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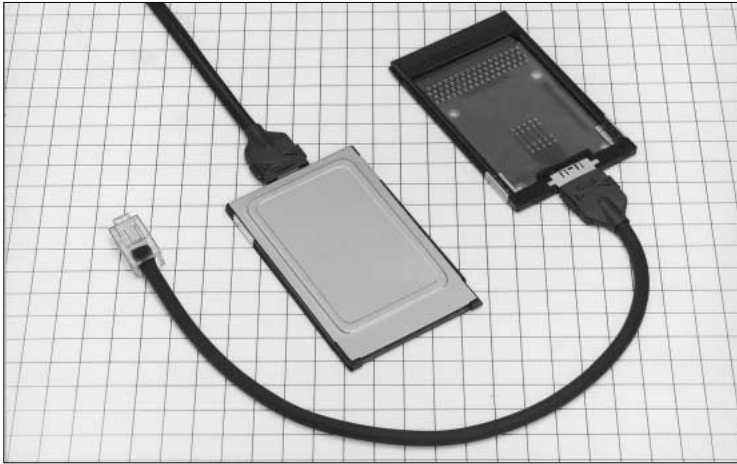
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I/O Card Interface Connectors

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

Item	Requirements	Conditions
1. Insulation resistance	250 MΩ or greater	Measured at 100 V DC
2. Voltage proof	No flashover or breakdown	300 V AC for 1 minute
3. Contact resistance	40 mΩ or less (initial value) (Note 3)	Measured at 100 mA
4. Vibration	No electrical discontinuity for 10μs or greater	Frequency of 10 to 55 Hz, amplitude of 0.75 mm, 3 directions, 2 hours each
5. Humidity resistance	Insulation resistance: 250 MΩ or greater	Temperature of 40°C ±2°C, humidity of 90 to 95%, duration 96h
6. Rapid change of temperature	No damage, cracks, or defects at any part	-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. Insertion and withdrawal life	Change of contact resistance from the start should be 60 mΩ or less	3,000 times
8. Resistance to soldering heat	No melting of resin portions which affect performance	Reflow: at the recommended temperature profile
		Soldering iron temperature: 300°C for 3 seconds

Note 1 : Includes temperature rise when conducting.

Note 2 : The term storage refers to an unused products prior to boards mounting (including packing materials) that is being kept for a long period.

The operating temperature and humidity range are applied to the non-conducting condition following board assembly.

Note 3 : The aforementioned specifications are representative of this series. For information on specific parts, confirm with Sales Office.

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.

9. Secure Attachment to Frame Kit.

Compliant mounting bracket attaches the connectore directly to the frame kit.

■ MATERIALS AND FINISH

Main Materials Used			
Receptacle connectors	Insulator	Thermoplastic Compound	*Black
	Contacts	Copper alloy	Selective gold plating
	Shell	Steel (Note)	Solder Plating
	Latch	Stainless steel	-
Plug unit	Insulator	Thermoplastic Compound	*Black
	Contacts	Copper alloy	Partial gold plating
Plug cover	Cover case	Thermoplastic Compound	*Black
	Shell	Stainless Steel	-
Frame kit	Frame	Thermoplastic Compound	*Black
	Frame ground terminal	Phosphor bronze	Gold Plating
	Spring pin	Stainless steel	-
	Cpil spring	Stainless steel	-
	Panel	Stainless steel	Thermal adhesive tape attached

Note : The 0.3mm offset type and those used for equipment interfaces are made of stainless steel.

*UL94V-0

◆ Suitable Cable

	I/O cable	
Center conductor	AWG # 28(7/0.127)	
Shielding outer diameter	0.58mm	0.62mm
Cable style	UL20276 and UL2789	UL2990

■ Product Number Configuration

● 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 (With 9, 15, or 25 contacts)

NX T - P (05)
① ③ ⑩ ⑫

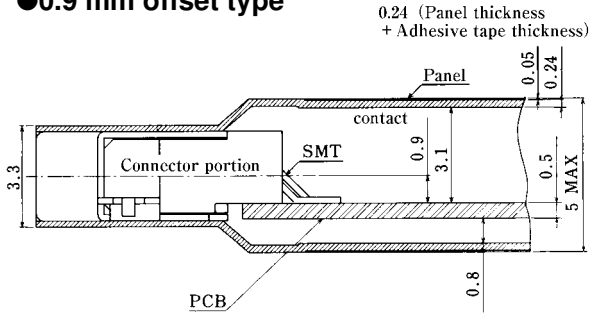
(With 32 contacts)

NX - 32 T - P (05)
① ⑤ ③ ⑩ ⑫

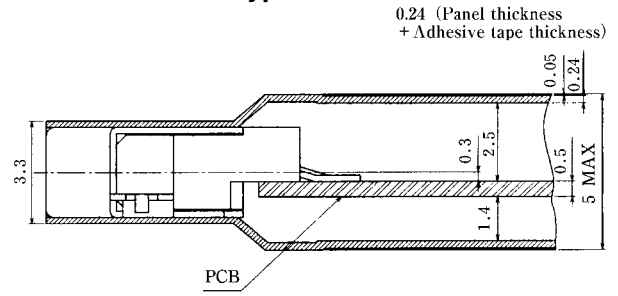
①	Series name : NX Series
②	Termination style 30 : IDC termination (for fine wire) 60 : SMT type
③	Latch T : Inner lock
④	Applicable Conductor A : AWG #28
⑤	Number of contacts : 9, 15, 25, 32
⑥	Connector type P : Plug S : Receptacle
⑦	Polarizing AA : AA type
⑧	Offset 9 : 0.9 mm 3 : 0.3 mm (Dimension from connector center line to the surface of the PCB)
⑨	Variations SP : Compliant mounting bracket (for cards use) SH : Through hole
⑩	Types of accessories CV : Vertical opening cover case CV1 : Vertical opening cover case (Thin 5 mm thickness 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

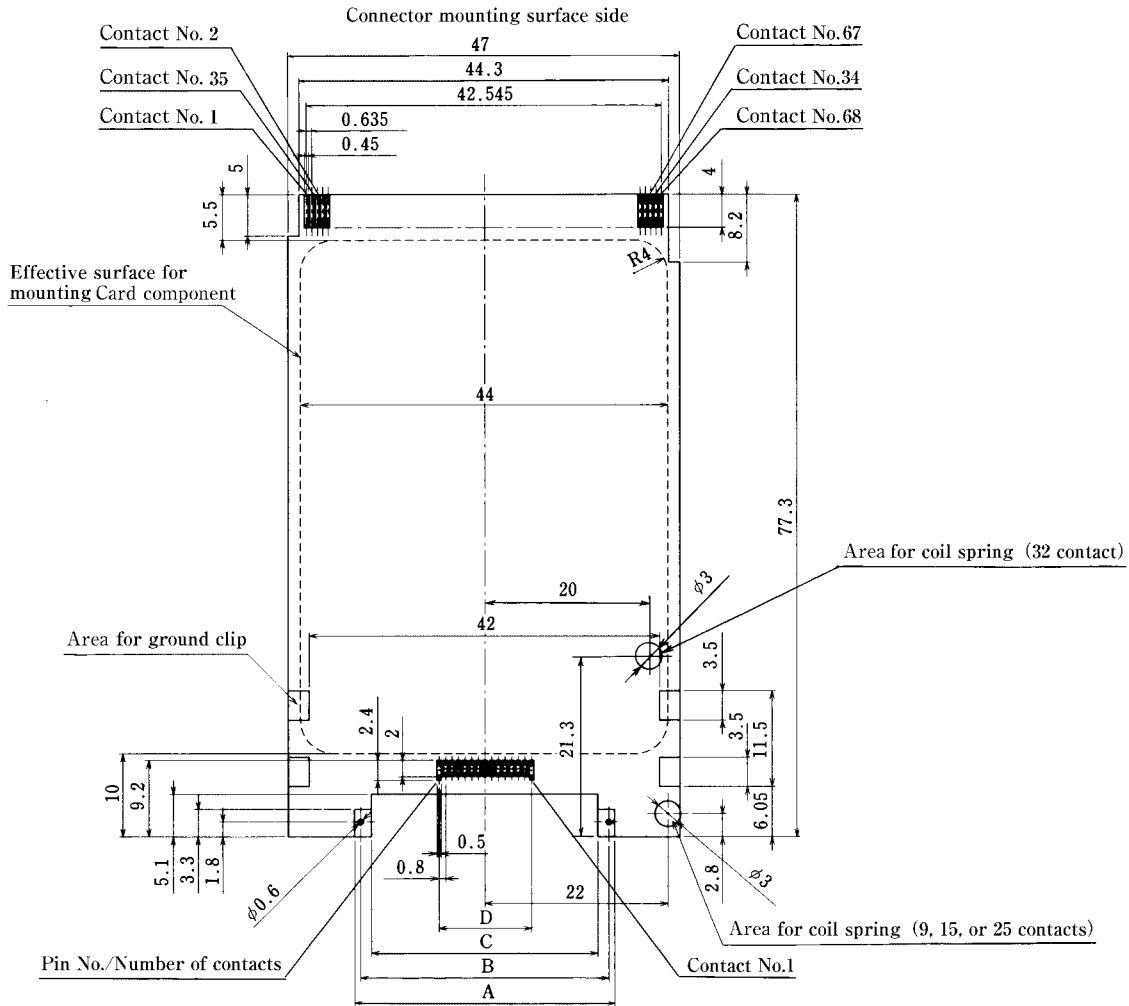
●0.9 mm offset type



●0.3 mm offset type



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

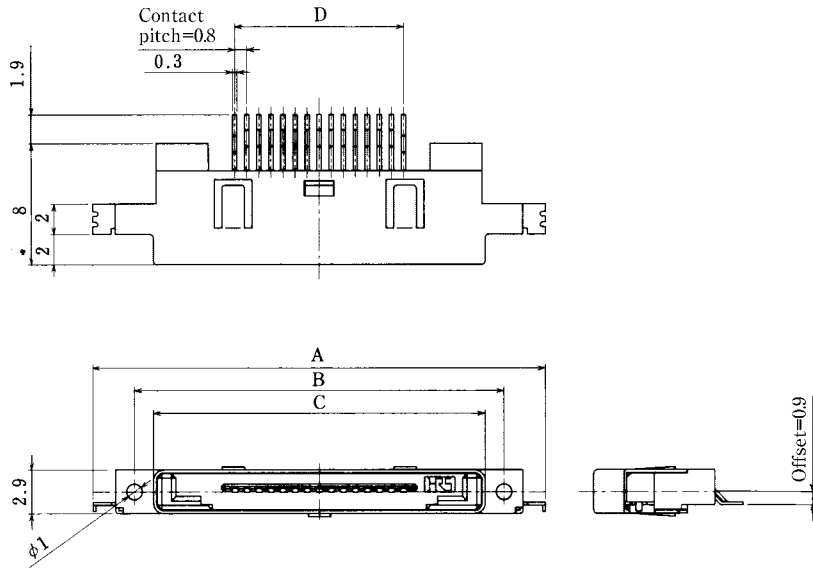


Unit: mm

Product No.	HRS No.	Number of contacts	A	B	C	D	offset
NX- 9T-KT9	CL234-0010-8	9	26.4	25.0	22.4	6.4	0.9
NX-15T-KT9	CL234-0011-0	15	31.2	29.8	27.2	11.2	0.9
NX-25T-KT9	CL234-0012-3	25	39.2	37.8	35.2	19.2	0.9
NX-32T-KT9	CL234-0026-8	32	44.8	43.4	40.8	24.8	0.9
NX- 9T-KT3	CL234-0034-6	9	26.4	25.0	22.4	6.4	0.3
NX-15T-KT3	CL234-0035-9	15	31.2	29.8	27.2	11.2	0.3
NX-25T-KT3	CL234-0036-1	25	39.2	37.8	35.2	19.2	0.3
NX-32T-KT3	CL234-0054-3	32	44.8	43.4	40.8	24.8	0.3

RECEPTACLE CONNECTORS

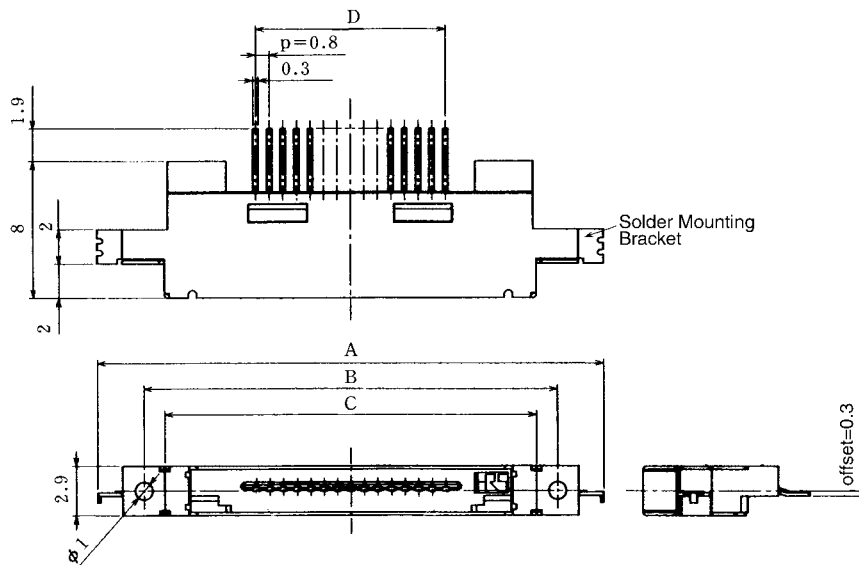
0.9 mm offset type



Unit: mm

Product No.	HRS No.	Number of contacts	A	B	C	D
NX60TA- 9SAA9-SP	CL234-0106-5	9	25.2	19.7	17.2	6.4
NX60TB-15SAA9-SP	CL234-0097-6	15	30.0	24.5	22.0	11.2
NX60TA-25SAA9-SP	CL234-0107-8	25	38.0	32.5	30.0	19.2
NX60T -32SAA9-SP	CL234-0023-0	32	43.6	38.1	35.6	24.8

0.3 mm offset type

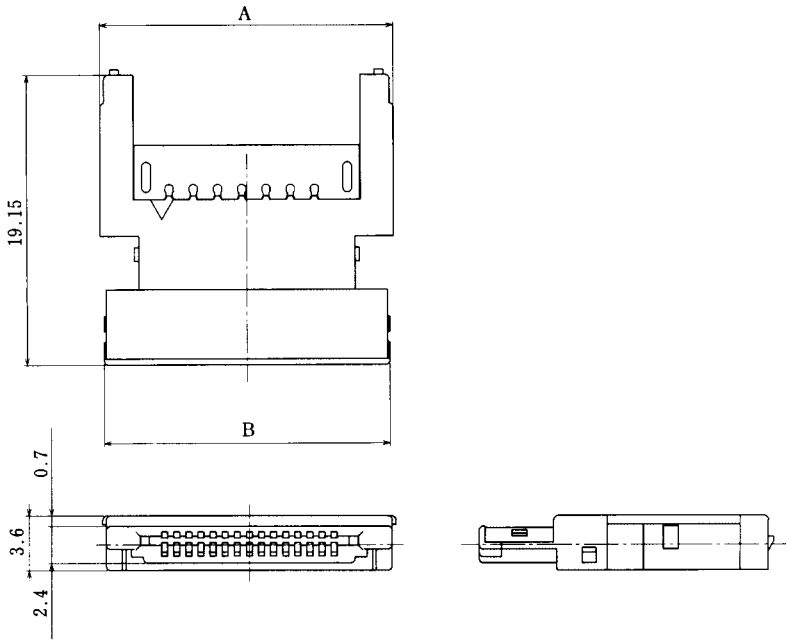


Unit: mm

Product No.	HRS No.	Number of contacts	A	B	C	D
NX60TA- 9SAA3-SP	CL234-0031-8	9	25.2	19.7	17.2	6.4
NX60TB-15SAA3-SP	CL234-0098-9	15	30.0	24.5	22.0	11.2
NX60TB-25SAA3-SP	CL234-0033-3	25	38.0	32.5	30.0	19.2
NX60TA-32SAA3-SP	CL234-0053-0	32	43.6	38.1	35.6	24.8

PLUG UNITS

NX30TA-15PAA
CL234-0005-8

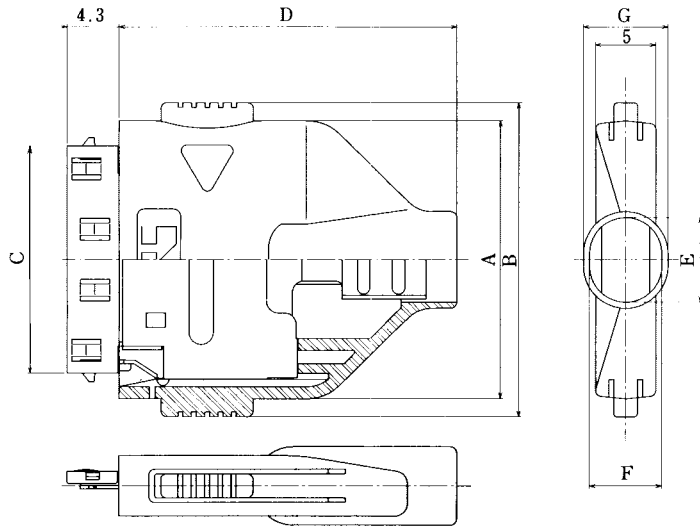


Unit: mm

Product No.	HRS No.	Number of contacts	A	B
NX30TA- 9PAA	CL234-0002-0	9	14.6	14.1
NX30TA-15PAA	CL234-0005-8	15	19.4	18.9
NX30TA-25PAA	CL234-0008-6	25	27.4	26.9
NX30TA-32PAA	CL234-0024-2	32	33.0	32.5

INNER LATCH PLUG HOUSING

NX-15T-CV
CL234-0006-0



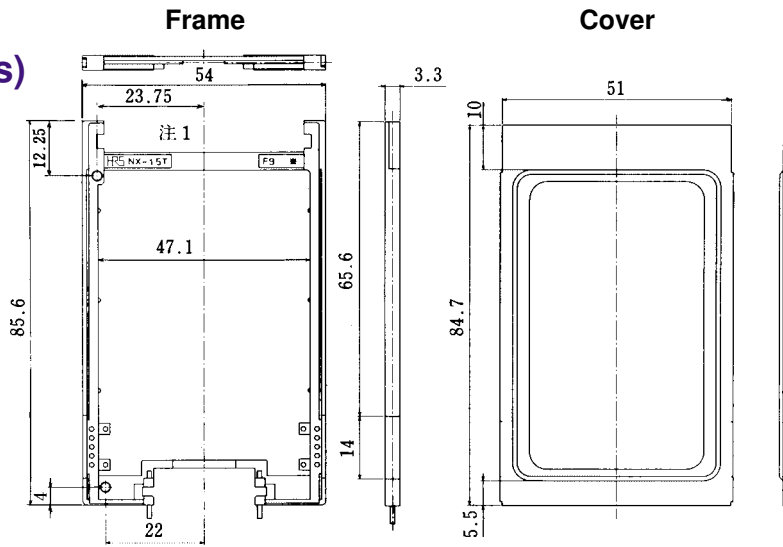
Unit: mm

Product No.	HRS No.	Number of contacts	A	B	C	D	E	F	G	Outer diameter of cable
NX- 9T-CV	CL234-0003-2	9	18.2	21.2	14.0	26	6.0	5.5	6.5	less than ϕ 5.5
NX-15T-CV	CL234-0006-0	15	23.0	26.0	18.8	28	7.0	6.0	7.0	less than ϕ 6.0
NX-15T-CV1	CL234-0017-7	15	23.0	26.0	18.8	28	5.0	4.0	5.0	less than ϕ 4.0
NX-25T-CV	CL234-0009-9	25	31.0	34.0	26.8	30	8.0	6.5	7.5	less than ϕ 6.5
NX-25TA-CV1	CL234-0039-0	25	31.0	34.0	26.8	32	13.0	4.0	5.0	less than ϕ 6.5(Note)
NX-32TA-CV1	CL234-0025-5	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

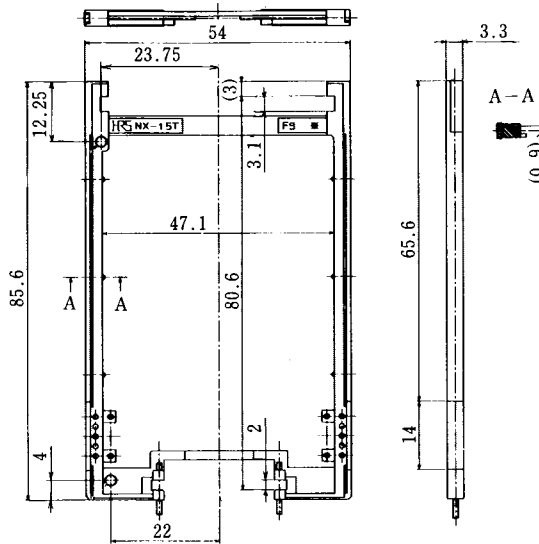


Unit: mm

Product No.	HRS No.	Number of contacts	Connectors for the card Side(Note 1)			Back Connector
			Product No.	HRS No.	Offset	
NX- 9T-KT9	CL234-0010-8	9	IC1F-68RD-1.27SFA	CL640-0040-3	0.9mm	NX60TA- 9SAA9-SP
NX-15T-KT9	CL234-0011-0	15				NX60TB-15SAA9-SP
NX-25T-KT9	CL234-0012-3	25				NX60TA-25SAA9-SP
NX-32T-KT9	CL234-0026-8	32				NX60T -32SAA9-SP
NX- 9T-KT3	CL234-0034-6	9	IC1F-68RD-1.27SF	CL640-0035-3	0.3mm	NX60TA- 9SAA3-SP
NX-15T-KT3	CL234-0035-9	15				NX60TB-15SAA3-SP
NX-25T-KT3	CL234-0036-1	25				NX60TA-25SAA3-SP
NX-32T-KT3	CL234-0054-3	32				NX60TA-32SAA3-SP

■FRAME ONLY

NX-15T-F9
CL234-0019-2

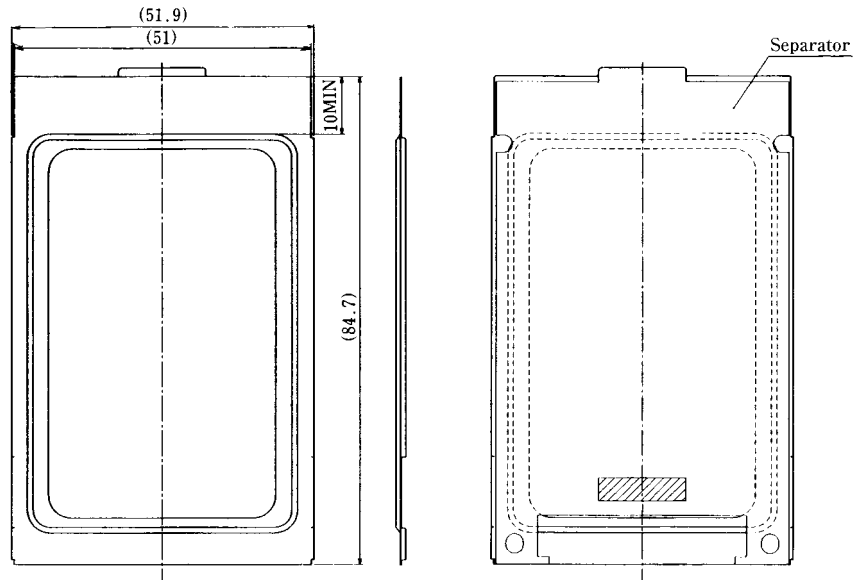
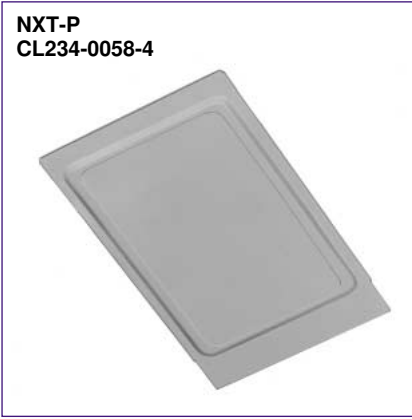


Unit: mm

Product No.	HRS No.	Number of contacts	Connectors for the card Side	Back Connector	Panel	Coil Spring	Offset
NX- 9T-F9	CL234-0018-0	9	IC1F-68RD-1.27SFA	NX60TA- 9SAA9-SP	NXT-P	NX-CSA	0.9mm
NX-15T-F9	CL234-0019-2	15		NX60TB-15SAA9-SP			
NX-25T-F9	CL234-0020-1	25		NX60TA-25SAA9-SP			
NX-32T-F9	CL234-0063-4	32		NX60T -32SAA9-SP			
NX- 9T-F3	CL234-0060-6	9	IC1F-68RD-1.27SF	NX60TA- 9SAA3-SP	NXT-P	NX-CSA & NX-CSB	0.3mm
NX-15T-F3	CL234-0061-9	15		NX60TB-15SAA3-SP			
NX-25T-F3	CL234-0062-1	25		NX60TB-25SAA3-SP			
NX-32T-F3	CL234-0067-5	32		NX60TA-32SAA3-SP			

■ COVER (FOR TYPE II PCMCIA CARDS)

NXT-P
CL234-0058-4

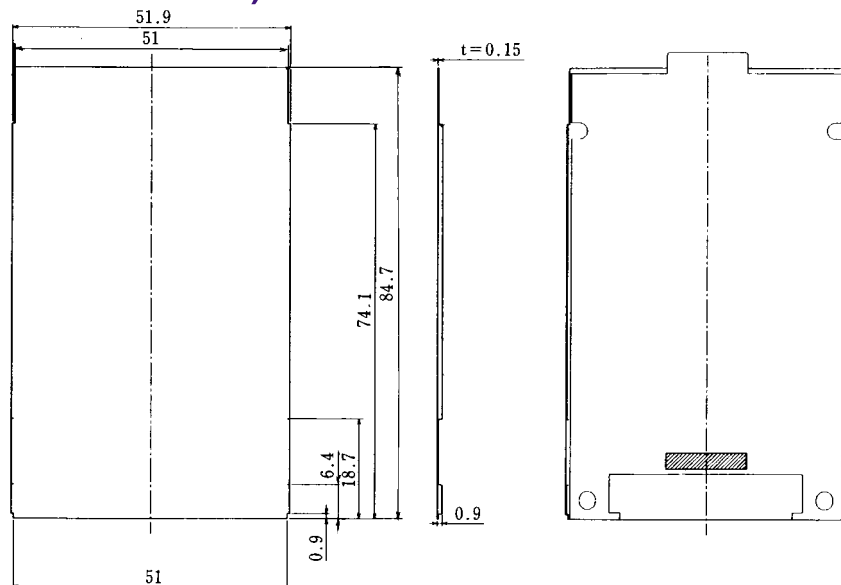


Unit: mm

Product No.	HRS No.	Number of Frame contacts	Panel Finish
NXT-P	CL234-0058-4	9, 15, 25	Silver matt finish
NXT-P(05)	CL234-0058-4-05		Dull processing material
NX-32T-P	CL234-0059-7	32	Silver matt finish
NX-32T-P(05)	CL234-0059-7-05		Dull processing material

■ COVER (FOR TYPE I PCMCIA CARDS)

NXT-PA
CL234-2011-1

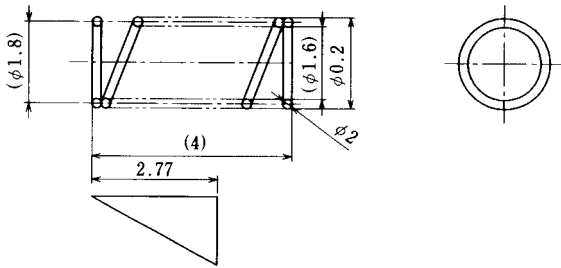


Product No.	HRS No.	Number of Frame contacts	Panel Finish
NXT-PA	CL234-2011-1	9, 15, 25	Silver matt finish
NXT-PA(05)	CL234-2011-1-05		Dull processing material
NX-32T-PA	CL234-0068-8	32	Silver matt finish
NX-32T-PA(05)	CL234-0068-8-05		Dull processing material

* 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



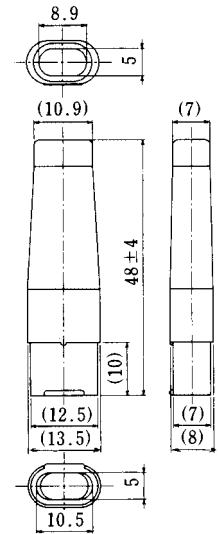
Product No.	HRS No.	Offset: Ordering Volume
NX-CSA	CL234-0042-4	0.3mm: One Pack 0.9mm: Two Packs
NX-CSB	CL234-0043-7	0.3mm: Two Packs

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.

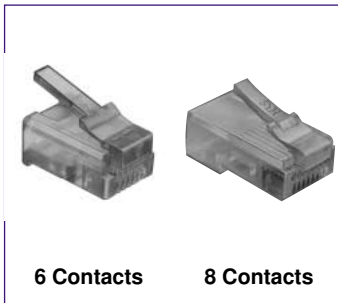
BUSHING



Product No.	HRS No.	Number of contacts
NX-25T-BS	CL234-0074-0	25
NX-32T-BS	CL234-0055-6	32

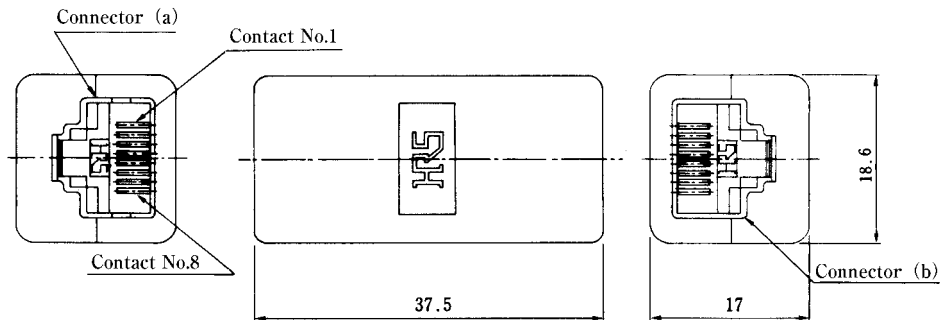
Applications for Connections of I/O Card Connectors

MODULAR PLUGS FOR ROUND CABLE (AWG #28) CONNECTOR



No. of contacts	Modular Plug		Manual Wiring Tool	
	Product No.	HRS No.	Product No.	HRS No.
6	TM30P-66P	CL222-2684-2	TC1-TM30P-66P	CL250-0145-6
8	TM30P-88P	CL222-2685-5	TC1-TM30P-88P	CL250-0146-9

8-CONTACT ADAPTER

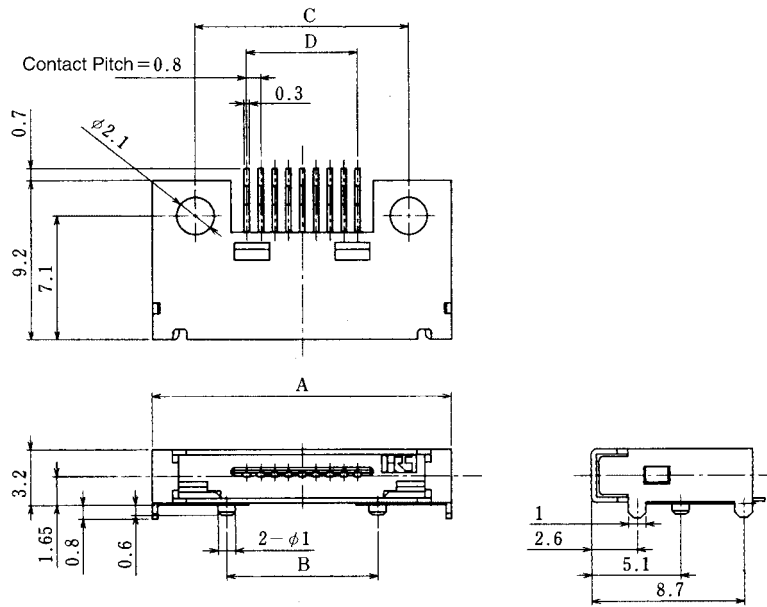
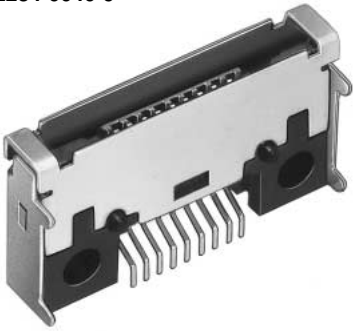


Lead Number Reference Table

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

RECEPTACLES FOR USE WITH EQUIPMENT INTERFACES

NX60T-9SAA-SH
CL234-0040-9



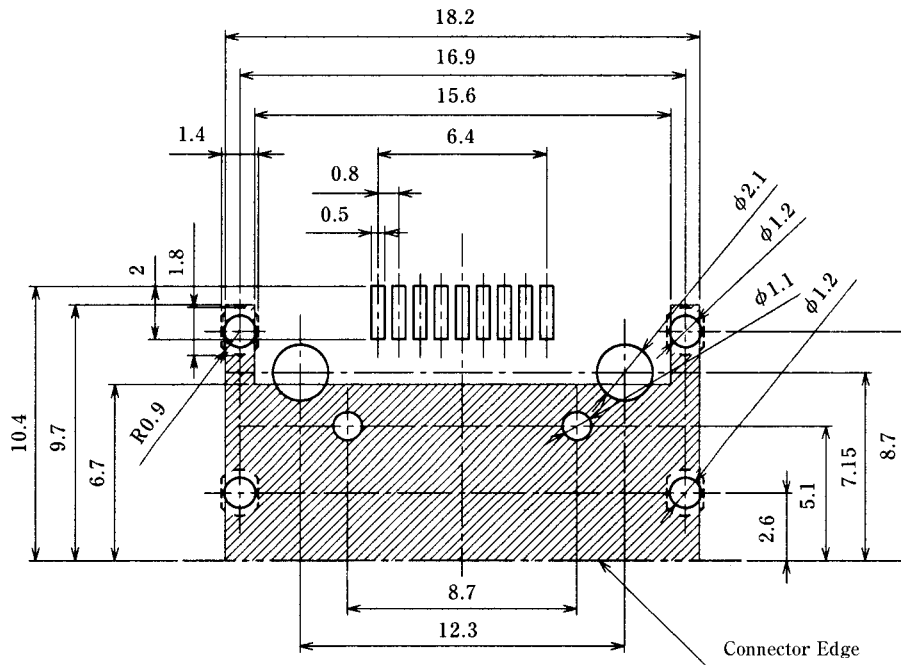
Unit: mm

Product No.	HRS No.	Number of contacts	A	B	C	D
NX60T- 9SAA-SH	CL234-0040-9	9	17.2	8.7	12.3	6.4
NX60T-25SAA-SH	CL234-0027-0	25	30.0	21.5	25.1	19.2
NX60T-15S-SH	CL234-0046-5	15	22.0	13.5	17.1	11.2

Recommended Land Dimensions

Unit: mm

Product No.	HRS No.	Number of contacts	A	B	C	D	E	F
NX60T- 9SAA-SH	CL234-0040-9	9	6.4	12.3	16.9	8.7	15.6	18.2
NX60T-25SAA-SH	CL234-0027-0	25	19.2	25.1	29.7	21.5	28.4	31.0
NX60T-15S-SH	CL234-0046-5	15	11.2	17.1	21.7	13.5	20.4	23.0



Note 1: Unless otherwise noted, the dimension tolerance should be kept to ± 0.1 or less.

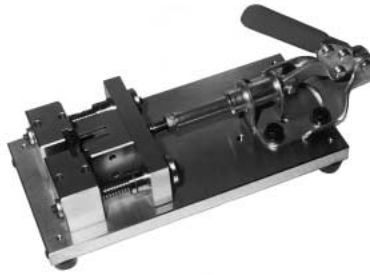
Note 2: The diameter of screw head should be less than 3.5 mm when the connector is fixed.

◆ Plug Termination Sequence

● Fixtures



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



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

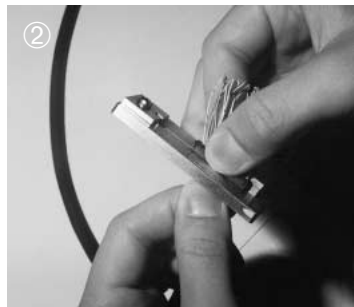


Cutting and IDC termination
attachment fixtures
NX30TA-9GP
CL902-0253-2
NX30TA-15GP
CL902-0254-5
NX30TA-25GP
CL902-0255-8
NX30TA-32GP
CL902-0257-3

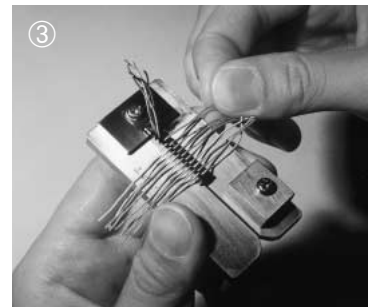
● Wiring Sequence



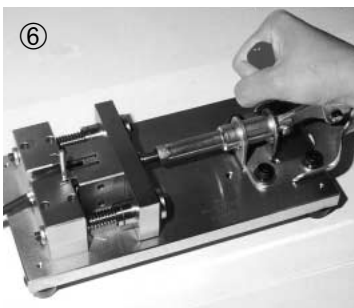
1. Set the wires in the wiring fixtures.



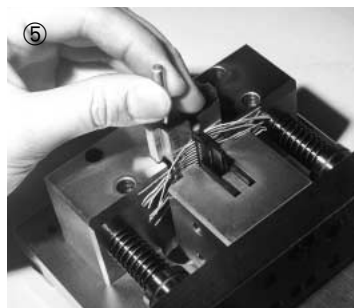
2. Align holding plates (A) and (B).



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.

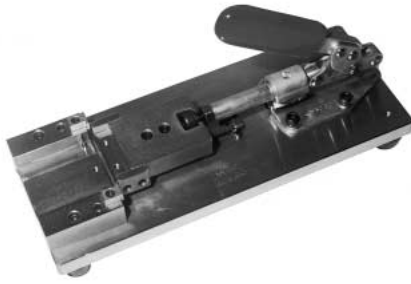


5. Insert the guide plate into the pressure welding and cutting fixtures.



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.
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-K(9*3)		NX-SPT-15 CL902-0276-8		
NX-25T-K(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.

Performance

Item	Requirements	Test Conditions
1. Rated current	0.5A	per pin
2. Rated voltage	125 V AC	per pin
3. Insulation resistance	250 MΩ or more	Measured at 100 V DC
4. Voltage proof	300 V AC	Conduction for one minute. No flashover or breakdown.
5. Contact resistance	40 mΩ or more	Measured at 100 mA
6. Mechanical operation	3000 times	Contact resistance of 60 mΩ or less

Suitable Cable

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

Materials and Processing

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

Product Number Composition

● Receptacle connector

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

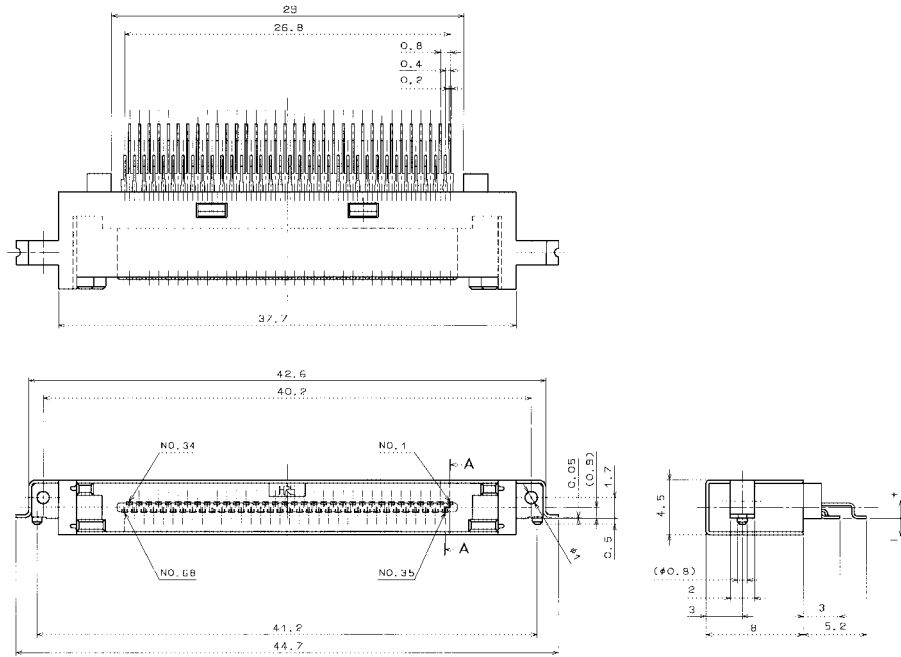
● Frame kit

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 symbol 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 case KT: Frame kit
⑨	Panel finish (05): Matt processing

■ Receptacle Connector

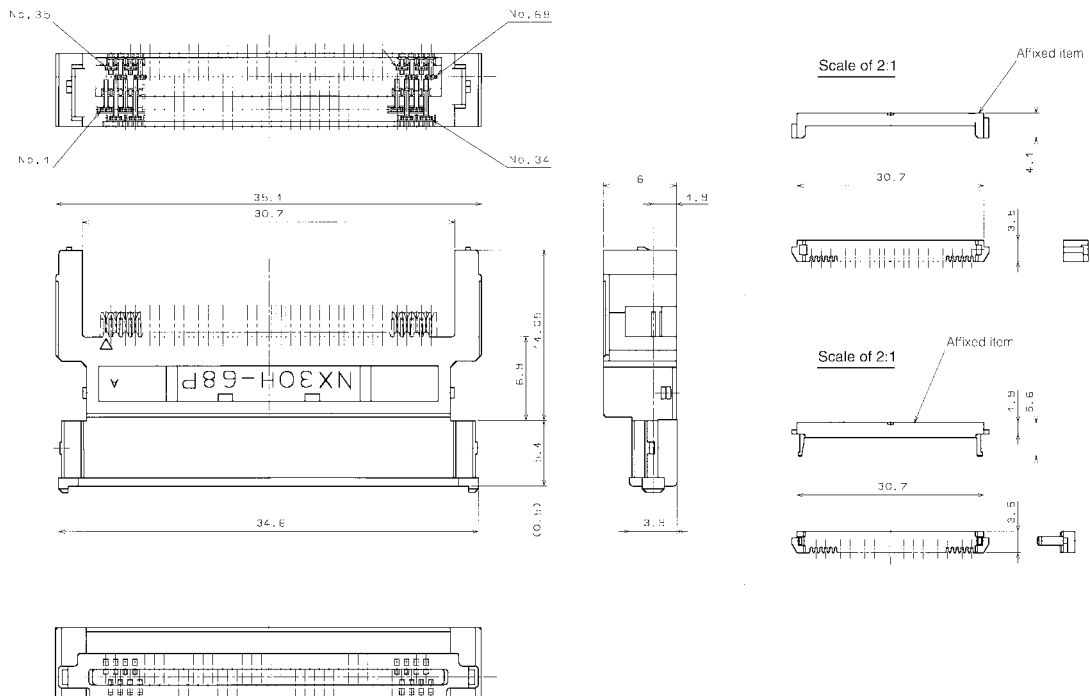


Note 1: The signal pin SMT dimension of this product is $0^{+0.1}_{-0.05}$.

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

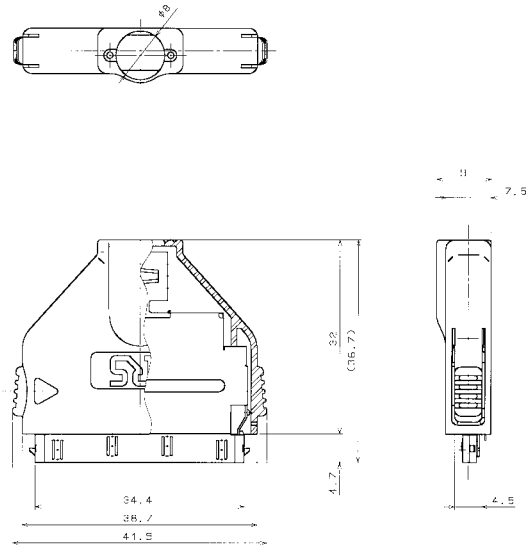
Product number	HRS No.
NX60H-68S9-SP	CL234-0078-1

■ Plug Unit



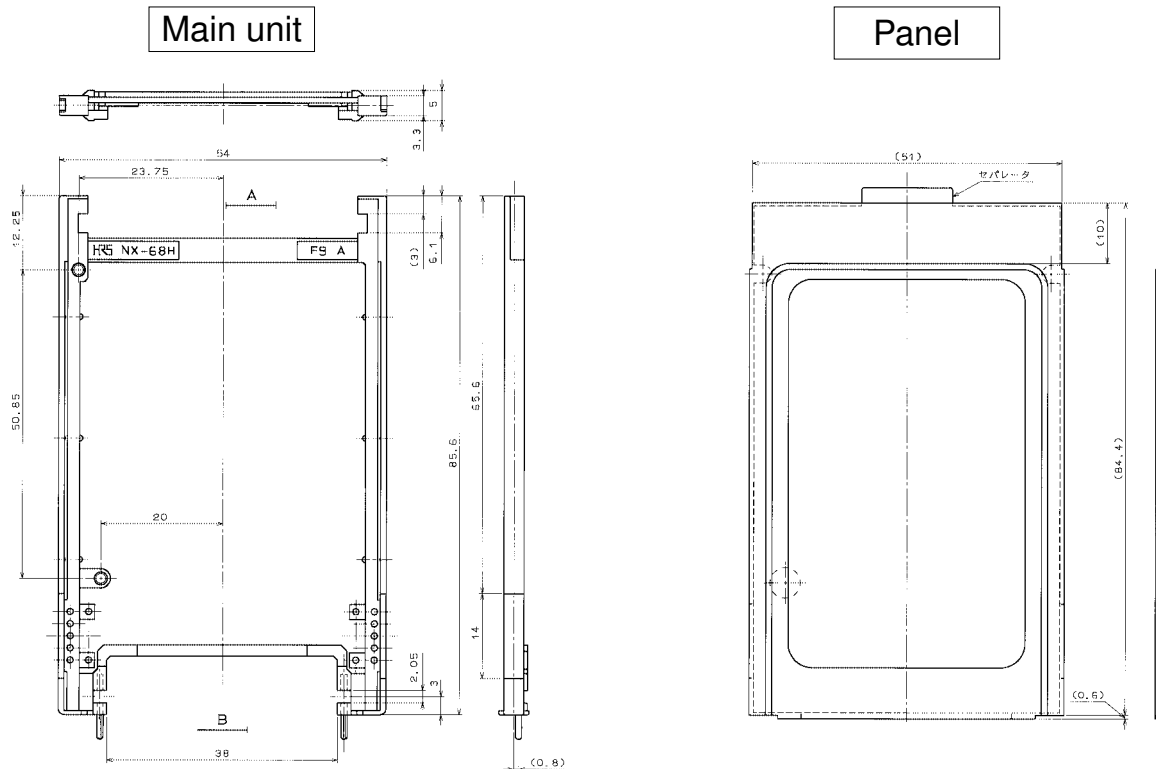
Product number	HRS No.
NX30H-68P	CL234-0079-4

■ Plug Cover



Product number	HRS No.
NX-68H-CV	CL234-0080-3

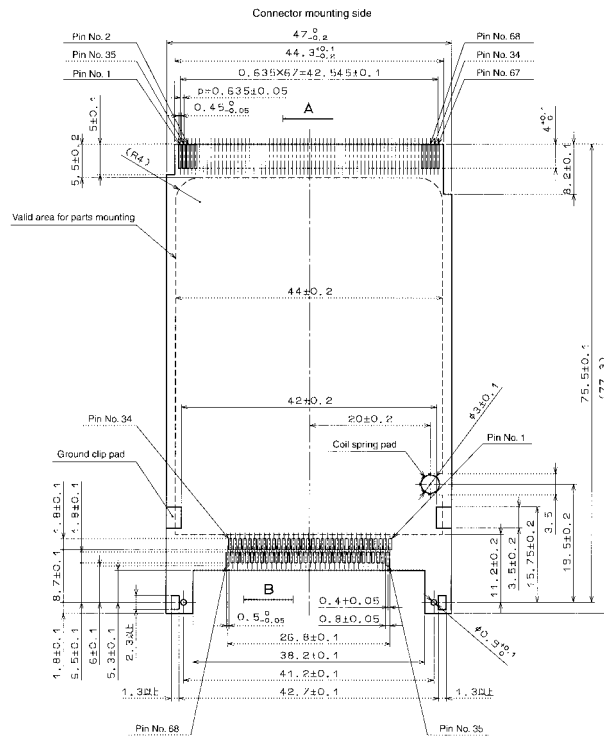
■ Frame Kit



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

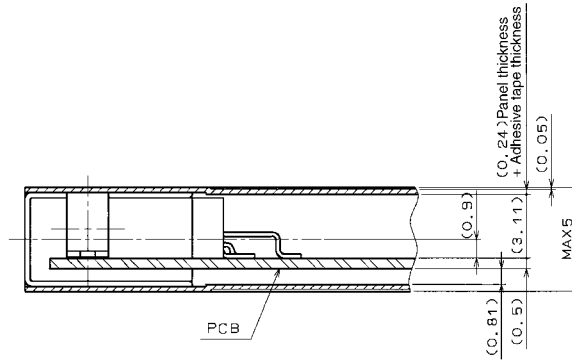
Product number	HRS No.
NX-68H-KT9(05)	CL234-0081-6-05

◆ Recommended Board Dimensions (Suitable Board Thickness: 0.5 mm MAX)

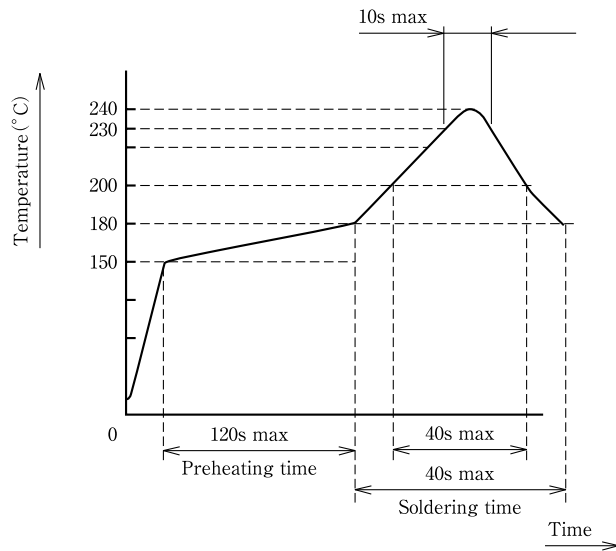


Note 1: Suitable connectors for portion A are IC1F-68RD-1.27SFA.
 Suitable connectors for portion B are NX60H-68S9-SP.

◆ Connector Mounting Dimensions



◆ Recommended Solder Temperature Profile



- Applicable conditions
 - Reflow method : IR reflow
 - Solder type : Cream type 63 Sn/37 Pb (Flux component of 9 wt%)
 - Test substrate : Glass epoxy 47 X 77.3 X 0.5 mm
 - Metal mask thickness : 0.15 mm
- Conditions may change and are dependent on type and thickness of Solder.