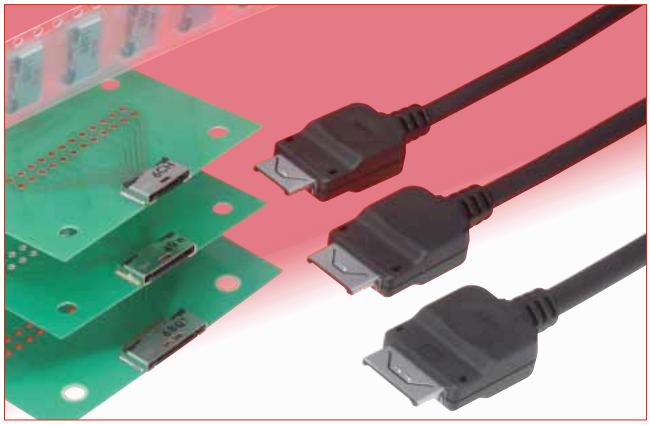
Ultra Low-profile Interface Connectors with 2.0mm Mounting Height

LX Series



■Overview

LX Series is a super low profile interface connector with sequential mating design and friction lock, which has been developed for low profile mobile terminals.
This connenctor features ESD problem prevention in 0.5mm terminal pitch and 2.0mm small and low profile design, which makes it suitable to small mobile devices.

■Features

1. Low profile on the PCB

When mounted on the PCB surface the receptacle height is 2.0mm. (Fig.1)

2. Strong Construction

Use of metal shell guarantees that fully mated connectors will withstand 30N max. force applied on the plug in any direction. (Fig.2)

3. High contact reliability

Bellows contact with long mating stroke provides highly reliable mating as well as soft insertion feeling.
Mating durability is up to 5,000 times long.

4. Sequenced contact mating

The protection of the circuit is assured by having the 2 contact at each end of the receptacle are longer by 0.5mm, with electrical wipe of 1.45mm. Location of the circuit protection contacts can be changed as required.
Remaining contacts electrical wipe is 0.95mm.

5. Incorrect Insertion Prevention

Connectors will not be damaged when angled or reverse plug insertion is attempted. (Fig.3)

6. Safety plug release

Plug will release when an excessive pull force is applied to the cable.

7. RoHS Compliant

All materials and substances used to produce this product comply with RoHS standards.

■Applications

DSC, Tablet device, thin electronic equipment, mobile phones and other portable devices requiring high durability interface connectors.

Lower Profile

Existing 3200 Series LX Series

Fig.1

Strong Construction

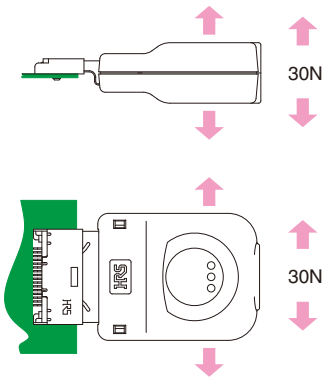
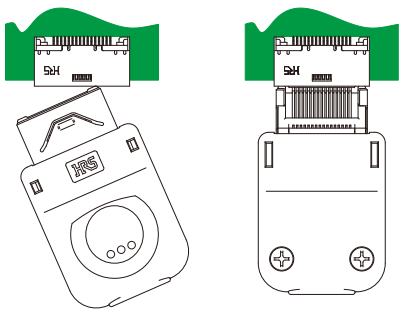


Fig.2

Incorrect insertion prevention



Angled insertion Reversed insertion

Fig.3

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■Product specifications

Ratings	Current rating	0.5A (1A max. can be carried via 2 random contacts)	Operating temperature range : −40℃ to +70℃
	Voltage rating	50V AC	Storage temperature range : −55℃ to +85℃

Characteristic	Specification	Conditions
1.Contact resistance	70mΩ max.	100mA DC
2.Insulation resistance	1000MΩ min. (dry) 10MΩ min. (high humidity)	100V DC
3.Withstanding voltage	No flashover or insulation breakdown.	250V AC / 1 minute
4.Mating/un-mating forces	Mating : 10N max., un-mating : 4N min.	With corresponding connector.
5. Durability (mating/n-mating)	Amount of change of contact resistance : 20mΩ max.	5,000 times
6. Shock	No electrical discontinuity of 1μ sec. Max. Contact resistance : 20mΩ max.	Acceleration of 490 m/s², 11 ms duration, sine half-wave waveform, 3 cycles, 3 axis.
7. Vibration	Contact resistance : 20mΩ max. Insulation resistance : 10MΩ min.	Frequency : 10 to 55 Hz, single amplitude of 0.75mm, acceleration of 98 m/s², 2 hours, 3 axis.
8. Temperature cycle	Contact resistance : 20mΩ max. Insulation resistance : 10MΩ min.	Temperature : −55℃ →+5℃ to +35℃ →+85℃ →+5℃ to +35℃ Time : 30 → 2 to 3 →30 →2 to 3 min
9. Salt spray	No heavy corrosions	5% water solution at 35°C for 48 hours

■Materials / Finish

●Receptacles

Component	Material	Finish/Color	Remarks
Insulator	Synthetic resin	Black	UL94V-0
Contacts	Copper alloy	Contact area : Gold plated Mounting area : Gold flash plated	———
Shell	Stainless steel	Soldering area : Gold flash plated	———

●Plugs

Component	Material	Finish/Color	Remarks
Insulator	Synthetic resin	Black	UL94V-0
Contacts	Copper alloy	Contact area : Gold plated Termination area : Gold flash plated	———
Metal shield	Stainless steel	———	———
Covers	Synthetic resin	Black	UL94V-0
Strain relief clamp	Copper alloy	———	———
Self tapping screws	Steel	Trivalent black chromate	Screw size: M2

■Product Number Structure

Refer to the chart below when determining the product specifications from the product number.
Please select from the product numbers listed in this catalog when placing orders.

●Receptacles

LX ❶ 60 ❷ - 16 ❸ S ❹

●Plugs

LX ❶ 40 ❷ - 16 ❸ P ❹

●Bushing

LX ❶ 40 ❷ - 16 ❸ BS(4.5) ❺

❶ Series number : LX

❷ Termination type
- 40 : Solder type
- 60 : Right angle SMT

❸ Number of contacts : 12, 16, 20

❹ Contact type
- P : Male contact (Plug)
- S : Female contact (Receptacle)

❺ Bushing
- BS(4.0) : Dia. 4.0mm cable
- BS(4.5) : Dia. 4.5mm cable
- BS(5.0) : Dia. 5.0mm cable

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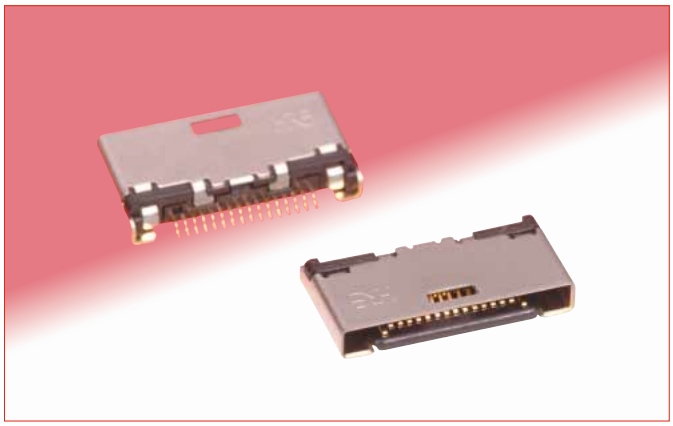
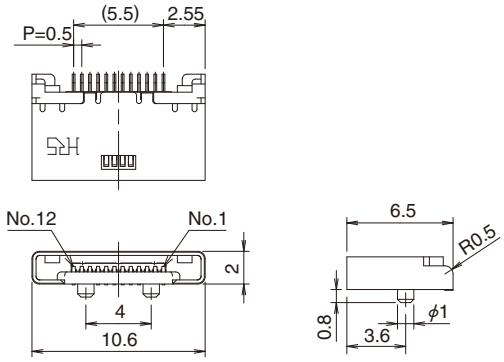
■Receptacles

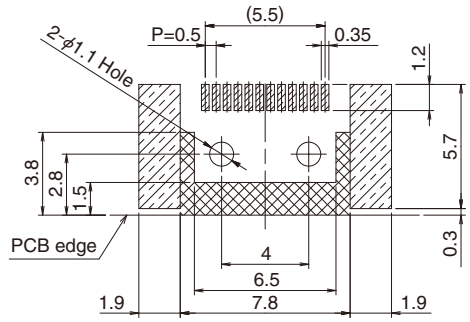


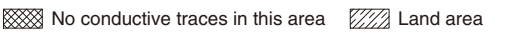
Part No.	HRS No.	Packaging	RoHS
LX60-12S	245-0018-3	2,000 pcs/reel	○
LX60-16S	245-0001-0		
LX60-20S	245-0016-8		

●12 pos.

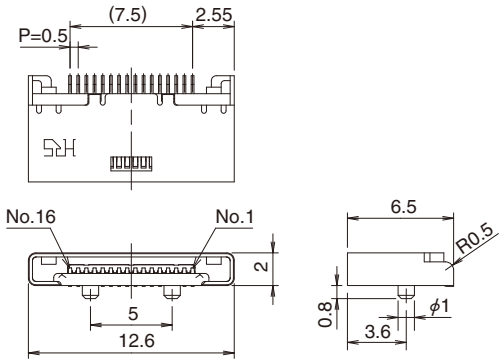


◆Recommended PCB mounting pattern





●16 pos.



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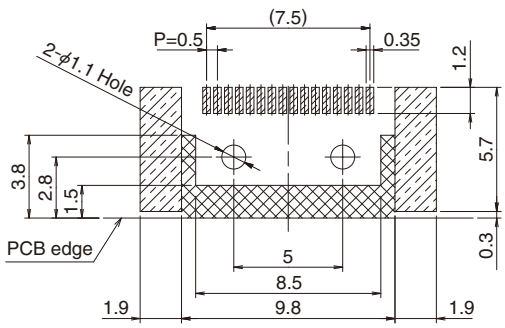
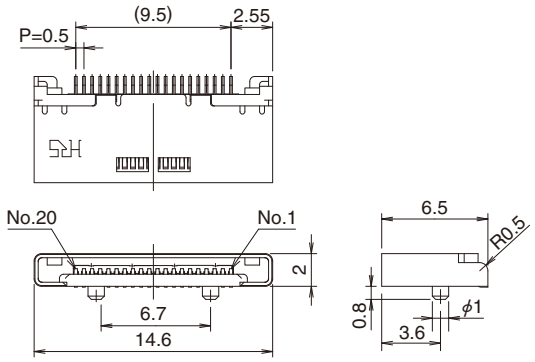


●20 pos.



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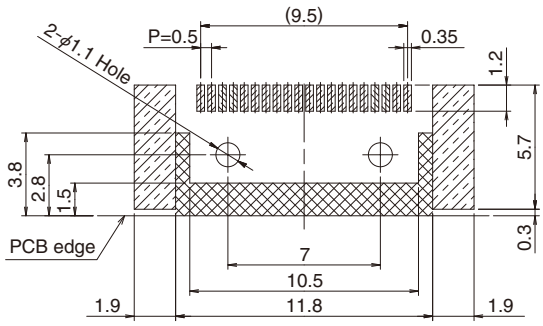

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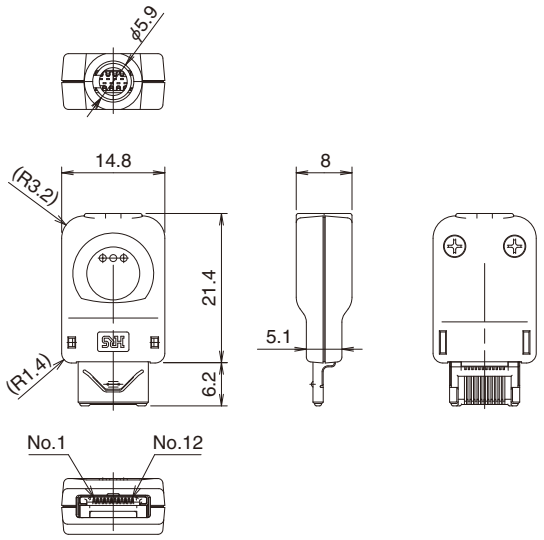
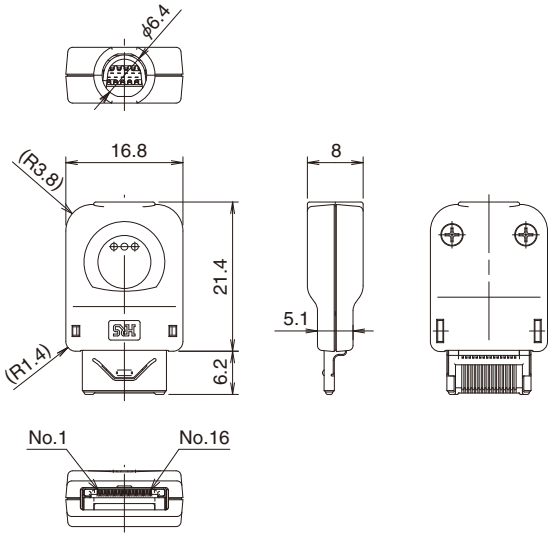
■Plugs

Part No.	HRS No.	Packaging	RoHS
LX40-12P	245-0019-6	1	○
LX40-16P	245-0002-3		
LX40-20P	245-0017-0		

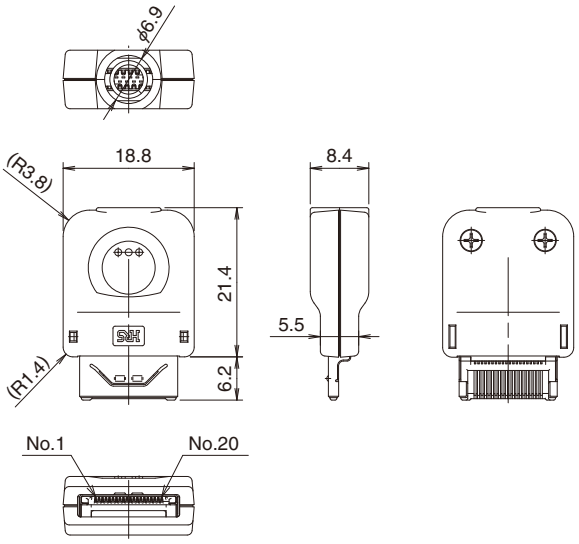
●12 pos.



●16 pos.



●20 pos.



■Bushing

Part No.	HRS No.	Packaging	RoHS
LX40-12BS(4.0)	245-0020-5	100 pcs/pack	○
LX40-16BS(4.5)	245-0021-8		
LX40-20BS(5.0)	245-0022-0		

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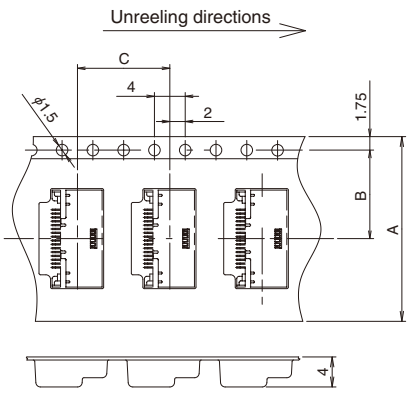
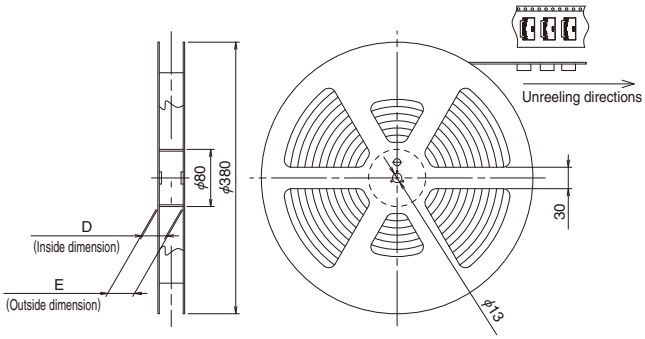
◆Receptacle Packaging Specifications

●Embossed carrier tape dimensions



●Reel dimensions



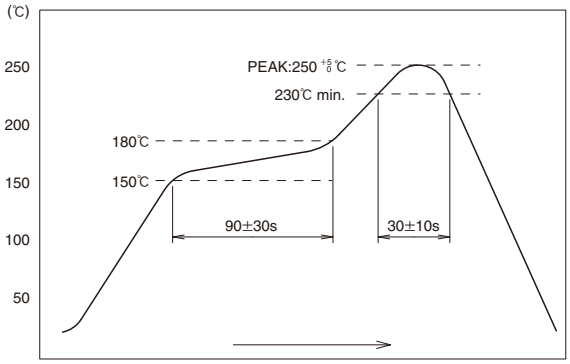
(mm)

Part No.	A	B	C
LX60-12S	24	11.5	12
LX60-16S			
LX60-20S			

(mm)

Part No.	D	E
LX60-12S	25.5	29.5
LX60-16S		
LX60-20S		

◆Receptacles Recommended Temperature Profile



This measurement is performed on the contact lead section.
The temperature profile may vary due to external conditions such as the type of cream solder, manufacturer, and board size. Please contact the solder manufacturer for their specifications.

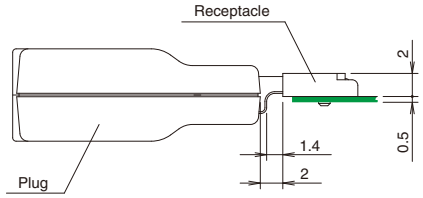
◆Applicable Plug Cable

(mm)

Part No.	Cable diameter	Wire size
LX40-12P	φ4 max.	φ0.6mm max. (AWG#30 to 32 or equivalent)
LX40-16P	φ4.5 max.	
LX40-20P	φ5 max.	

Note 1 : Applicable cable sizes are guidelines. (There may be slight differences depending on the cable outer insulation)
Note 2 : Cables must be attached using single piece overmolded bushings on the cable.
Note 3 : Please refer to applicable Cable Termination Procedures Manual for correct plug assembly and cable termination.

◆Mated Condition Dimensions



(mm)

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The characteristics and the specifications contained herein are for reference purpose. Please refer to the latest customer drawings prior to use.
The contents of this catalog are current as of date of 07/2019. Contents are subject to change without notice for the purpose of improvements.