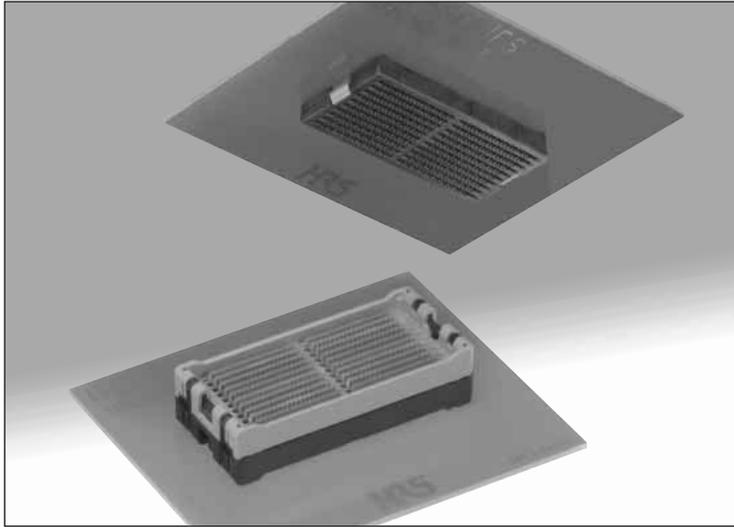


# High Speed, Parallel Board-to-Board Connector 380 contacts, Ball-Grid array termination

## IT2 Series



### ■ Features

#### 1. High-speed transmission

Differential impedance:  $100\Omega \pm 10\%$  (Tr. 70 ps)

#### 2. Contact reliability

Hirose's unique double contact point on each of the contacts assures highly reliable electrical and mechanical performance.

#### 3. Self-alignment

Our unique 3-piece modular design together with large tolerances in the X and Y axis allows mating of several connectors mounted on the same PCB.

#### 4. Low insertion / withdrawal forces

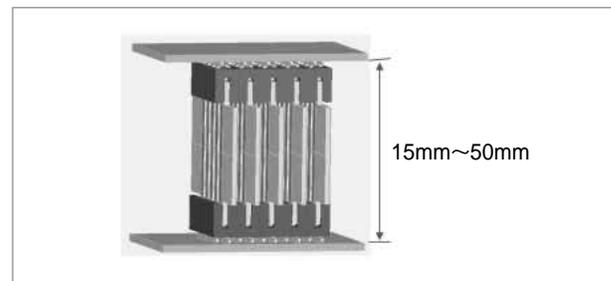
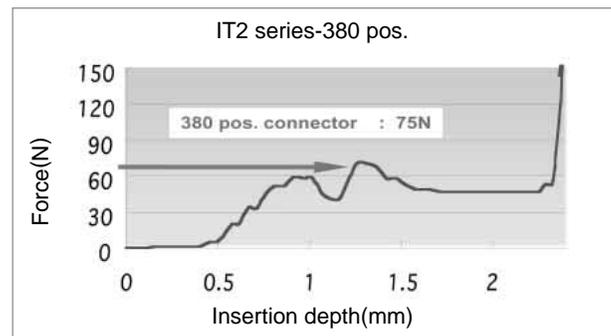
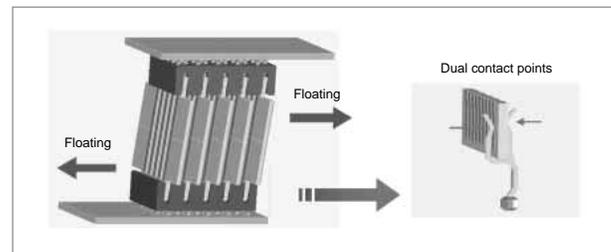
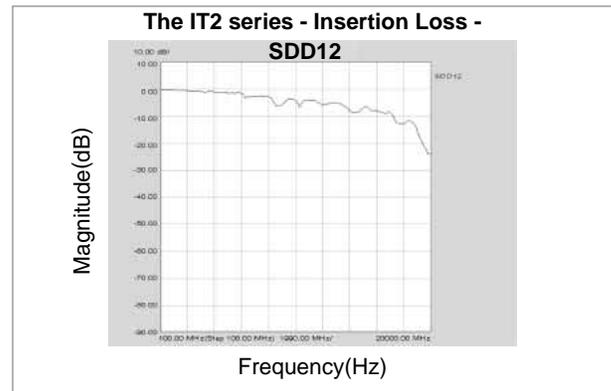
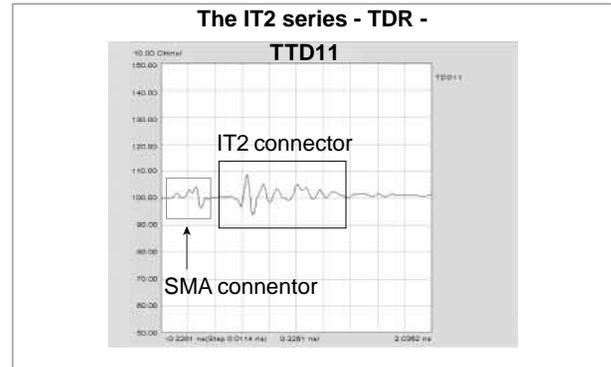
The unique contact configuration assures insertion force of 75 N max.

#### 5. Customized Board-to-Board distance

Transmission module can be designed to accommodate distance of 15 to 50 mm between parallel boards.

### ■ Applications

Routers, servers, base stations, communication equipment and other applications requiring high density and high speed connections between parallel boards.



## Production Specifications

Ratings	Current rating	0.5A	Operating temperature range	-55°C to +85°C (Note 1)	Storage temperature range	-10°C to +60°C (Note 2)
	Current voltage	50V AC	Operating humidity range	Relative humidity 95% (No condensation)	Storage humidity range	40% to 70% (Note 2)

Item	Specification	Conditions
1. Insulation resistance	100 MΩ min.	100V DC
2. Withstanding voltage	No flashover or insulation breakdown.	150V AC / one minute
3. Contact resistance	50 mΩ max. (* Including conductor resistance.)	100 mA (Corresponding connector: IT2-380P-15H)
4. Vibration	No electrical discontinuity of 1 μs or more. No damage, cracks, or parts dislocation.	Frequency: 10 to 55 Hz, single amplitude of 0.75mm, 10 cycle in each of the 3 directions.
5. Shock	No electrical discontinuity of 1 μs. min. No damage, cracks, or parts dislocation.	Acceleration of 490 m/s <sup>2</sup> , 11 ms duration, sine half-wave waveform, 3 cycles in each of the 3 axis
6. Humidity	Contact resistance: 20 mΩ max.	96 hours at 40°C±2°C and humidity of 90% to 95%
7. Temperature cycle	Insulation resistance: 100 MΩ min. No damage, cracks, or parts dislocation.	Temperature: -55°C → +15°C to +35°C → +85°C → +15°C to +35°C Duration: 30 → 5 max. → 30 → 5 max. (Minutes) 5 cycles
8. Durability (insertion/ withdrawal)	Contact resistance: 20 mΩ max. Insulation resistance: 100 MΩ min. No damage, cracks, or parts dislocation.	20 cycles
9. Resistance to soldering heat	No deformation of components affecting performance.	Reflow: At the recommended temperature profile (Peak temperature: 250°C max.) Detailed solder profile can be requested.

Note1: Includes temperature rise caused by current flow.

Note2: 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.

Note3: Information contained in this catalog represents general requirements for this Series. Contact us for the drawings and specifications for a specific part number shown.

## Materials/Finish

### Receptacle

Part	Material	Finish	Remarks
Insulator	LCP	Color: Black	UL94V-0
Contacts	Phosphor bronze	Contact area: Gold plated	—
Metal fitting	Phosphor bronze	Tin plated	—

### Transmission module

Part	Material	Finish	Remarks
Insulator	PBT	Color: Black/gray	UL94V-0
Board	FR-4	Contact area: Gold plated	—

Note: Lead free products

## Ordering information

### Receptacles

**IT2 - 380 S - BGA**

①      ②      ③      ④

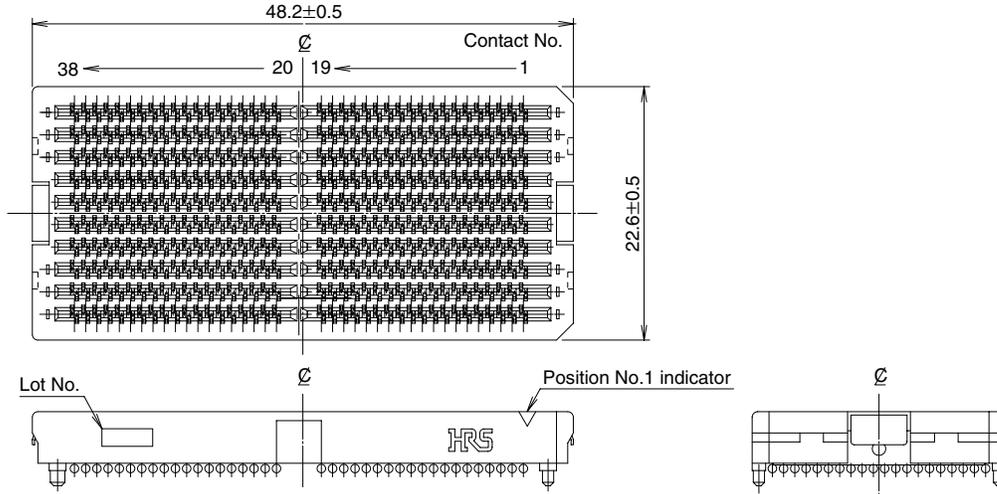
### Transmission module

**IT2 - 380 P \* - 15H**

①      ②      ③      ⑤      ⑥

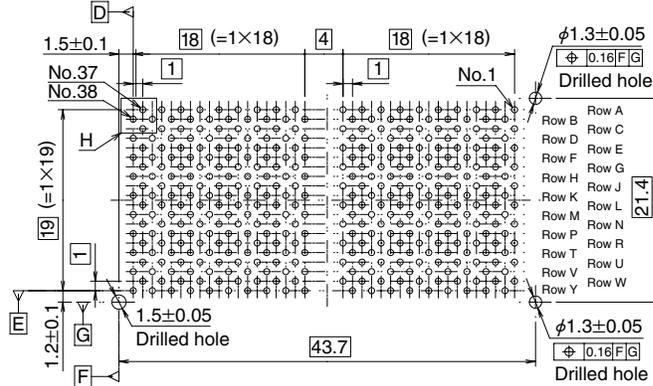
① Series name	: IT2
② Number of contacts	: 380
③ Connector	S : Receptacle P : Transmission module
④ BGA	Ball grid alloy (Lead free)
⑤ Transmission	S : Standard M : Customized
⑥ Board to board distance	15H : 15mm      26H : 26mm 17H : 17mm      30H : 30mm 20H : 20mm      35H : 35mm 25H : 25mm

## ■ Receptacle (2 required)

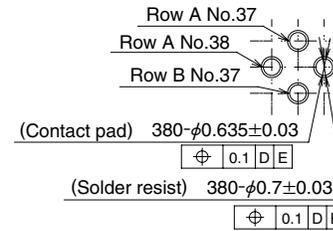


Part Number	CL No.	RoHS
IT2-380S-BGA	641-2001-9	YES

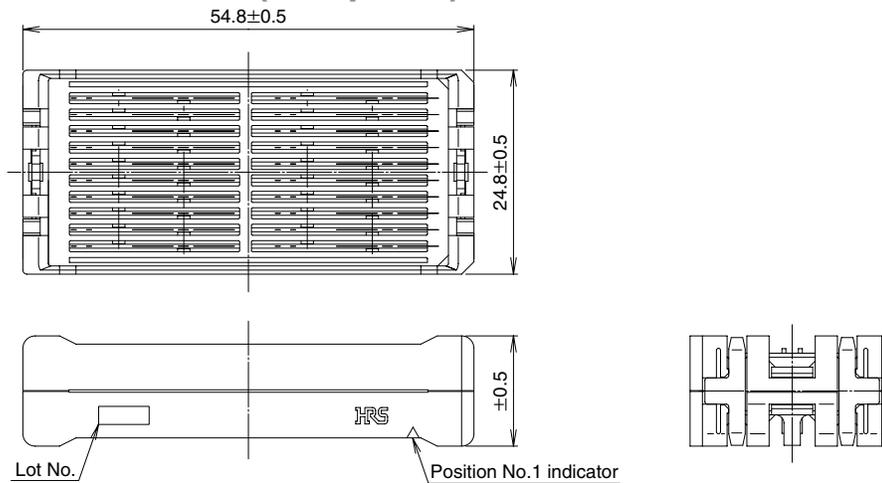
## ◆ Recommend PCB mounting pattern



## ◆ Detail "H"



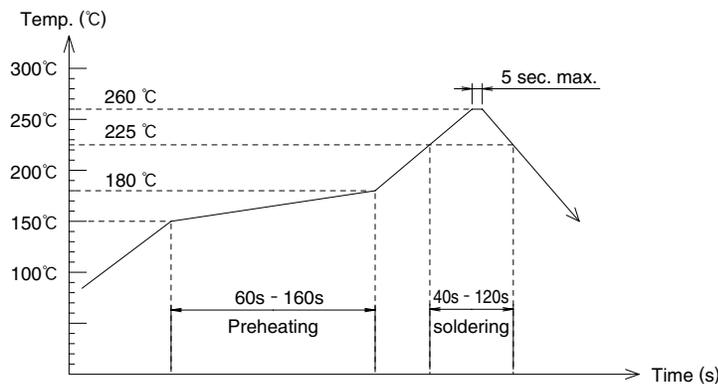
## ■ Transmission module (1 required)



Part Number	CL No.	Board-to-board Distance	RoHS
IT2-380PS-15H	641-2151-1	15mm	YES
IT2-380PS-17H	641-2155-2	17mm	
IT2-380PS-20H	641-2256-0	20mm	
IT2-380PS-25H	641-2251-6	25mm	
IT2-380PS-26H	641-2255-7	26mm	
IT2-380PS-30H	641-2301-2	30mm	
IT2-380PS-35H	641-2300-0	35mm	

## Recommend Temperature Profile

### Using Lead-free Solder Paste



Solder composition: Paste, 96.5% Sn/3.0% Ag/0.5% Cu

## Recommended spacer Height

The two parallel boards connected by the IT2 connectors should be fastened to additional spacers between them.

Board-to-board Distance	Part Number	CL No.	Recommended spacer Height
15mm	IT2-380PS-15H	641-2151-1	15.35±0.05 mm
17mm	IT2-380PS-17H	641-2155-2	17.35±0.05 mm
20mm	IT2-380PS-20H	641-2256-0	20.35±0.05 mm
25mm	IT2-380PS-25H	641-2251-6	25.35±0.05 mm
26mm	IT2-380PS-26H	641-2255-7	26.35±0.05 mm
30mm	IT2-380PS-30H	641-2301-2	30.35±0.05 mm
35mm	IT2-380PS-35H	641-2300-0	35.35±0.05 mm

