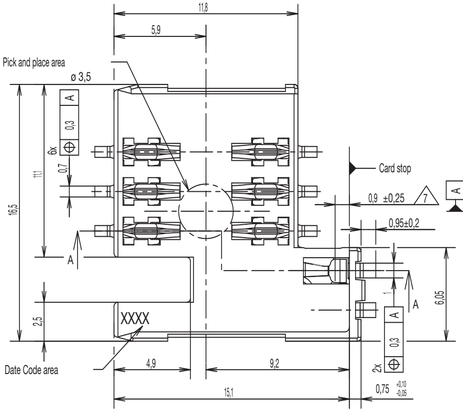
CCM03 MK2 Series

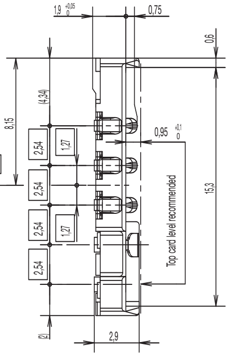
CCM03-3764 LFT



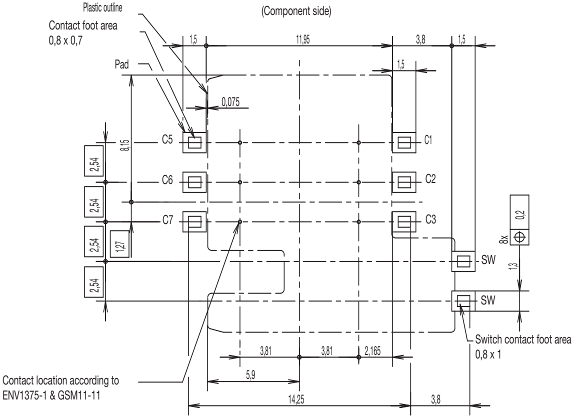








RECOMMENDED PC BOARD LAYOUT
(Component side)



First Angle Projection

Dimensions are shown in mm
Specifications and dimensions subject to change

CCM04 MK3 Series

Features

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

Typical Applications

- ***Mobile***
- ***POS***
- ***Identification***
- ***GPS***

Mechanical

Number of contacts	6 or 8
Mechanical life	30,000 cycles
Card insertion force	10N max
Card extraction force	1N min / 10N max
Contact force	0,35N min to 0,65N
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 soldering process

Contact Electrical Data

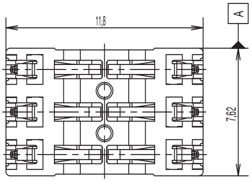
Insulation resistance	1000 MΩ min
Contact resistance max	100 mΩ max
Switching current	10 µA min / 1 A max
Dielectric strength	750 Vrms min

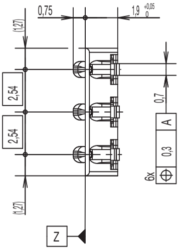
Environmental Data

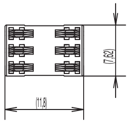
Operating temperature	-40°C to +85°C
Salt mist	IEC 512 test number 11f (96 hours)
Damp heat	IEC 512 test number 11c (10 days)
RoHS compliant	

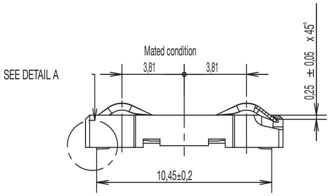
Designation	# of Contacts	Contact Plating	PCB Version	Height (mm)	Dim. (mm)	Packaging
CCM04-5137LFS	6	gold	SMT IN	1,9	8,15 X 10,45	reels of 1,900 pcs

CCM04-5137 LFS

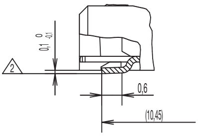


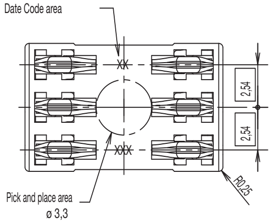




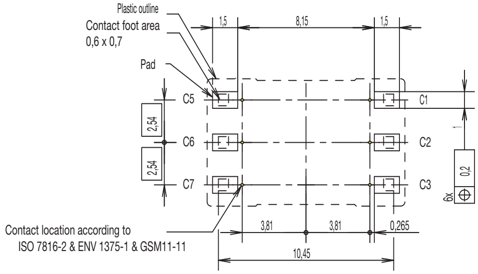


DETAIL A
Scale 10





RECOMMENDED PC BOARD LAYOUT
(Component side)



First Angle Projection

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