



Interconnect Solutions
Cannon, VEAM, BIW

PC Card and Wireless Products



Engineered for life

Cannon, VEAM, BIW

A Historical Achievement of Technology Leadership

Defining and Championing Innovation

Showcasing a portfolio of creativity, ITT's "Engineered For Life" execution embraces products which have become ubiquitous in a broad collection of markets including: Military/Aerospace, Civil Aircraft, Industrial Instrumentation, Medical, Oil & Gas, Energy, Transportation, Telecom/Handset, Computer, Consumer, and Automotive.

ITT's rich interconnect history embraces contributions to both technological breakthroughs and social movements. With one of the industry's broadest product offerings, ITT's interconnect products have supported:

- Every Free World space mission, bringing the universe to our doorstep.
- Motion picture, radio, and television equipment, serving laughter and entertainment to millions.
- Commercial and military communications systems, linking the voices of the world.
- Computerized tools, reshaping the information highway.
- Aircraft, rapid transit, and automobiles, mobilizing our expanding society.
- Oil and natural gas production, powering the world's economies.
- Agricultural equipment, attacking the roots of world hunger.



ITT Interconnect Solutions

ITT Interconnect Solutions is a division of the multi-national ITT Corporation, a \$11.6 billion dollar global enterprise representing the brands Cannon, VEAM, and BIW. Our connector portfolio remains the most extensive in the industry offering the most reliable and cost effective range of interconnect solutions. These innovations have enabled ITT to provide products and technologies to such markets as:

- Automotive
- Computer/Consumer
- Industrial/Instrumentation
- Military/Aerospace
- Oil Fields
- Telecom/Handset
- Transportation

When you specify a Cannon, VEAM or BIW connector, you can rely on a product designed, developed, and manufactured to the highest quality and reliability standards. This tradition of excellence is based on ITT' s corporate culture of operating its businesses under the principles of Six Sigma. At ITT, Six Sigma is not just a quality philosophy but a complete corporate culture that drives the entire business. Our Value Based Management and Value Based Product Development systems are two cornerstones that allow for the development of both leadership and product engineering principles, ensuring the correct industry leading products are developed to the accepted market driven lead times. These principles have allowed ITT to become the market leader in all of our business portfolios.

Six Sigma Manufacturing

ITT operates manufacturing facilities in the United States, Germany, Italy, Mexico, China, Japan and the UK, all of which have particular product area strengths allowing ITT to offer a truly global footprint to our customers. Our facilities are world class and accommodate full vertical integration utilizing the latest manufacturing technologies including: automated and robotic machining centers, Super Market manufacturing cells, Kanban pull systems, and automated electrical, mechanical, and optical test and inspection equipment. The combination of our manufacturing strength and our

advanced manufacturing facilities allows ITT to offer products at market driven prices. Our capabilities, especially in robotics, computerized precision tooling, Kaizen Project Management, Six Sigma tools, and testing, give ITT the most optimized global manufacturing footprint in the interconnect industry.

The Custom Difference

As the industry leader in harsh environment interconnect applications, ITT' s world class engineering teams will work directly with our customers to design and develop cost effective solutions for their applications. In many cases we may modify one of our standard designs to ensure a highly reliable solution where timing is critical. Yet, in those cases where a complete custom interconnect solution is required, ITT will work with our customer' s Engineers to design an interconnect solution which will be cost effective yet highly reliable. As professional consultants, our Engineering teams will provide a thorough systems and mechanical analysis of any proposed solution. These analyses provide our customers with sophisticated electrical signal and mechanical characterizations to determine the best solution for their application.

RoHS Compliance Information

ITT has implemented a strict parts control plan for all ITT electronics plants worldwide that allows the Cannon, VEAM, and BIW connector product portfolios to meet the requirements of European Union Directive 2002/95/EC better known as the Reduction of Hazardous Substances initiative. As appropriate, specific Cannon, VEAM, and BIW products may be ordered with an R prefix number which insures our customers will receive RoHS compliant parts for their commercial electronics applications and equipment. Since most RoHS hazardous substances center around specific metal plating and lead solder coatings, ITT's products for RoHS compliance are available in the following plating finishes: electroless nickel, stainless steel, Anodize over aluminum and Gold plating. It should be noted that gold plating would be recommended as the replacement for tin-lead solder when ordering board mount connectors.



PCMCIA, CompactFlash, ExpressCard, CFast and Connector Products from ITT ICS

ITT ICS represents and innovator in PC Card kit technology since its inception in the late 1980's, the initial development of PCMCIA packaging standards. In 1990 we were one of the first companies to introduce one piece PCMCIA card kits (StarCard Classic) and 68 way connectors. The success of this initial endeavor fostered many future enhancements in PC Card kit technology. Advancements in our PCMCIA portfolio include CompactFlash, ExpressCard, and most recently CFast.

In 1995 Cannon introduced StarCard II a PCMCIA frameless two piece snap to close cover sets with optional I/O end caps. By 1998 we would further improve upon this design and launch StarCard Nova which incorporated a 68 way cardbus connector. In 2005 we introduced StarCard Snappy. The StarCard Snappy offers the most enhanced mechanical snap to close features and extended cover packages known today.

In 1998 Cannon introduced StarCard Ultra, the first PCMCIA frameless Ultrasonic weld cover set. Once assembled, the covers are ultrasonically welded around the perimeter of the card to provide the most robust, strongest, and secure seal. We have since expanded our offerings to include 68 way cardbus connectors and customized extended covers to accept a multitude of I/O connectors. We are an industry leader in ultrasonic weld technology.

Also in 1998 we expanded our portfolio into CompactFlash with the acquisition of "The Great American Gumball Company." That same year Cannon introduced C-Flash type I and II. Both styles are two piece ultrasonically welded CompactFlash cover sets with 50 way connectors. Once assembled, these covers provide the most rigid and secure flash products in the industry. Over the years we expanded our product offering to include customized extended covers.

In 2007 Cannon introduced the first PCMCIA ExpressCard type 34 and type 54 cover sets with 26 way connectors. ExpressCard is the latest hardware standard for replacing the PCMCIA card. We are offering cover set designs that support both snap to close and ultrasonically welded frame kits. In addition, we offer a wide variety of connector off-sets for unique applications and customized extended covers to accommodate multiple I/O connector packages.

Today, the latest standard to be released from the Compact Flash Association (CFA) is CFast, a future version of CompactFlash. CFast is based on the Serial ATA bus, rather than the Parallel ATA/IDE bus for which all previous versions of CompactFlash are designed. ITT will be supporting this new standard by introducing two piece ultrasonically welded cover sets and 24 way connectors.

ITT ICS designs and manufactures a complete range of standard and customized PC Card products. We offer designing, engineering support, in-house prototyping, assembly tooling, and manufacturing capability to produce low to high volumes of cover sets and connectors. Our experienced engineering teams work hand-in-hand with customers to advance projects from initial product concepts to final design and into full production. We look forward to serving your unique needs as a valued customer of ITT Interconnect Solutions.



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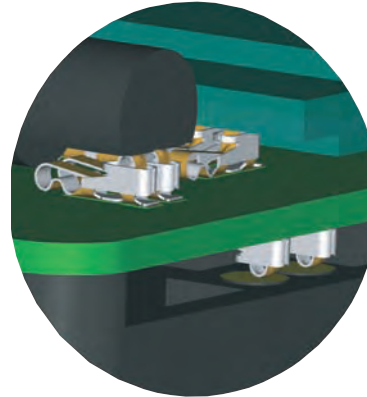
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Universal Contact is an independent SMT contact which provides an electrical connection between a device and a PCB. The contact is manufactured as a single piece stamped product, incorporating pre-load and anti-lift features. The Universal Contact has been designed to replace traditional interfaces where the contact is custom designed into the component. It can be used to connect a number of device components in any direction and configuration using the same interface.

Features & Benefits of the Design

- Range of heights available:
 - 1.3mm contact with the minimum pitch of 1.35mm
 - 1.8mm contact with the minimum pitch of 1.25mm
 - 2.5mm contact the minimum pitch is 1.35mm
 - 3.5 & 4.0mm minimum pitch is 1.45mm
- Solderwell that prevents solder wicking up the contact
- "Side wings" protect the active parts of the contact which prevent contact from overstressing and potential damage
- Domed contact point allows good hertz stress and low contact resistance
- The X-Y-Z movement allows robust connection between the contact and component assembly during shock and vibration
- Compliant with WEEE and RoHS directives.



Additional Advantages of using Universal Contacts

- Qualification time reduction - same contact for many components
- Allows standard interface across applications and platforms
- Freedom to position at an angle - not fixed by mating component

Applications

Handset

- Solderless component interconnect
- I/O connector / Board to board interconnect
- Battery contact / Antenna contact
- Grounding contact / SIM contact
- Laptops & Computers
- Memory Stick

Home Electronic Devices / White Goods

- Smoke detectors / Security alarm systems

Automotive - Keyfob

- Medical - CT scan equipment

Industrial - Circuit breaker for GPS beacon

Materials & Finishes

Base material	Beryllium Copper
Plating	Selective Au in contact area 1m min over Au stripe, 0.05 - 0.1 m over Ni 1.0 - 3.0 m

Electrical

Contact resistance	Max 20 mΩ
Max current rating	2.0 amps nominal 3.0 amps peak

Environmental

Operating temperature	-40°C and +85°C
Humidity	Operable in 90% relative humidity (temp + 40°C)
Solder systems	Infrared and hot air reflow
Vibration	In accordance with IEC 68-2-36
Shock	In accordance with IEC 68-2-27, 30 g

Mechanical

See selection table on the right for contact forces at specific mating heights

Maximum mating cycle based on mating PCB plated with 0.05 Au over 2.0 m Ni = 3,000 cycles. (Wear resistance is subject to mating component surface finish and plating type, increased mating component plating spec = increased mating cycles.)

Packaging

Packaged in 12mm wide tape & reel packaging to EIA-481 standards

MATING HEIGHT	1.3mm	1.8mm	2.5mm	3.5mm	4.0mm
	FORCE (N) AT COMPRESSED HEIGHT				
0.90	0.58				
1.00	0.51	0.87			
1.10	0.44	0.80			
1.20	0.37	0.74			
1.30	Pre-load	0.68			
1.40		0.62			
1.50		0.56	0.58		
1.60		0.49	0.55		
1.70		0.43	0.52		
1.80		Pre-load	0.49		
1.90			0.46		
2.00			0.42		
2.10			0.39	0.94	
2.20			0.36	0.87	
2.30			0.33	0.83	
2.40			0.30	0.80	
2.50			Pre-load	0.76	1.30
2.60				0.73	1.27
2.70				0.69	1.24
2.80				0.65	1.22
2.90				0.62	1.19
3.00				0.58	1.16
3.10				0.55	1.13
3.20				0.51	1.11
3.30				0.47	1.08
3.40				0.44	1.05
3.50				Pre-load	1.02
3.60					1.00
3.70					0.97
3.80					0.94
3.90					0.91
4.00					Pre-load
Spring Rate N/mm	0.68	0.62	0.32	0.36	0.28



1.3mm
120220-0210
 packaging: 9,500 per reel

1.8mm
120220-0202
 packaging: 6,800 per reel

2.5mm
120220-0161
 packaging: 6,000 per reel

3.5mm
120220-0204
 packaging: 3,600 per reel

4mm
120220-0206
 packaging: 3,200 per reel

2 way - 2.5mm height,
1.5 pitch
120220-0162

Dimensions shown in mm
 Specifications and dimensions subject to change

Mini RF connectors are the ideal solution for customers producing devices that require verification of antenna or circuit board performance. They are specifically designed for use with portable terminal interfaces and the inspection of microwave boards used at frequencies of up to 6 GHz. The specially incorporated flared interface cone not only allows the user to snap on a bench test adaptor but also allows high mating cycles on the accessory connector.

Mini RF Series
 120220-0180 Accessory connector
 120220-0190 Test Port

Base materials
 Copper alloy - Shell
 LCP plastic - Insulator
 Beryllium copper - Contacts

Plating
 120220-0180 - Gold over nickel

Features & Benefits of the Design

- Small size / low profile saving space on PCB
- High mating cycles on accessory port
- Switchable
- High force on the switch providing more robust connection
- Robust design
- Latching mechanism for ease-of-use during bench testing
- Compatible with lead free soldering
- Designed for pick and place
- Cradle interface incorporates patented ball - enables angular misalignment without loss to performance
- Compliant with WEEE and RoHS directives

ELECTRICAL

Frequency 0.01 - 6 GHz

Impedance 50Ω nominal

VSWR ≤ 1.2:1

Insertion loss unmated condition <0.1 dB
 mated condition <0.5 dB

Dielectric withstanding voltage 100 VAC (150 V peak)

Contact resistance 200mΩ max (initial)

Power 2 watts

MECHANICAL

Mating Cycles 120220-0180 (with cradle connector)
 up to 10,000 mating cycles

ENVIRONMENTAL

Operating temperature -40 to 85°C

Humidity operable in 95% RH
 temp +40°C

Solder systems Infrared and hot air reflow
 suitable for lead-free

Vibration In accordance IEC 68-2-64

Shock In accordance to IEC 68-2-27, 100 g

Accessories

Ball Nose Cradle connector typical for car kit applications and Low Profile Jump Cable typical for board-to-board system connection.

Applications

- Mobile handset
- Other wireless (PDA, PPC, Gaming)
- Portable phones
- Network carriers - base stations
- Automotive - key fob / locking
- Industrial - transportation equipment
- Cable houses - board-to-board cable interconnect
- Electronic measuring instrumentation / equipment
- GPS - navigation systems (ETC)
- Wireless LAN

PACKAGING

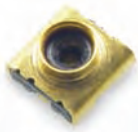
Packaging style Tape and reel to EIA-481

Packaging size 8000 per reel

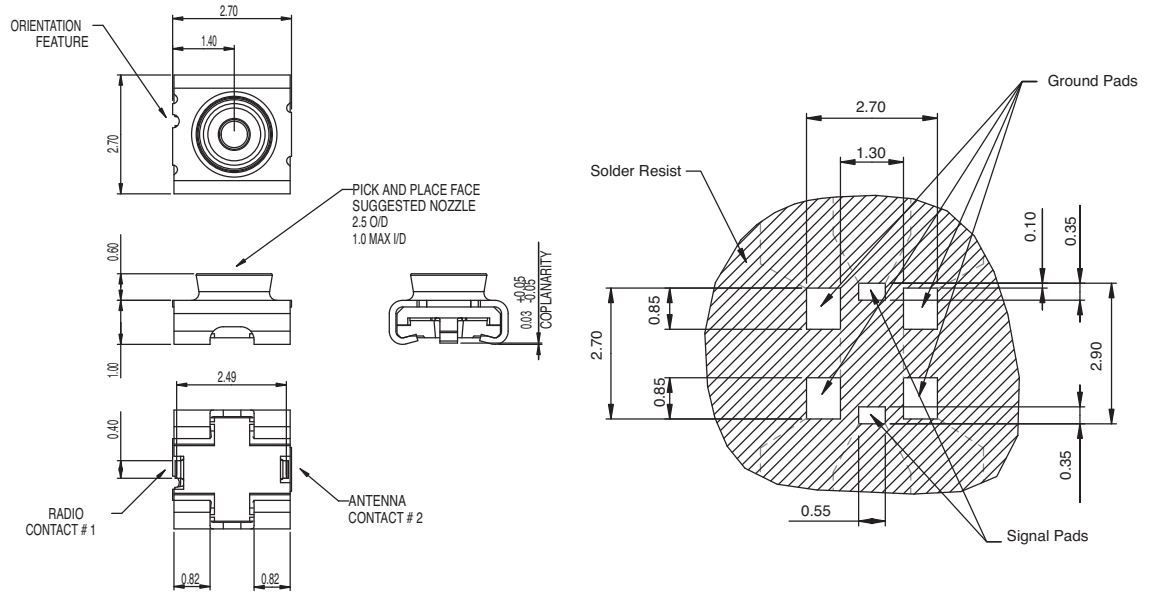
A float mount production test adaptor is available by request.

And any small devices requiring verification of antenna / circuit performance.





120220-0180
Cradle Interface



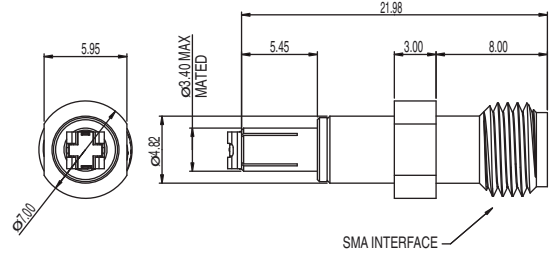
Accessories



120220-0175
Snap-on Bench Test Adaptor



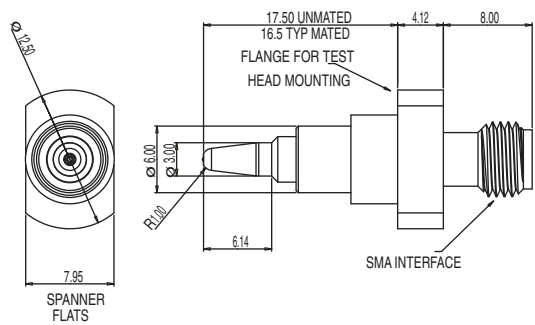
Snap-on mated



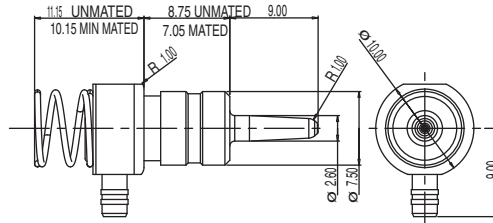
120220-0176
Ball Nose Production Test Adaptor



Ball Nose mated



120220-0177
Cradle Connector (Capability)



Dimensions shown in mm
Specifications and dimensions subject to change

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STARCARD® Snappy

The New Successor to STARCARD® Nova in Our PCMCIA Universe.

The Starcard Snappy is a versatile frameless stainless steel type II PCMCIA card kit that simply snaps together without the use of any special tools. Available with a multitude of design options, we can customize extensions and connectors off-sets, all from a standard platform. Our Starcard Snappy cover sets and 68 way connectors support both standard 16 bit and high performance 32 bit architectures (Cardbus).



Applications

- Notebooks
- Handheld Portable devices
- Set-top boxes
- Home entertainment devices
- Switches and Routers
- Machine control systems
- Digital TV
- Test and measurement devices
- Medical instrumentation

Product Features and Benefits

- Improved assembly cycle times
- Optimum EMI shielding
- A variety of connector offset options available
- RoHS Compliant
- Cover sets meet all type II specifications
- Meets PCMCIA and JEIDA standards
- Frameless design enables OEM's to automate key aspects of manufacturing
- Polarized to prevent incorrect card insertion
- With or without cardbus feature
- Accommodates most 68 pin connectors
- Can be assembled by hand, simple press tool available for high volume assembly
- End cap extensions can be customized to accept a multitude of I/O connectors
- Low tooling costs on custom designed packages

Materials and Finishes: Snappy Card Kit

Cover:	Stainless Steel Brushed, 0.2mm thickness
Cover Insulation:	Double Mylar, 0.08mm thickness

Label - Recess and Recommended Size

Label Recess:	0.08mm deep
Label Size:	40 mm x 61mm

Materials and Finishes: 68 pin connector

Connector Insulator:	High Performance Plastic, Glass Fiber Reinforced (30%), Flame Retardant UL 94V-0 rated, Color: Black
Connector Contacts:	Base Material Phosphor Bronze, Finish: Nickel base with 30µ gold for contact area, solder tails: Au 2 µ over Nickel 40µ

Electrical: 68 pin connector

Voltage:	100V AC rms / DC 150V
Current Rating:	0.5 A (per pin)
Dielectric Withstanding Voltage:	500V rms withstanding voltage between adjacent pads
Operating Temperature:	Maximum soldering temperature: 260° C for a maximum of one minute.

Mechanical: 68 pin connector

Hertzian Stress	140,000 psi minimum
Durability	10,000 mating cycles

StarCard is a registered trademark of ITT Industries



Features and Benefits

- Type II, as defined in PCMCIA specifications
- Frameless cover set with snap-on mechanism
- Easy to assemble by hand or a simple press tool
- Available with or without label recess
- Customized end caps to accept a wide variety of I/O connectors

Materials and Finishes

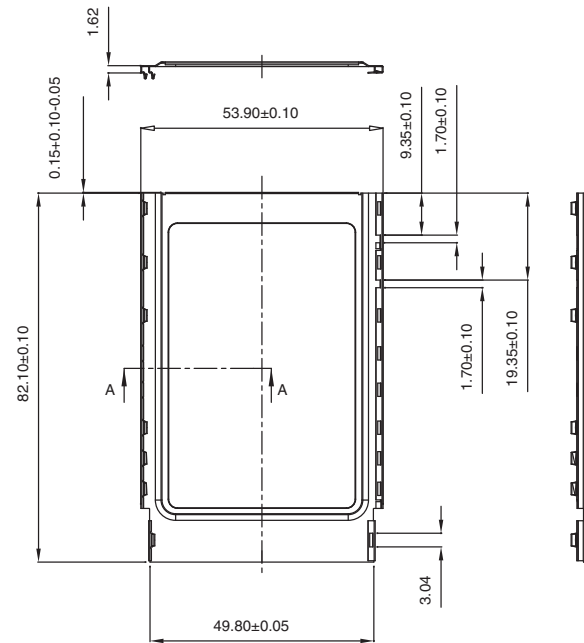
Cover:	Stainless Steel Brushed 0.2mm thickness
Insulation:	Customized Mylar available

Labels/Recommended Size:

Label Recess:	0.08mm deep
Label Size:	40 mm x 61mm

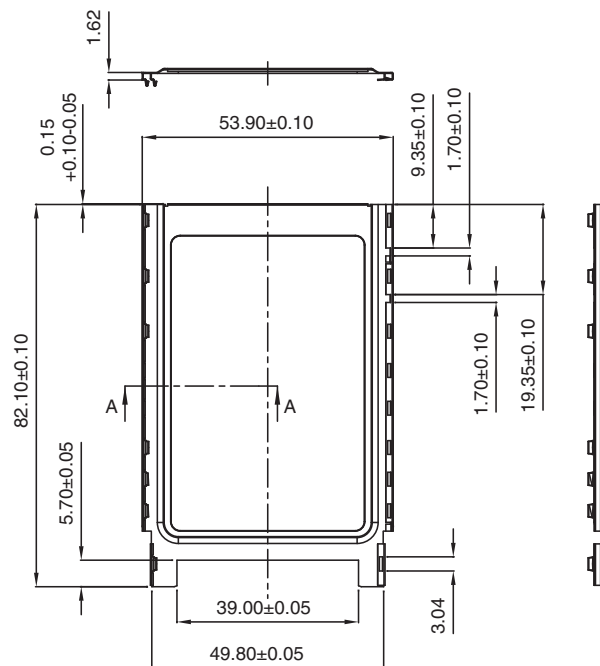
**Top Cover – Standard Version
Bottom Cover – for both Standard and Carbus**

Part Number	Label Recess
N20-2004-000	Yes
N20-2004-002	No



Top Cover – Carbus Version

Part Number	Label Recess
N20-2004-001	Yes
N20-2004-003	No



Dimensions shown in mm
Specifications and dimensions subject to change

68 Way Single-Sided Surface Mount Connector Snap-on/Standard

Features and Benefits

- Meets PCMCIA requirements
- Single-side, single-row, surface mount tails/0.1 (.004) thick by 0.25 (.010) wide
- Incorporates PCMCIA card keying at the ends of insulator.
- Can be modified to meet needs of different offsets
- Slots for positive cover set alignment
- Guide rail alignment feature – connector to PCB
- Can be pre-assembled to PCB before reflow
- RoHS Compliant

Materials and Finishes

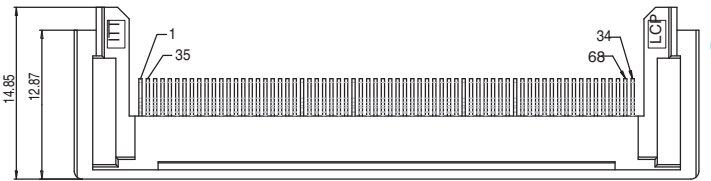
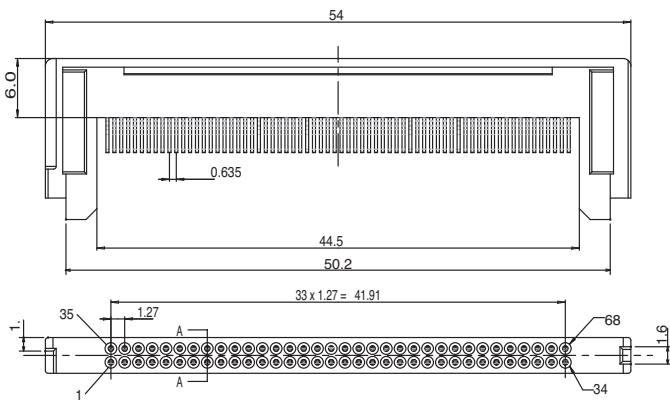
Connectors	High Performance Plastic, Glass Fiber Reinforced (30%) Flame Retardant UL 94V-0 rated, Color: Black
Contacts	Base Material Phosphor Bronze, Finish: Nickel Base with 30µ gold for contact area, solder tails : Sn/Pb (9:1) 120µ Min over Nickel 40µ

Electrical

Voltage	100V AC rms / DC 150V
Current Rating	0.5 A (per pin)
Dielectric Withstanding Voltage	500V rms withstanding voltage between adjacent pads Withstanding Voltage
Operating Temperature	Maximum soldering Temperature: 260° C for a maximum of one minute

Mechanical

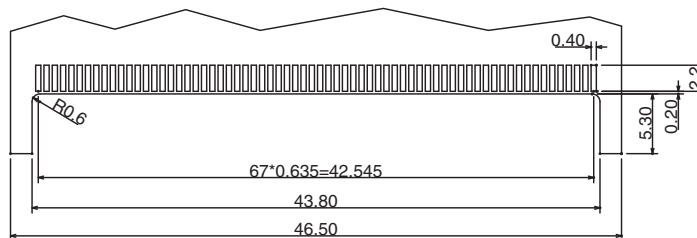
Hertzian Stress	150,000 psi minimum
Durability	20,000 mating cycles



Part Number	Description	Offset	Mount	Package	Keying
132001-0042LG	DICMF-68S	0.30mm upward	SMT	Tray	5 V
132001-0069LG	DICMF-68S	0.00mm offset	SMT	Tray	5V
132001-0070LG	DICMF-68S	0.00mm offset	SMT	Tray	3.3V
132001-0071LG	DICMF-68S	0.30mm downward	SMT	Tray	5 V
132001-0072LG	DICMF-68S	0.30mm upward	SMT	Tray	3.3V
132001-0073LG	DICMF-68S	0.00mm downward	SMT	Tray	3.3V

Note: for additional offset size contact Cannon

Recommended PCB layout



Dimensions shown in mm
Specifications and dimensions subject to change

www.ittcannon.com

68 Way Single-Sided Surface Mount Connector Snap-on/Cardbus

Features and Benefits

- Meet PCMCIA requirements
- Single-side, single-row, surface mount tails/ 0.1 (.004) thick by 0.25 (.010) wide
- Earth grounding feature
- Incorporates PCMCIA card keying at the ends of insulator
- Can be modified to meet needs of different offsets
- Guide rail alignment feature – connector to PCB
- Can be pre-assembled to PCB before reflow
- RoHS Compliant

Materials and Finishes

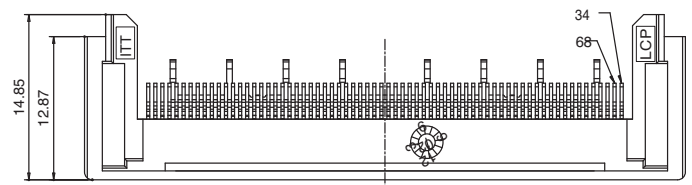
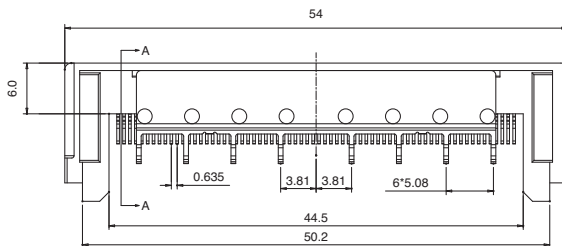
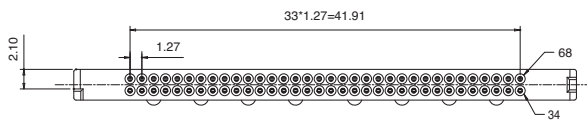
Connectors	High Performance Plastic, Glass Fiber Reinforced (30%) Flame Retardant UL 94V-0 rated, Color: Black
Contacts	Base Material Phosphor Bronze, Finish: Nickel Base with 30µ gold for contact area, solder tails : Sn/Pb (9:1) 120µ Min over Nickel 40µ

Electrical

Voltage	100V AC rms / DC 150V
Current Rating	0.5 A (per pin)
Dielectric Withstanding Voltage	500V rms withstanding voltage between adjacent pads Withstanding Voltage
Operating Temperature	Maximum soldering Temperature: 260° C for a maximum of one minute

Mechanical

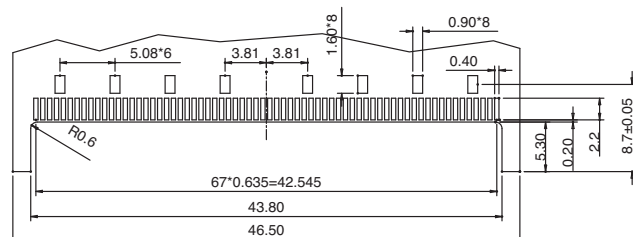
Hertzian Stress	150,000 psi minimum
Durability	20,000 mating cycles



Part Number	Description	Offset	Mount	Package	Keying
132000-0058LG	DICMF-68SCB-SNPY-SMT-M02	0.0mm	SMT	Tray	3.3 V
132001-0046LG	DICMF-68SCB-SNPY-SMT-M04	0.6mm downward	SMT	Tray	5 V

Note: For additional offset size contact Cannon

Recommended PCB layout



Dimensions shown in mm
Specifications and dimensions subject to change

www.ittcannon.com



STARCARD® Ultra

A Super Star in Our PCMCIA Universe

The StarCard Ultra Type I and Type II is the optimal solution for cover set toughness and offers maximum availability for component height. A plastic frame is molded around the perimeter of the cover and oriented into position with guide posts, which simplifies its assembly. Once assembled, the covers are ultrasonically welded together in a continuous weld joint around the perimeter of the card. This process provides the strongest known PC card kit available today. Starcard Ultra cover sets and 68 way connectors are available in either standard 16 bit high performance 32 bit architecture (Cardbus).



Applications

- Notebooks
- Handheld Portable devices
- Set-top boxes
- Home entertainment devices
- Switches and Routers
- Machine control systems
- Security devices
- Test and measurement devices
- Medical instrumentation

Product Features and Benefits

- Fast and easy assembly
- Patented, ultrasonically welded technology
- Optimum EMI shielding
- A variety of connector offset options are available
- Accommodates most 68 pin connectors
- Secure (tamper proof)
- Maximizes available PCB Space
- Meets PCMCIA and JEIDA standards
- Keying options for socket: 5V and 3.3V
- Insert molded rigid plastic frame enclosure
- Polarized to prevent incorrect card insertion
- Cover sets meet all Type I and Type II specifications
- End cap extensions can be customized to accept a multitude of I/O connectors
- Low tooling costs on custom designed packages
- With or without cardbus features
- USW tooling available
- RoHS Compliant

Material and Finishes: Ultra Card Kit	
Cover:	Stainless Steel Brushed, 0.2mm thickness
Frame molding:	Thermoplastic, Glass Fiber Reinforced, UL94V-0 Rated, Color: Black
Insulation:	Polyester foil, 0.08mm thickness, Dielectric strength: 7.0 kV min
Material and Finishes: 68 pin connector	
Connector Insulator:	High Performance Plastic, Glass Fiber Reinforced (30%), Flame Retardant UL 94V-0 rated, Color: Black
Connector Contacts:	Base Material: Phosphors Bronze, Finish: Nickel base with 30µ gold for contact area, solder tails Au 2µ* (for plating options, please contact ITT) Base Material: Beryllium Copper, Finish: Nickel base with Palladium Nickel plus gold flash for contact area, solder tails AU 2µ**

Electrical: 68 pin connector	
Voltage:	100V AC rms / DC 150V
Current Rating:	0.5 A (per pin)
Dielectric Withstanding Voltage:	500V rms withstanding voltage between adjacent pads
Operating Temperature:	Maximum soldering temperature: 260° C for a maximum of one minute
Label – Recess and Recommended Size	
Label Recess:	0.08 mm
Label Size:	40 mm x 61mm
Mechanical: 68 pin connector	
Hertzian Stress	140,000 psi minimum

* For standard version
 ** Optional
 Starcard is a registered trademark of ITT Industries



Top Cover – Standard Version

Features and Benefits

- Type II defined by PCMCIA specification
- Patented ultrasonic welded covers
- Many I/O* options readily available
- Covers can be supplied with or without label recess
- Customized end caps to accept a wide variety of I/O connectors
- Offers excellent shielding features
- Ultrasonic welding tools are available

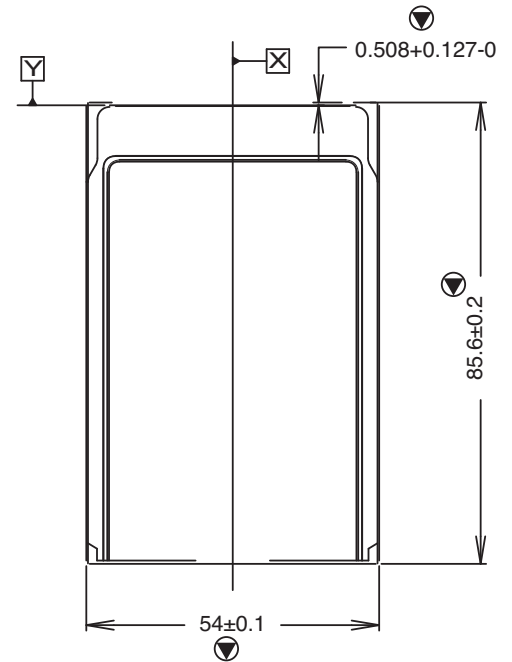
Materials and Finishes

Cover:	Stainless Steel Brushed, 0.2mm thickness
Frame molding:	Thermoplastic, Glass Fiber Reinforced, UL94V-0 Rated, Color: Black
Insulation:	Polyester foil, 0.08mm thickness, Dielectric strength: 7.0 kV min

Labels/Recommended Size

40 mm x 61mm

Top Cover



Part Number	I/O Description	Insulation	Label Recess	Part Number	I/O Description	Insulation	Label Recess
036-0151-000	Blind	No	Yes	036-0151-111	4 Pos. Center	Yes	No
036-0151-002	Blind	No	No	036-0151-112	4 Pos. Center	Yes	No
036-0151-023	4 Pos. Left	No	Yes	036-0151-077	15 Pos. Left	Yes	Yes
036-0151-024	4 Pos. Left	No	No	036-0151-078	15 Pos. Left	Yes	No
036-0151-107	4 Pos. Center	No	Yes	036-0151-051	15 Pos. Center	Yes	Yes
036-0151-108	4 Pos. Center	No	No	036-0151-052	15 Pos. Center	Yes	No
036-0151-049	15 Pos. Left	No	Yes	036-0151-055	15 Pos. Right	Yes	Yes
036-0151-050	15 Pos. Left	No	No	036-0151-056	15 Pos. Right	Yes	No
036-0151-011	15 Pos. Center	No	Yes	036-0151-059	15 Pos. Dual	Yes	Yes
036-0151-012	15 Pos. Center	No	No	036-0151-060	15 Pos. Dual	Yes	No
036-0151-015	15 Pos. Right	No	Yes	036-0151-067	4/15 Pos. COMBO	Yes	Yes
036-0151-016	15 Pos. Right	No	No	036-0151-068	4/15 Pos. COMBO	Yes	No
036-0151-019	15 Pos. Dual	No	Yes	036-0151-103	26 Pos. Center	Yes	Yes
036-0151-020	15 Pos. Dual	No	No	036-0151-104	26 Pos. Center	Yes	No
036-0151-027	4/15 Pos. COMBO	No	Yes	036-0151-091	22 Pos. Center	Yes	Yes
036-0151-028	4/15 Pos. COMBO	No	No	036-0151-092	22 Pos. Center	Yes	No
036-0151-099	26 Pos. Center	No	Yes	036-0162-000	R/W switch^	No	No
036-0151-100	26 Pos. Center	No	No	036-0162-002	R/W switch^	No	Yes
036-0151-095	22 Pos. Center	No	Yes	036-0162-004	R/W switch	Yes	No
036-0151-096	22 Pos. Center	No	No	036-0162-006	R/W switch	Yes	Yes
036-0151-151	Blind	Yes	Yes	036-0162-008	R/W switch	No	No
036-0151-115	Blind	Yes	Yes	036-0162-010	R/W switch	No	Yes
036-0151-116	Blind	Yes	No	036-0162-012	R/W switch	Yes	No
036-0151-063	4 Pos. Left	Yes	Yes	036-0162-014	R/W switch	Yes	Yes
036-0151-064	4 Pos. Left	Yes	No				

* For standard version

Dimensions shown in mm
Specifications and dimensions subject to change

Top Covers – Cardbus Version

Features and Benefits

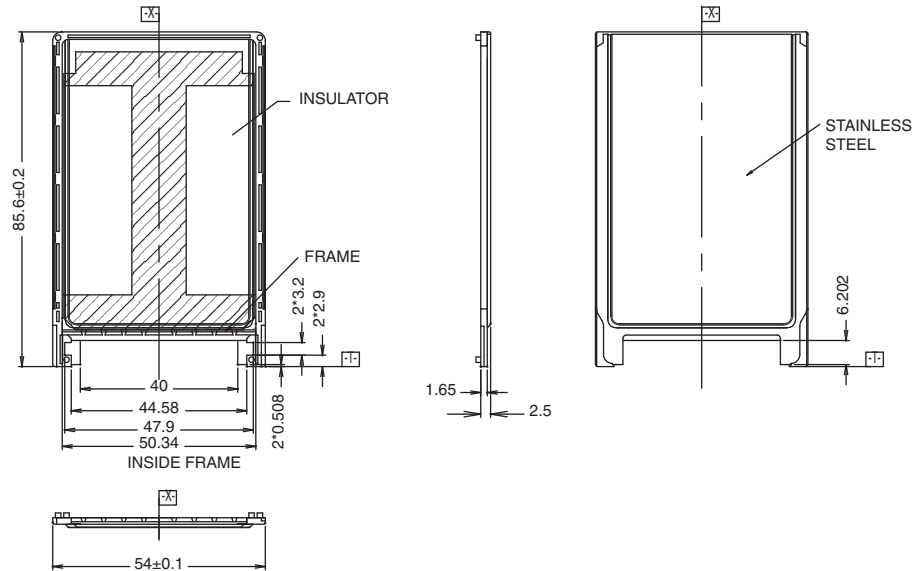
- Type II defined by PCMCIA specification
- Patented ultrasonic welded covers
- Many I/O* options readily available
- Covers can be supplied with or without label recess
- Customized end caps to accept a wide variety of I/O connectors
- Offers excellent shielding features
- Available with or without ground clip opening

Material and Finishes

Cover:	Stainless Steel Brushed, 0.2mm thickness
Frame molding:	Thermoplastic, Glass Fiber Reinforced, UL94V-0 Rated, Color: Black
Insulation:	Polyester foil, 0.08mm thickness, Dielectric strength: 7.0 kV min

Labels/Recommended Size

40 mm x 61mm



Part Number	I/O Description	Insulation	Label Recess	Part Number	I/O Description	Insulation	Label Recess
036-0151-085	15 Pos. Left	No	Yes	036-0151-089	15 Pos. Left	Yes	Yes
036-0151-086	15 Pos. Left	No	No	036-0151-090	15 Pos. Left	Yes	No
036-0151-031	15 Pos. Center	No	Yes	036-0151-071	15 Pos. Center	Yes	Yes
036-0151-032	15 Pos. Center	No	No	036-0151-072	15 Pos. Center	Yes	No
036-0151-035	15 Pos. Right	No	Yes	036-0151-075	15 Pos. Right	Yes	Yes
036-0151-036	15 Pos. Right	No	No	036-0151-076	15 Pos. Right	Yes	No
036-0151-039	15 Pos. Dual	No	Yes	036-0151-079	15 Pos. Dual	Yes	Yes
036-0151-040	15 Pos. Dual	No	No	036-0151-080	15 Pos. Dual	Yes	No
036-0151-047	4/15 Pos. COMBO	No	Yes	036-0151-087	4/15 Pos. COMBO	Yes	Yes
036-0151-048	4/15 Pos. COMBO	No	No	036-0151-088	4/15 Pos. COMBO	Yes	No
036-0151-043	26 Pos. Center	No	Yes	036-0151-083	26 Pos. Center	Yes	Yes
036-0151-044	26 Pos. Center	No	No	036-0151-084	26 Pos. Center	Yes	No
036-0151-153	4 Pos. Left	No	Yes	036-0151-155	4 Pos. Left	Yes	Yes
036-0151-154	4 Pos. Left	No	No	036-0151-156	4 Pos. Left	Yes	No
036-0151-173	4 Pos. Center	No	Yes	036-0151-161	4 Pos. Center	Yes	Yes
036-0151-169	4 Pos. Center	No	No	036-0151-171	4 Pos. Center	Yes	No
036-0151-175	22 Pos. Center	No	Yes	036-0151-177	22 Pos. Center	Yes	Yes
036-0168-000	26 Pos. Center W/MECH.STOP	No	Yes	036-0168-001	4 Pos. Center W/MECH.STOP	Yes	Yes



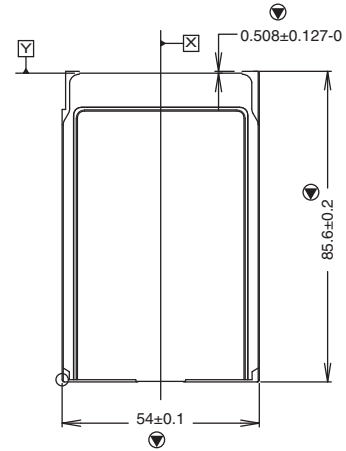
Dimensions shown in mm
Specifications and dimensions subject to change

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Bottom Cover – Standard and Carbus Version

Features and Benefits

- Type II defined by PCMCIA specification
- Patented ultrasonic welded covers
- Many I/O options readily available
- Covers can be supplied with or without label recess
- Customized end caps to accept a wide variety of I/O connectors
- Offers excellent shielding features
- Available with or without ground clip opening
- Ultrasonic welding tools are available



Part Number	I/O Description	Insulation	Label Recess	Key	Part Number	I/O Description	Insulation	Label Recess	Key
036-0151-001	Blind	No	Yes	5V	036-0151-113	4 Pos. Center	Yes	Yes	5V
036-0151-003	Blind	No	No	5V	036-0151-114	4 Pos. Center	Yes	No	5V
036-0151-025	4 Pos. Left	No	Yes	5V	036-0151-081	15 Pos. Left	Yes	Yes	5V
036-0151-026	4 Pos. Left	No	No	5V	036-0151-082	15 Pos. Left	Yes	No	5V
036-0151-109	4 Pos. Center	No	Yes	5V	036-0151-053	15 Pos. Center	Yes	Yes	5V
036-0151-110	4 Pos. Center	No	No	5V	036-0151-054	15 Pos. Center	Yes	No	5V
036-0151-073	15 Pos. Left	No	Yes	5V	036-0151-057	15 Pos. Right	Yes	Yes	5V
036-0151-074	15 Pos. Left	No	No	5V	036-0151-058	15 Pos. Right	Yes	No	5V
036-0151-013	15 Pos. Center	No	Yes	5V	036-0151-061	15 Pos. Dual	Yes	Yes	5V
036-0151-014	15 Pos. Center	No	No	5V	036-0151-062	15 Pos. Dual	Yes	No	5V
036-0151-017	15 Pos. Right	No	Yes	5V	036-0151-069	4/15 Pos. COMBO	Yes	Yes	5V
036-0151-018	15 Pos. Right	No	No	5V	036-0151-070	4/15 Pos. COMBO	Yes	No	5V
036-0151-021	15 Pos. Dual	No	Yes	5V	036-0151-105	26 Pos. Center	Yes	Yes	5V
036-0151-022	15 Pos. Dual	No	No	5V	036-0151-106	26 Pos. Center	Yes	No	5V
036-0151-029	4/15 Pos. COMBO	No	Yes	5V	036-0151-093	22 Pos. Center	Yes	Yes	5V
036-0151-030	4/15 Pos. COMBO	No	No	5V	036-0151-094	22 Pos. Center	Yes	No	5V
036-0151-101	26 Pos. Center	No	Yes	5V	036-0151-192	Blind	Yes	Yes	3.3 V
036-0151-102	26 Pos. Center	No	No	5V	036-0151-193	Blind	Yes	No	3.3V
036-0151-097	22 Pos. Center	No	Yes	5V	036-0151-137	15 Pos. Left	Yes	Yes	3.3V
036-0151-098	22 Pos. Center	No	No	5V	036-0151-138	15 Pos. Left	Yes	No	3.3V
036-0151-190	Blind	No	Yes	3.3V	036-0151-141	15 Pos. Center	Yes	Yes	3.3V
036-0151-191	Blind	No	No	3.3V	036-0151-142	15 Pos. Center	Yes	No	3.3V
036-0151-135	15 Pos. Left	No	Yes	3.3V	036-0151-121	15 Pos. Right	Yes	Yes	3.3V
036-0151-136	15 Pos. Left	No	No	3.3V	036-0151-122	15 Pos. Right	Yes	No	3.3V
036-0151-139	15 Pos. Center	No	Yes	3.3V	036-0151-125	15 Pos. Dual	Yes	Yes	3.3V
036-0151-140	15 Pos. Center	No	No	3.3V	036-0151-126	15 Pos. Dual	Yes	No	3.3V
036-0151-119	15 Pos. Right	No	Yes	3.3V	036-0151-129	4/15 Pos. COMBO	Yes	Yes	3.3V
036-0151-120	15 Pos. Right	No	No	3.3V	036-0151-130	4/15 Pos. COMBO	Yes	No	3.3V
036-0151-123	15 Pos. Dual	No	Yes	3.3V	036-0151-133	26 Pos. Center	Yes	Yes	3.3V
036-0151-124	15 Pos. Dual	No	No	3.3V	036-0151-134	26 Pos. Center	Yes	No	3.3V
036-0151-127	4/15 Pos. COMBO	No	Yes	3.3V	036-0151-159	4 Pos. Left	Yes	Yes	3.3V
036-0151-128	4/15 Pos. COMBO	No	No	3.3V	036-0151-160	4 Pos. Left	Yes	No	3.3V
036-0151-131	26 Pos. Center	No	Yes	3.3V	036-0151-162	4 Pos. Center	Yes	Yes	3.3V
036-0151-132	26 Pos. Center	No	No	3.3V	036-0151-172	4 Pos. Center	Yes	No	3.3V
036-0151-157	4 Pos. Left	No	Yes	3.3V	036-0151-178	22 Pos. Center	Yes	Yes	3.3V
036-0151-158	4 Pos. Left	No	No	3.3V	036-0162-001	R/W switch	No	No	5V
036-0151-174	4 Pos. Center	No	Yes	3.3V	036-0162-003	R/W switch	No	No	5V
036-0151-170	4 Pos. Center	No	No	3.3V	036-0162-005	R/W switch	Yes	Yes	5V
036-0151-176	22 Pos. Center	No	Yes	3.3V	036-0162-007	R/W switch	Yes	Yes	5V
036-0151-152	Blind	Yes	Yes	5V	036-0162-009	R/W switch	No	No	3.3V
036-0151-117	Blind	Yes	Yes	5V	036-0162-011	R/W switch	No	Yes	3.3V
036-0151-118	Blind	Yes	No	5V	036-0162-013	R/W switch	Yes	No	3.3V
036-0151-065	4 Pos. Left	Yes	Yes	5V	036-0162-015	R/W switch	Yes	Yes	3.3V
036-0151-066	4 Pos. Left	Yes	No	5V					

Dimensions shown in mm
Specifications and dimensions subject to change

68 Way Single-Sided Surface Mount Connector- Standard

Features and Benefits

- Conforms to recommended connector and pad footprint in PCMCIA specifications
- Single-side, single row, surface mount tails/0.10 (.004) thick by 0.25 (.010) wide
- Incorporates PCMCIA card keying at the ends of insulator
- Slots for positive cover set alignment
- 68 way connector is also available with location boss
- Can be modified to meet needs of different offsets
- RoHS Compliant

Materials and Finishes

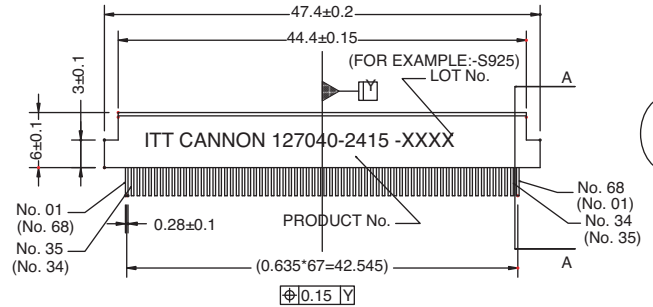
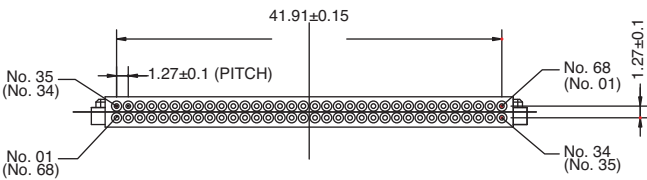
Connectors	High Performance Plastic, Glass Fiber Reinforced (30%), Flame Retardant UL 94V-0 rated, Color: Black
Contacts	Base Material Phosphors Bronze, Finish: Nickel Base with Palladium Nickel plus gold flash for contact area, solder tails Tin/Lead 90%, Tin 10% lead
Cardbus	Base Material Phosphor Bronze

Electrical

Voltage	100V AC rms / DC 150V
Current Rating	0.5 A (per pin)
Dielectric Withstanding Voltage	500V rms withstanding voltage between adjacent pads
Operating Temperature	Maximum soldering Temperature: 260° C for a maximum of one minute

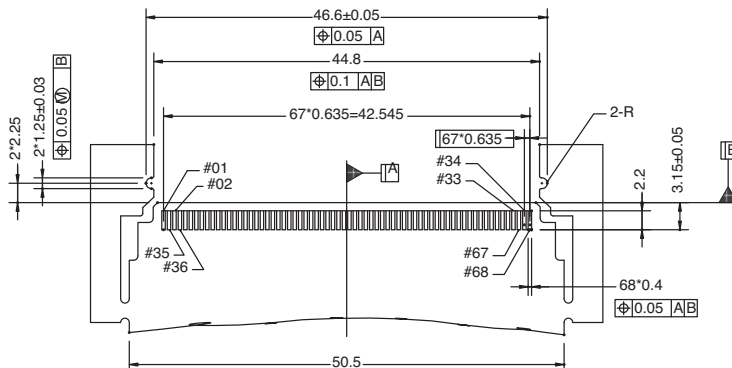
Mechanical

Hertzian Stress	140,000 psi minimum
Durability	10,000 mating cycles



Part Number	Description	Offset	Mount	W/Boss	Package	QTY/Reel
132001-0026LG	DICMF-68S-SPC-M11	0.60mm downward	SMT	Yes	Tape & Reel	1000
132001-0029LG	DICMF-68S-SPC-M06	0.0mm	SMT	Yes	Tape & Reel	1000
132001-0051LG	DICMF-68S-SPC-M10	0.30mm downward	SMT	Yes	Tape & Reel	1000

Recommended PCB layout



Dimensions shown in mm
Specifications and dimensions subject to change

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C-Flash®

Great Things Come in Small Packages

The latest small form factor removable storage units are here, C-Flash packaging for CompactFlash*. C-Flash is the optimal solution for cover set toughness. A plastic frame is molded around the perimeter of the cover and orientated into position with guide posts, which simplifies its assembly. Once assembled the covers are ultrasonically welded together in a continuous weld joint around the perimeter of the card. This process provides the most rigid compact flash products in the industry and allows OEMs to streamline their manufacturing processes to deliver cost effective solutions while maximizing production efficiencies. C-Flash cover sets and 50 way connectors are available in either Type I or Type II packages.



Applications

- Digital Camera's
- Handheld portable devices
- Camcorders
- Home entertainment devices
- Wireless communications
- Personal computers & printers
- Security devices
- Test and measurement devices
- Medical instrumentation

Product Features and Benefits

- Fast and easy assembly
- Patented, ultrasonically welded technology
- Cover sets meet all Type I and Type II specifications
- A variety of connector offset options are available
- Accommodates most 50 pin connectors
- Meets Compact Flash Association standards
- Insert molded rigid plastic frame enclosure
- Polarized to prevent incorrect card insertion
- Optimum EMI shielding
- Customized extensions for Type I and Type II cover sets
- Secure (tamper proof)
- Cover sets are available with or without insulation on the inside of either cover
- Type II cards are available with various I/O configurations
- Low tooling costs on custom designed packages
- USW tooling available
- RoHS compliant

Materials and Finishes: C-Flash Card Kit

Covers	304 Annealed stainless steel, Durabrush, 0.20mm thickness
Cover Insulation	Mylar, 0.05mm thickness
Frame Molding	Black Thermoplastic
Length	36.40 ± 0.15mm
Width	42.8 ± 0.10mm
Thickness	3.30 ± 0.10mm (including label area)

Materials, Finishes, and Mechanical: 50 pin connector

Insulator	Liquid Crystal Polymer, UL 94V-0 Rated Color: Black
Contact	100µ in. Nickel over Copper Alloy
Contact Wiping Area	PdNi 40µ in. with gold flash
Contact Solder Tails	Au 2µ
Connector Type	Straddle Mount or Surface Mount
Single Socket Holding Force	4.9N min push out at 25mm/minute
Total Mating Force	28.8N max at 25mm/minute
Total Unmating Force	4.9N min and 24.5N max at 25mm/min
Durability	10,000 mating cycles

Electrical: 50 pin connector

Current Rating	0.5A
Dielectric Withstanding Voltage	500 Vms at Sea Level
Operating Temperature	-55°C to +85°C
Insulation Resistance	Initially 500mΩ at 500 Vdc

C-Flash is a registered trademark of ITT Industries

* Compact Flash is a registered trademark of Compact

Flash Association



Dimensions shown in mm
Specifications and dimensions subject to change

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Cover C-Flash Type I

Features and Benefits

- Meets Type I specifications as defined by the Compact Flash Association
- Two stainless steel metal stamping with an insert molded frame that is ultrasonically welded to form a rigid closure measuring 36.4mm x 42.8mm
- Cover sets are available with or without insulation on the inside of either cover
- Optimum EMI shielding
- Polarized to prevent incorrect card insertion
- USW tooling available

Materials and Finishes

Cover	304 Annealed stainless steel, Durabrush 0.20mm thickness
Insulation	Mylar, 0.05mm thickness
Frame Molding	Black Thermoplastic

Meets CFA Specifications

Length	36.40 ± 0.15mm
Width	42.8 ± 0.10mm
Thickness	3.30 ± 0.10mm (including label areas)

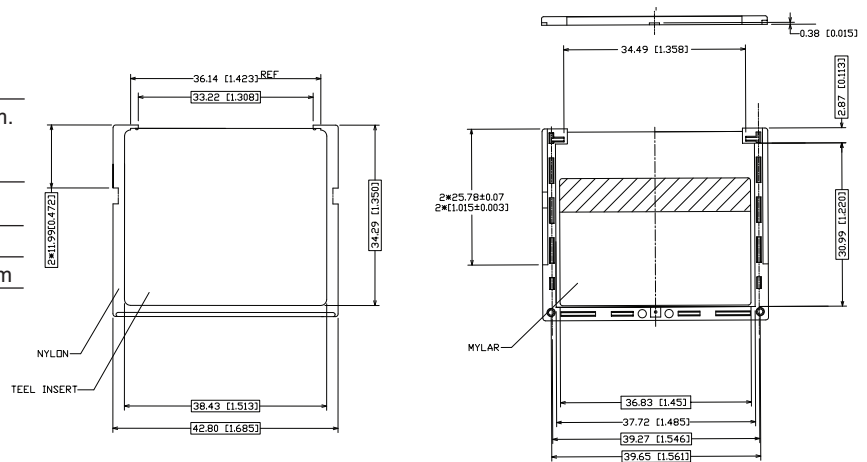
Bottom Cover

Insulation

Insulation is optional. It measures 36.83mm x 24.13mm. A double-sided adhesive strip (for the 50 position) on insulation is also available.

Labels- recess and recommended size

Label Recess	0.08mm deep
Label Size	37.00mm x 32.00mm



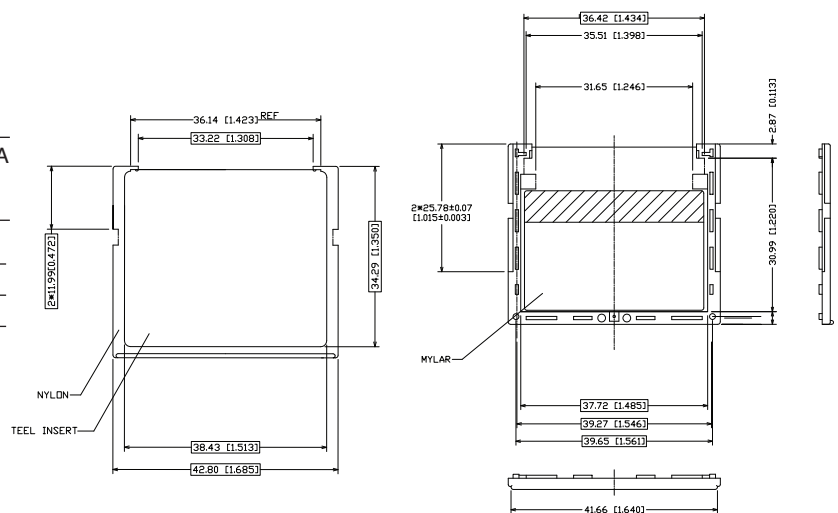
Top Cover

Insulation

Insulation is optional. It measures 36.83mm x 24.13mm. A double-sided adhesive strip (for the 50 position) on insulation is also available.

Labels- recess and recommended size

Label Recess	0.08mm deep
Label Size	37.00mm x 32.00mm



Cover Set Description*	Part Number	Cover Set Description	Part Number
Top and Bottom No Insulation	036-0144-000	-	-
Top Insulation Only	036-0144-003	Top Insulation with Adhesive	036-0144-004
Bottom Insulation Only	036-0144-001	Bottom Insulation with Adhesive	036-0144-005
Top and Bottom Insulation	036-0144-002	Top and Bottom Insulation with Adhesive	036-0144-006

*Blind I/O only

Dimensions shown in mm
Specifications and dimensions subject to change

Cover C-Flash Type I- Extension

Features and Benefits

- Meets Type I specifications as defined by the Compact Flash Association
- Two stainless steel metal stamping with an insert molded frame that is ultrasonically welded
- Tailormade to meet the customers requirements for wireless application antenna, Led feature
- Optimum EMI shielding
- Polarized to prevent incorrect card insertion
- USW tooling available
- Low tooling costs on customized designs for plastic extensions

Materials and Finishes

Cover	304 Annealed stainless steel, Durabrush 0.20mm thickness
Insulation	Mylar, 0.05mm thickness
Frame Molding	Black Thermoplastic

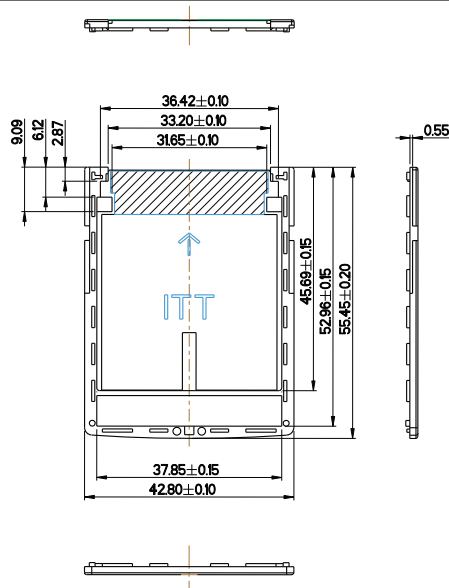
Meets CFA Specifications

Width	42.8 ± 0.10mm
Thickness	3.30 ± 0.10mm (including label areas)

Bottom Cover

Insulation

Insulation is optional. It measures 36.83mm x 24.13mm. A double-sided adhesive strip (for the 50 position) on insulation is also available.

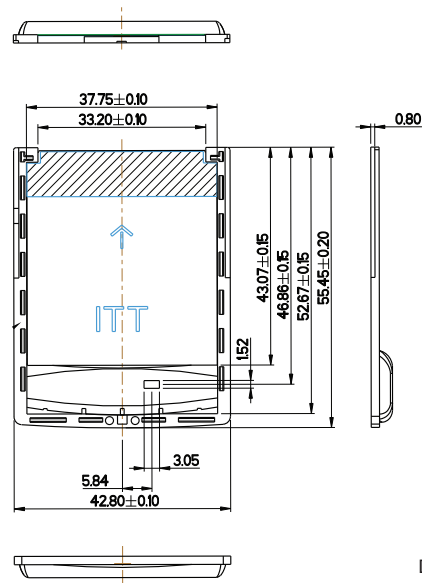


Cover Set Description	Part Number
Top Cover, Internal antenna	036-0154-019

Top Cover

Insulation

Insulation is optional. It measures 36.83mm x 24.13mm. A double-sided adhesive strip (for the 50 position) on insulation is also available.



Cover Set Description	Part Number
Top Cover, Internal antenna	036-0154-020



Dimensions shown in mm
Specifications and dimensions subject to change

Cover C-Flash Type II

Features and Benefits

- Type II cards are electronically compatible with Compact Flash Specifications
- Type II cards will be used in higher capacity applications
- Type II cards are available with various I/O configurations including 4 and 15 position blind I/O and custom
- Optimum EMI shielding
- Polarized to prevent incorrect card insertion
- USW tooling available
- Low tooling costs on customized designs for plastic extensions

Materials and Finishes

Cover	304 Annealed stainless steel, Durabrush 0.20mm thickness
Insulation	Mylar, 0.05mm thickness
Frame Molding	Black Thermoplastic

Meets CFA Specifications

Length	36.40 ± 0.15mm
Width	42.8 ± 0.10mm
Thickness	5.0mm max

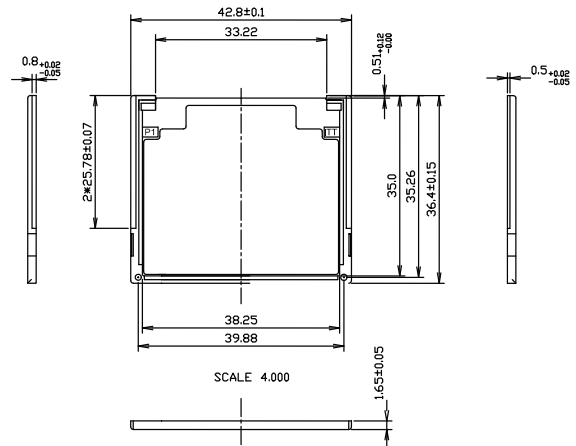
Bottom Cover

Insulation

Insulation is optional. It measures 36.83mm x 24.13mm. A double-sided adhesive strip (for the 50 position) on insulation is also available.

Labels- recess and recommended size

Label Recess	0.08mm deep
Label Size	37.00mm x 32.00mm



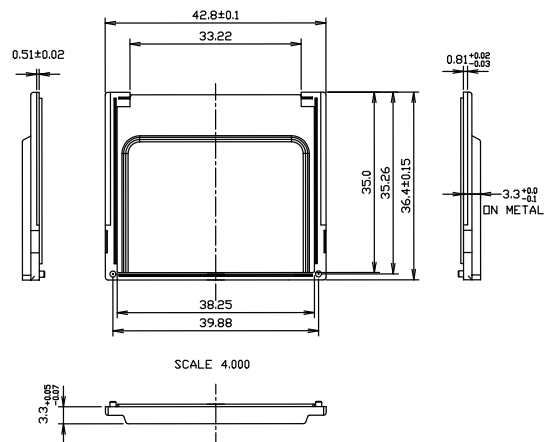
Top Cover

Insulation

Insulation is optional. It measures 36.83mm x 24.13mm. A double-sided adhesive strip (for the 50 position) on insulation is also available.

Labels- recess and recommended size

Label Recess	0.08mm deep
Label Size	37.00mm x 32.00mm



Cover Set Description*	Part Number	Cover Set Description	Part Number
Top and Bottom No Insulation	036-0155-000	-	-
Top Insulation Only	036-0155-003	Top Insulation with Adhesive	036-0155-004
Bottom Insulation Only	036-0155-001	Bottom Insulation with Adhesive	036-0155-005
Top and Bottom Insulation	036-0155-002	Top and Bottom Insulation with Adhesive	036-0155-006

*Blind I/O only

Dimensions shown in mm
Specifications and dimensions subject to change

50 Way Surface Mount Connector

Features and Benefits

- Meets all CFA standard requirements
- Electronically complies with the PCMCIA ATA standard
- Mounts the PCB allowing reflow, how bar or hand soldering
- RoHS Compliant

Materials and Finishes

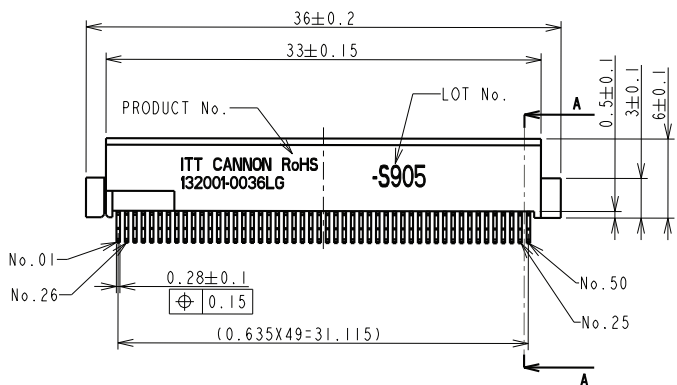
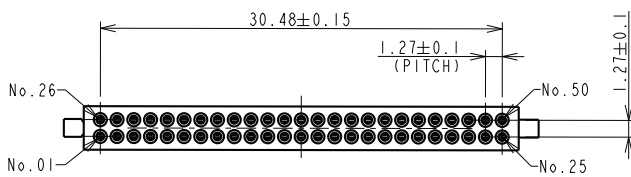
Insulation	Liquid Crystal Polymer, UL 94V-0 Rated, Color: Black
Contact	100µ in. Nickel over Copper Alloy
Contact Wiping Area:	PdNi 30µ in. with gold flash
Contact Solder Tails:	150µ in. min 90/10 Tin Lead

Electrical

Current Rating	0.5A
Dielectric Withstanding Voltage	500 Vrms at Sea level
Operating Temperature	-55°C to +85°C
Insulation Resistance:	Initially 1000mΩ at 500 Vdc

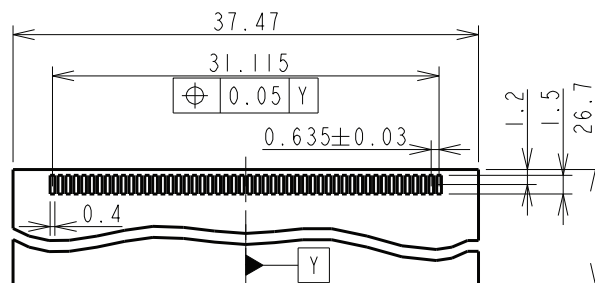
Mechanical

Connector Type	Straddle mount or Surface Mount
Single Socket Holding Force	4.9N minimum push out at 25mm/minute
Total Mating Force	28.8N maximum at 25mm/minute
Total Unmating Force	4.9N minimum and 24.5N maximum at 25mm/minute
Durability	10,000 mating cycles



Part Number	Offset (downward)	Description
980-2001-169	0.00mm	50 way female straddle mount socket
132001-0022LG	0.26mm	50 position without ground, without locating boss
132001-0023LG	0.85mm	50 position SMT without ground, with locating boss
132001-0028LG	0.26mm	50 position SMT with ground clip
132001-0036LG	-0.40mm	50 position SMT without ground clip
132001-0038LG	0.26mm	50 position SMT without ground clip with locating boss

Recommended PCB Layout



Dimensions shown in mm
Specifications and dimensions subject to change

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ExpressCard Snappy

The Future of PCMCIA Cards is Here

ITT's ExpressCard 26 pin edge card connectors and snappy cover sets meet the PCMCIA industries demands for 34mm and 54mm wide modules. Our stainless steel cover sets are quick and easy to assemble. With a universal slot design and module formats measuring 5mm deep by just 75mm long, the connectors and cover sets enable both compact ExpressCard/34 and /54 cards to fit in the same aperture, saving component count. This robust design is RoHS compliant and allows up to 10,000 cover set mating cycles. ITT Express Card products are certified to the Express Card Compliant Program (PCMCIA) and are listed in the Express Card Resource Directory.



Applications

- Notebook/Desktop computers
- Storage devices
- Memory media adapters
- Handheld portable devices
- Wireless/Wired communications
- Test and measurement devices
- Set-Top boxes
- Digital TV
- Biometric devices

Product Features

- Fast and easy hand assembly
- Simple press tool available for high volume assembly
- A variety of connector offset options are available
- Accommodates most 26 pin connectors
- ExpressCard/34 Module: 34mm (W) X 75mm (L) X 5mm (T)
- ExpressCard/54 module: 54mm (W) X 75mm (L) X 5 mm (T)
- Meets PCMCIA Express Card Associations Standards
- 26 pin connector designed to prevent incorrect card insertion
- Optimum EMI shielding
- End cap extensions can be customized to accept a multitude of I/O connectors
- Customized decorative finishes
- Cover sets are available with or without insulation on the inside of either cover
- SIM card cut-out options are available upon request
- Low tooling costs on custom designed packages
- RoHS compliant

Materials and Finishes: ExpressCard Kit

Cover	304 Annealed stainless steel, 0.20mm thickness, Durabrush
Cover Insulation	Mylar, 0.08mm thickness

Label Recess and Recommended Size

Label Recess	0.08mm deep
Label Size	58.40mm x 22.40mm

Materials and Finishes: 26 pin connector

Connector Insulator	Liquid Crystal Polymer, Flame Retardant Rate: UL94V-0, Color: Black
Connector Contacts	Base Material: Phosphor Bronze, Finishes: Nickel base with Au at contact area and pure tin at solder tails

Electrical: 26 pin connector

Current Rating	0.75 A Per Pin
Dielectric Withstanding Voltage	500 Vms AC for 1 minute
LL Contact Resistance	40mΩ Max

Mechanical: 26 pin connector

Total Mating Force	39N Maz at Speed of 12.5mm per minute
Total Unmating Force	3.7 - 18.5 N at speed of 12.5mm per minute
Durability	10,000 cycles

Dimensions shown in mm
Specifications and dimensions subject to change

Snap-On Version, Standard Type 34- Covers

Features and Benefits

- Compliant with ExpressCard Standard
- Frameless cover set with snap-on locking mechanism
- Easy to assemble by hand or simple press tool
- Available with or without label recess
- Flexibility to customize end caps

Materials and Finishes

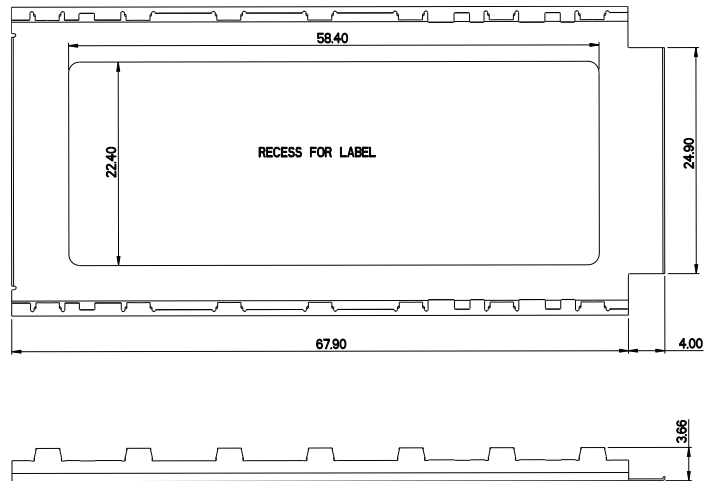
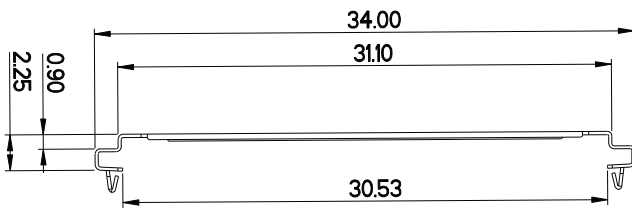
Cover	304 Annealed stainless steel, 0.20mm thickness
Finish	Sand Blast, Matte

Labels- recess and recommended size

Label Recess	0.08mm deep
Label Size	58.40mm x 22.40mm

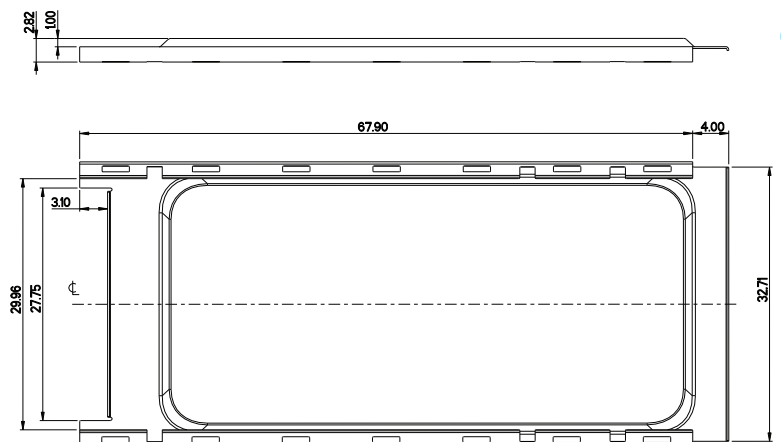
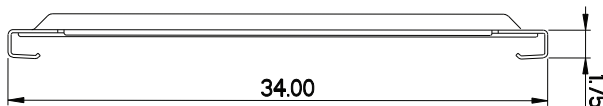
Top Cover

Cover Description	Part Number
Top with label recess	039-4004-304
SIM Access Feature	
Optional, Contact ITT for SIM Cut-out	



Bottom Cover

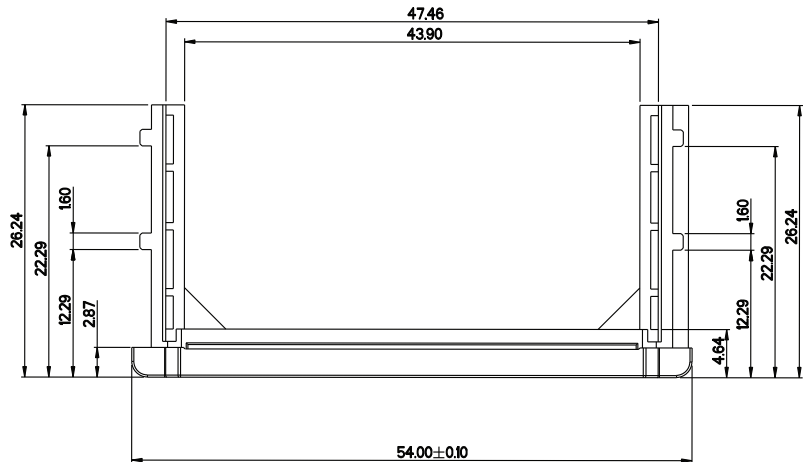
Cover Description	Part Number
Top with label recess	039-4004-304
Bottom without label recess	039-4004-358
SIM Access Feature	
Optional, Contact ITT for SIM Cut-out	



End Cap



Material	Nylon Glass filled or PC + ABS
Description	End Cap
Part Number	140-4004-340



Extended Box

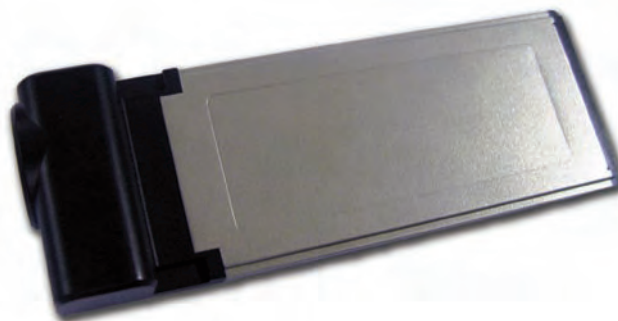
With optional features of openings for:

- LED
- USB/Mini USB
- HDMI
- RJ Plug
- Antenna Slot
- RF

With the option of surface treatment of:

- Paint, Silk Print, Pad Print, and UV Treatment

Our custom extended box solutions employ the latest standards and techniques in 3D modeling to ensure your project is a success. Our ExpressCard extended boxes can be customized to accept a multitude of I/O packages. Contact your local ITT sales office for more information.



Dimensions shown in mm
Specifications and dimensions subject to change

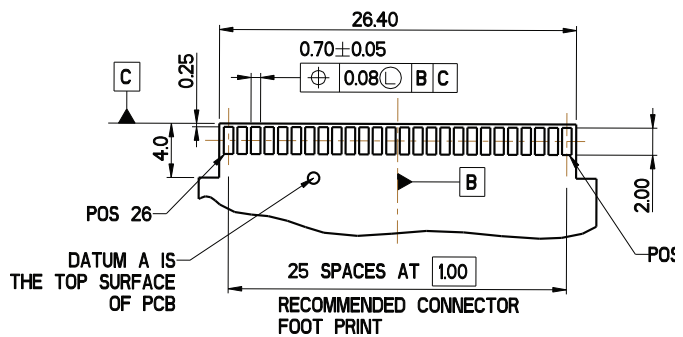
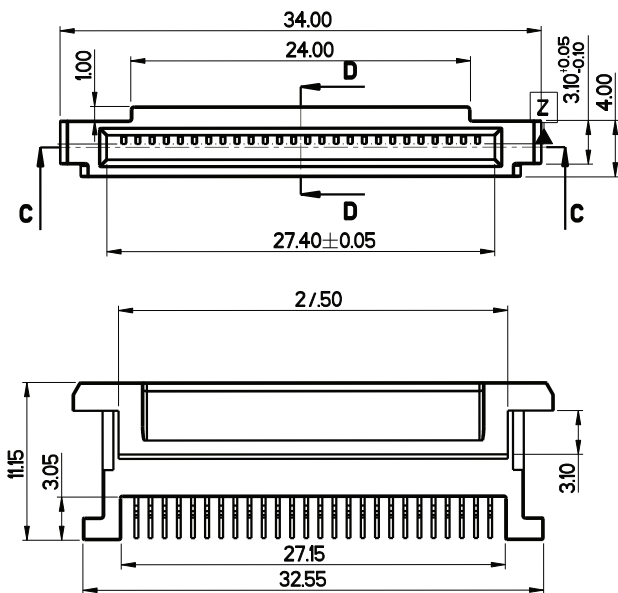
Snap-On Version, Type 34, 26 Way Surface Mount Connector

Features and Benefits

- Compliant with ExpressCard Standard
- Snap-on design with locking mechanism feature along both ends
- Easy to assemble
- Flexibility to custom design offsets
- RoHS Compliant

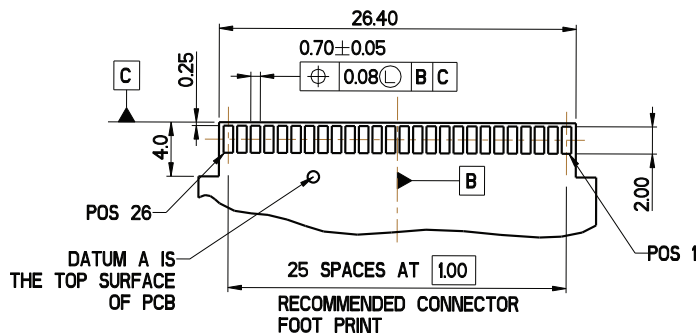
Materials and Finishes

Insulation	Liquid Crystal Polymer, Color: Black
Contact Base Material	Phosphor Bronze
Contact Wiping Area	Au over Nickel
Contact Solder Area	Pure Tin over Nickel
Electrical	
Current Rating	0.75A per pin max
Dielectric Withstanding Voltage	40m Ω Max
Mechanical	
Contact Type	Surface Mount
Total Mating Force	39N max at speed of 12.5mm per minute
Total Unmating Force	3.7-18.5 N at speed of 12.5mm per minute
Durability	5000 Cycles



Part Number	Offset	Mount	W/Boss	Package	Qty/Reel
132001-1117	0.0mm	SMT	No	Tape and Reel	800
132001-1118	0.25mm upward	SMT	No	Tape and Reel	800

Recommended PCB Dimensions



Dimensions shown in mm
Specifications and dimensions subject to change

ExpressCard Ultra

The Future of PCMCIA Cards is Here

ITT's ExpressCard 26 pin edge card connectors and ultrasonic cover sets meet the PCMCIA industry's demands for 34mm and 54mm wide modules. A plastic frame is molded around the perimeter of the cover and orientated into position with guide posts, which simplifies its assembly during ultrasonic welding. With a universal slot design and module formats measuring 5mm deep by just 75mm long, the connectors and cover sets enable both compact ExpressCard/24 and /54 cards to fit in the same aperture, saving component count. This robust design is RoHS compliant and allows up to 10,000 cover set mating cycles. ITT Express Card products are certified to the Express Card Compliant Program (PCMCIA) and are listed in the Express Card Resource Directory.



Applications

- Notebook/Desktop computers
- Storage devices
- Memory media adapters
- Handheld portable devices
- Wireless/Wired communications
- Test and measurement devices
- Set-Top boxes
- Security devices
- Biometric devices

Product Features and Benefits

- Fast and easy assembly
- Ultrasonic weld tools available for high volume assembly
- A variety of connector offset options are available
- Accommodates most 26 pin connectors
- ExpressCard/34 Module: 34mm (W) X 75mm (L) X 5mm (T)
- ExpressCard/54 module: 54mm (W) X 75mm (L) X 5 mm (T)
- Secure (tamper proof)
- Meets PCMCIA ExpressCard Association Standards
- Polarized to prevent incorrect card insertion
- Optimum EMI shielding
- SIM card cut-out options available
- Customized decorative finishes
- Cover sets are available with or without insulation on the inside of either cover
- End Cap extensions can be customized to accept a multitude of I/O connectors
- Low tooling costs on custom designed packages
- RoHS Compliant

Materials and Finishes: ExpressCard kit

Cover	304 Annealed stainless steel, 0.20mm thickness, Durabrush
Cover Insulation	Mylar, 0.08mm thickness

Label Recess and Recommended Size

Label Recess	58.40mm x 22.40mm
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Materials and Finishes: 26 pin connector

Connector Insulator	Liquid Crystal Polymer, Flame Retardant Rate: UL94V-0, Color: Black
Connector Contacts	Base Material: Phosphor Bronze, Finishes: Nickel base with Au at contact area and pure tin at solder tails

Electrical: 26 pin connector

Current Rating	0.75 A Per Pin
Dielectric Withstanding Voltage	600 Vms AC for 1 minute
LL Contact Resistance	40mΩ Max

Mechanical: 26 pin connector

Total Mating Force	39N Maz at Speed of 12.5mm per minute
Total Unmating Force	3.7 - 18.5 N at speed of 12.5mm per minute
Durability	10,000 cycles

Dimensions shown in mm
Specifications and dimensions subject to change

Ultra Version, Standard Type 34-Covers

Features and Benefits

- Compliant to ExpressCard Standard
- Utilizes an insert molded frame that is ultrasonically welded to form a rigid encasing
- Ultrasonic weld assembly tools available
- Flexibility to customize end caps
- Available with or without label recess

Materials and Finishes

Cover	304 Annealed stainless steel, 0.20mm thickness, Durabrush finish
Frame Molding	Black Thermoplastic, UL 94-VO
Insulation	Customized mylar available

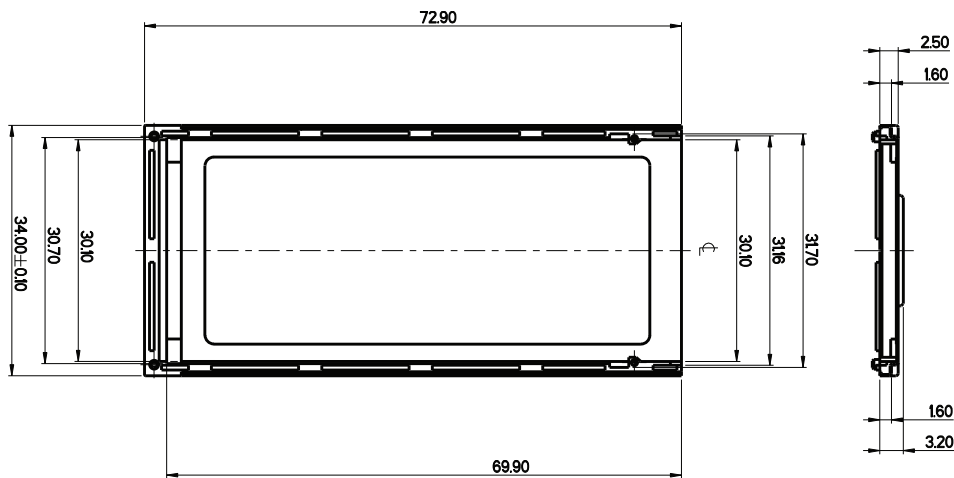
Labels- recess and recommended size

Label Recess	0.08mm deep
Label Size	58.40mm x 22.40mm

Top Cover

Cover Set Description	Part Number
Top with label recess	132001-3403

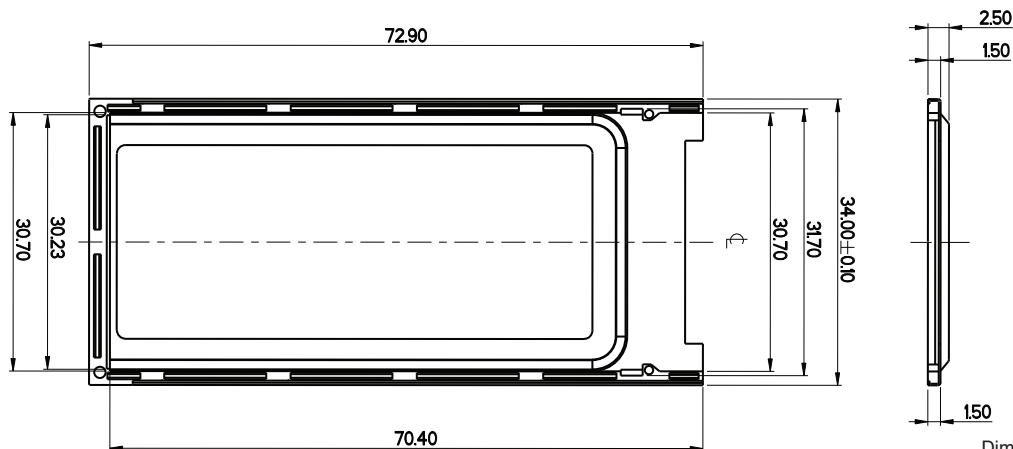
SIM Access Feature
Optional, Contact ITT for SIM Cut-out



Bottom Cover

Cover Set Description	Part Number
Bottom with label recess	132001-3404

SIM Access Feature
Optional, Contact ITT for SIM Cut-out



Dimensions shown in mm
Specifications and dimensions subject to change

Ultrasonic Weld, Standard Type 34, Extended Box

Extended Box

Our custom extended box solutions employ the latest standards and techniques in 3D modeling to ensure your project is a success. Our ExpressCard extended boxes can be customized to accept a multitude of I/O packages. Contact your local ITT sales office for more information.

With optional features for openings:

- LED
- USB/Mini USB
- HDMI
- RJ Plug
- Antenna Slot
- RF

With the option of surface treatment:

- Paint, Silk Print, Pad Print, UV Treatment

Ultrasonic Weld Version, Type 34, 26 Way Surface Mount Connector

Features and Benefits

- Compliant to Express Card Standard
- Easy to assemble
- Flexibility to custom design offsets
- RoHS Compliant

Materials and Finishes

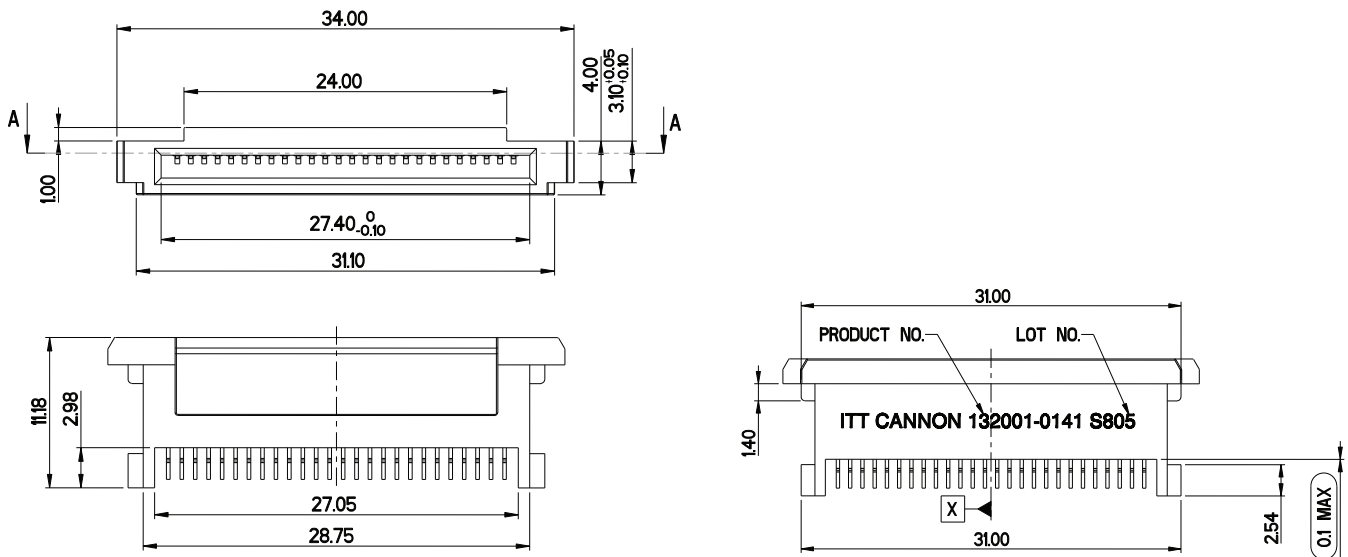
Insulation	Liquid Crystal Polymer, Color: Black
Contact Base Material	Phosphor Bronze
Contact Wiping Area	Au μ over Nickel
Contact Solder Area	Pure Tin over Nickel

Electrical

Current Rating	0.75A per pin max
Dielectric Withstanding Voltage	500 Vrms AC for 1 minute
LL Contact Resistance	40m Ω Max

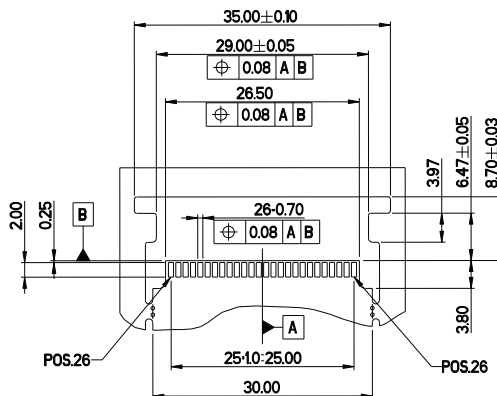
Mechanical

Contact Type	Surface Mount
Total Mating Force	39N max at speed of 12.5mm per minute
Total Unmating Force	3.7-18.5N at speed of 12.55 per minute
Durability	5000 cycles



Part Number	Offset	Mount	W/Boss	Package	Qty/Reel
132001-0140	0.635mm upward	SMT	Yes	Tape and Reel	800
132001-0141	0.535mm upward	SMT	Yes	Tape and Reel	800
132001-0202	0.50mm upward	SMT	Yes	Tape and Reel	800

Recommended PCB Dimension



Dimensions shown in mm
Specifications and dimensions subject to change

CFlash

The Future of CompactFlash is Here

The latest small form factor removable storage standard to be released from the Compact Flash Association (CFA) is CFlash. ITT ICS is pleased to support this new standard with our line of two piece ultrasonic weld cover sets and 24 way connectors.

Our CFlash covers offer the optimal solution for cover set toughness. A plastic frame is molded around the perimeter of the cover and orientated into position with guide posts, which simplifies its assembly. Once assembled the covers are ultrasonically welded together in a continuous weld joint around the perimeter of the card. This process provides the most rigid CFlash products in the industry and allows OEM's to streamline their manufacturing processes to deliver cost effective solutions while maximizing production efficiencies. CFlash cover sets and 24 way connectors are available in either Type I or Type II packages.



Applications

- Digital Camera's
- Security devices
- Industrial and enterprise storage systems
- Handheld portable devices
- Wireless communications
- Test and measurement devices
- Camcorders
- Personal computers and printers
- Medical instrumentation

Product Features

- Fast and easy assembly
- Patented, ultrasonically welded technology
- Cover sets meet all Type I and Type II specifications
- 24 position connector
- Meets Compact Flash Association CFlash Standards
- Insert molded rigid plastic frame enclosure
- Polarized to prevent incorrect card insertion
- Optimum EMI shielding
- Secure (tamper proof)
- Cover sets are available with or without insulation on the inside of either cover
- USW tooling available
- RoHS compliant

Materials and Finishes: CFlash Card Kit

Cover	304 Annealed Stainless Steel, Durabrush 0.20 mm thickness
Insulation	Mylar, 0.05mm thickness
Frame Molding	Black Thermoplastic

Materials and Finishes: 24 pin connector

Insulation	Liquid Crystal Polymer, UL94V-0 Rated, Color: Black
Contact	Nickel over Copper Alloy
Contact Wiping Area	Au over Nickel
Contact Solder Tails	pure tin over Nickel

Mechanical: 24 pin connector

Connector Type	Surface Mount
Mechanical Shock	No discontinuity greater than 100ns
Total Mating Force	28.8N maximum at 25mm/minute
Total Unmating Force	3.7N minimum and 24.5N maximum at 25mm/minute
Durability	10,000 mating cycles

Electrical: 24 pin connector

Current Rating	1.5A Per Pin
Dielectric Withstanding Voltage	500 Vms at Sea Level
Operating Temperature	-55°C to +85°C
Insulation Resistance	Initially 100mΩ at 500 Vdc

Cover - Type I

Features and Benefits

- Meets Type I specifications as defined by the Compact Flash Association
- Two stainless steel metal stamping with an insert molded frame that is ultrasonically welded to form a rigid closure measuring 36.4mm x 42.8mm
- Cover sets are available with or without insulation on the inside of either cover

Materials and Finishes

Cover	304 Annealed stainless steel, Durabrush, 0.20mm thickness
Insulation	Mylar, 0.05mm thickness
Frame Molding	Black Thermoplastic

Meets CFA Specifications

Length	36.40 ± 0.15mm
Width	42.8 ± 0.10mm
Thickness	3.6mm Max (including label area)

Bottom Cover

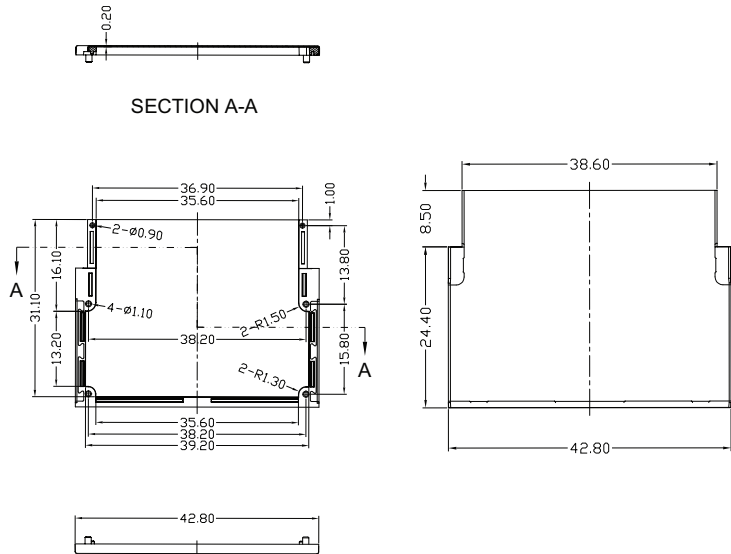
Insulation

Insulation is optional. A double-sided adhesive strip (for the 24 position) on insulation is also available.

Labels- recess and recommended size

Label Recess	0.08mm deep (optional)
Label Size	Contact ITT for design

Cover Set Description	Part Number
Bottom with Insulation	132001-0630



Top Cover

Insulation

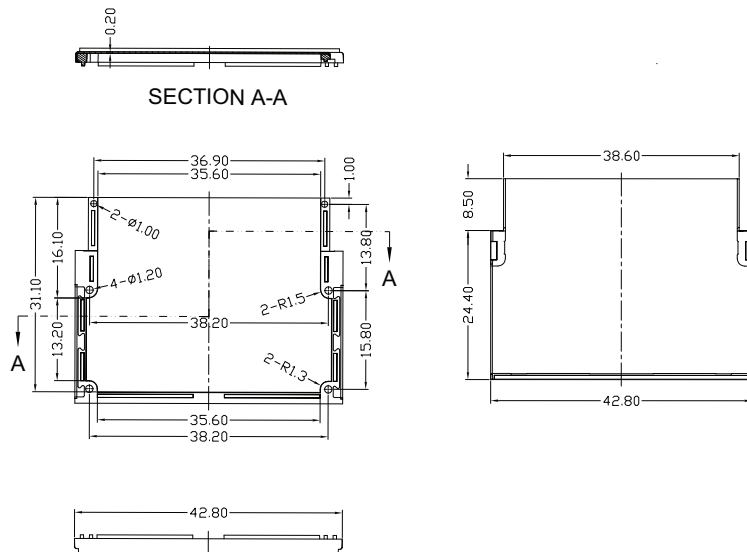
Insulation is optional. A double-sided adhesive strip (for the 24 position) on insulation is also available.

Labels- recess and recommended size

Label Recess	0.08mm deep (optional)
Label Size	Contact ITT for design

Cover Description*	Part Number
Top with Insulation	132001-0629

* Blind I/O only



Cover- Type II

Features and Benefits

- Meets Type II specifications as defined by the Compact Flash Association
- Two stainless steel metal stamping with an insert molded frame that is ultrasonically welded to form a rigid closure measuring 36.4mm x 42.8mm
- Cover sets are available with or without insulation on the inside of either cover

Materials and Finishes

Cover	304 Annealed stainless steel, Durabrush, 0.20mm thickness
Insulation	Mylar, 0.05mm thickness
Frame Molding	Black Thermoplastic

Meets CFA Specifications

Length	36.40 ± 0.15mm
Width	42.8 ± 0.10mm
Thickness	5.0mm Max (including label area)

Bottom Cover

Insulation

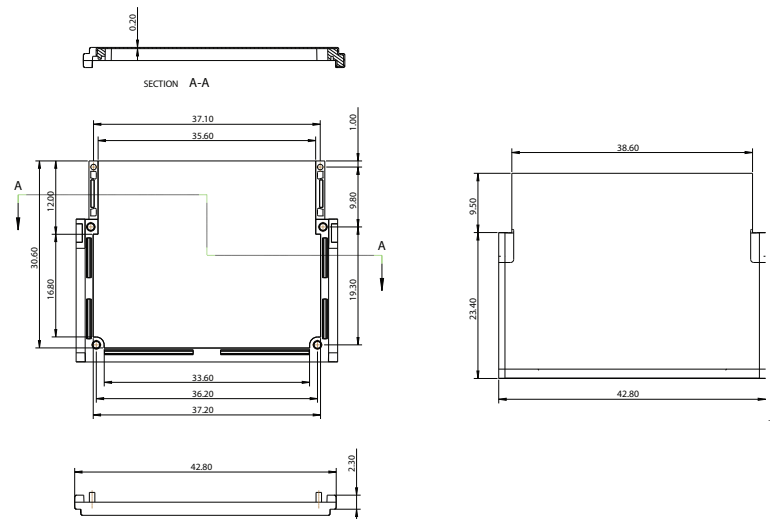
Insulation is optional. A double-sided adhesive strip (for the 24 position) on insulation is also available.

Labels- recess and recommended size

Label Recess	0.08mm deep (optional)
Label Size	Contact ITT for design

Cover Set Description	Part Number
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Bottom with Insulation	132001-0633
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Top Cover

Insulation

Insulation is optional. A double-sided adhesive strip (for the 24 position) on insulation is also available.

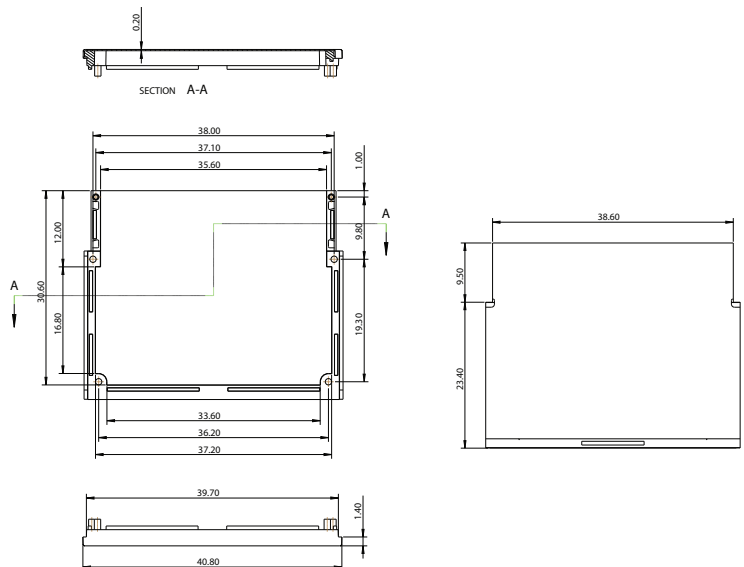
Labels- recess and recommended size

Label Recess	0.08mm deep (optional)
Label Size	Contact ITT for design

Cover Description*	Part Number
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Top with Insulation	132001-0632
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* Blind I/O only



24 Way Surface Mount Connector

Features and Benefits

- Meets all CFA standard requirements
- Mounts the PCB allowing reflow, hot bar or hand soldering
- RoHS Compliant

Materials and Finishes

Insulation	Liquid Crystal Polymer, UL94V-0 Rated, Color: Black
Contact	Nickel over Copper Alloy
Contact Wiping Area	Au over Nickel
Contact Solder Tails	pure tin over Nickel

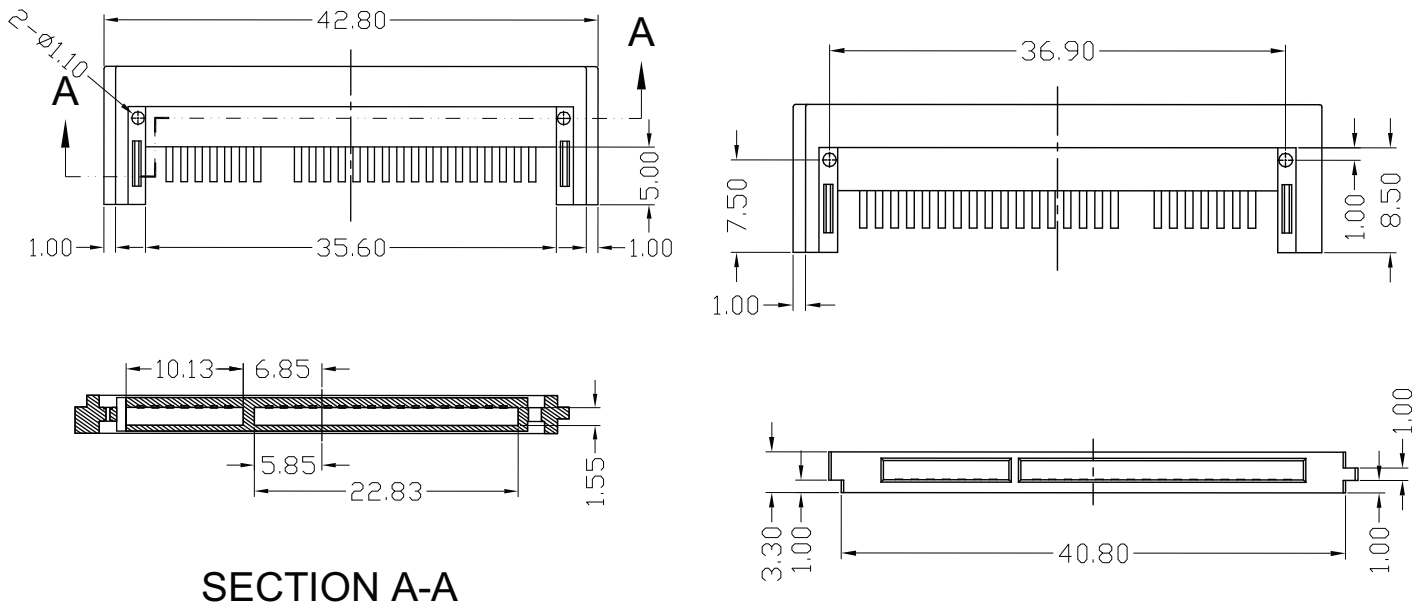
Electrical

Current Rating	1.5A Per Pin
Dielectric Withstanding Voltage	500 Vms at Sea Level
Operating Temperature	-55°C to +85°C
Insulation Resistance	Initially 100mΩ at 500 Vdc

Mechanical

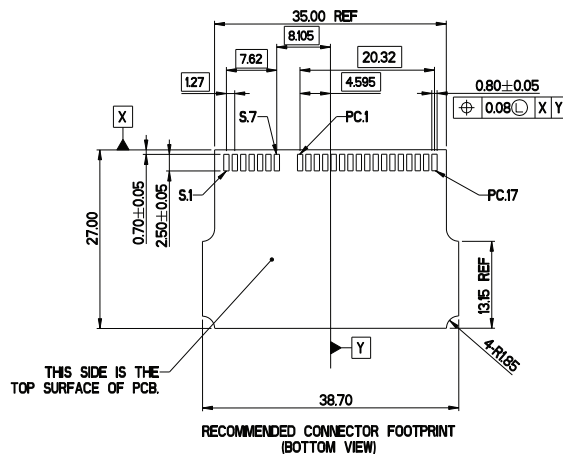
Connector Type	Surface Mount
Mechanical Shock	No discontinuity greater than 100
Total Mating Force	28.8N maximum at 25mm/minute
Total Unmating Force	3.7N minimum and 24.5N maximum at 25mm/minute
Durability	10,000 mating cycles

Part Number	Offset	Description	Package	Qty/Reel
132001-0097	0.0mm	24 position SMT	Tape and Reel	800



SECTION A-A

Recommended PCB Layout



Dimensions shown in mm
Specifications and dimensions subject to change

www.ittcannon.com

Ultrasonic Welding Tool

ITT offers the ultrasonically welded package using the Branson welder. All welders come in a compact bench unit and include: the power supply, controls, indicators and a welding stand.

Ultrasonic welding is a superior technology providing the most rigid card set in the industry. The welder has digital controls to ensure accurate and repeatable assemblies. The fixtures insure exact repeatability, no additional adjustments are needed once the machine has been programmed for a specific unit.

The welder applies direct pressure and focused ultrasonic energy to the kit to reflow the plastic frame halves together to form a solid and rigid unit. Welding takes very short time to complete.


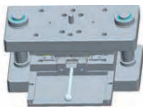
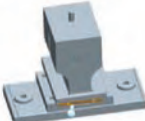




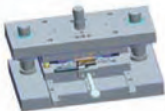
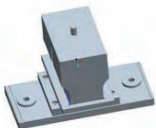

This welding technique can be used to produce the following packaging: PCMCIA Cards, CompactFlash Cards, and ExpressCards and CFast.

* For detail application and selection, please consult with your nearby Branson.



Cover Set Assembly Tools

ITT offers a complete line of customized assembly tooling for all of our snappy and ultrasonically welded products. Contact factory for details.

	Card Assembly Tools	Card Opening Tools
PCMCIA Snappy		
PCMCIA Ultra		
C-Fast (Compact Flash)		
ExpressCard Snappy		
ExpressCards Ultra		

Dimensions shown in mm
Specifications and dimensions subject to change

Product Safety and Warranty

1. MATERIAL CONTENT AND PHYSICAL FORM

Electrical connectors do not usually contain hazardous materials. They contain conducting and non-conducting materials and can be divided into two groups.

a) Printed circuit types and low cost audio types which employ all plastic insulators and casings.

b) Rugged, Fire Barrier and High Reliability types with metal casings and either natural rubber, synthetic rubber, plastic or glass insulating materials. Contact materials vary with type of connector and also application and are usually manufactured from either: Copper, copper alloys, nickel, alumel, chromel or steel. In special applications, other alloys may be specified.

2. FIRE CHARACTERISTICS AND ELECTRIC SHOCK HAZARD

There is no fire hazard when the connector is correctly wired and used within the specified parameters. Incorrect wiring or assembly of the connector or careless use of metal tools or conductive fluids, or transit damage to any of the component parts may cause electric shock or burns. Live circuits must not be broken by separating mated connectors as this may cause arcing, ionization and burning. Heat dissipation is greater at maximum resistance in a circuit. Hot spots may occur when resistance is raised locally by damage, e.g. cracked or deformed contacts, broken strands of wire. Local overheating may also result from the use of the incorrect application tools or from poor quality soldering or slack screw terminals. Overheating may occur if the ratings in the product Data Sheet/Catalog are exceeded and can cause breakdown of insulation and hence electric shock. If heating is allowed to continue it intensifies by further increasing the local resistance through loss of temper of spring contacts, formation of oxide film on contacts and wires and leakage currents through carbonization of insulation and tracking paths. Fire can then result in the presence of combustible materials and this may release noxious fumes. Overheating may not be visually apparent. Burns may result from touching overheated components.

3. HANDLING

Care must be taken to avoid damage to any component parts of electrical connectors during installation and use. Although there are normally no sharp edges, care must be taken when handling certain components to avoid injury to fingers. Electrical connectors may be damaged in transit to the customers, and damage may result in creation of hazards. Products should therefore be examined prior to installation/use and rejected if found to be damaged.

4. DISPOSAL

Incineration of certain materials may release noxious or even toxic fumes.

5. APPLICATION

Connectors with exposed contacts should not be selected for use on the current supply side of an electrical circuit, because an electric shock could result from touching exposed contacts on an unmated connector. Voltages in excess of 30 V ac or 42.5 V dc are potentially hazardous and care should be taken to ensure that such voltages cannot be transmitted in any way to exposed metal parts of the connector body. The connector and wiring should be checked, before making live, to have no damage to metal parts or insulators, no solder blobs, loose strands, conducting lubricants, swarf, or any other undesired conducting particles. Circuit resistance and continuity check should be made to make certain that there are no high resistance joints or spurious conducting paths. Always use the correct application tools as specified in the Data Sheet/Catalog. Do not permit untrained personnel to wire, assemble or tamper with connectors. For operation voltage please see appropriate national regulations.

IMPORTANT GENERAL INFORMATION

(i) Air and creepage paths/Operating voltage. The admissible operating voltages depend on the individual applications and the valid national and other applicable safety regulations.

For this reason the air and creepage path data are only reference values. Observe reduction of air and creepage paths due to PC board and/or harnessing.

(ii) Temperature

All information given are temperature limits. The operation temperature depends on the individual application.

(iii) Other important information

Cannon continuously endeavors to improve their products. Therefore, Cannon products may deviate from the description, technical data and shape as shown in this catalog and data sheets.

ITT Interconnect Solutions, a Division of ITT Corporation manufactures the highest quality products available in the marketplace; however these products are intended to be used in accordance with the specifications in this publication. Any use or application that deviates from the stated operating specifications is not recommended and may be unsafe. No information and data contained in this publication shall be construed to create any liability on the part of Cannon. Any new issue of this publication shall automatically invalidate and supersede any and all previous issues.

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Circular/Filter/Hermetic/Fiber Optic Connectors

As a world leader in circular, filter, and hermetic connectors, ITT can leverage its design and manufacturing expertise to fit virtually any application. Our expertise includes fast positive mating for a wide range of military applications, as well as numerous sizes and contact configurations for various harsh environments. Our wide variety of fiber optic products include hybrid contacts, multi-channel, rack and panel, and hi-rel assemblies, including MIL and ARINC standard solutions. ITT can meet numerous specs, including NATO and MIL standards.



www.ittcannon.com/circulars • www.ittcannon.com/filter • www.ittcannon.com/hermetics • www.ittcannon.com/fiberoptics

D-Subminiature Connectors

Cannon invented D-sub connectors in 1952. Our family of D-Subs now includes combinations of signal, power and RF, as well as severe service sealed connectors. Cannon D-Subs are available with an extensive line of backshells and accessories and are one of the most economical shielded connector solutions available. ITT D-Sub connectors are qualified to the MIL-DTL-24308 specification.



www.ittcannon.com/dsubs

Microminiature Connectors

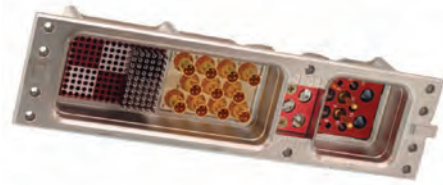
Developed first by Cannon in the 1960's, Interconnect Solutions microminiature connectors offer high performance and reliability with exceptional versatility. Available in rectangular, circular, and strip configurations for countless applications, many of our connectors meet or exceed applicable requirements of the MIL-DTL-83513 specification.



www.ittcannon.com/micro

Rack and Panel Connectors

Initially pioneered by Cannon during the 1930s, Interconnect Solutions is the world leader in rack and panel connectors, offering unmatched variety of shell configurations and insert arrangements, materials, plating, and contact options. Many of our standard and custom designs meet the stringent requirements of ARINC 600, ARINC 404 (MIL-C-81659), and MIL-DTL-83733 standards.



www.ittcannon.com/rackandpanel

RF Connectors

ITT Interconnect Solutions has been providing interconnect products to the Microwave and RF industry since 1963 (formerly The Sealectro Corporation). The RF 50 & 75 Ohm product lines cover UHF band through Ku band requirements. These connectors and cable assemblies are available with a thread type, snap type, bayonet type or slide on coupling method. The frequencies range from DC to 18+ GHz.



www.ittcannon.com/RF50 • www.ittcannon.com/RF75

Transportation

The ITT ICS interconnect range includes sealed circular and rectangular connectors in metal or plastic shells. These configurations include board to cable or cable to cable/ bulkhead applications. Both signal and power contacts can be combined in various layouts. All product lines within the Transportation segment offer very low contact resistance providing maximum signal integrity.



www.ittcannon.com/transportation

ITT Interconnect Solutions is an international manufacturer and supplier of connectors including circular, rectangular, fiber optic, RF, power and high voltage, audio, PMCIA, Compact Flash Card, enclosures, cable assemblies, and application specific custom solutions. The Interconnect Solutions portfolio includes the brands Cannon, VEAM, and BIW. As a worldwide leader in connector technology for nearly a century, ITT offers one of the broadest product offerings, six sigma manufacturing capability, Value Based Product Development with exceptional engineering capability, and an extensive sales, distribution, and customer support network.





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PC Card April 2009

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