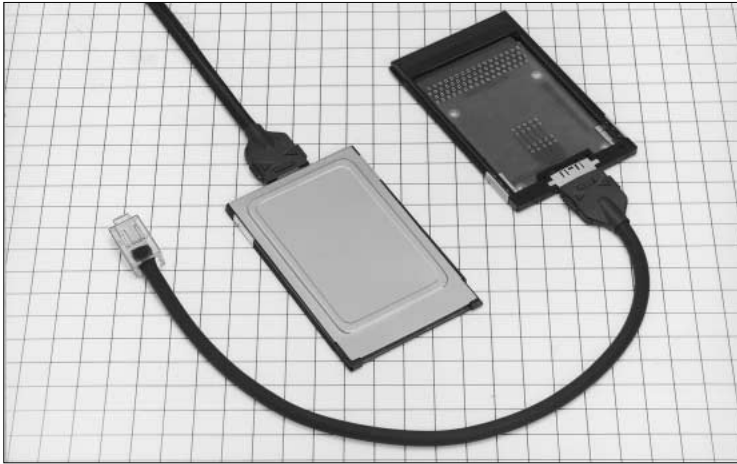


I/O Card Interface Connectors

NX Series



■ Features

1. Low Profile

Protrusion above the PCB board is only 2.9mm, and the connectors can be mounted to type I and II I/O cards.

2. EMI/RFI protection

Full metal shielding. Shield connects first, ahead of contacts.

■ Applications

Used with I/O cards, portable personal computers, and the external connections of various small-sized portable terminals.

■ Specifications

Ratings	Current rating	0.5 A	Operating temperature	-30°C to +70°C (Note 1)	Storage temperature range	-10°C to +60°C (Note 2)
	Voltage rating	125 V AC	Operating humidity	95% R.H. or less (No condensation)	Storage humidity range	40 to 70% (Note 2)

Item	Specification	Conditions
1. Insulation resistance	250 MΩ min.	100 V DC
2. Withstanding voltage	No flashover or insulation breakdown.	300 V AC / 1 minute
3. Contact resistance	40 mΩ max.	100 mA
4. Vibration	No electrical discontinuity of 10μs or more	Frequency: 10 to 55 Hz, single amplitude of 0.75 mm, 2 hours in each of the 3 directions.
5. Humidity (Steady state)	Insulation resistance: 100 MΩ min.	96 hours at temperature of 60°C and humidity of 90% to 95%
6. Temperature cycle	No damage, cracks, or parts looseness.	-55°C, 30 min. → 15 to 30°C, within 5 min → 85°C, 30 min → 15 to 35°C, within 5 min, for 5 cycles
7. Durability (Insertion/withdrawal)	60 mΩ max.	3000 cycles
8. Resistance to Soldering heat	No deformation of components affecting performance.	Reflow: At the recommended temperature profile
		Manual soldering: 300°C for 3 seconds

Note 1: Includes temperature rise caused by current flow.

Note 2: The term "storage" refers to products stored for long period of time prior to mounting and use. Operating Temperature Range and Humidity range covers non-conducting condition of installed connectors in storage, shipment or during transportation.

3. ESD Secure

Thermoplastic molded covers assures insulation of the connections and shields from ESD.

4. Secure Latching

A built-in latch assures correct and secure mating of connector.

5. Reliable Conductor Termination

Reliable termination of conductors is accomplished by proven IDC termination.

6. Sequential Mating

The 0.8mm pitch contacts are engaging the corresponding parts in sequence: Ground-Power & Signal

7. Rugged Construction

Securely attached to the board with optional screws.

8. Card Frame Kits

Available as a separate part number.

Materials

	Item	Material	Finish	Remarks
Receptacle	Insulator	Thermoplastic Compound	Black	UL94V-0
	Contacts	Copper alloy	Selective gold plating	—
	Body	Stain less	Solder Plating	—
Plug unit	Insulator	Thermoplastic Compound	Black	—
	Contacts	Copper alloy	Selective gold plating	UL94V-0
Plug cover	Cover	Thermoplastic Compound	Black	—
	Body	Stainless Steel	-	UL94V-0
Frame kit	Frame	Thermoplastic Compound	Black	—
	Frame ground terminal	Phosphor bronze	Gold Plating	—
	Spring pin	Stainless steel	-	—
	Coil spring	Stainless steel	-	—
	Panel	Stainless steel	With thermal adhesive tape	—

Applicable Cable

	I/O cable	
Conductor size	AWG # 28(7/0.127)	
Jacket outer diameter	0.58mm	0.62mm
Cable style	UL20276 and UL2789	UL2990

Ordering Information

●Receptacle

NX 60 T A - 15 S AA 9 - SP
① ② ③ ⑪ ⑤ ⑥ ⑦ ⑧ ⑨

●Plug

NX 30 T A - 15 P AA
① ② ③ ④ ⑤ ⑥ ⑦

●Plug Covers

NX - 15 T A - CV
① ⑤ ③ ⑪ ⑩

●Frame Kits

NX - 15 T - KT 9 (05)
① ⑤ ③ ⑩ ⑧ ⑫

●Panel (For 9, 15, or 25 contacts)

NX T - P (05)
① ③ ⑩ ⑫

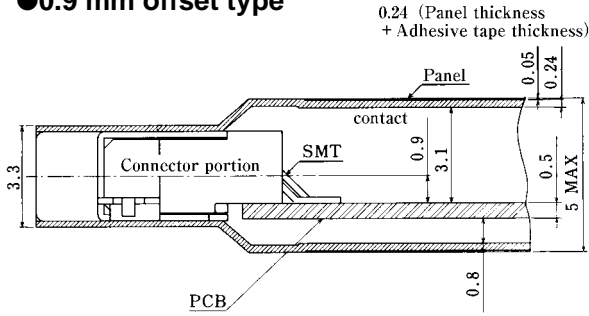
(For 32 contacts)

NX - 32 T - P (05)
① ⑤ ③ ⑩ ⑫

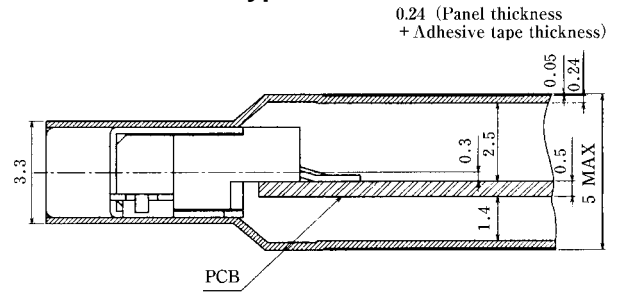
①	Series name : NX
②	Termination style 30 : IDC termination (for fine wire) 60 : SMT type
③	Lock T : Inner lock
④	Applicable Conductor A : AWG #28
⑤	Number of contacts : 9, 15, 25, 32
⑥	Connector type P : Plug S : Receptacle
⑦	Polarizing AA : AA type
⑧	Offset 9 : 0.9 mm 3 : 0.3 mm (Dimension from connector center line to the surface of the PCB)
⑨	Variations SP : Compliant mounting bracket (for cards use)
⑩	Types of accessories CV : Vertical opening cover case CV1 : Vertical opening cover case (Thin 5 mm thinness type) KT : Frame kit F : Frame P : Panel (For Type II card) PA : Panel (For Type I card) BS : Bushing CSA : Coil spring CSB : Coil spring
⑪	Serial number by type
⑫	Panel finish No symbol: Silver matt finish (05): Dull Processing material

◆Dimensions of Connector Cross Section

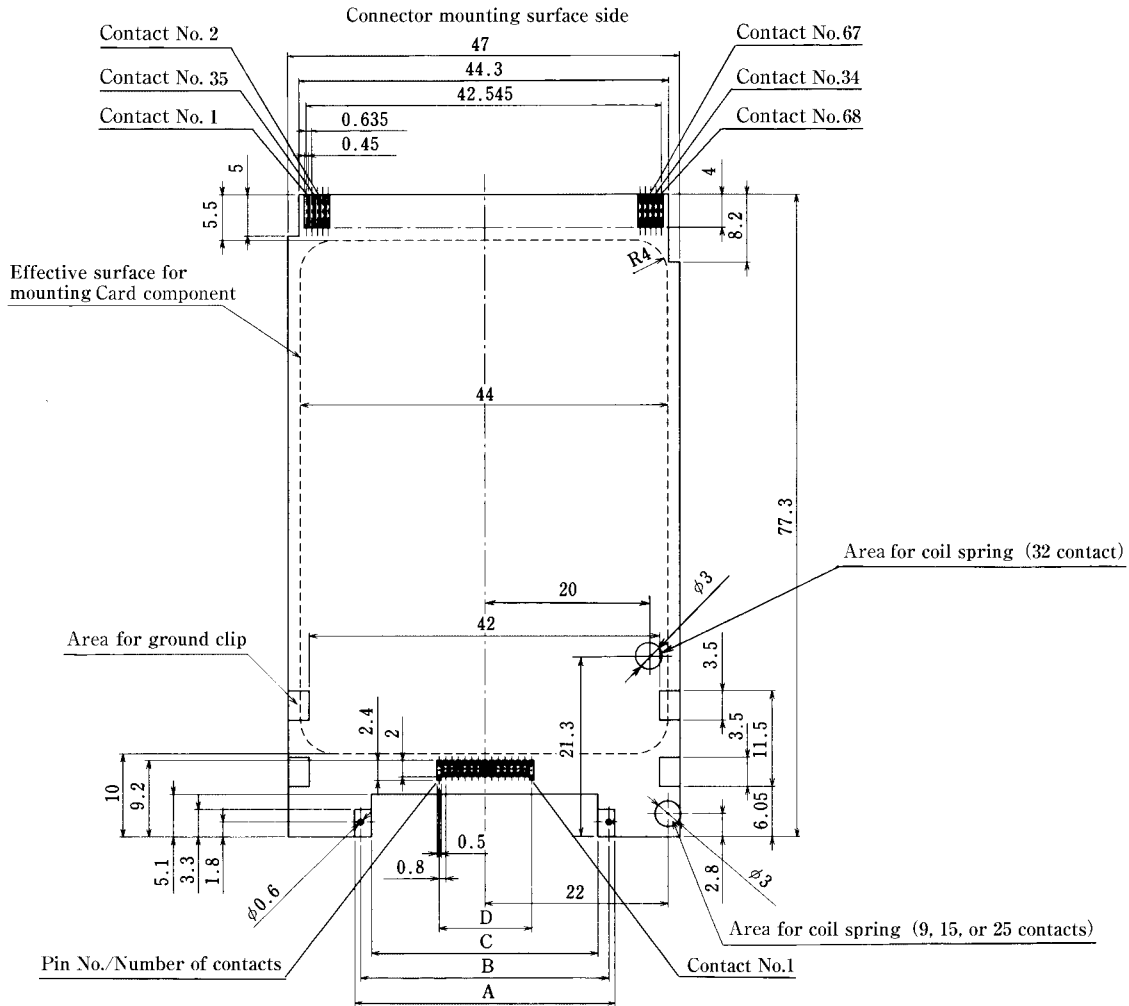
●0.9 mm offset type



●0.3 mm offset type



◆Recommended Board Dimensions (Board Thickness: 0.5 mm Maximum)

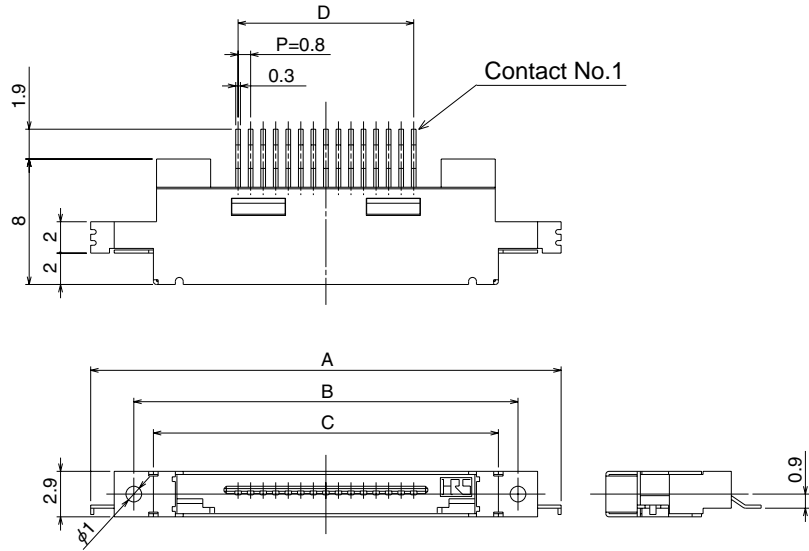
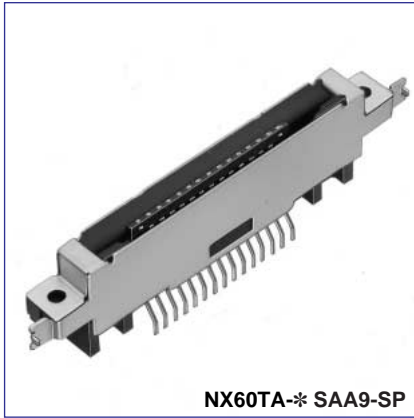


Unit: mm

Part Number	CL No.	Number of contacts	A	B	C	D	offset
NX- 9T-KT9	234-0010-8	9	26.4	25.0	22.4	6.4	0.9
NX-15T-KT9	234-0011-0	15	31.2	29.8	27.2	11.2	0.9
NX-25T-KT9	234-0012-3	25	39.2	37.8	35.2	19.2	0.9
NX-32T-KT9	234-0026-8	32	44.8	43.4	40.8	24.8	0.9
NX- 9T-KT3	234-0034-6	9	26.4	25.0	22.4	6.4	0.3
NX-15T-KT3	234-0035-9	15	31.2	29.8	27.2	11.2	0.3
NX-25T-KT3	234-0036-1	25	39.2	37.8	35.2	19.2	0.3
NX-32T-KT3	234-0054-3	32	44.8	43.4	40.8	24.8	0.3

■ Receptacle

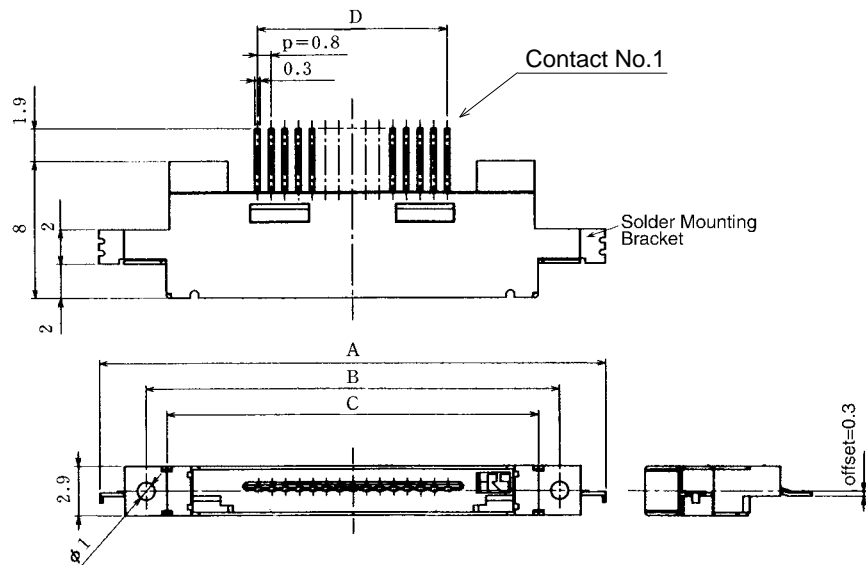
● 0.9 mm offset type



Unit: mm

Part Number	CL No.	Number of contacts	A	B	C	D
NX60TA- 9SAA9-SP	234-0106-5	9	25.2	19.7	17.2	6.4
NX60TB-15SAA9-SP	234-0097-6	15	30.0	24.5	22.0	11.2
NX60TA-25SAA9-SP	234-0107-8	25	38.0	32.5	30.0	19.2
NX60T -32SAA9-SP	234-0023-0	32	43.6	38.1	35.6	24.8

● 0.3 mm offset type

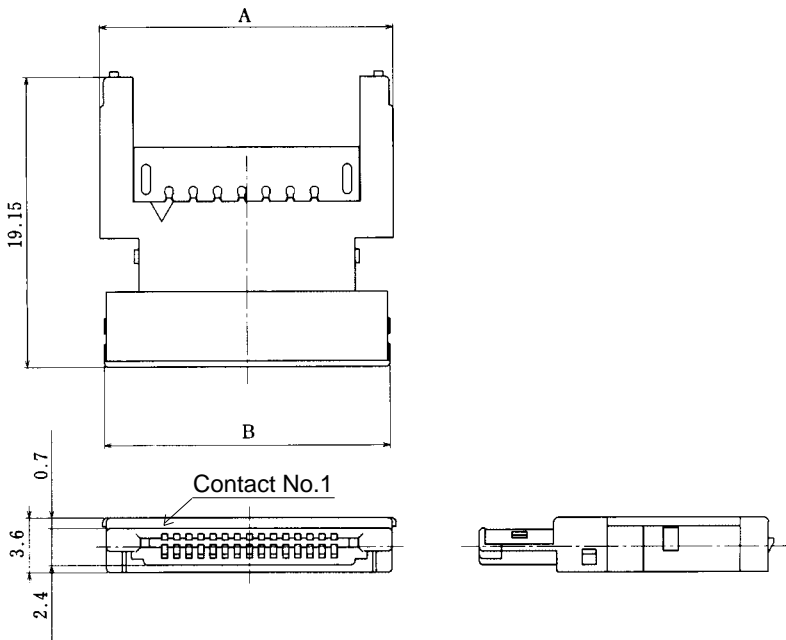


Unit: mm

Part Number	CL No.	Number of contacts	A	B	C	D
NX60TA- 9SAA3-SP	234-0031-8	9	25.2	19.7	17.2	6.4
NX60TB-15SAA3-SP	234-0098-9	15	30.0	24.5	22.0	11.2
NX60TA-25SAA3-SP	234-0033-3	25	38.0	32.5	30.0	19.2
NX60TA-32SAA3-SP	234-0053-0	32	43.6	38.1	35.6	24.8

■ Plug units

NX30TA-15PAA
CL234-0005-8

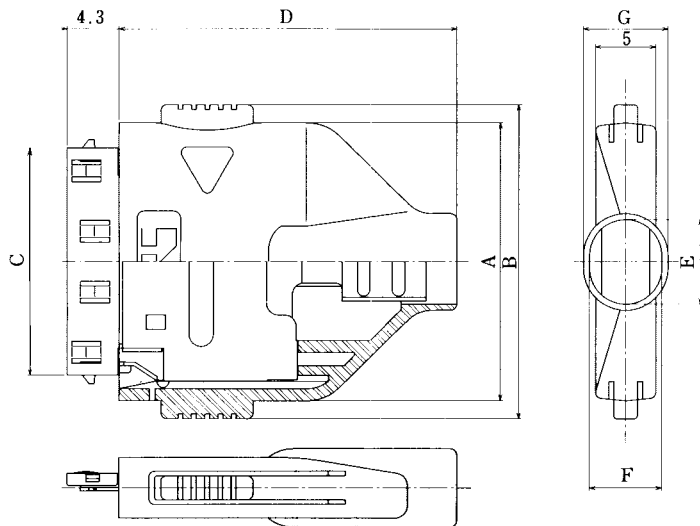


Unit: mm

Part Number	CL No.	Number of contacts	A	B
NX30TA- 9PAA	234-0002-0	9	14.6	14.1
NX30TA-15PAA	234-0005-8	15	19.4	18.9
NX30TA-25PAA	234-0008-6	25	27.4	26.9
NX30TA-32PAA	234-0024-2	32	33.0	32.5

■ Plug Covers

NX-15T-CV
CL234-0006-0



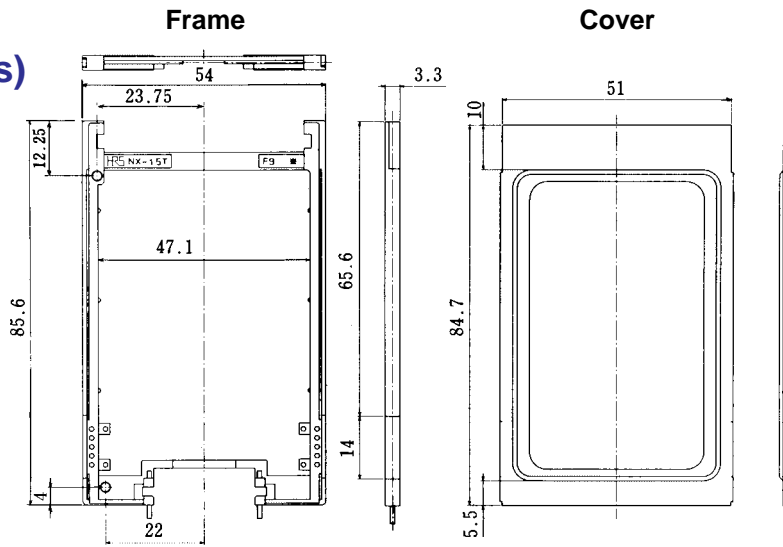
Unit: mm

Part Number	CL No.	Number of contacts	A	B	C	D	E	F	G	Outer diameter of cable
NX- 9T-CV	234-0003-2	9	18.2	21.2	14.0	26	6.0	5.5	6.5	less than ϕ 5.5
NX-15T-CV	234-0006-0	15	23.0	26.0	18.8	28	7.0	6.0	7.0	less than ϕ 6.0
NX-15T-CV1	234-0017-7	15	23.0	26.0	18.8	28	5.0	4.0	5.0	less than ϕ 4.0
NX-25T-CV	234-0009-9	25	31.0	34.0	26.8	30	8.0	6.5	7.5	less than ϕ 6.5
NX-25TA-CV1	234-0039-0	25	31.0	34.0	26.8	32	13.0	4.0	5.0	less than ϕ 6.5(Note)
NX-32TA-CV1	234-0025-5	32	36.6	40.6	32.4	32	16.2	4.2	5.0	less than ϕ 7.5(Note)

Note: Designed for flat cable use. when round cable is used, clamp portion shall be made flat, adjusting exclusive use bushing.

■Frame kit (Frame + 2 X Cover Panels)

NX-15T-KT9
CL234-0011-0

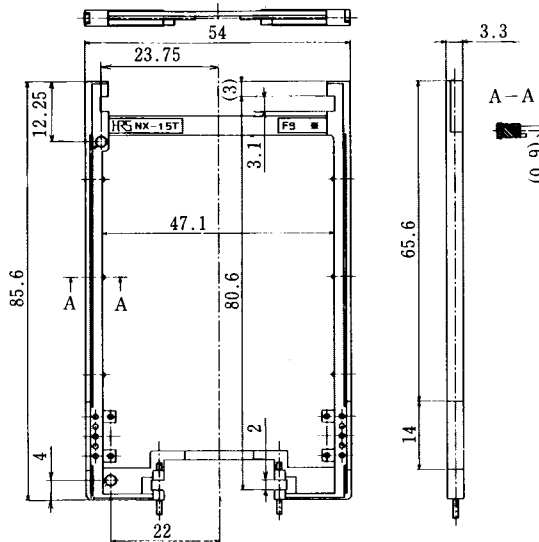


Unit: mm

Part Number	CL No.	Number of contacts	Connectors for the card Side(Note 1)			Back Connector
			Part Number	CL No.	Offset	
NX- 9T-KT9	234-0010-8	9	IC1F-68RD-1.27SFA	640-0040-3	0.9mm	NX60TA- 9SAA9-SP
NX-15T-KT9	234-0011-0	15				NX60TB-15SAA9-SP
NX-25T-KT9	234-0012-3	25				NX60TA-25SAA9-SP
NX-32T-KT9	234-0026-8	32				NX60T -32SAA9-SP
NX- 9T-KT3	234-0034-6	9	IC1F-68RD-1.27SF	640-0035-3	0.3mm	NX60TA- 9SAA3-SP
NX-15T-KT3	234-0035-9	15				NX60TB-15SAA3-SP
NX-25T-KT3	234-0036-1	25				NX60TA-25SAA3-SP
NX-32T-KT3	234-0054-3	32				NX60TA-32SAA3-SP

■Frame only

NX-15T-F9
CL234-0019-2

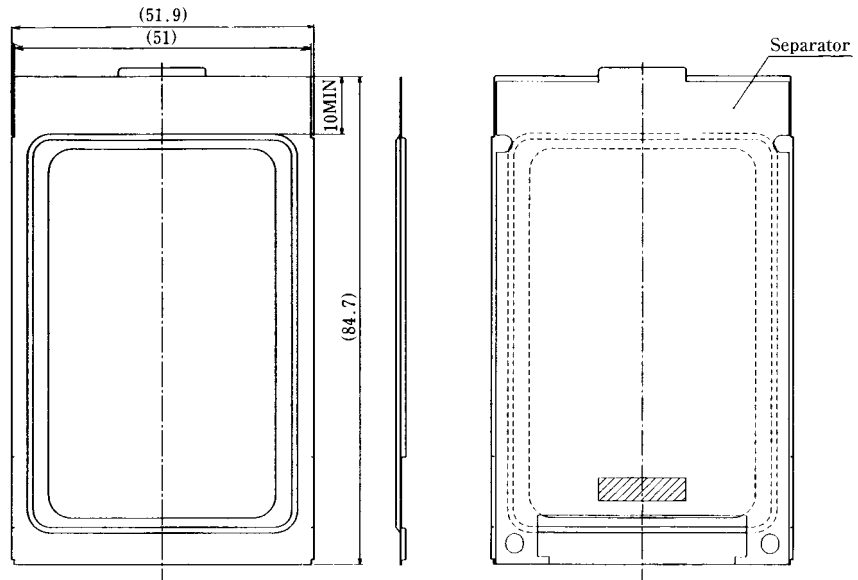


Unit: mm

Part Number	CL No.	Number of contacts	Connectors for the card Side	Back Connector	Panel	Coil Spring	Offset
NX- 9T-F9	234-0018-0	9	IC1F-68RD-1.27SFA	NX60TA- 9SAA9-SP	NXT-P	NX-CSA	0.9mm
NX-15T-F9	234-0019-2	15		NX60TB-15SAA9-SP			
NX-25T-F9	234-0020-1	25		NX60TA-25SAA9-SP			
NX-32T-F9	234-0063-4	32		NX60T -32SAA9-SP			
NX- 9T-F3	234-0060-6	9	IC1F-68RD-1.27SF	NX60TA- 9SAA3-SP	NXT-P	NX-CSA & NX-CSB	0.3mm
NX-15T-F3	234-0061-9	15		NX60TB-15SAA3-SP			
NX-25T-F3	234-0062-1	25		NX60TA-25SAA3-SP			
NX-32T-F3	234-0067-5	32		NX60TA-32SAA3-SP			

■ Panel (for type II PCMCIA cards)

NXT-P
CL234-0058-4

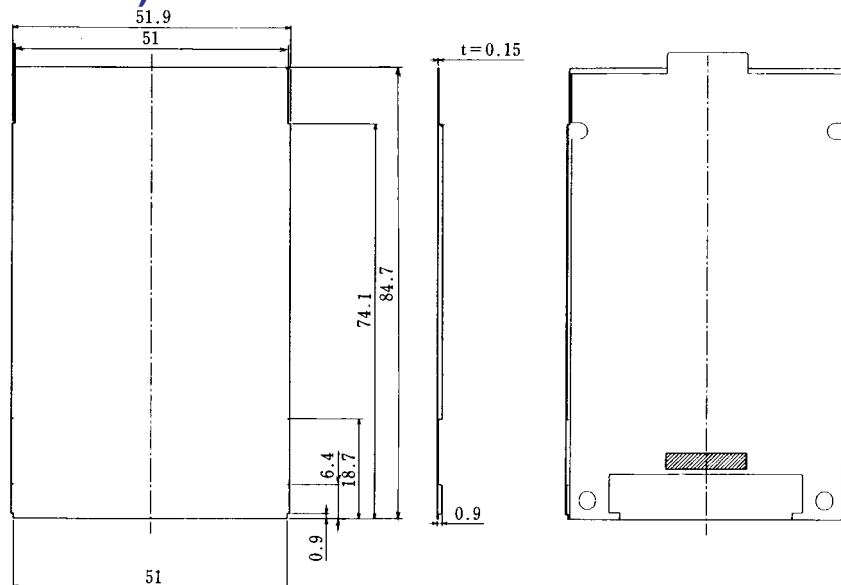


Unit: mm

Part Number	CL No.	Number of Frame contacts	Panel Finish
NXT-P	234-0058-4	9, 15, 25	Silver matt finish
NXT-P(05)	234-0058-4-05		Dull processing material
NX-32T-P	234-0059-7	32	Silver matt finish
NX-32T-P(05)	234-0059-7-05		Dull processing material

■ Panel (for type I PCMCIA cards)

NXT-PA
CL234-2011-1

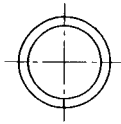
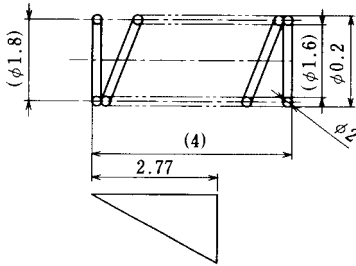


Part Number	CL No.	Number of Frame contacts	Panel Finish
NXT-PA	234-2011-1	9, 15, 25	Silver matt finish
NXT-PA(05)	234-2011-1-05		Dull processing material
NX-32T-PA	234-0068-8	32	Silver matt finish
NX-32T-PA(05)	234-0068-8-05		Dull processing material

* Panels are available in two types: a 32-contact special type and a common type with 9, 15, or 25 contacts.

* Ordering volume for panels is one panel per unit volume. One frame corresponds to 2 panels.

■Ground contact spring



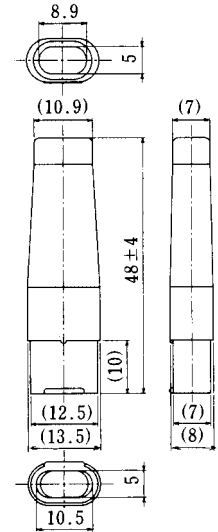
Part Number	CL No.	Offset: Ordering Volume
NX-CSA	234-0042-4	0.3mm: One Pack 0.9mm: Two Packs
NX-CSB	234-0043-7	0.3mm: One Packs

Sold in package of 1000 pcs.

For 1,000 frames of 0.9 offset, please order two packs of NX-CSA.

For 1,000 frames of 0.3 offset, please order one pack of NX-CSA and one pack of NX-CSB.

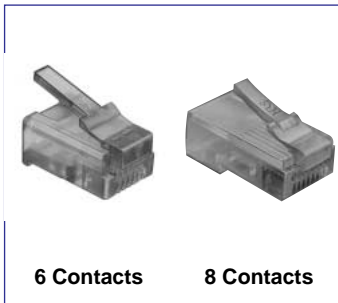
■Bushing



Part Number	CL No.	Number of contacts
NX-25T-BS	234-0074-0	25
NX-32T-BS	234-0055-6	32

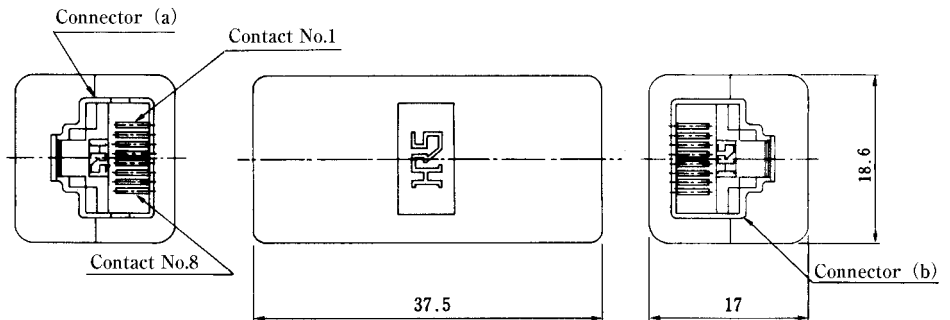
Applications for Connections of I/O Card Connectors

■Modular plugs for round cable (AWG #28) connector



No. of contacts	Modular Plug		Manual Wiring Tool	
	Part Number	CL No.	Part Number	CL No.
6	TM30P-66P	222-2684-2	TC1-TM30P-66P	250-0145-6
8	TM30P-88P	222-2685-5	TC1-TM30P-88P	250-0146-9

■8-Contact adapter



Lead Number Reference Table

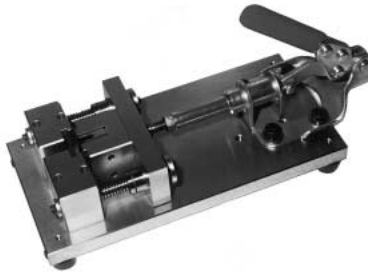
Connector (a) Contact number TM5RL-88	1	2	3	4	5	6	7	8
Connector (b) Contact number TM5RL-88	1	2	3	4	5	6	7	8

◆ Plug Termination Tool

● Fixtures



Cable wiring cradle
NX/3230-CAT
CL902-0250-4

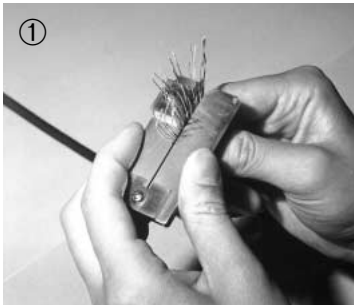


Cutting and IDC termination
Fixture main unit
NX/3230-HP
CL902-0252-0

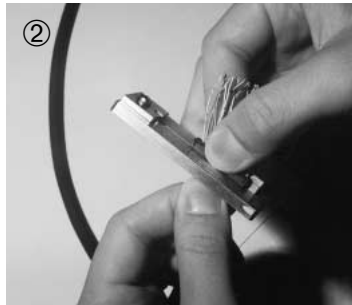


Cutting and IDC termination
attachment fixtures
NX30TA-9GP
CL902-0253-2
NX30TA-15GP
CL902-0254-5
NX30TA-25GP
CL902-0255-8
NX30TA-32GP
CL902-0257-3

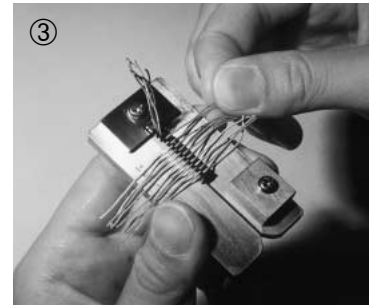
● Wiring Procedure



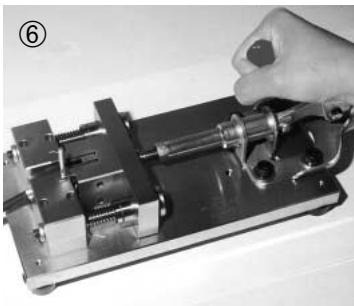
1. Set the wires in the wiring fixtures.



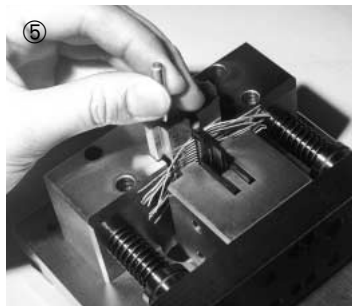
2. Align holding plates (A) and (B).



3. Arrange the wires one at a time through holding plates (A) and (B).



4. Set holding plates (A) and (B) onto the guide plate.

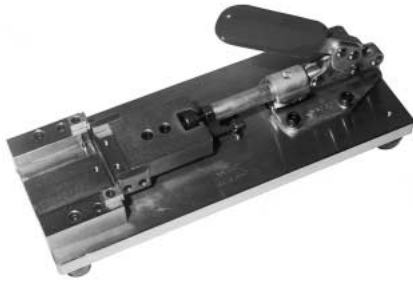


5. Insert the guide plate into the pressure welding and cutting fixtures.



6. Pull down the handle. The wiring and cutting of excess cable length are completed.

◆ Frame Kit Fixture



Ground spring press fitting fixture



Special blocks

A frame kit thermal fixture and a cooling fixture are also available.

◆ Wiring Fixture and Accessories List

Plug

Cable	Connector	Process					
		Wiring	Pressur Welding and Cutting		Shield Case Caulking		Hood Fitting
			Press	Guide Plate	Cover Case	Hand Tool	
I/O Cable Discrete cable	NX30TA- 9PAA	NX/3230-CAT (All contacts common)	NX/3230-HP	NX30TA- 9GP	NX- 9T-CV	NX-30TA-9HC CL902-0260-8	Manual Work
	NX30TA-15PAA			NX30TA-15GP	NX-15T-CV NX-15T-CV1	NX-30TA-15HC CL902-0261-0 NX-30TA-15HC1 CL902-0262-3	
	NX30TA-25PAA			NX30TA-25GP	NX-25T-CV	NX-30TA-25HC1 CL902-0263-6	
	NX30TA-32PAA			NX30TA-32GP	NX-32T-CV1	Screw Fixing	

Note 1: The caulking height of hand tool is defined by following cable specifications.

Note 2: Caulking specification change is needed when special cable is used.

Cover Case	Cable Diameter	Strand Termination
NX-9T-CV	$\phi 5.1 \pm 0.2$	Fold the shield and bind 1.5 times with copper tape. Do,
NX-15T-CV	$\phi 5.7 \pm 0.2$	
NX-25T-CV	$\phi 6.5 \pm 0.2$	Do,
NX-15T-CV1	$\phi 3.8 \pm 0.2$	Crimp with cable sheath directly.

Frame Kit

Frame Kit	Process			
	Spring Pin Press Fitting		Panel Thermal Caulking	Panel Cooling
	Press	Unit		
NX-9T-KT(9•3)	NX-SPT CL902-0274-2	NX-SPT-9 CL902-0275-5	NX-PHT CL902-0282-0	NX-PCT CL902-0283-3
NX-15T-KT(9•3)		NX-SPT-15 CL902-0276-8		
NX-25T-KT(9•3)		NX-SPT-25 CL902-0277-0		
NX-32T-KT(9•3)		NX-SPT-32 CL902-0278-3		

Back Connectors for Type II I/O Cards

NX Series 68



Features

1. Low profile

Receptacle connectors have a mounting height of 3.5 mm and can be mounted to type II I/O cards.

2. Shielded construction

A metal shell is used for shielding.

3. ESD protection

The use of an over-mold cover offers excellent ESD protection.

4. More efficient wiring work

Wiring on the plug side uses AWG #30 pressure welding (discrete type) for more efficient wiring work.

Applications

I/O card interfaces.

Specifications

Item	Specification	Conditions
1. Current rating	0.5A	—
2. Voltage rating	125 V AC	—
3. Insulation resistance	250 MΩ min.	100 V DC
4. Withstanding voltage	300 V AC	No flashover or insulation breakdown.
5. Contact resistance	40 MΩ min.	100 mA
6. Durability (Insertion/withdrawal)	3000 cycles	Contact resistance : 60 mΩ max.

Applicable

	I/O Cable
Conductor size	AWG #30 (7/0.1)
Insulator outer diameter	0.5mm
Cable style	UL20276

Materials

Item	Material	Finish	Remarks
Receptacle	Insulator	Synthetic resin	Color : Black UL94V-0
	Contacts	Copper alloy	Selective gold plating —
	Body	Stainless steel	Solder plating —
Plug unit	Insulator	Synthetic resin	Color : Black UL94V-0
	Contacts	Copper alloy	Selective gold plating —
Plug cover	Cover	Synthetic resin	Color : Black UL94V-0
	Body	Stainless steel	— —
Frame kit	Frame	Synthetic resin	Color : Black UL94V-0
	FG terminal	Phosphor bronze	Gold plating —
	Spring pin	Stainless steel	— —
	Coil spring	Stainless steel	— —
	Panel	Stainless steel	With thermal adhesive tape —

Ordering Information

●Receptacle

NX 60 H - 68 S 9 - SP

① ② ③ ④ ⑤ ⑥ ⑦

●Plug unit

NX 30 H - 68 P

① ② ③ ④ ⑤

●Plug cover

NX - 68 H - CV

① ④ ③ ⑧

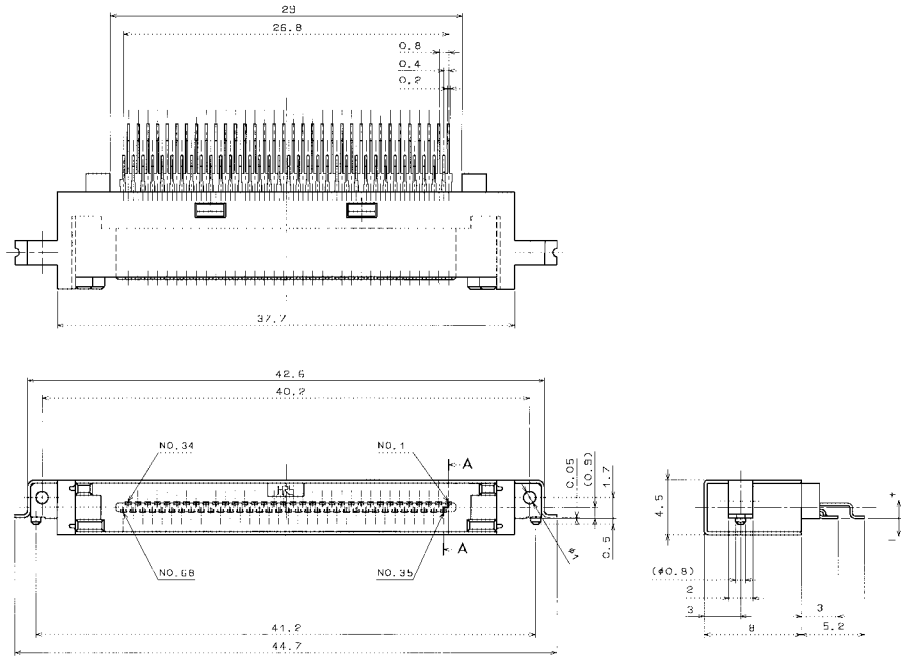
●Frame kit

NX - 68 H - KT 9 (05)

① ④ ③ ⑧ ⑥ ⑨

①	Series name: NX
②	Wiring style 30: Loose lead pressure welding type (for fine wire) 60: SMT type
③	Serial type for form
④	Number of contacts: 68
⑤	Type of opening S: Receptacle P: Plug
⑥	Coplanarity: 0.9 (Dimension from connector center to board mounting position)
⑦	Variations SP: Spring pin (for cards)
⑧	Type of accessories CV: Vertical opening cover KT: Frame kit
⑨	Panel finish (05): Dull processing

■ Receptacle

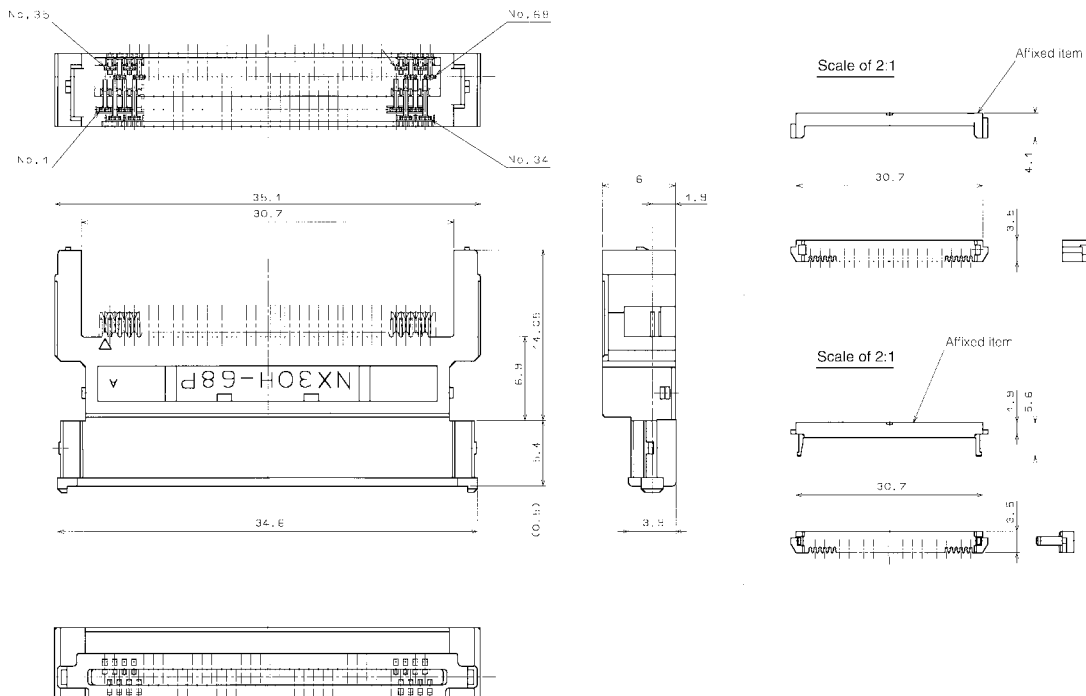


Note 1: The signal pin SMT dimension of this product is $0^{+0.1}_{-0.05}$.

Note 2: Caulking specification change is needed when special cable is used.

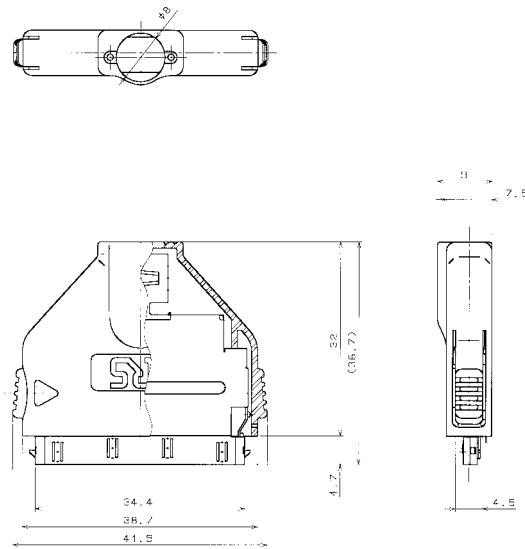
Part Number	CL No.
NX60H-68S9-SP	234-0078-1

■ Plug Unit



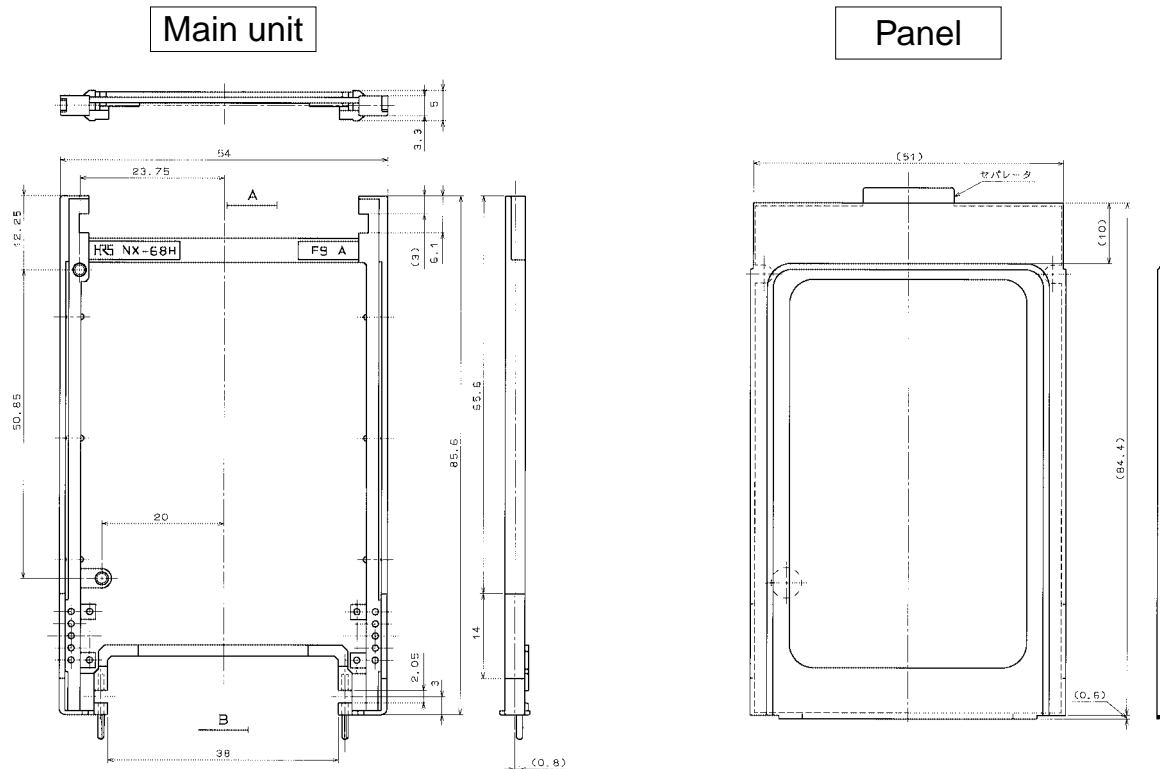
Part Number	CL No.
NX30H-68P	234-0079-4

■ Plug Cover



Part Number	CL No.
NX-68H-CV	234-0080-3

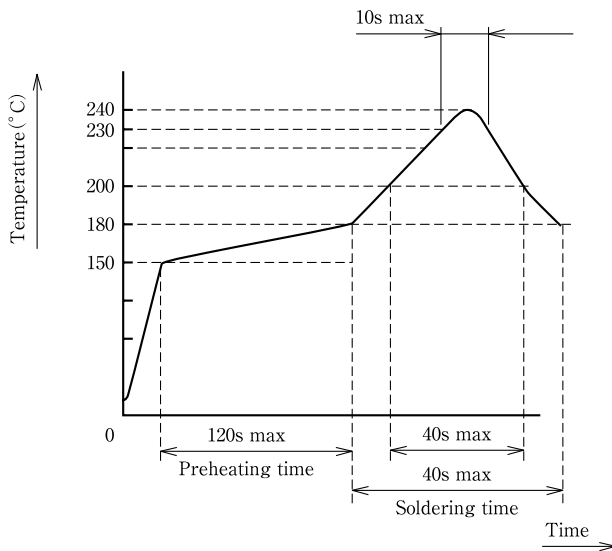
■ Frame Kit



Note 1: Suitable connectors for portion A are IC1F-68RD-1.27SFA.
 Suitable connectors for portion B are NX60H-68S9-SP.

Part Number	CL No.
NX-68H-KT9(05)	234-0081-6-05

◆ Temperature Profile



- **Applicable Conditions**

Reflow system : IR reflow

Solder : Paste type 63 Sn/37 Pb
(Flux content 9 wt%)

Test board Glass epoxy 47mm x 77.3mm x 0.5 mm

Metal mask thickness: 0.15 mm

- **Recommended temperature profile.**

The temperature may be slightly changed according to the solder paste type and amount.

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