

Product Specification

108-5882-1

1.5mm Pitch Mini CT Hybrid Drawer Connector 26P (AC6DC20) Type (Restricted to Ricoh)

1. Scope:

1.1 Contents:

This specification covers the requirements for product performance, test methods and quality assurance provisions of 1.5mm Pitch Mini CT Hybrid Drawer Connector 26P (AC6DC) Type. Applicable product description and part numbers are as shown in Fig.1.

2. Applicable Documents:

The following documents form a part of this specification to the extent specified herein. In the event of conflict between the requirements of this specification and the product drawing, the product drawing shall take precedence. In the event of conflict between the requirements of this specification and the referenced documents, this specification shall take precedence.

2.1 AMP Specifications:

- A. 109-5000 : Test Specification,
General Requirements for Test Methods
- B. 114-5182 : Application Specification
- C. 501-**** : Test Report

2.2 Commercial Standards and specifications :

- A. MIL-STD-202 : Test Methods for Electronic and Electrical Component Parts.
- B. IEC : International Electrotechnical Commission

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	PAGE 1 of 12		TITLE 1.5mm Pitch Mini CT Hybrid Drawer Connector 26P (AC6DC20) Type						
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3. Requirements:

3.1 Design and Construction:

Product shall be of the design, construction and physical dimensions specified on the applicable product drawing.

3.2 Materials:

3.2.1 Receptacle Assembly

A. Signal Contact

Material : Brass

Finish : Mini CT post area :

Sn 100% over Nickel underplate.

Drawer mating area :

i) Gold over Nickel underplate, or

ii) Gold over Palladium-Nickel over Nickel underplate.

B. Power Contact

Material : Phosphor Bronze

Finish :

1) Gold / Tin Plated Type

Mating Side : Gold plated over Nickel under plated

Crimp Side : Sn 100% over Nickel under plated.

2) Gold / Tin - Lead Plated Type

Mating Side : Gold plated over Nickel under plated

Crimp Side : Tin - Lead plated over Nickel under plated.

3) Tin Plated Type

Mating & Crimp Side : Sn 100% over Nickel under plated.

C. Housing

Material: Glass-filled PBT (UL94V-0)

3.2.2 Plug Assembly

A. Signal Contact

Material : Phosphor Bronze

Finish :

Mini CT post area : Sn 100% over Nickel underplate.

Drawer mating area :

i) Gold over Nickel underplate, or

ii) Gold over Palladium-Nickel over Nickel underplate.

B. Power Contact

Material : Brass

Finish :

1) Gold / Tin Plated Type

Mating Side : Gold plated over Nickel under plated

Crimp Side : Sn 100% over Nickel under plated.

2) Gold / Tin - Lead Plated Type

Mating Side : Gold plated over Nickel under plated

Crimp Side : Tin - Lead plated over Nickel under plated.

3) Tin Plated Type

Mating & Crimp Side : Sn 100% over Nickel under plated.

C. Housing

Material: Glass-filled PBT (UL94V-0)

3.3 Ratings:

A. Voltage Rating :

Signal Line : 50 VAC/DC

Power Line : 250 VAC

B. Current Rating(Maximum) :

Signal Line : 1A

Power Line : See Fig.8

Wire	Current Rating
AWG	
#16 (1.25 mm ²)	13.5A
#18 (0.85 mm ²)	10A
#20 (0.5 mm ²)	7A
#22 (0.3 mm ²)	5A
#24 (0.2 mm ²)	4A

Fig.8

C. Temperature Rating : - 30°C to +105°C

The upper limit of temperature rating includes the temperature rise resulted from energized electrical current.

3.4. Performance Requirements and Test Descriptions :

The product shall be designed to meet the electrical, mechanical and environmental performance requirements specified in Fig. 2.

All tests shall be performed in the room temperature, unless otherwise specified.

Product Part No.	Description
2-292376-0	Plug Assembly, 1.5mm Pitch Mini CT Hybrid Drawer Connector 26P (AC6DC20) Type
2-292377-0	Receptacle Assembly, 1.5mm Pitch Mini CT Hybrid Drawer Connector 26P (AC6DC20) Type
179316-2	Power Receptacle Contact (Gold/Tin-Lead plated), AWG #20~#16
179316-4	Power Receptacle Contact (Gold/Tin plated), AWG #20~#16
1-179316-2	Power Receptacle Contact (Pre-Tin), AWG #20~#16
179317-2	Power Receptacle Contact (Gold/Tin-Lead plated), AWG #24~#20
179317-4	Power Receptacle Contact (Gold/Tin plated), AWG #24~#20
1-179317-2	Power Receptacle Contact (Pre-Tin), AWG #24~#20
316458-2	GND Receptacle Contact (Gold/Tin-Lead plated), AWG #20~#16
316458-4	GND Receptacle Contact (Gold/Tin plated), AWG #20~#16
1-316458-2	GND Receptacle Contact (Pre-Tin), AWG #20~#16
179321-2	Power Tab Contact (Gold/Tin-Lead plated), AWG #20~#16
179321-3	Power Tab Contact (Gold/Tin plated), AWG #20~#16
1-179321-2	Power Tab Contact (Pre-Tin), AWG #20~#16
179322-2	Power Tab Contact (Gold/Tin-Lead plated), AWG #24~#20
179322-3	Power Tab Contact (Gold/Tin plated), AWG #24~#20
1-179322-2	Power Tab Contact (Pre-Tin), AWG #24~#20

Fig.1

3.5 Test Requirements and Procedures Summary:

Para.	Test Items	Requirements	Procedures
3.5.1	Examination of Product	Meets requirements of product drawing.	Visual inspection No physical damage
Electrical Requirements			
3.5.2	Termination Resistance (Low Level)	Signal Line : 30 mΩMax. (Initial) 40 mΩMax. (Final) Power Line : 6 mΩMax. (Initial) 10 mΩMax. (Final)	Subject mated connectors to 20 mV Max open circuit at 10 mA. Refer Fig.4.

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3.5.3	Dielectric withstanding Voltage	No creeping discharge nor flashover shall occur. Signal Line : Current leakage : 5 mA Max. Power Line : Current leakage : 1 mA Max.	Signal Line : 500 VAC for 1 minute. Power Line : 1.8k VAC for 1 minute. Test between adjacent circuits of mated connectors. MIL STD 202 TEST METHOD 301 IEC 512-2 TEST 4A
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Fig. 2 (To be continued)

Para.	Test Items	Requirements	Procedures
3.5.4	Insulation Resistance	500 MΩMin. (Initial) 100 MΩMin. (Final)	Apply voltage 500 VDC for 1 minute. Test between adjacent circuits of mated connectors. MIL STD 202 TEST METHOD 302 CONDITION B
3.5.5	Temperature Rise	30 °C Max. under loaded rating current.	Contacts series-wired, apply rated current to the circuit, and measure the temperature rise, after the temperature becomes stabilized. Deduct ambient temperature from the measured value.

Fig. 2 (To be continued)

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Para.	Test Items	Requirements		Procedures	
Mechanical Requirements					
3.5.6	Crimp Tensile Strength (Power contacts only)	Wire Size	Crimp Tensile (Min.)	Apply an axial pull-off load to crimped wire of contact secured on the tester, Operation Speed : 100 mm/min. Samples don't crimp insulation.	
		AWG	N (Kgf)		
		#16 (1.25mm ²)	186.2 (19.0)		
		#18 (0.85mm ²)	98.0 (10.0)		
		#20 (0.5mm ²)	45.1 (4.6)		
		#22 (0.3mm ²)	34.3 (3.5)		
3.5.7	Contact Insertion Force (Power contacts only)	14.7 N(1.5 kgf) Max. per contact		Measure force required to insert contact into housing.	
3.5.8	Contact Retention Force	Signal Line : Plug Contact : 5.88 N(0.6 kgf) Min. Rec Contact : 14.7 N(1.5 kgf) Min. Power Line : 58.8 N(6 kgf) Min.		Measure contact retention force. Operation Speed : 100 mm/min.	
3.5.9	Connector Mating /Unmating Force	Connector Mating Force			Operation Speed : 100 mm/min. Measure the force required to mate and unmate connectors.
		Pos. (Signal- Power)	Initial N(kgf) Max.	After Durabilit y N(kgf) Max.	
		6-20	69.6 (7.1)	94.6 (9.7)	
		Connector Unmating Force			
		Pos. (Signal- Power)	Initial and After Durability N(kgf) Max.		
6-20	10.8 (1.1)				

Fig. 2 (To be continued)

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Para.	Test Items	Requirements	Procedures
3.5.10	Durability (Repeated Mating & Unmating)	Signal Line : 40 mΩMax. (Final) Power Line : 10 mΩMax. (Final)	Operation Speed : 100 mm/min. No. of Cycles : 1000 cycles.
3.5.11	Vibration (Low Frequency)	No electrical discontinuity greater than 1 μsec. Shall occur. Signal Line : 40 mΩMax. (Final) Power Line : 10 mΩMax. (Final)	Subject mated connectors to 10- 55-10 Hz traversed in 1 minute at 1.52 mm amplitude 2 hours each of 3 mutually perpendicular planes, totally 6 hours. MIL-STD-202 TEST METHOD 201 CONDITION A Mounting : Fig. 5
3.5.12	Physical Shock	No electrical discontinuity greater than 1μsec. Shall occur. Signal Line : 40 mΩMax. (Final) Power Line : 10 mΩMax. (Final)	Accelerated Velocity : 490 m/s ² (50G) Waveform :half sine shock pulse Duration : 11msec. Number of shocks : 3 shocks in each direction applied along the X, Y and Z axes, totally 18 shocks. MIL-STD-202 TEST METHOD 213 CONDITION A IEC 68-2-27, Test Ea Mounting : Fig. 5
3.5.13	Hammering Shock	No electrical discontinuity greater than 1μsec. Shall occur. Signal Line : 40 mΩMax. (Final) Power Line : 10 mΩMax. (Final)	Subject mated connectors to 10000 cycles of hammering shocks in set-up as shown in Fig. 6, with test current of 1mA at 10 VDC applied to circuits as shown in Fig. 7. During the test, the circuit shall be monitored for fluctuation of electrical resistance.

Fig. 2 (To be continued)

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Para.	Test Items	Requirements	Procedures
Environmental Requirements			
3.5.14	Thermal Shock	Signal Line : 40 mΩMax. (Final) Power Line : 10 mΩMax. (Final)	Subject mated connectors to – 55°C/30min.,+85°C/30 min. This being 1 cycle, repeat for a total of 25 cycles. MIL-STD-202 TEST METHOD 107
3.5.15	Humidity-Temperature Cycling	Insulation resistance 100 MΩ Min.(Final) Termination resistance Signal Line : 40 mΩMax. (Final) Power Line : 10 mΩMax. (Final)	Subject mated connectors to 25~65 °C,90~95% R.H., 10 cycles. Cold Shock – 10°C perfomed. Re-condition in room temperature for 3Hrs before subsequent measurements. MIL-STD-202 TEST METHOD 106 IEC 68-2-38, Test Db.
3.5.16	Salt Spray	Signal Line : 40 mΩMax. (Final) Power Line : 10 mΩMax. (Final)	Subject mated connectors to 5 ± 1% salt concentration for 48 hours. After test,rinse samples with water and recondition to room temperature for 1 hour before subsequent measurements. MIL-STD-202 TEST METHOD 101, CONDITION B. IEC 68-2-11, Test Ka.
3.5.17	Temperature Life (Heat Aging)	Signal Line : 40 mΩMax. (Final) Power Line : 10 mΩMax. (Final)	Subject mated connectors to 85 ± 2°C, 500 hours. MIL-STD-202 TEST METHOD 108.

Fig. 2 (End)

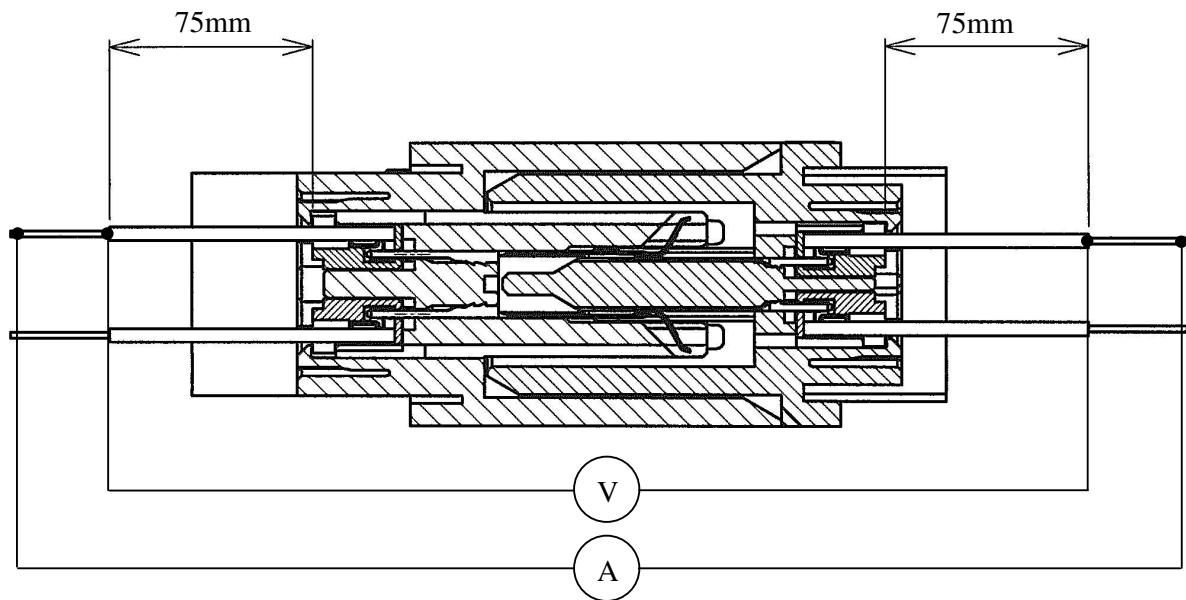
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4. Product Qualification Test Sequence

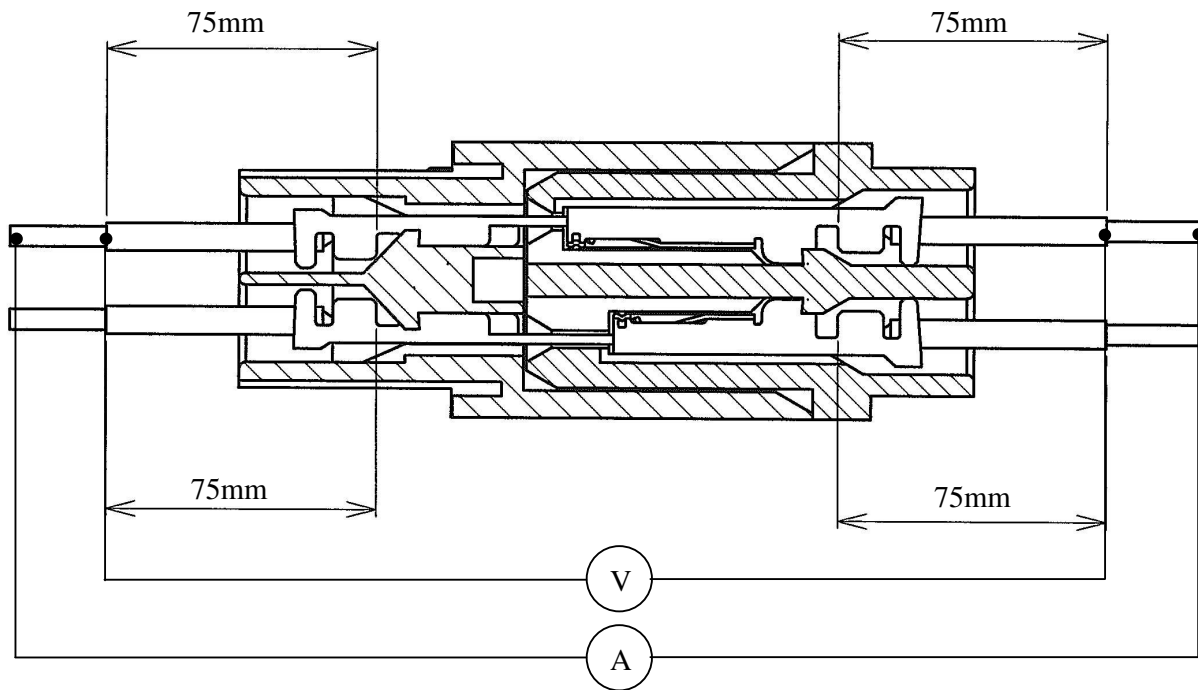
Test Examination	Test Group											
	1	2	3	4	5	6	7	8	9	10	11	12
Test Sequence (a)												
Examination of Product	1,4,8	1,3	1,3	1,4	1,3	1,3	1,5	1,5	1,5	1,5	1,5	1,5
Termination Resistance (Low Level)	2,5					2,4	2,4	2,4	2,4	2,4	2,4	2,4
Dielectric withstanding Voltage	7											
Insulation Resistance	6											
Temperature Rise		2										
Crimp Tensile Strength			2									
Contact Insertion Force				2								
Contact Retention Force				3								
Connector Mating/Unmating Force					2							
Durability (Repeated Mating/Unmating)						3						
Vibration (Low Frequency)							3					
Physical Shock								3				
Hammering Shock									3			
Thermal Shock										3		
Humidity-Temperature Cycling	3											
Salt Spray											3	
Temperature Life (Heat Aging)												3

(a) Numbers indicate sequence in which the tests are performed.

Fig.3



Signal Line



Power Line

The resistance of wire shall be removed from all readings.

Fig. 4.

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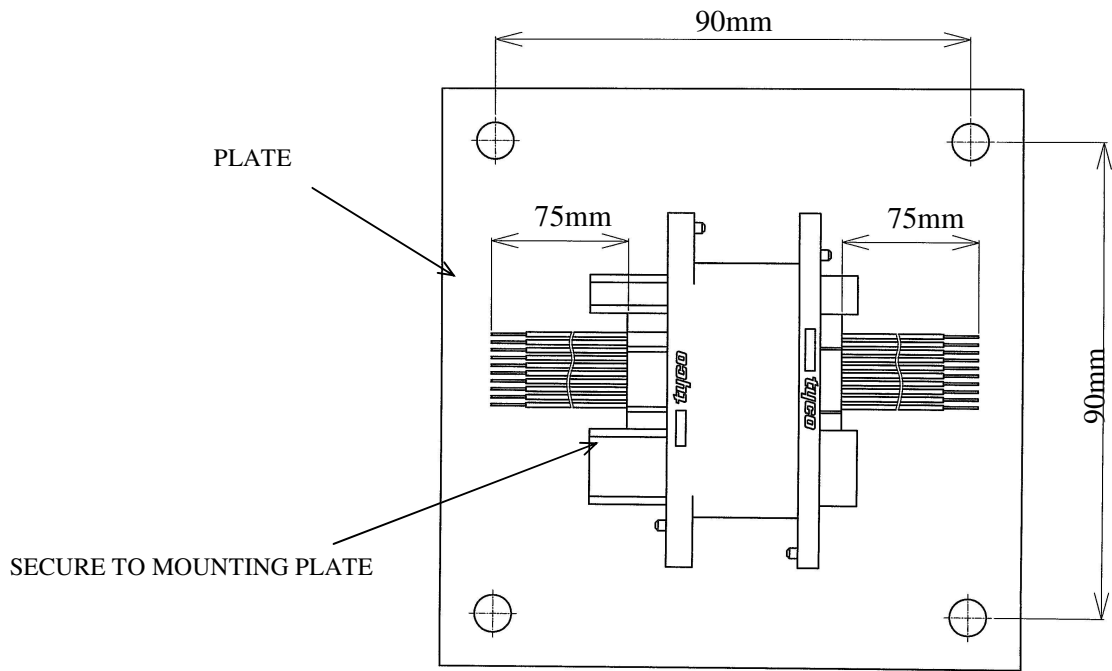


Fig. 5.

Hammer (50g Steel Weight)

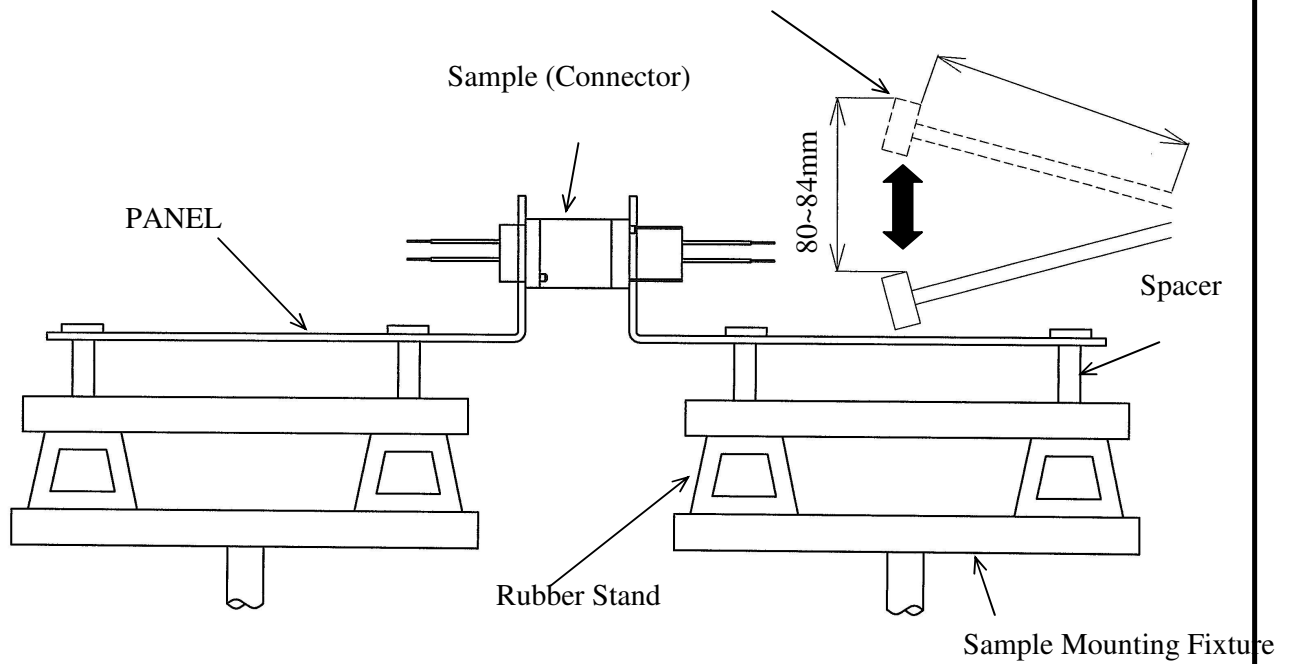


Fig. 6

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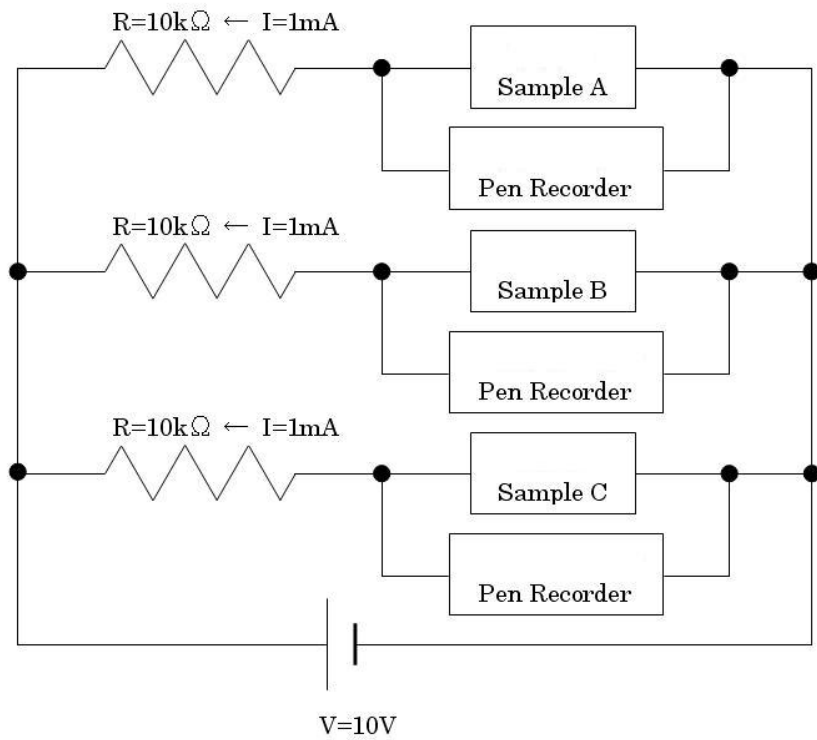


Fig. 7

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