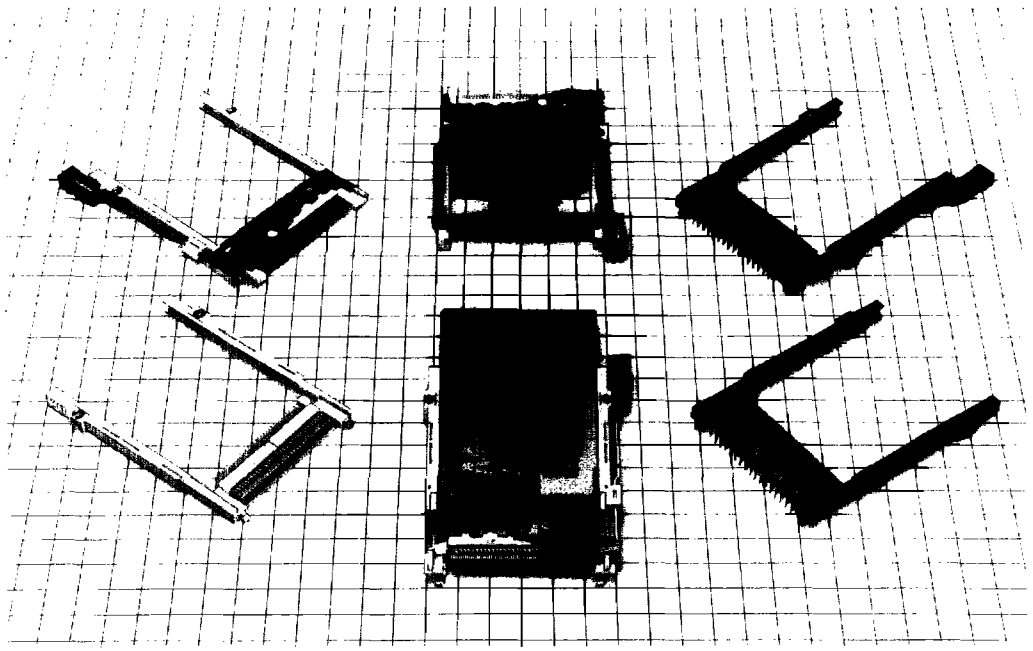
HRS IC7 Series

Miniature, Lightweight Pin Connectors Suitable for PCMCIA Type III Cards JEIDA Ver. 4.2 Compliant

■ GENERAL

The IC7 Series of miniature, lightweight 68-pin connectors complies with JEIDA Ver. 4.2 and is suitable for use with PCMCIA (PC Memory Card International Association) type III cards.



■ FEATURES

(1) Smaller and thinner than our previous product at 85 mm long, 65 mm wide, and 5.4 mm thick.
(2) Forty-seven percent lighter than our previous product at a weight of approximately 12.5 gf.
(3) Equipped with an eject button for smooth removal of cards.
(4) Two types of eject button, either left or right, are available to suit the application.
(5) There is also a reverse type for mounting on the back surface of the board.
(6) Equipped with a frame ground terminal.
(7) Types available for dip and SMT board mounting methods.
(8) The SMT type can be mounted on both sides of the board and can also be used as a 2-slot connector.
(9) A type equipped with stand-offs (2.2 mm) which permits parts to be mounted under the connector is also available.
(10) A space-saving type without an eject mechanism is also available.
(11) Types for use with low voltage (3.3 V) cards are also now available.
(12) An absorption plate mounting product which can be used with automatic mounting is also now available in the SMT type.

■ MATERIALS AND PROCESSING

Item			Material	Finish		Note
Insulation	Connector portion	Dip type	PBT resin	Black		UL94V-0
		SMT type	PPS resin	Light brown		UL94V-0
	Eject button		Polyamide resin	Black		UL94V-0
Pins	Connector portion		Brass	Contact portion	Gold plating	–
				Mounting portion	Solder plating	–
	Frame ground terminal		Phosphor bronze	Contact portion	Gold plating	–
				Other	Nickel plating	–
Eject section fittings			SUS			–
Nuts			Copper	Nickel plating		–
Locking pins			Phosphor bronze	Solder plating		–
Strengthened fittings			Brass	Solder plating		–
Absorption plate			PPS resin	Brown		UL94V-0

■ ELECTRICAL PERFORMANCE

Item	Conditions	Rating
Current capacity	Per pin	0.5 A
Withstand voltage	One minute at rated value	500 V AC
Insulation resistance	At 500 V DC	1,000 MΩ or greater
Contact resistance	At 1 mA DC	40 mΩ or less

■ STRUCTURE OF THE PRODUCT NUMBER

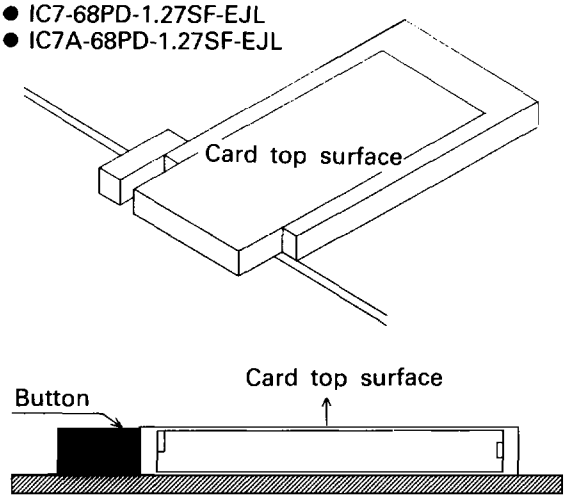
IC7 A – 68 PD R – 1.27 SFL – EJR – C (40)

- **IC7** — Series name
- **A** — Stand-off type
  Blank : No stand-offs
  A : 2.2 mm (SM type)
- **68** — Number of pins: 68
- **PD** — Power supply voltage type
  PD : Can be used with the 5 V type
  PL : Can be used with the 3.3 V type
- **R** — Card insertion direction type
  Blank : Standard
  R : Reverse
- **1.27** — Contact spacing: 1.27 mm
- **SFL** — Mounting method
  DS : Right angle dip type
  SF : Surface mount type
  SFL : As above, with strengthened fittings
- **EJR** — Eject button position*
  Blank : Type without eject mechanism
  EJR : Right side
  EJL : Left side
- **C** — Absorption plate (product for use with automatic mounting)
  Blank : Without
  C : With absorption plate
- **(40)** — Modification number (IC7 Series only)
  Blank : Standard product
  40 : Without FG terminal nut

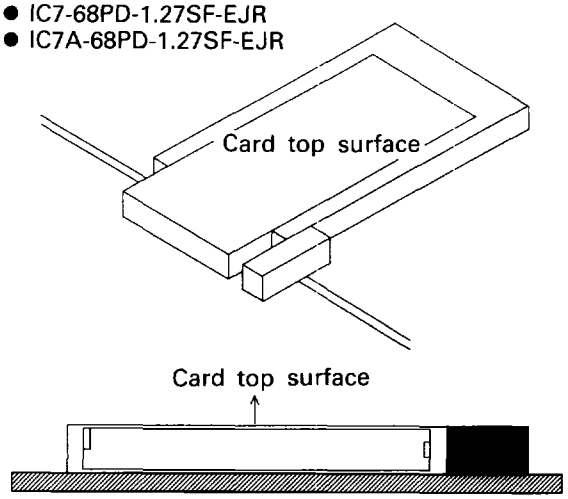
Examples of Connector Mounting

<Standard type>

- IC7-68PD-1.27DS-EJL
- IC7-68PD-1.27SF-EJL
- IC7A-68PD-1.27SF-EJL

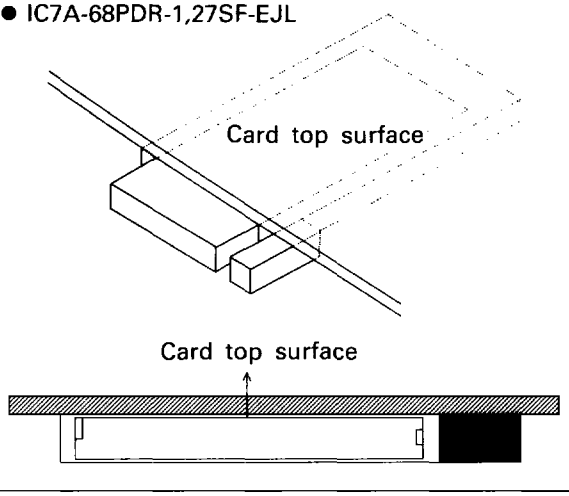


- IC7-68PD-1.27DS-EJR
- IC7-68PD-1.27SF-EJR
- IC7A-68PD-1.27SF-EJR

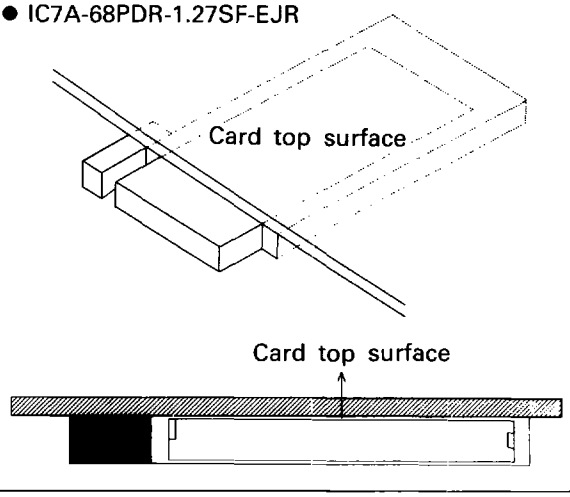


<Reverse type>

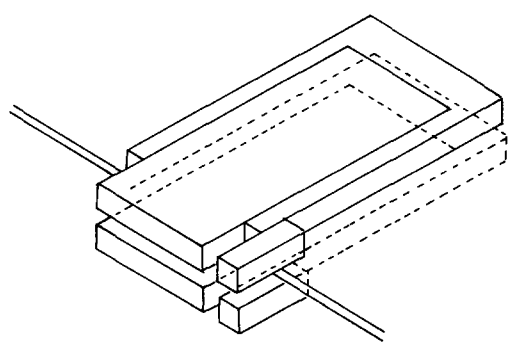
- IC7-68PDR-1.27DS-EJL
- IC7-68PDR-1.27SF-EJL
- IC7A-68PDR-1,27SF-EJL

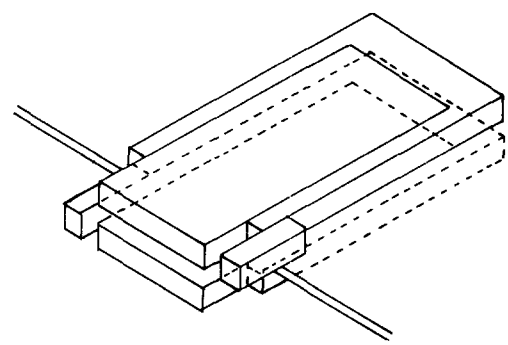


- IC7-68PDR-1.27DS-EJR
- IC7-68PDR-1.27SF-EJR
- IC7A-68PDR-1.27SF-EJR



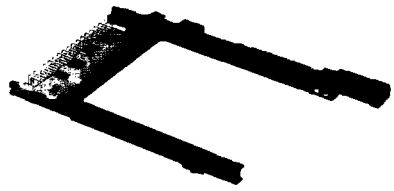
Example of Mounting on Both Sides of Board (SMT Type)





■ 68-CONTACT PIN CONNECTORS

- **Eject button right side**
- **Standard type and reverse type**

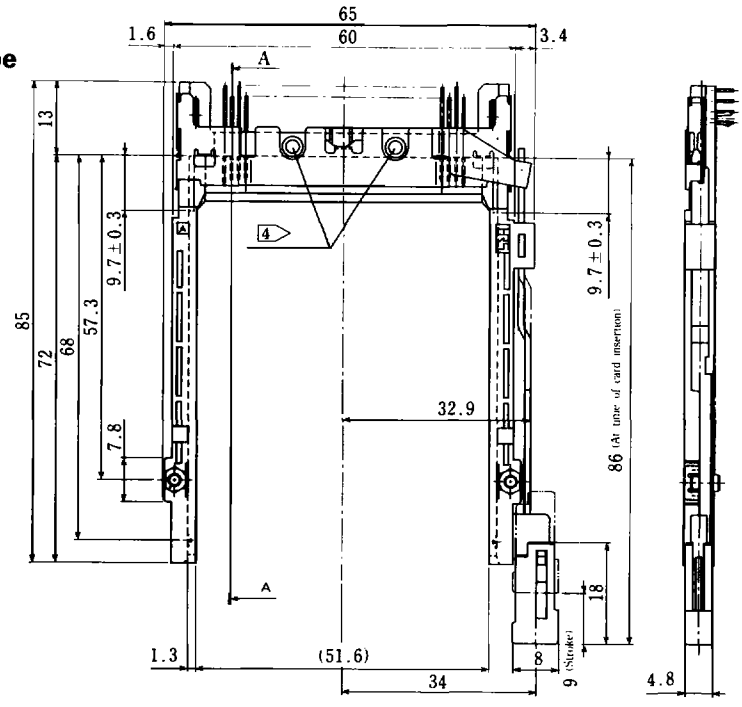


Standard type
IC7-68PD-1.27DS-EJR
CL640-0401-0

Reverse type <4>
IC7-68PDR-1.27DS-EJR
CL640-0462-2

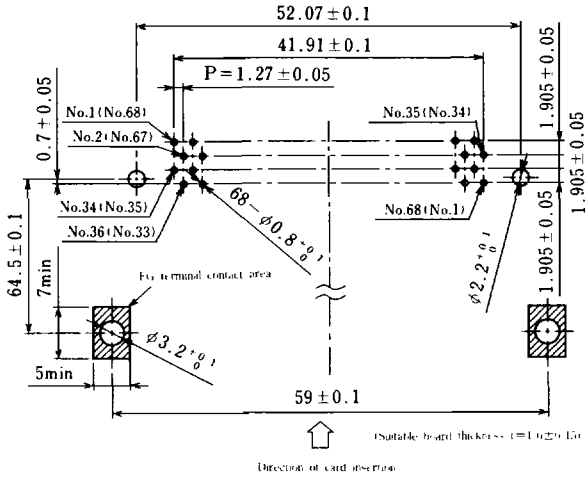
Table 1 <1>

Pin No.	Pin Length
1, 17, 34, 35, 51, 68	5.0 ± 0.1
36, 67	3.5 ± 0.1
Other than above	4.25 ± 0.1

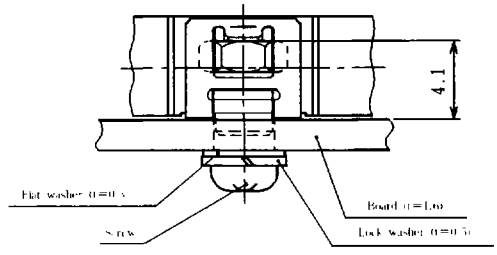


NOTE: <1> The lengths of pins on the engagement side are indicated in Table 1.
<2> The applicable range of indicated dimensions ($54.2^{+0.1}_{-0.05}$, $3.5^{+0.1}_{-0.05}$) are taken as 10 mm from the bottom.
<3> The FG (frame ground) terminal of this product is press-fit to the board with a screw to make contact at the FG terminal press-fit area. Therefore, the FG terminal should be securely fastened from the bottom surface of the board using a screw (M2×0.4), flat washer, and lock washer. (See the example of screw fastening.)
<4> Pay attention to the pin numbers since the reverse type is marked "R".
See the numbers in parentheses ( ) for the pin numbers of the reverse type.
<5> The guide groove dimensions of the reverse type are left-right reversed.

◆ PCB Layout (Mounting Side)

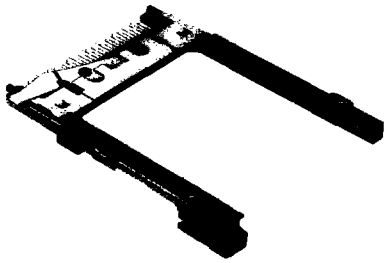


◆ Example of Screw Fastening (Recommended)



■ 68-CONTACT PIN CONNECTORS

- **Eject button left side**
- **Standard type and reverse type**



Standard type
IC7-68PD-1.27DS-EJL
CL640-0403-5

Reverse type <4>
IC7-68PDR-1.27DS-EJL
CL640-0404-8

Table 1 <1>

Pin No.	Pin Length
1, 17, 34, 35, 51, 68	5.0 ± 0.1
36, 67	3.5 ± 0.1
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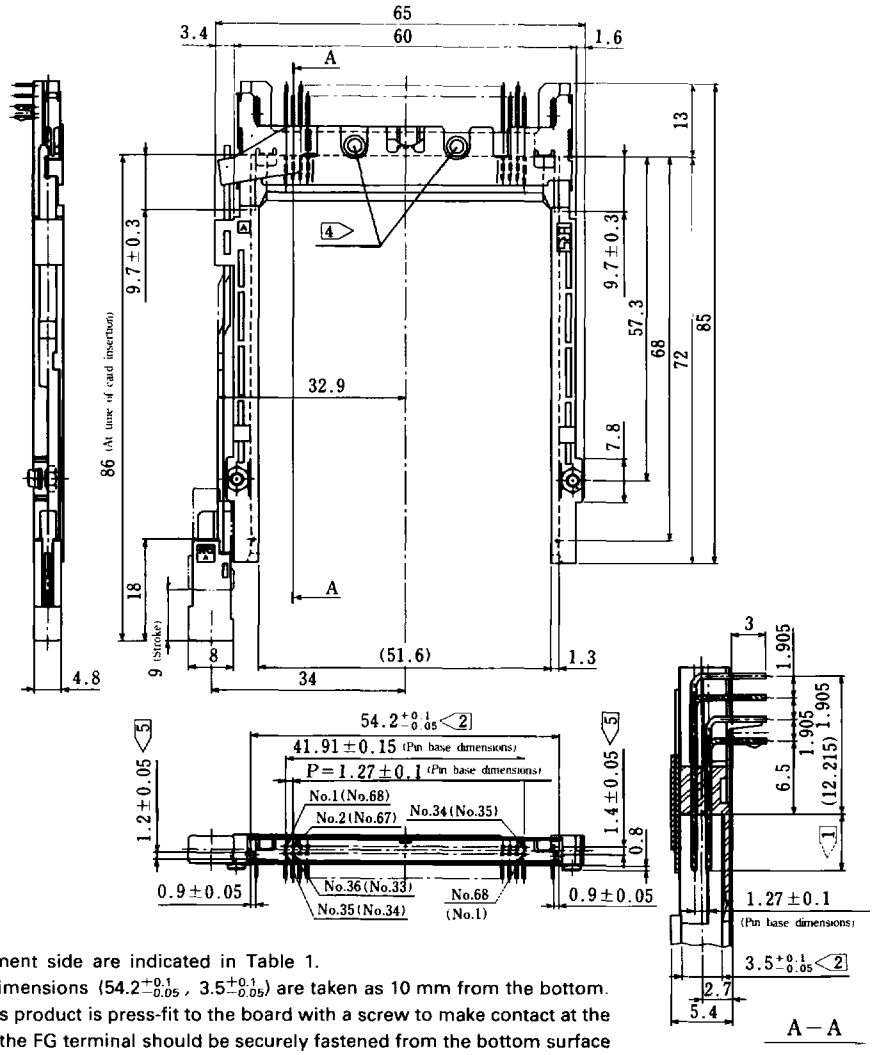

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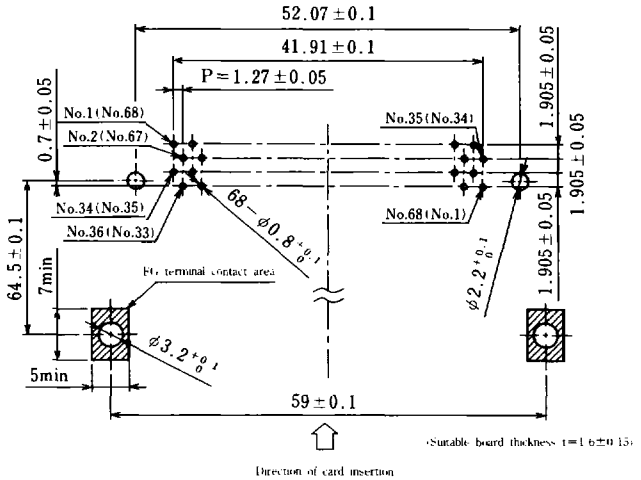
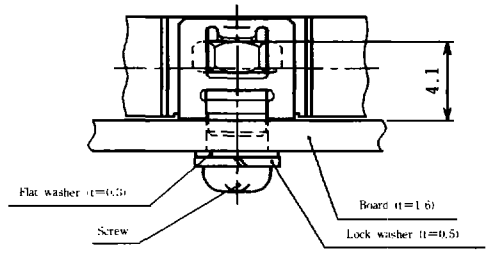
◆ PCB Layout (Mounting Side)

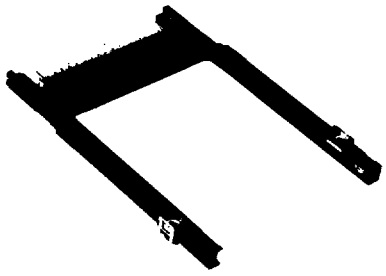


◆ Example of Screw Fastening (Recommended)



■ 68-CONTACT PIN CONNECTORS

● **Without ejector mechanism**



IC7-68PD-1.27DS
CL640-0405-0

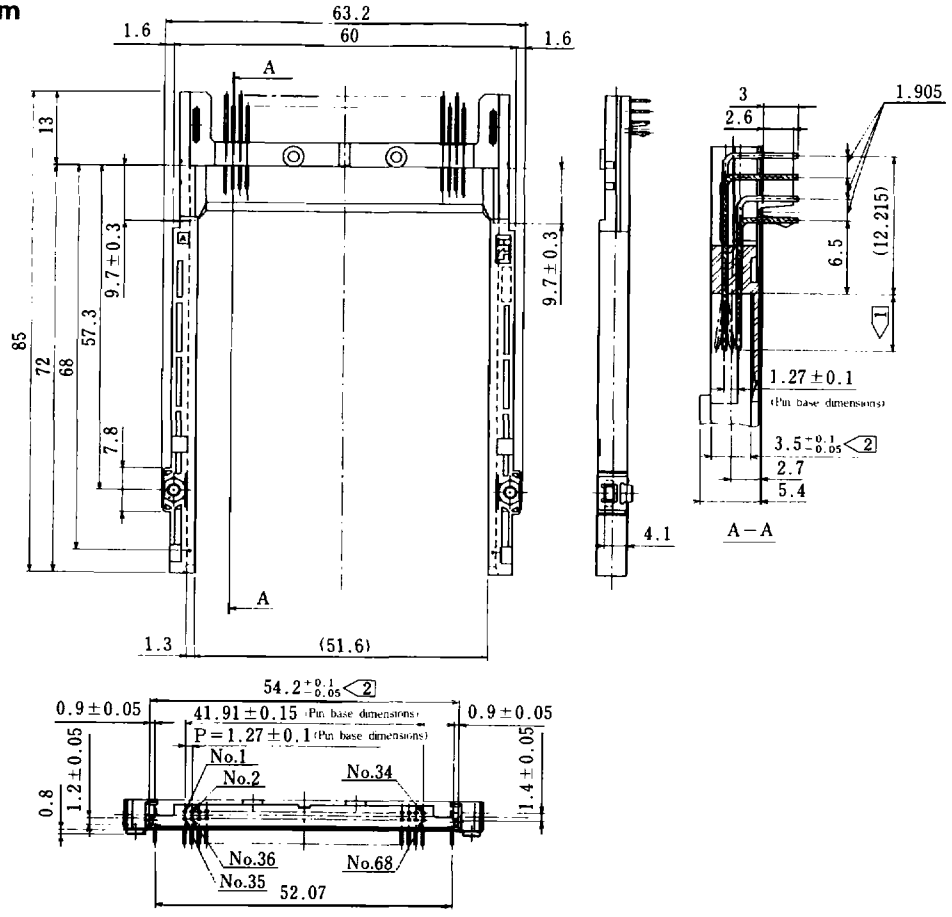


Table 1 <1>

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NOTE: <1> The lengths of pins on the engagement side are indicated in Table 1.
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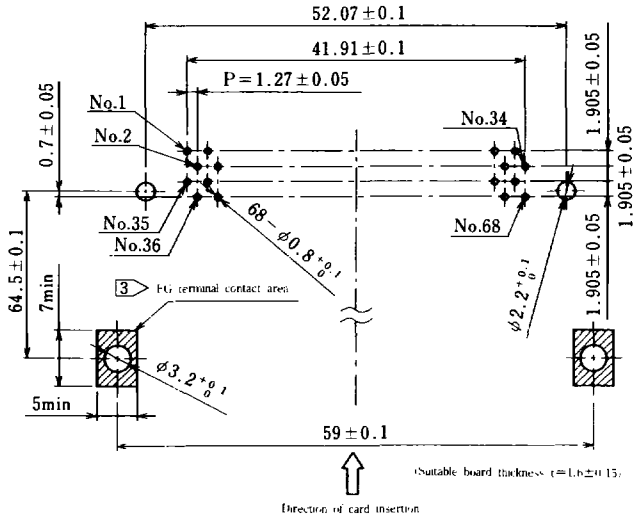
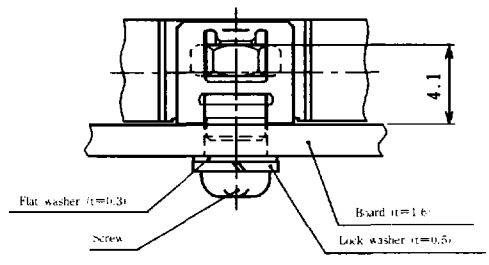
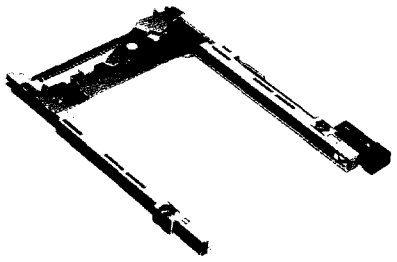


◆ Example of Screw Fastening (Recommended)



■ 68-CONTACT PIN CONNECTORS

- **Surface mount type**
- **Eject button right side**
- **Standard type and reverse type**



IC7-68PD-1.27SF-EJR
CL640-0501-4

IC7A-68PD-1.27SF-EJR
CL640-0511-8

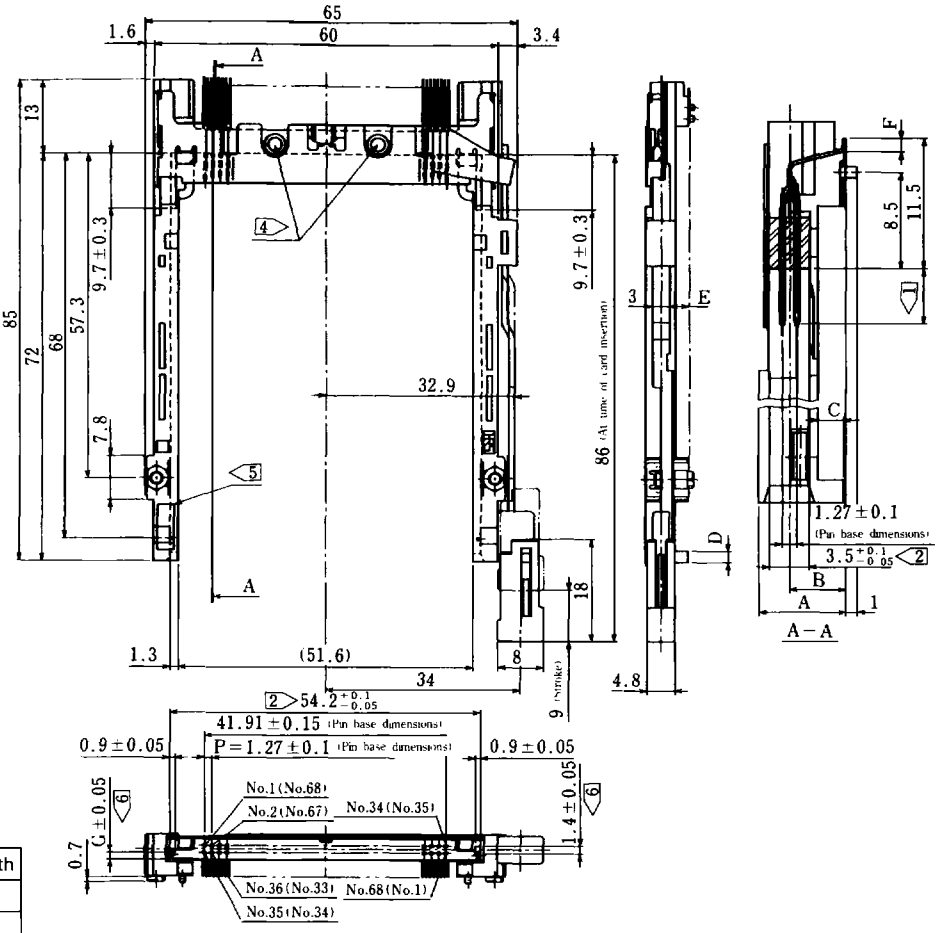


Table 1 <1>

Pin No.	Pin Length
1, 17, 34, 35, 51, 68	5.0 ± 0.1
36, 67	3.5 ± 0.1
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Unit: mm

	HRS No.	Product No.	A	B	C	D	E	F	G	Power supply voltage type
	CL640-0501-4	IC7-68PD-1.27SF-EJR	5.4	2.7	0	0	1.2	1.2	1.2	5V
<4>	CL640-0502-7	IC7-68PDR-1.27SF-EJR	5.4	2.7	0	0	1.2	1.2	1.2	5V
	CL640-0511-8	IC7A-68PD-1.27SF-EJR	7.6	4.9	2.2	2	3.4	1.19	1.2	5V
<4>	CL640-0513-3	IC7A-68PDR-1.27SF-EJR	7.6	4.9	2.2	2	3.4	1.19	1.2	5V
<5>	CL640-0532-8	IC7-68PL-1.27SF-EJR	5.4	2.7	0	0	1.2	1.2	2.3	3.3V
<5><4>	CL640-0533-0	IC7-68PLR-1.27SF-EJR	5.4	2.7	0	0	1.2	1.2	2.3	3.3V

NOTE: <1> The lengths of pins on the engagement side are indicated in Table 1.
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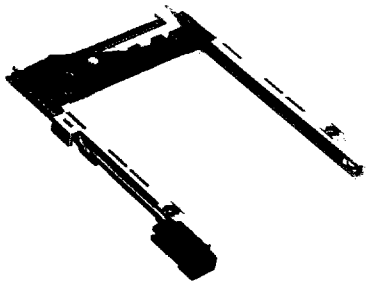
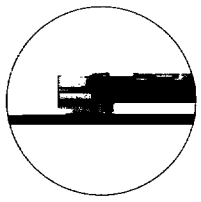
3 The frame ground (FG) terminal of this product is pressed into contact with the ground area of the board with a screw. Employed from the bottom surface of the board, a screw (M2 × 0.4), flat washer, and spring washer are securely tightened to accomplish this.
(For details, see the screw fastening example on Page 26.)
<4> Pay attention to the pin numbers since the reverse type is marked "R".
See the numbers in parentheses ( ) for the pin numbers of the reverse type.
<5> The low voltage type is marked with "3.3 V".
<6> The guide groove dimensions of the reverse type are left-right reversed.

■ 68-CONTACT PIN CONNECTORS

- **Surface mount type**
- **Eject button left side**
- **Standard type and reverse type**



IC7-68PD-1.27SF-EJL
CL640-0503-0



IC7A-68PD-1.27SF-EJL
CL640-0512-0

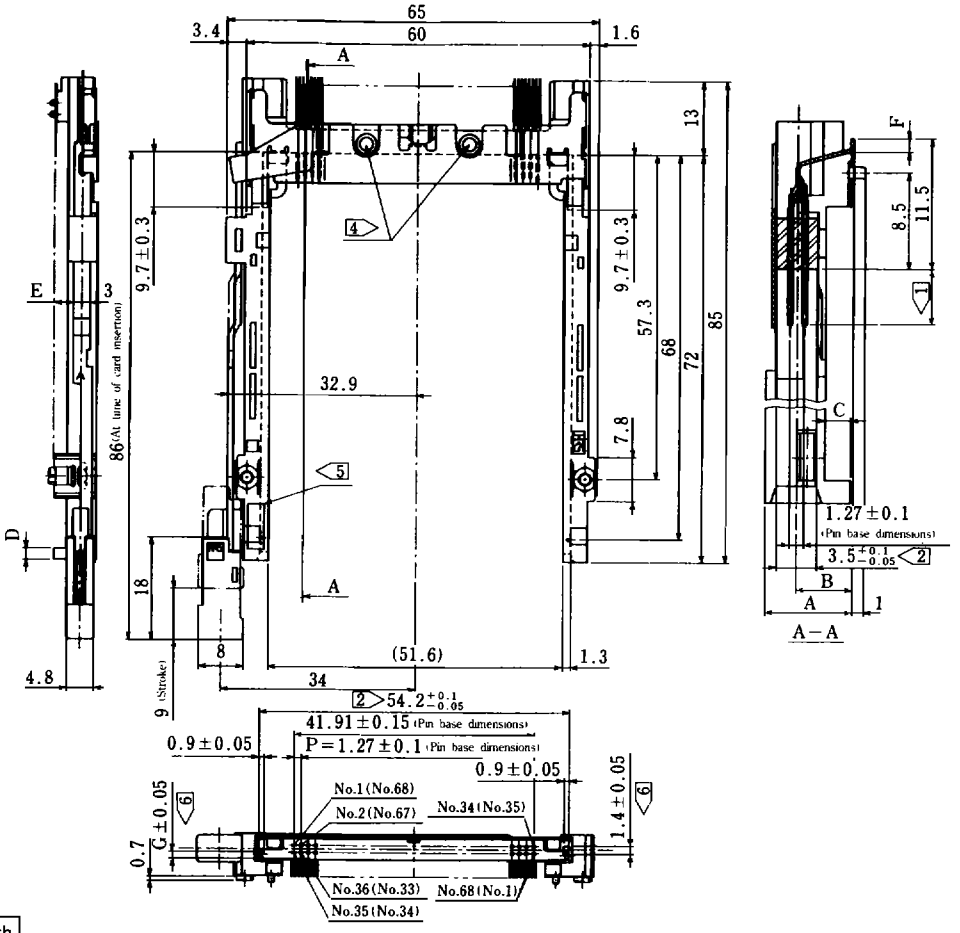


Table 1 <1>

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Unit: mm

	HRS No.	Product No.	A	B	C	D	E	F	G	Power supply voltage type
	CL640-0503-0	IC7-68PD-1.27SF-EJL	5.4	2.7	0	0	1.2	1.2	1.2	5V
<4>	CL640-0504-2	IC7-68PDR-1.27SF-EJL	5.4	2.7	0	0	1.2	1.2	1.2	5V
	CL640-0512-0	IC7A-68PD-1.27SF-EJL	7.6	4.9	2.2	2	3.4	1.19	1.2	5V
<4>	CL640-0514-6	IC7A-68PDR-1.27SF-EJL	7.6	4.9	2.2	2	3.4	1.19	1.2	5V
<5>	CL640-0534-3	IC7-68PL-1.27SF-EJL	5.4	2.7	0	0	1.2	1.2	2.3	3.3V
<5><4>	CL640-0535-6	IC7-68PLR-1.27SF-EJL	5.4	2.7	0	0	1.2	1.2	2.3	3.3V

NOTE: <1> The lengths of pins on the engagement side are indicated in Table 1.
<2> The applicable range of indicated dimensions ($54.2^{+0.1}_{-0.05}$, $3.5^{+0.1}_{-0.05}$) are taken as 10 mm from the bottom.
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<5> The low voltage type is marked with "3.3 V".
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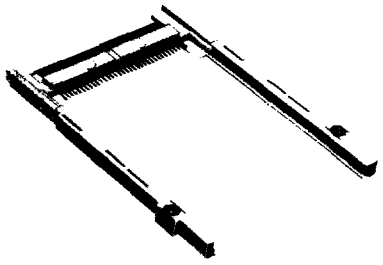
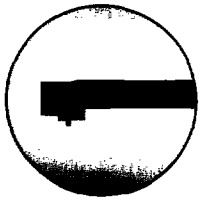
■ 68-CONTACT PIN CONNECTORS

- **Surface mount type**
- **Type without eject mechanism**
- **Standard type and reverse type**



IC7-68PD-1.27SF
CL640-0509-6



IC7A-68PD-1.27SF
CL640-0519-0

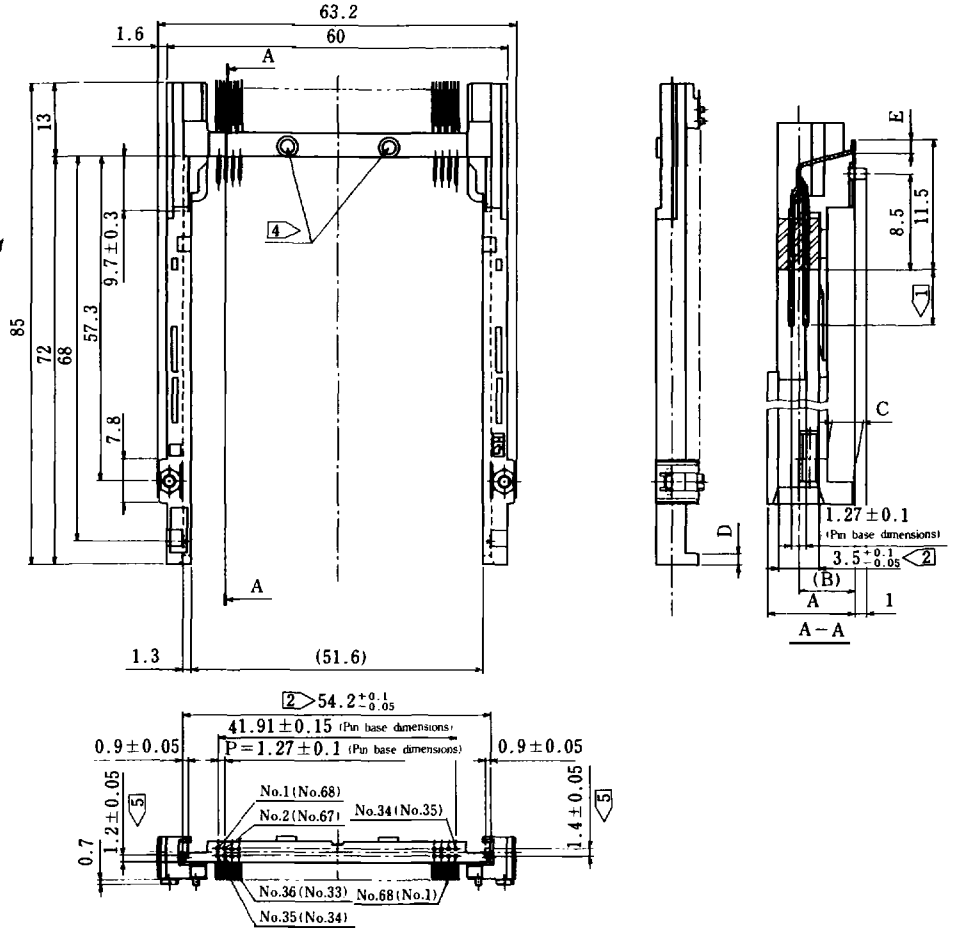


Table 1 <1>

Pin No.	Pin Length
1, 17, 34, 35, 51, 68	5.0 ± 0.1
36, 67	3.5 ± 0.1
Other than above	4.25 ± 0.1

Unit: mm

	HRS No.	Product No.	A	B	C	D	E
	CL640-0509-6	IC7-68PD-1.27SF	5.4	2.7	0	0	1.2
<4>	CL640-0541-9	IC7-68PDR-1.27SF	5.4	2.7	0	0	1.2
	CL640-0519-0	IC7A-68PD-1.27SF	7.6	4.9	2.2	2	1.19

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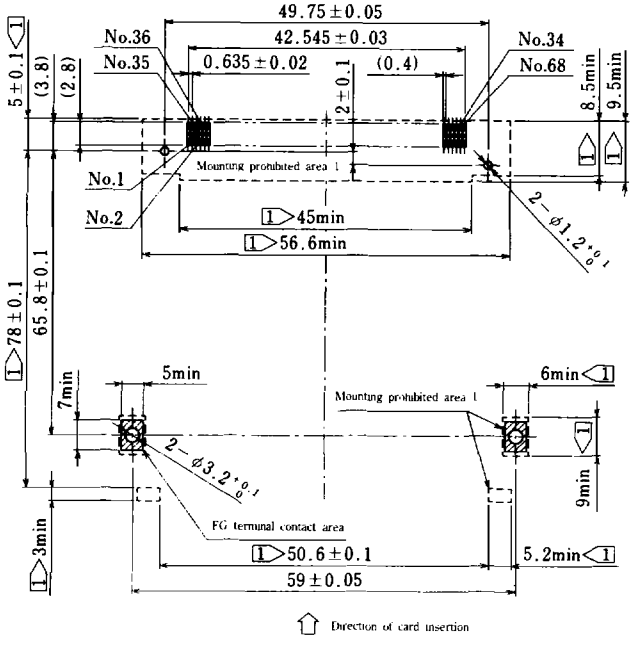
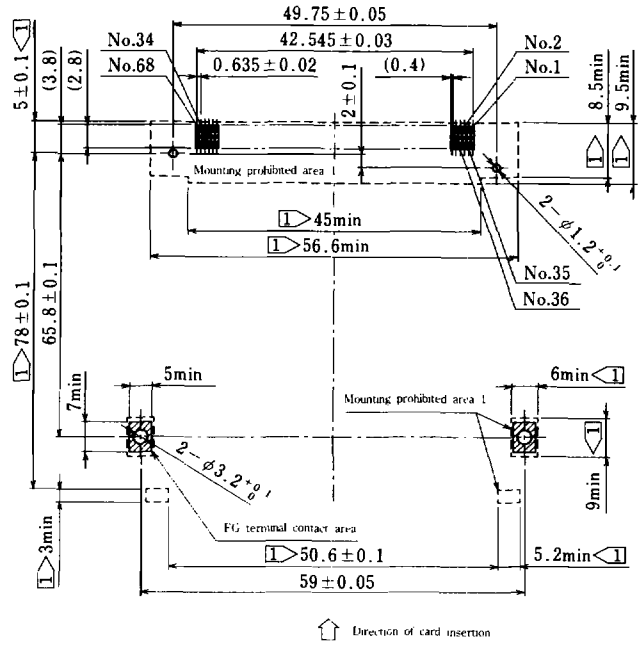
<5> The guide groove dimensions of the reverse type are left-right reversed.

PCB Layout (Mounting Side)

Standard Type



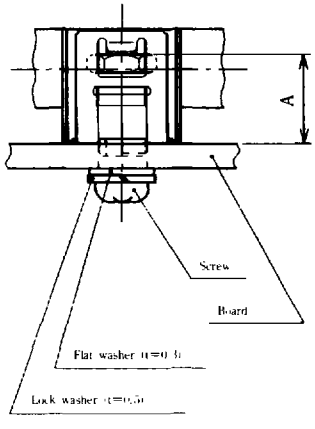
Reverse Type



NOTE: 1 The IC7A Series has a mounting space for parts with a maximum height of 2 mm located under the connector section. Note that mounting of parts is prohibited in "Mounting prohibited area 1" inside the dotted lines.

2 The entire surface of the mounting portion of the IC7 Series is a mounting prohibited area.

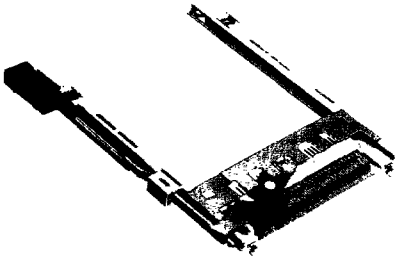
Example of FG Terminal Screw Fastening (Recommended)



Series Name	A
IC7	4.1
IC7A	6.3

■ 68-CONTACT PIN CONNECTORS

- **Surface mount type**
- **Eject button right side**
- **Standard type and reverse type**
- **With strengthened fittings**



IC7-68PD-1.27SFL-EJR
CL640-0505-5

IC7A-68PD-1.27SFL-EJR
CL640-0515-9

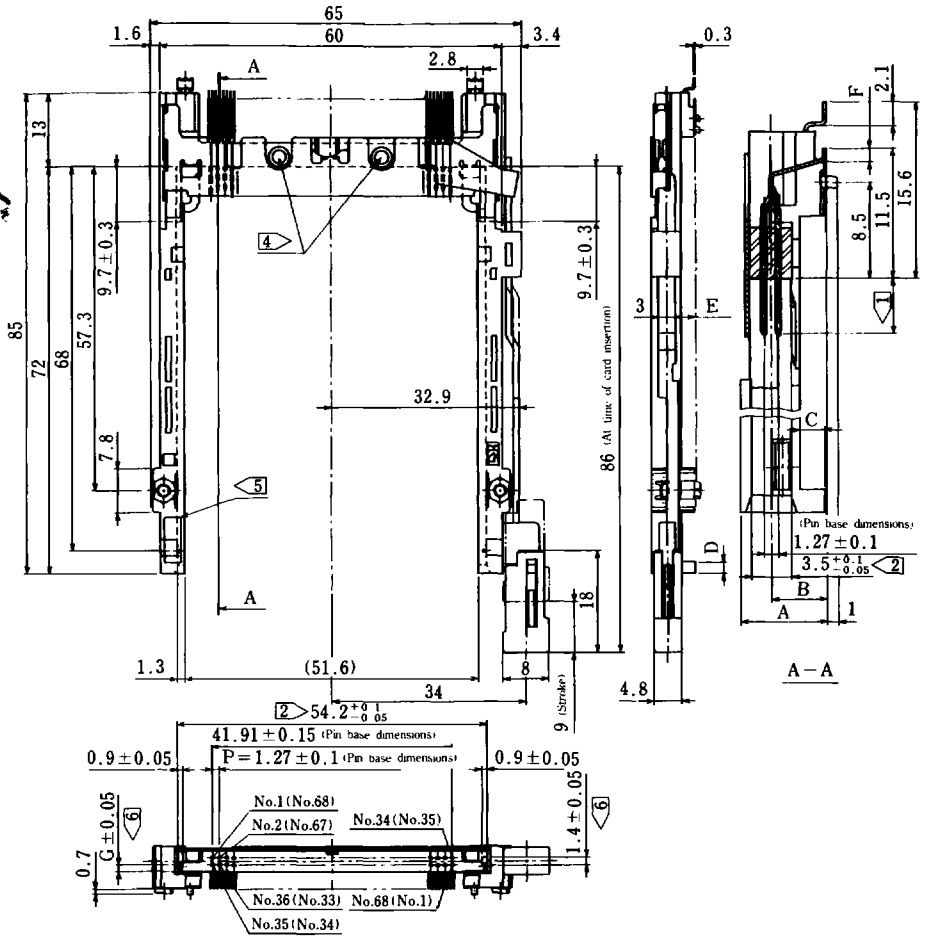


Table 1 <1>

Pin No.	Pin Length
1, 17, 34, 35, 51, 68	5.0 ± 0.1
36, 67	3.5 ± 0.1
Other than above	4.25 ± 0.1

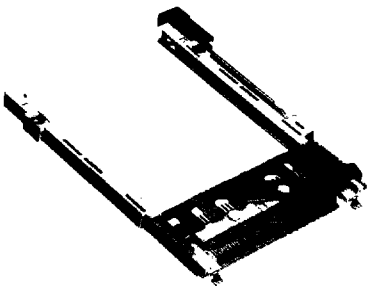
Unit: mm

	HRS No.	Product No.	A	B	C	D	E	F	G	Power supply voltage type
	CL640-0505-5	IC7-68PD-1.27SFL-EJR	5.4	2.7	0	0	1.2	1.2	1.2	5V
<4>	CL640-0506-8	IC7-68PDR-1.27SFL-EJR	5.4	2.7	0	0	1.2	1.2	1.2	5V
	CL640-0515-9	IC7A-68PD-1.27SFL-EJR	7.6	4.9	2.2	2	3.4	1.19	1.2	5V
<4>	CL640-0517-4	IC7A-68PDR-1.27SFL-EJR	7.6	4.9	2.2	2	3.4	1.19	1.2	5V
<5>	CL640-0536-9	IC7-68PL-1.27SFL-EJR	5.4	2.7	0	0	1.2	1.2	2.3	3.3V
<5> <4>	CL640-0537-1	IC7-68PLR-1.27SFL-EJR	5.4	2.7	0	0	1.2	1.2	2.3	3.3V

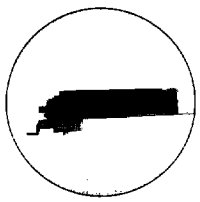
NOTE: <1> The lengths of pins on the engagement side are indicated in Table 1.
<2> The applicable range of indicated dimensions ($54.2^{+0.1}_{-0.05}$, $3.5^{+0.1}_{-0.05}$) are taken as 10 mm from the bottom.
3 The frame ground (FG) terminal of this product is pressed into contact with the ground area of the board with a screw. Employed from the bottom surface of the board, a screw (M2 × 0.4), flat washer, and spring washer are securely tightened to accomplish this.
(For details, see the screw fastening example on Page 26.)
<4> Pay attention to the pin numbers since the reverse type is marked "R".
See the numbers in parentheses ( ) for the pin numbers of the reverse type.
<5> The low voltage type is marked with "3.3 V".
<6> The guide groove dimensions of the reverse type are left-right reversed.

■ 68-CONTACT PIN CONNECTORS

- **Surface mount type**
- **Eject button left side**
- **Standard type and reverse type**
- **With strengthened fittings**



IC7-68PD-1.27SFL-EJL
CL640-0507-0



IC7A-68PD-1.27SFL-EJL
CL640-0516-1

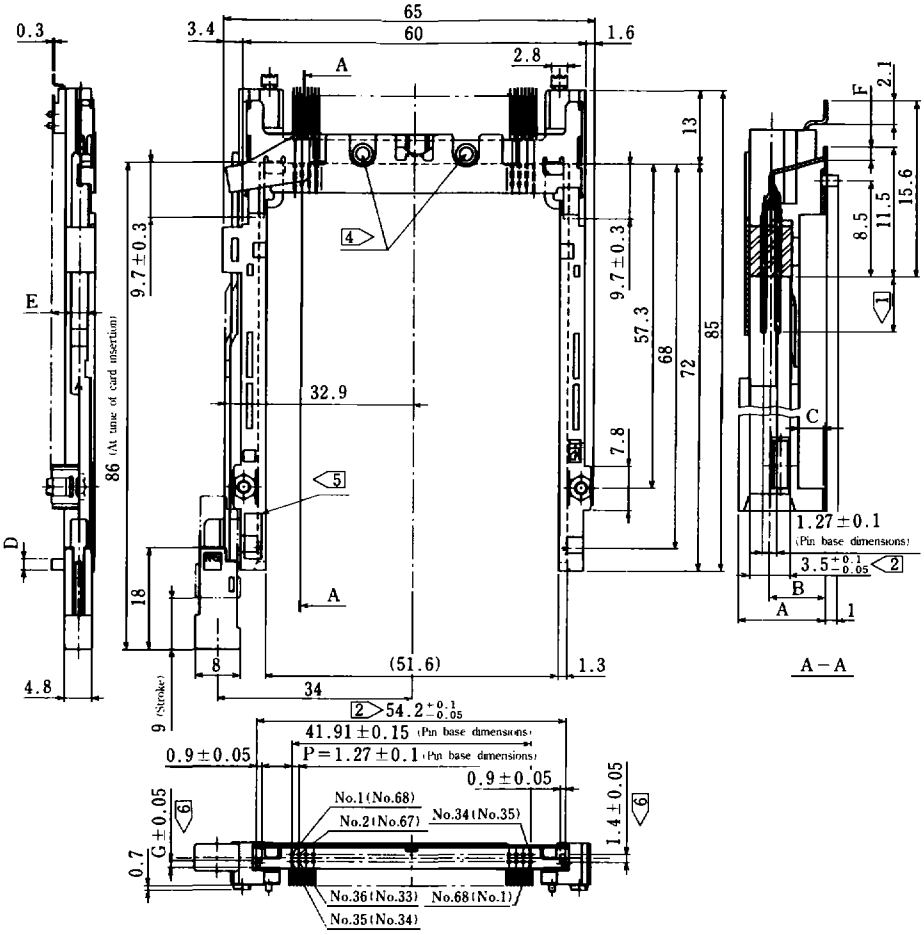


Table 1 <1>

Pin No.	Pin Length
1, 17, 34, 35, 51, 68	5.0 ± 0.1
36, 67	3.5 ± 0.1
Other than above	4.25 ± 0.1

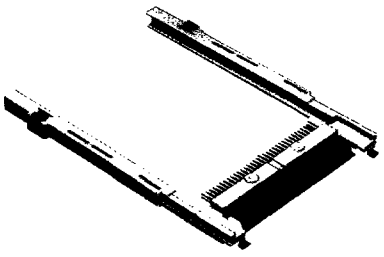
Unit: mm

	HRS No.	Product No.	A	B	C	D	E	F	G	Power supply voltage type
	CL640-0507-0	IC7-68PD-1.27SFL-EJL	5.4	2.7	0	0	1.2	1.2	1.2	5V
<4>	CL640-0508-3	IC7-68PDR-1.27SFL-EJL	5.4	2.7	0	0	1.2	1.2	1.2	5V
	CL640-0516-1	IC7A-68PD-1.27SFL-EJL	7.6	4.9	2.2	2	3.4	1.19	1.2	5V
<4>	CL640-0518-7	IC7A-68PDR-1.27SFL-EJL	7.6	4.9	2.2	2	3.4	1.19	1.2	5V
<5>	CL640-0538-4	IC7-68PL-1.27SFL-EJL	5.4	2.7	0	0	1.2	1.2	2.3	3.3V
<5> <4>	CL640-0539-7	IC7-68PLR-1.27SFL-EJL	5.4	2.7	0	0	1.2	1.2	2.3	3.3V

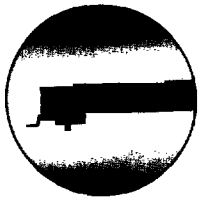
NOTE: <1> The lengths of pins on the engagement side are indicated in Table 1.
<2> The applicable range of indicated dimensions ($54.2^{+0.1}_{-0.05}$, $3.5^{+0.1}_{-0.05}$) are taken as 10 mm from the bottom.
3 The frame ground (FG) terminal of this product is pressed into contact with the ground area of the board with a screw. Employed from the bottom surface of the board, a screw (M2 × 0.4), flat washer, and spring washer are securely tightened to accomplish this.
(For details, see the screw fastening example on Page 26.)
<4> Pay attention to the pin numbers since the reverse type is marked "R".
See the numbers in parentheses ( ) for the pin numbers of the reverse type.
<5> The low voltage type is marked with "3.3 V".
<6> The guide groove dimensions of the reverse type are left-right reversed.

■ 68-CONTACT PIN CONNECTORS

- **Surface mount type**
- **Type without eject mechanism**
- **Standard type and reverse type**
- **With strengthened fittings**



IC7-68PD-1.27SFL
CL640-0510-5



IC7A-68PD-1.27SFL
CL640-0520-9

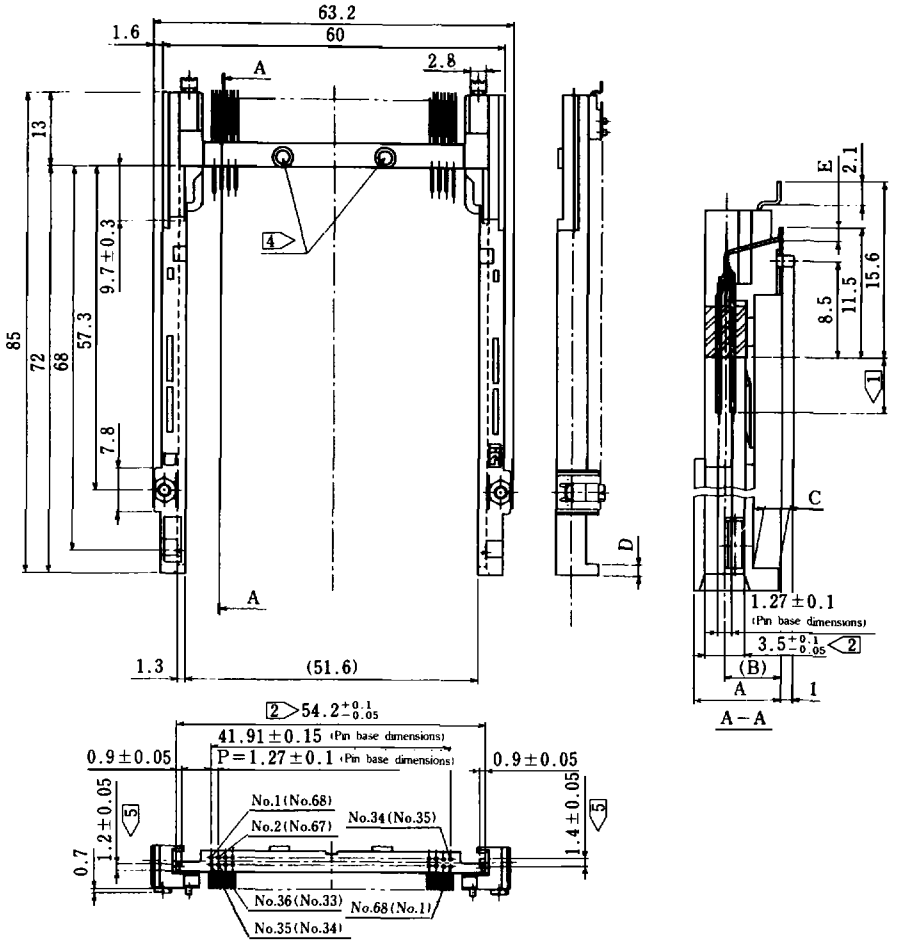


Table 1 <1>

Pin No.	Pin Length
1, 17, 34, 35, 51, 68	5.0 ± 0.1
36, 67	3.5 ± 0.1
Other than above	4.25 ± 0.1

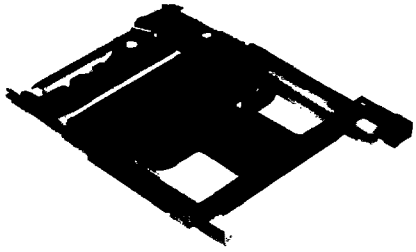
Unit: mm

	HRS No.	Product No.	A	B	C	D	E
	CL640-0510-5	IC7-68PD-1.27SFL	5.4	2.7	0	0	1.2
<4>	CL640-0542-1	IC7-68PDR-1.27SFL	5.4	2.7	0	0	1.2
	CL640-0520-9	IC7A-68PD-1.27SFL	7.6	4.9	2.2	2	1.19

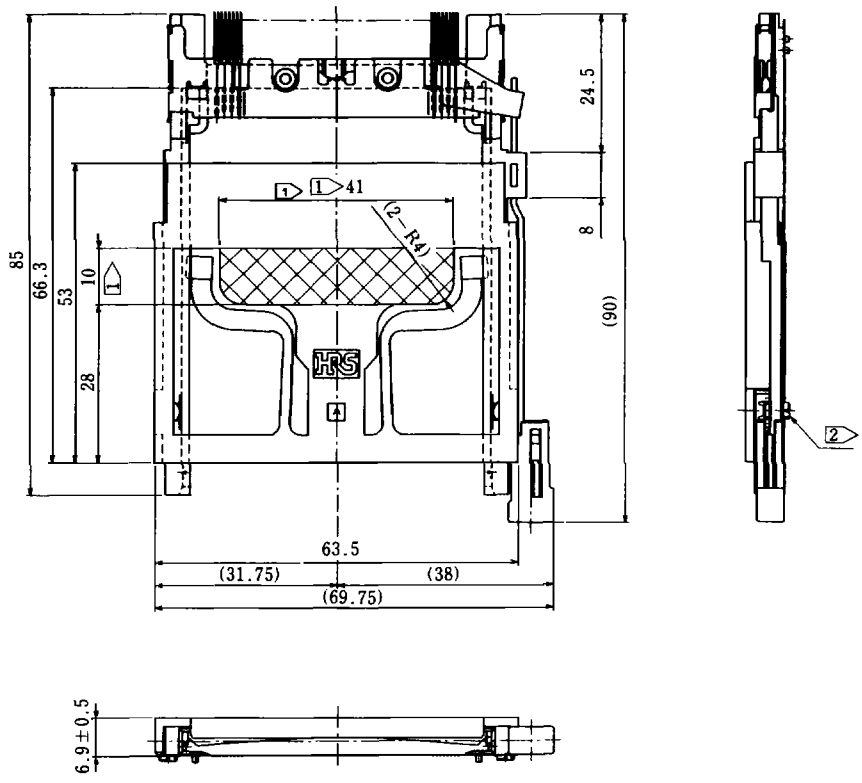
NOTE: <1> The lengths of pins on the engagement side are indicated in Table 1.
<2> The applicable range of indicated dimensions ($54.2^{+0.1}_{-0.05}$, $3.5^{+0.1}_{-0.05}$) are taken as 10 mm from the bottom.
3 The frame ground (FG) terminal of this product is pressed into contact with the ground area of the board with a screw. Employed from the bottom surface of the board, a screw (M2 × 0.4), flat washer, and spring washer are securely tightened to accomplish this.
(For details, see the screw fastening example on Page 26.)
<4> Pay attention to the pin numbers since the reverse type is marked "R".
See the numbers in parentheses ( ) for the pin numbers of the reverse type.
<5> The guide groove dimensions of the reverse type are left-right reversed.

■ 68-CONTACT PIN CONNECTORS

- **Surface mount type**
- **Eject button right side**
- **Type fitted with absorption plate for use with automatic mounting**



IC7-68PD-1.27SF-EJR-C
CL640-0540-6

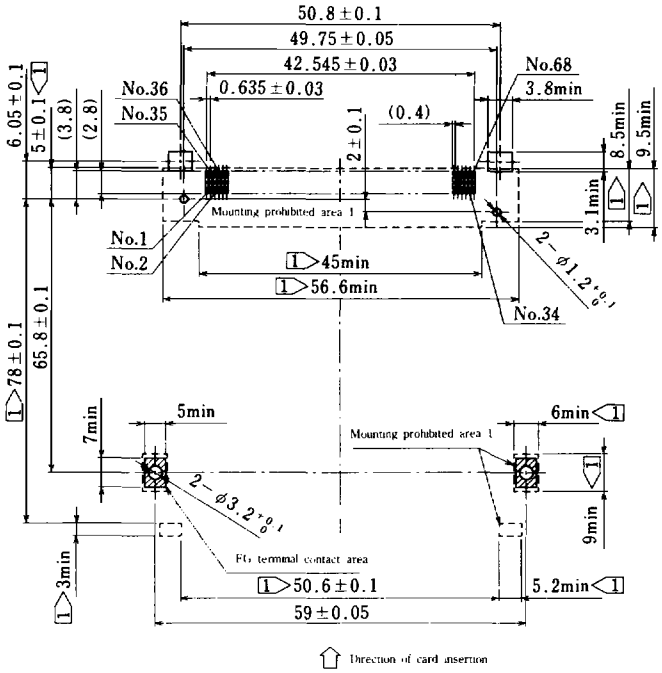


NOTE: 1 It is recommended that absorption be performed in the range of the hatched area indicated on the diagram.
2 With regard to the assembly process, after the completion of surface mounting, fix the connector with the screws and remove the plate used for absorption.
3 For information about detailed dimensions and other matters, see IC7-68PD-1.27SF-EJR.

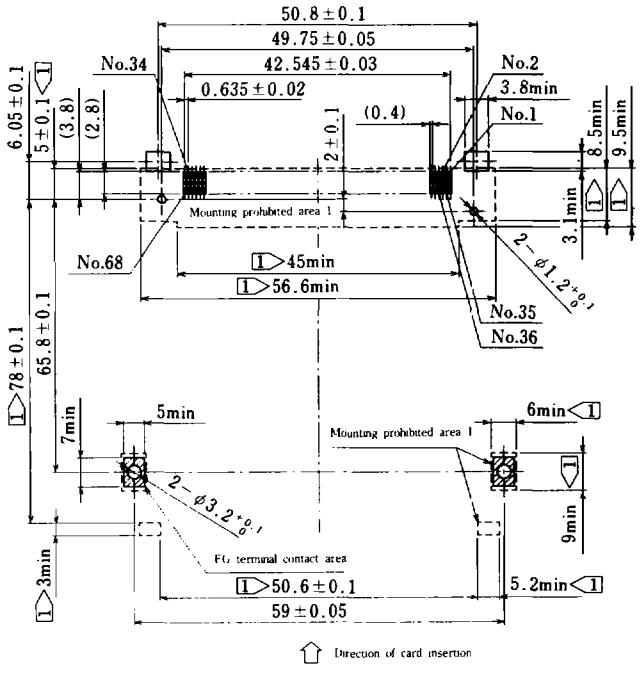
※ The entire IC7-SMT Series can be equipped with absorption plates.
If you have such a need with another type, please contact our business representative.

PCB Layout (Mounting Side)

Standard type (with strengthened fittings)



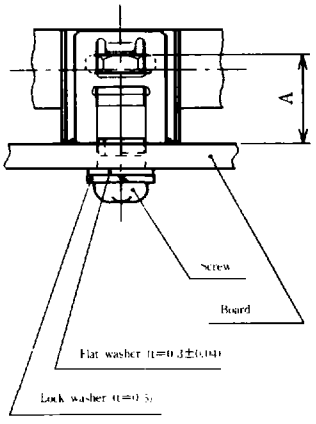
Reverse type (with strengthened fittings)



NOTE: 1 The IC7A Series has a mounting space for parts with a maximum height of 2 mm located under the connector section. Note that mounting of parts is prohibited in "Mounting prohibited area 1" inside the dotted lines.

2 The entire surface of the mounting portion of the IC7 Series is a mounting prohibited area.

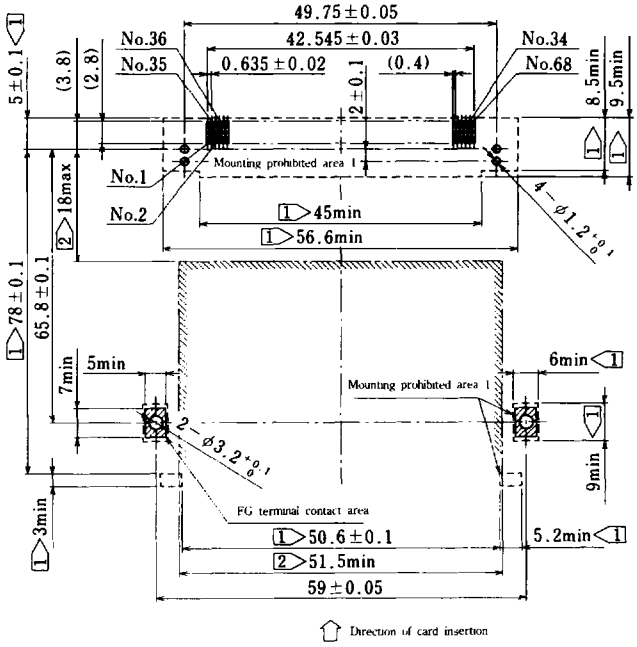
Example of FG Terminal Screw Fastening (Recommended)



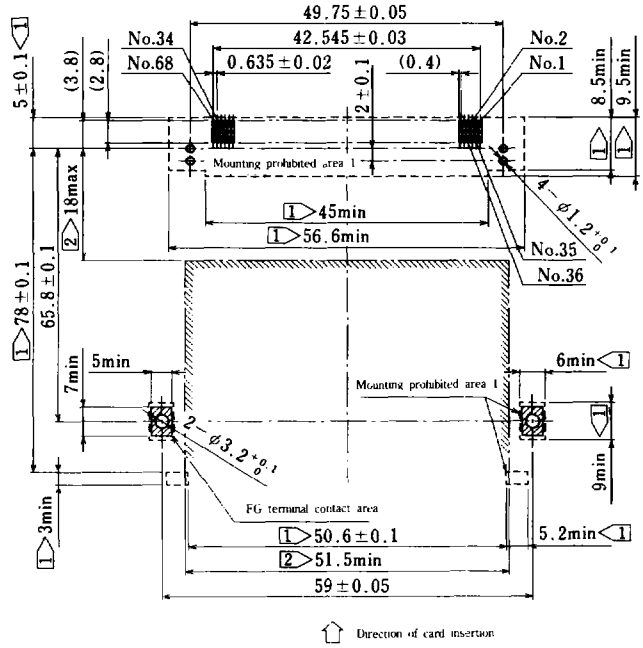
Series Name	A
IC7	4.1
IC7A	6.3

Recommended PCB Layout for Mounting on Both Sides

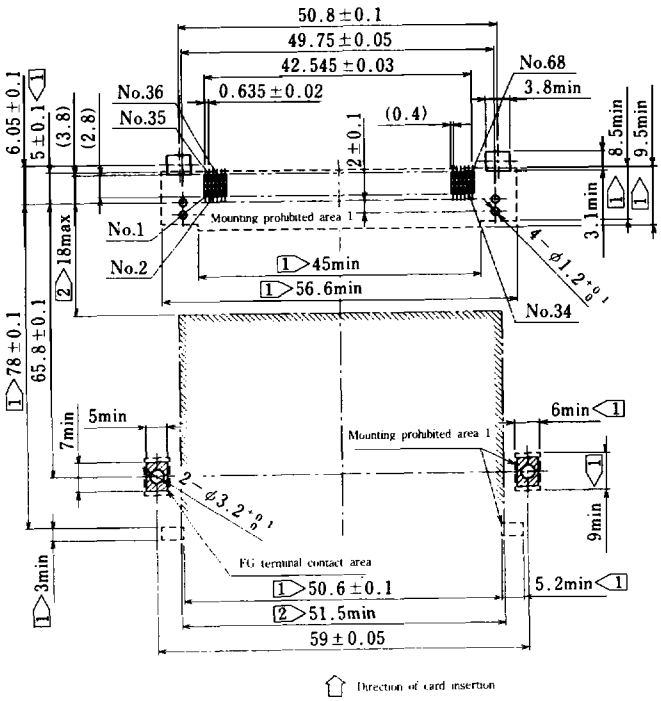
Front side of board (Standard type)



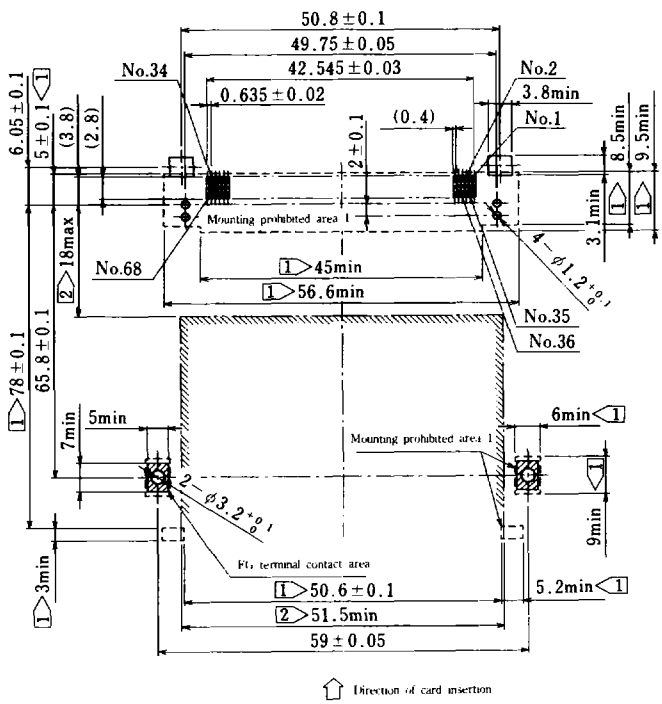
Back side of board (Reverse type)



Front side of board
(Standard type with strengthened fittings)



Back side of board
(Reverse type with strengthened fittings)

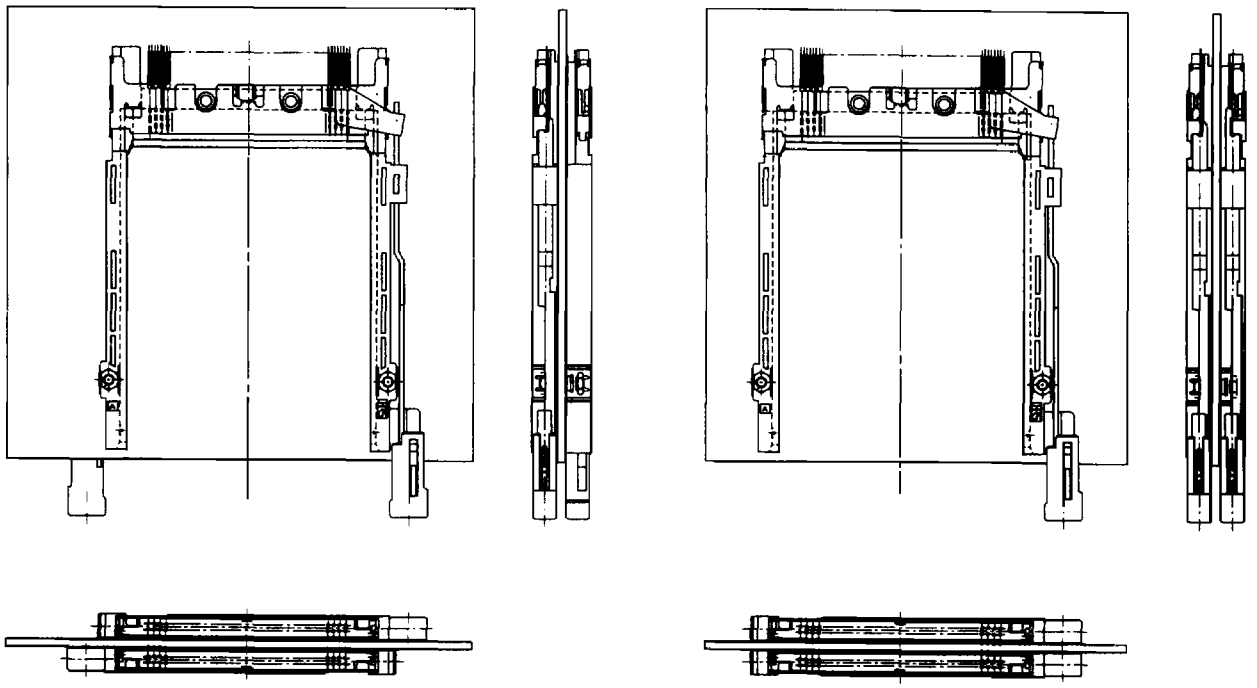


NOTE: 1 The IC7A Series has a mounting space for parts with a maximum height of 2 mm located under the connector section. Note that mounting of parts is prohibited in "Mounting prohibited area 1" inside the dotted lines.

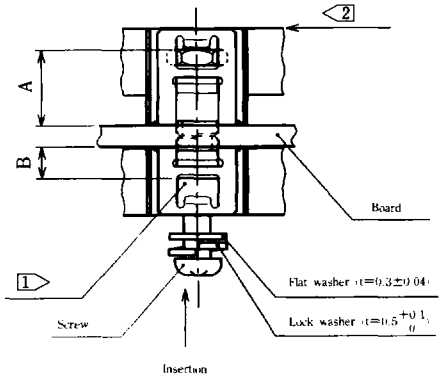
2 When using a type III or IV card, cut off the board at the 2-point mirrored line portion.

3 The entire surface of the mounting portion of the IC7 Series is a mounting prohibited area.

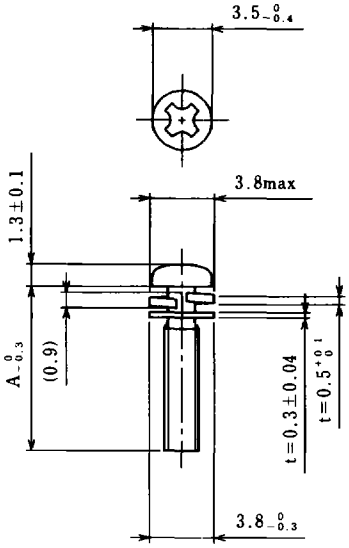
Examples of Mounting on Both Sides of Board



Example of Recommended Fastening When Mounting on Both Sides of Board.



Series Name	A	B
IC7	4.1	2.5
IC7A	6.3	—



List of Suitable Screws

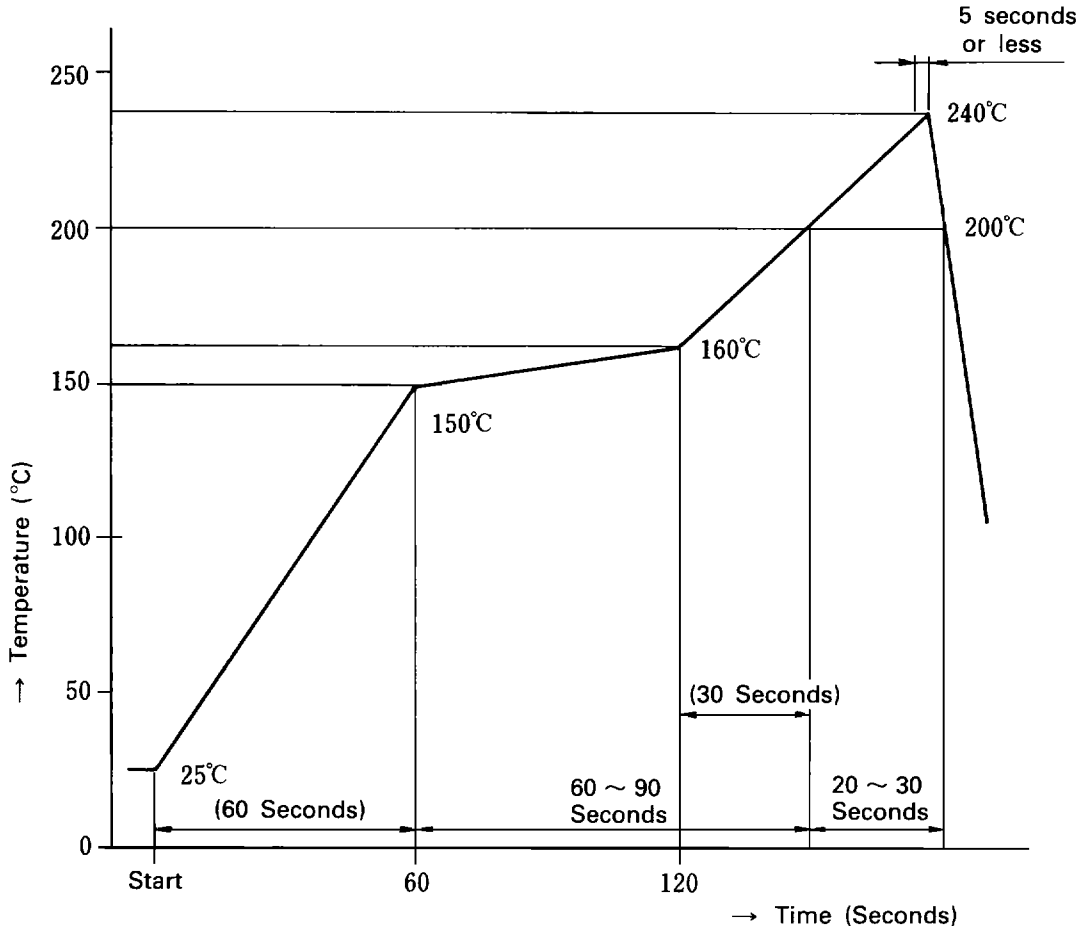
Combination	Board Thickness	HRS No.	Product No.	C
IC7 × IC7	1.6mm	640-0521-1	IC7-SF screw	9.7
IC7 × IC7A	1.6mm	640-0525-2	IC7-7A-SF screw	11.9

Sales unit: One package containing 1,000 pieces.

Unspecified dimensions comply with JIS B 1188.
Screw washer + M2 round head Phillips screw with built-in round washer

NOTE: 1 In order to perform the screw tightening of the FG terminal portion, please use one connector with nut-less specification (Specification No. 40).
2 When the board is thinner than 1.6 mm, the tip of the screw may protrude from the surface of the connector.

Temperature Profile (Reference)



Applicable Conditions

Reflow system: IR Reflow
Solder: Cream type ..... 63 Sn/37 Pb (Flux component of 11 wt%)
Test board: Glass epoxy ..... 100 × 100 × 1.6 mm
Metal mask: t = 0.15 mm
Number of reflow cycles: 1 time
This temperature profile is recommended. It is possible that it may change somewhat depending on the type and amount of cream solder.