

## GT50 Series

# 1mm Pitch, Single Row, Small Size, Heat/Vibration Resistant Wire-to-Board Connector for Automotive Internal Connection



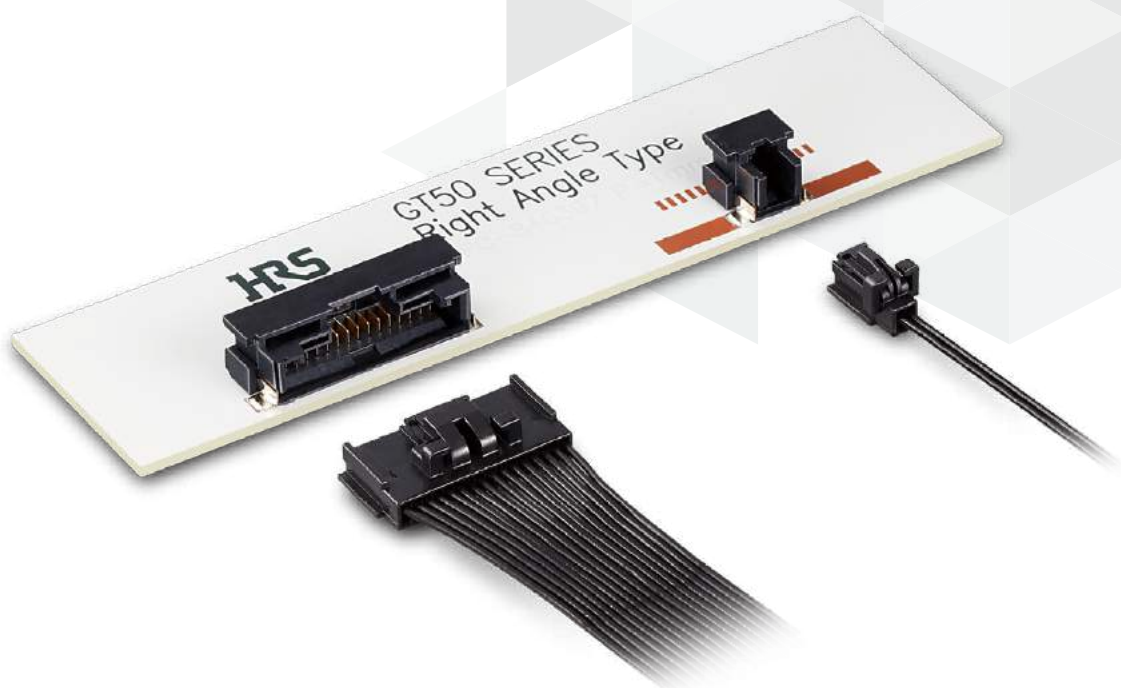
Space Saving



High Reliability



High Temp



## Features

### 1. Compact and Low Profile (1mm Pitch)

Space-saving design that contributes to size reduction of end product.

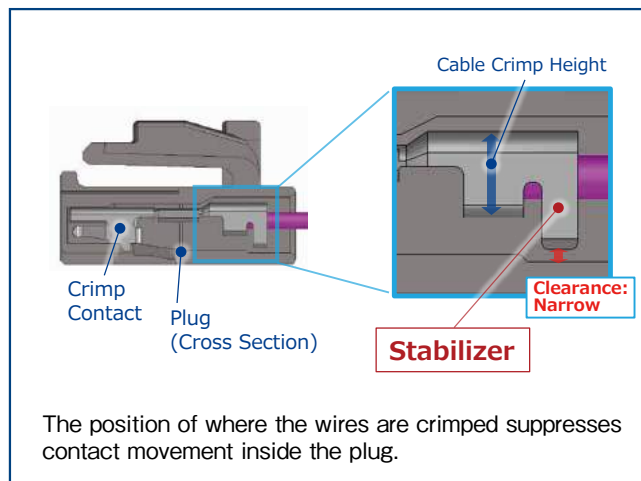
### 2. High Heat Resistance up to 125°C

125°C heat resistance (Note) makes GT50 ideal for applications requiring high heat resistance such as automotive.

Note : Includes temperature rise due to current flow.

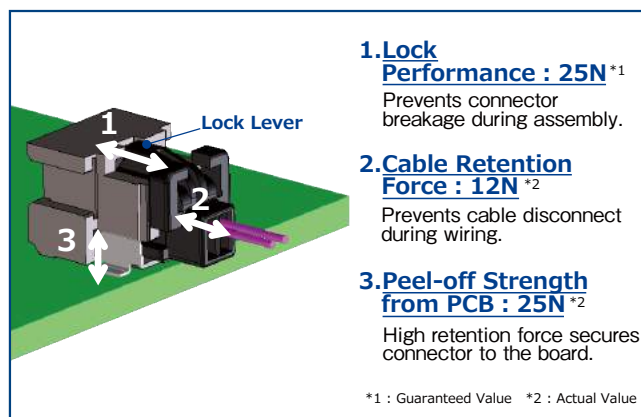
### 3. High Vibration Resistance

The stabilizer which suppresses vibration from the outside, reduces contact wear between the receptacle contact and crimp contact and achieves stable contact even under intense vibration.



### 4. Robust design for cable routing that resists disconnecting.

GT50 has high strength in a compact size.



Robust Design

### 5. User-Friendly Lock Design

Incomplete mating prevention for enhanced contact reliability.

## Product Specifications

Rated Current	2, 4pos.	6, 8, 12, 16pos.	Operating Temperature (Note 1)	-40 to +125°C
	2A	1.5A	Storage Temperature (Note 2)	-10 to +60°C
Rated Voltage	60V AC/DC		Storage Humidity Range (Note 2)	Relative Humidity 86% Max. (No Condensation)

Items	Specifications	Conditions
Contact Resistance	30m Ω Max.	Measured at 1mA DC, 20mV AC
Insulation Resistance	500M Ω Min.	Measured at 100V DC
Withstanding Voltage	There shall be no dielectric breakdown.	300V AC for 1 min.
Mating Durability	Contact Resistance : 50m Ω Max.	10 Insertion/Extraction cycles
Vibration Resistance	No electrical discontinuity of 1 μ s or more. Contact Resistance : 50m Ω Max.	Frequency : 5 to 600Hz (Constant Acceleration of 5 to 14.9Hz : 16.5mm(p-p), Constant Acceleration of 14.9 to 600Hz : 73.0m/s <sup>2</sup> ) 8 hours in 3 directions
Shock Resistance	No electrical discontinuity of 1 μ s or more.	Peak Acceleration : 500m/s <sup>2</sup> 10 cycles in each direction of 3 axes
Lock Strength	25N Min.	Lock breaking strength measured when pulling in mating axis direction
Humidity Resistance	Contact Resistance : 50m Ω Max. Insulation Resistance : 100M Ω Min.	Left for 96 hours at a temperature of 60°C and a relative humidity humidity 90 to 95%
Thermal Shock	Contact Resistance : 50m Ω Max.	Temperature : -40°C → Room temperature → +125°C → Room temperature Time : 30 → 5 → 30 → 5 minutes for 1000 cycles
Heat Resistance	Contact Resistance : 50m Ω Max.	Left at 125°C for 1000 hours
Cold Resistance	Contact Resistance : 50m Ω Max.	Left at -40°C for 1000 hours

Note 1 : Includes temperature rise caused by current flow.

Note 2 : Storage refers to long-term storage of unused items before they are mounted on the PCB.

Operating temperature and humidity range apply when the product is not powered after PCB mounting and when temporarily stored during transportation.

## Materials / Finish

Component	Part	Material	Color / Finish	UL Standard
Receptacle	Housing	LCP	Black	UL94V-0
	Contact	Brass	Gold Plating (Contact Area and SMT Lead)	—
	Retention Tabs	Brass	Tin Plating	—
Plug	Housing	PBT	Black	UL94V-0
Crimp Contact		Copper Alloy	Gold Plating (Contact Area)	—

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.

Receptacle / Plug

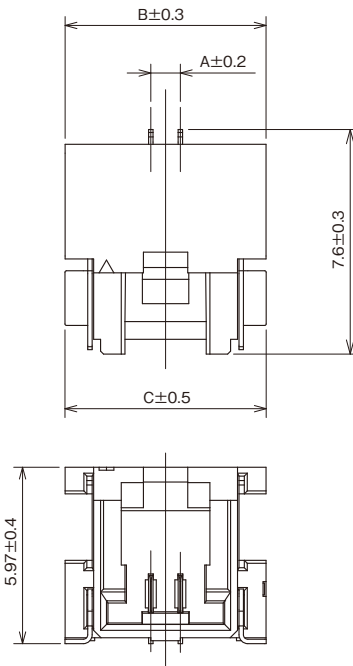
GT50 - 2 P - 1 H  
①            ② ③            ④ ⑤

Crimp Contact

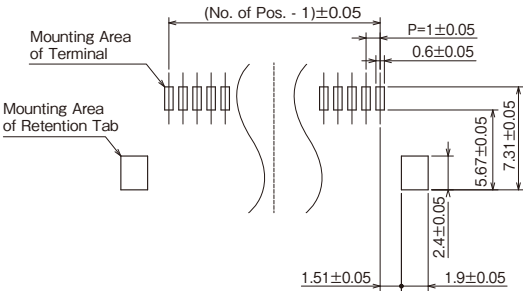
GT50 - 28 SCFA  
①            ⑥            ⑦

① Series Name	GT50	④ Pitch	1mm
② No. of Pos.	2, 4, 6, 8, 12, 16	⑤ Product Type	H : SMT Right Angle Type C : Crimp Housing
③ Connector Type	P : Receptacle S : Plug	⑥ Applicable Cable	28 AWG (0.08sq)
		⑦ Type /Packaging Type	Contact / Reel

Right Angle Receptacle



● Recommended PCB Layout



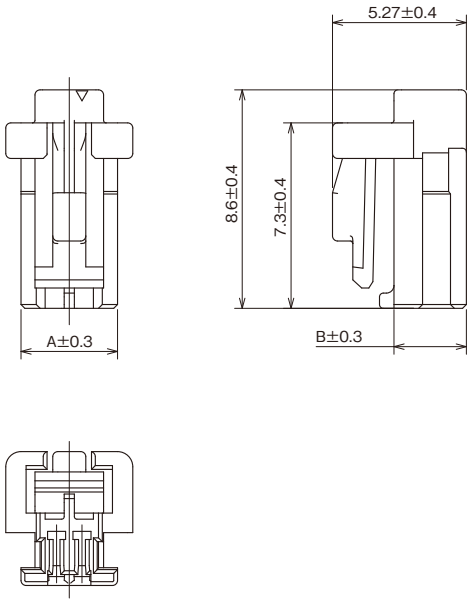
Unit : mm

Part No.	HRS No.	No. of Pos.	A	B	C	Purchase Unit
GT50-2P-1H	CL0760-1002-0-00	2	1.0	6.8	6.81	1,000pcs per reel
GT50-4P-1H	CL0760-1004-0-00	4	3.0	8.8	8.81	
GT50-6P-1H	CL0760-1006-0-00	6	5.0	10.8	10.81	
GT50-8P-1H	CL0760-1008-0-00	8	7.0	12.8	12.81	
GT50-12P-1H	CL0760-1010-0-00	12	11.0	16.8	16.81	
GT50-16P-1H	CL0760-1012-0-00	16	15.0	20.8	20.81	

## Plug



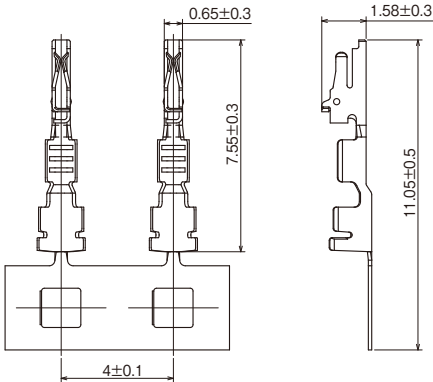
Shown with crimp contact inserted.



Unit : mm

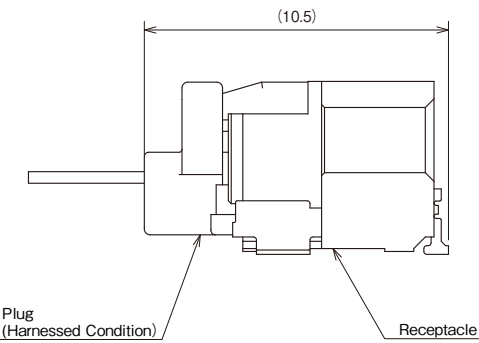
Part No.	HRS No.	No. of Pos.	A	B	Purchase Unit
GT50-2S-1C	CL0760-1003-0-00	2	3.8	2.85	100pcs per bag
GT50-4S-1C	CL0760-1005-0-00	4	5.8		
GT50-6S-1C	CL0760-1007-0-00	6	7.8		
GT50-8S-1C	CL0760-1009-0-00	8	9.8		
GT50-12S-1C	CL0760-1011-0-00	12	13.8	3.44	
GT50-16S-1C	CL0760-1013-0-00	16	17.8		

## Crimp Contact



Part No.	HRS No.	Applicable Cable	Purchase Unit
GT50-28SCFA	CL0760-1001-0-00	28 AWG (0.08sq) Coated Outer Diameter $\phi$ 0.7-0.8mm	28,000pcs per reel

Mated Diagram



Applicable Tools

Type	Part No.	HRS No.	Compatible Crimp Contact
Hirose Crimping Tool	CM-105C	CL0901-0001-0-00	-
Applicator for Hirose Crimping Tool	AP105-GT50-28S	CL0901-5257-0-00	GT50-28SCFA
Japan Automatic Machine Applicator (Note 1)	EHX106000H-UP	-	GT50-28SCFA
Hand Tool (Note 2)	HT307/GT50-28SA	CL0902-5166-0-00	GT50-28SCFA

Note 1 : Contact Japan Automatic Machine (J.A.M.) regarding crimping failure relating to applicable J.A.M. applicators or for other applicator inquiries via the J.A.M. website. (URL : <http://www.jam-net.co.jp>)

Note 2 : Hand tools are developed as a prototype tool during product development. Use an applicator for mass production.

Note 3 : Crimping should be carried out based on the "Crimping Quality Standards" and "Crimping Conditions Table."

Note 4 : Problems caused by tools other than those specified are not covered by the warranty.

Usage Precautions

Recommended Temperature Profile	<p>Temperature (°C)</p> <p>Time (s)</p> <p>250°C</p> <p>230°C</p> <p>180°C</p> <p>90~120s</p> <p>30±10s</p> <p>100</p> <p>150</p> <p>200</p> <p>250</p>	<p>【Conditions】</p> <ol style="list-style-type: none"><li>1. Reflow Heating Method Used : Far infrared, air atmosphere or nitrogen</li><li>2. Peak Temperature 250°C Peak</li><li>3. Heated part 230°C Min. 20-40 sec.</li><li>4. Preheat Temperature 150 to 180°C 90-120 sec.</li><li>5. Cycles 2 times Max.</li><li>6. Recommended Solder Thickness : 0.1mm</li></ol>
Recommended Manual Soldering Conditions	Soldering iron temperature : 350 to 380°C , Soldering time : within 5 seconds	
Precautions	<ol style="list-style-type: none"><li>1. Excessive pull force during unmating may damage the connector. If it is difficult to remove, push in lightly once and then release the lock.</li><li>2. Always make sure to turn off the power before reinserting the connector.</li><li>3. Do not directly touch the terminal when electricity is flowing since it is extremely dangerous.</li><li>4. Contact a Hirose representative for harness procedures or handling manuals.</li></ol>	

## While Taking into Consideration

Specifications mentioned in this catalog are reference values.

When considering to order or use this product, please review the Drawing and Product Specifications sheets.

Use an appropriate cable when using the connector in combination with cables.

If considering usage of a non-specified cable, please contact your sales representative.

If assembly process is done by jigs & tools which are not identified by Hirose, the warranty of the product may be affected.

If considering usage for below mentioned applications, please contact your sales representative.

In cases where the application will demand a high level of reliability, such as automotive, medical instruments, public infrastructure, aerospace/defense etc. Hirose must review before assurance of reliability can be given.

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