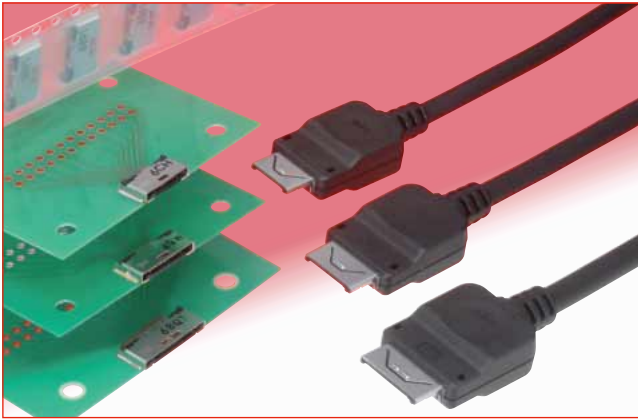


Ultra Low-profile Interface Connectors with 2.0 mm Mounting Height

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 connector features ESD problem prevention in 0.5 mm terminal pitch and 2.0 mm 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 2.0 mm.(Fig.1)

2. Strong Construction

Use of metal shell guarantees that fully mated connectors will withstand 30 N 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 0.5 mm, with electrical wipe of 1.45 mm. Location of the circuit protection contacts can be changed as required.

Remaining contacts electrical wipe is 0.95 mm.

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

Lower Profile

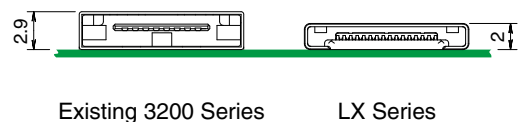


Fig.1

Strong Construction

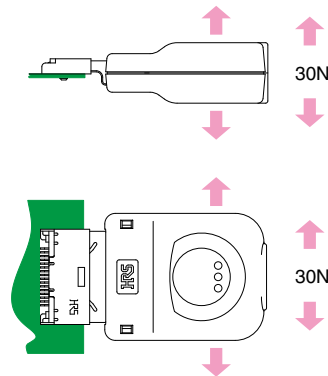


Fig.2

Incorrect insertion prevention

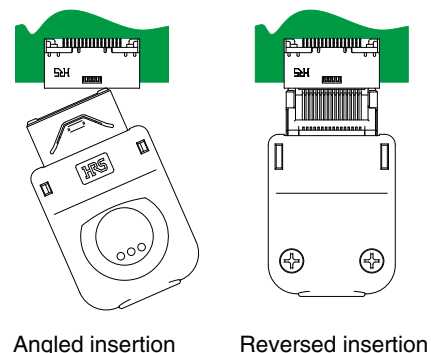


Fig.3

■Product specifications

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

Characteristic	Specification	Conditions
1.Contact resistance	70mΩ max.	100mA DC
2.Insulation resistance	1000 MΩ min. (dry) 10 MΩ min. (high humidity)	100V DC
3.Withstanding voltage	No flashover or insulation breakdown.	250V AC / one 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/s ² , 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 0.75 mm, acceleration of 98 m/s ² , 2 hours, 3 axis.
8. Temperature cycle	Contact resistance: 20mΩ max. Insulation resistance: 10MΩ min.	Temperature: -55°C → +5°C → +35°C → +85°C → +5°C → +35°C 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

■Ordering information

●Receptacles

LX 60 - 16 S

① ② ③ ④

●Plugs

LX 40 - 16 P

① ② ③ ④

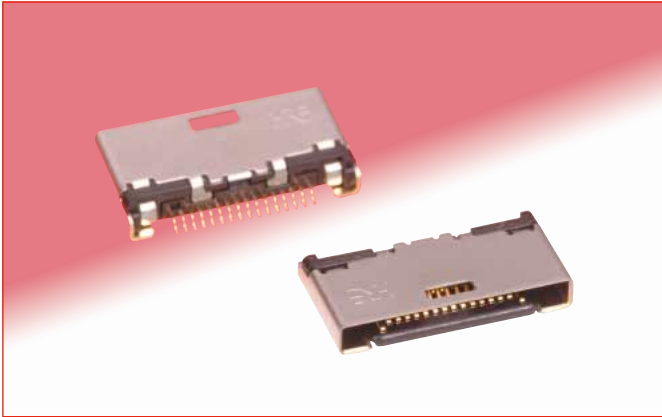
●Bushing

LX 40 - 16 BS(4.5)

① ② ③ ⑤

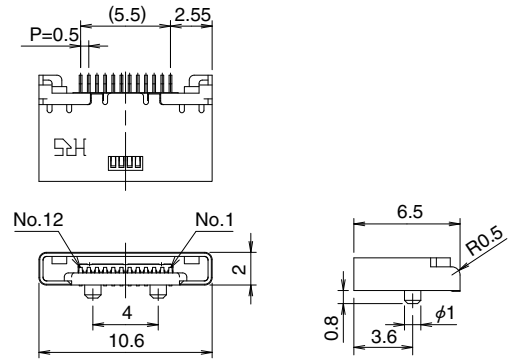
①	Series number : LX
②	Termination type 40 : Solder type 60 : Right angle SMT
③	Number of contacts : 12, 16, 20
④	Contact type P : Male contact (Plug) S : Female contact (Receptacle)
⑤	Bushing BS(4.0) : Dia. 4.0mm cable BS(4.5) : Dia. 4.5mm cable BS(5.0) : Dia. 5.0mm cable

■ Receptacles

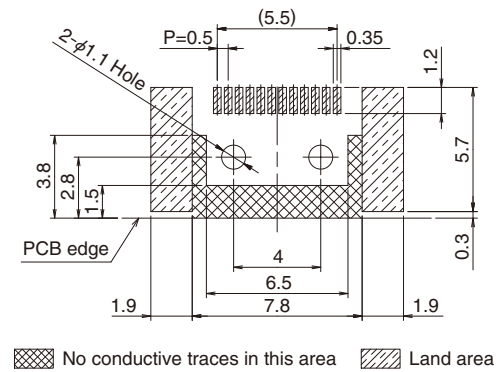


Part No.	HRS No.	Packaging	RoHS
LX60-12S	245-0018-3	2,000 pcs/reel	○
LX60-16S	245-0001-0		
LX60-20S	245-0016-8		

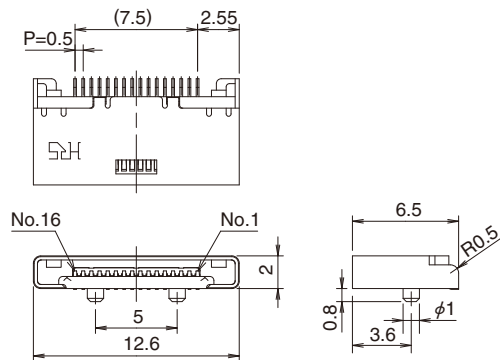
● 12 pos.



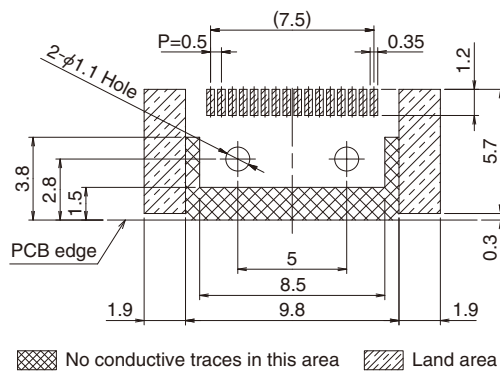
◆ Recommended PCB mounting pattern



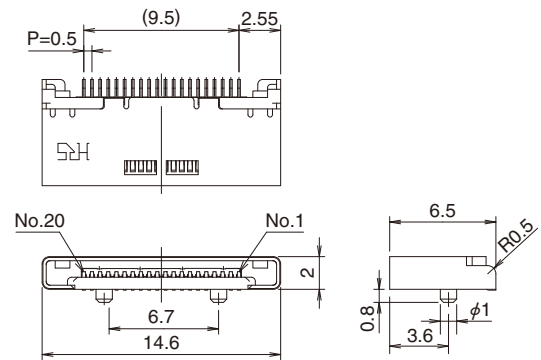
● 16 pos.



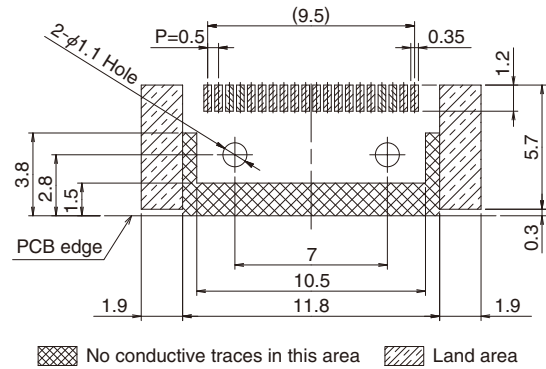
◆ Recommended PCB mounting pattern



● 20 pos.



◆ Recommended PCB mounting pattern

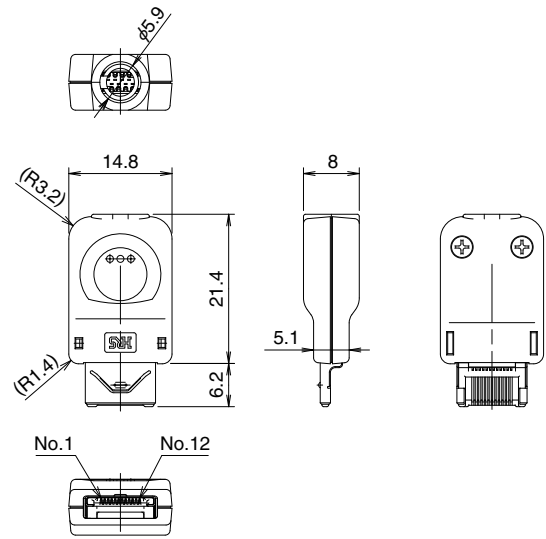


Plugs

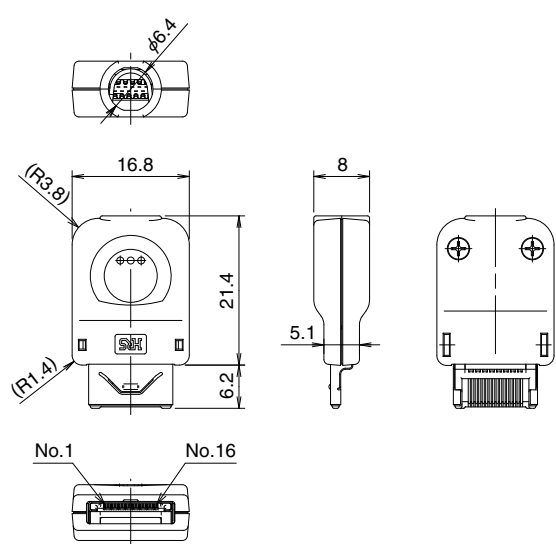


Part No.	HRS No.	Packaging	RoHS
LX40-12P	245-0019-6	1	
LX40-16P	245-0002-3		
LX40-20P	245-0017-0		

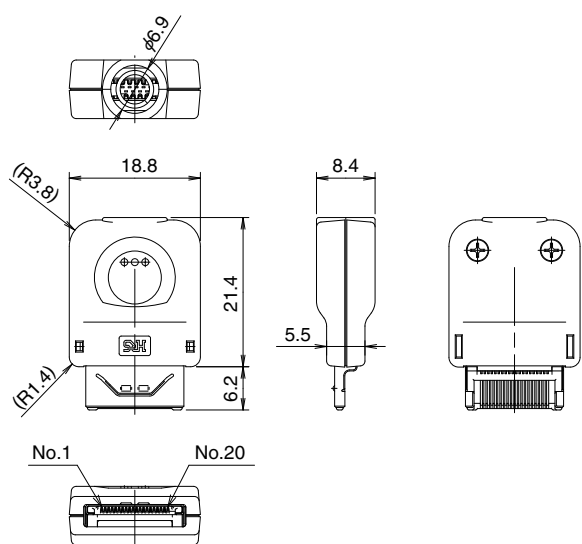
●12 pos.



●16 pos.



●20 pos.



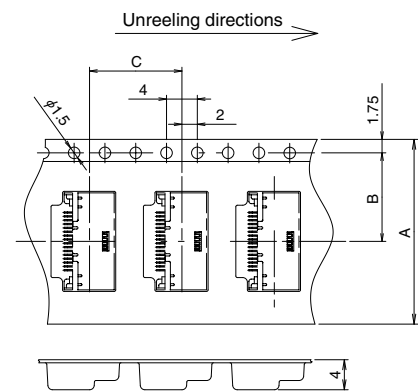
Bushing



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		

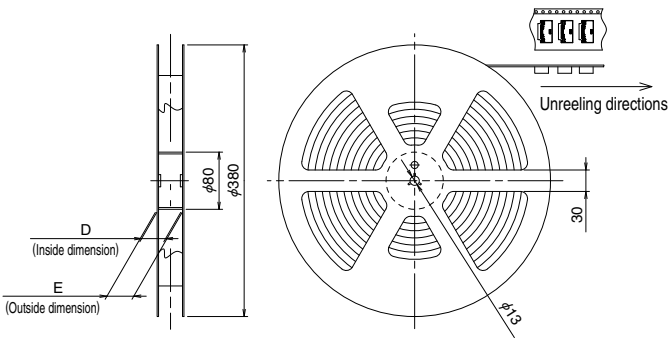
◆Receptacle Packaging Specifications

●Embossed carrier tape dimensions



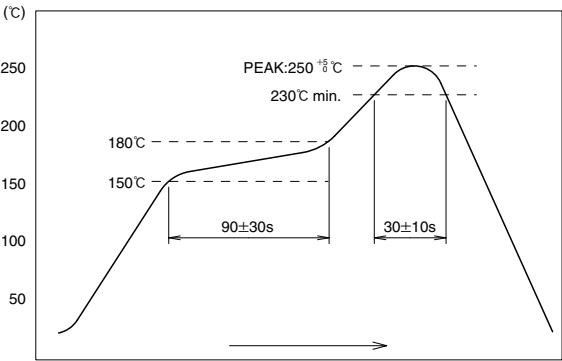
Part No.	A	B	C
LX60-12S	24	11.5	12
LX60-16S			
LX60-20S			

●Reel dimensions



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

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

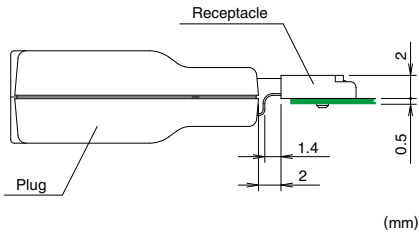
Note 1: Applicable cable sizes are guidelines. (There may be slight differences depending on the cable outer insulation)

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.

Note 4: Contact HRS for cable assemblies.

◆Mated Condition Dimensions



USA:

HIROSE ELECTRIC (U.S.A.), INC. Headquarters

2688 Westhills Court, Simi Valley, CA 93065-6235
Phone : +1-805-522-7958
Fax : +1-805-522-3217
<http://www.hiroseusa.com>

USA:

HIROSE ELECTRIC (U.S.A.), INC. San Jose Office

3255 Scott Boulevard, Building 7, Suite 101
Santa Clara, CA 95054
Phone : +1-408-253-9640
Fax : +1-408-253-9641
<http://www.hiroseusa.com>

USA:

HIROSE ELECTRIC (U.S.A.), INC. Detroit Office (Automotive)

37677 Professional Center Drive, Suite #100C
Livonia, MI 48154
Phone : +1-734-542-9963
Fax : +1-734-542-9964
<http://www.hiroseusa.com>

THE NETHERLANDS:

HIROSE ELECTRIC EUROPE B.V.

Hogehillweg #8 1101 CC Amsterdam Z-O
Phone : +31-20-6557460
Fax : +31-20-6557469
<http://www.hiroseurope.com>

GERMANY:

HIROSE ELECTRIC EUROPE B.V. German Branch

Herzog-Carl-Strasse 4 D-73760 Ostfildern
(Scharnhauser Park)
Phone : +49-711-4560-02-1
Fax : +49-711-4560-02-299
<http://www.hirose.de>

GERMANY:

HIROSE ELECTRIC EUROPE B.V. Nuernberg Office

Muggenhofer Str. 136 90429 Nuernberg
Phone : +49-911 32 68 89 63
Fax : +49-911 32 68 89 69
<http://www.hirose.de>

UNITED KINGDOM:

Hirose Electric Europe BV (UK Branch)

4 Newton Court, Kelvin Drive, Knowlhill,
Milton Keynes, MK5 8NH
Phone : +44-1908 202050
Fax : +44-1908 202058

CHINA:

HIROSE ELECTRIC (SHANGHAI) CO., LTD.

1601, Henderson Metropolitan, NO.300, East Nanjing
Road, Huangpu District, Shanghai, China 200001
Phone : +86-21-6391-3355
Fax : +86-21-6391-3335
<http://www.hirose-china.com.cn>

CHINA:

HIROSE ELECTRIC (SHANGHAI) CO.,LTD. BEIJING BRANCH

A1001, Ocean International Center, Building 56# East 4th
Ring Middle Road, ChaoYang District, Beijing, 100025
Phone : +86-10-5165-9332
Fax : +86-10-5908-1381
<http://www.hirose-china.com.cn>

CHINA:

HIROSE ELECTRIC TECHNOLOGIES (SHENZHEN) CO., LTD.

Room 09-13, 19/F, Office Tower Shun Hing Square, Di Wang Commercial Centre,
5002 Shen Nan Dong Road, Shenzhen City, Guangdong Province, 518008
Phone : +86-755-8207-0851
Fax : +86-755-8207-0873
<http://www.hirose-china.com.cn>

HONG KONG:

HIROSE ELECTRIC HONGKONG TRADING CO., LTD.

Room 1001, West Wing, Tsim Sha Tsui Centre, 66
Mody Road, Tsim Sha Tsui East, Kowloon, Hong Kong
Phone : +852-2803-5338
Fax : +852-2591-6560
<http://www.hirose-hongkong.com.hk>

TAIWAN:

HIROSE ELECTRIC TAIWAN CO., LTD.

103 8F, No.87, Zhengzhou Rd., Taipei
Phone : +886-2-2555-7377
Fax : +886-2-2555-7350
<http://www.hirose-taiwan.com.tw>

KOREA:

HIROSE KOREA CO., LTD.

1261-10, Jeoungwhang-Dong, Shihung-City,
Kyunggi-Do 429-450
Phone : +82-31-496-7000,7124
Fax : +82-31-496-7100
<http://www.hirose.co.kr>

SINGAPORE:

HIROSE ELECTRIC SINGAPORE PTE. LTD.

10 Anson Road #26-1, International Plaza
079903, Singapore
Phone : +65-6324-6113
Fax : +65-6324-6123
<http://www.hirose-singapore.com.sg>

INDIA:

HIROSE ELECTRIC SINGAPORE PTE. LTD Delhi Liaison Office

Office NO.519, Regus-Green Boulevard, Level5, Tower C,
Sec62, Plot B-9A, Block B, Noida, 201301, Uttar Pradesh, India
Phone : +91-12-660-8018
Fax : +91-120-4804949
<http://www.hirose.com/sg/>

INDIA:

HIROSE ELECTRIC SINGAPORE PTE. LTD. Bangalore Liaison office

Unit No.03, Ground Floor, Explorer Building International Tech
Park Whitefield Road, Bangalore 560066 Karnataka, India
Phone : +91-80-4120 1907
Fax : +91-80-4120 9908
<http://www.hirose-singapore.com.sg>

MALAYSIA:

HIROSE ELECTRIC SINGAPORE PTE. LTD (Representative office)

1-10-07, Suntech @ Penang Cybercity (1164),Lintang
Mayang Pasir 3,11950, Bayan Baru, Penang, Malaysia.
Phone : +604-619-2564
Fax : +604-619-2574
<http://www.hirose.com/sg/>



HIROSE ELECTRIC CO.,LTD.

2-6-3,Nakagawa Chuoh,Tsuzuki-Ku,Yokohama-Shi 224-8540,JAPAN
TEL: +81-45-620-3526 Fax: +81-45-591-3726
<http://www.hirose.com>
<http://www.hirose-connectors.com>