APPLICABLE STANDARD				
RATING	OPERATING TEMPERATURE RANGE	-45 °C TO +125 °C(NOTES 1)	STORAGE TEMPERATURE RANGE	-10 °C TO + 60 °C(NOTES 2)
	VOLTAGE	50 V AC	APPLICABLE CONNECTOR	DF12#(3.0)-*DS-0.5V(81) DF12#(3.0)-*DS-0.5V(86)
	CURRENT	0.3 A		

SPECIFICATIONS

ITEM	TEST METHOD	REQUIREMENTS	QT	AT
CONSTRUCTION				
GENERAL EXAMINATION	VISUALLY AND BY MEASURING INSTRUMENT.	ACCORDING TO DRAWING.	X	X
MARKING	CONFIRMED VISUALLY.		X	X
ELECTRIC CHARACTERISTICS				
CONTACT RESISTANCE	100 m A (DC OR 1000 Hz).	50 mΩ MAX.	X	—
INSULATION RESISTANCE	100 V DC	500 MΩ MAX.	X	—
VOLTAGE PROOF	150 V AC FOR 1 min.	NO FLASHOVER OR BREAKDOWN.	X	—
MECHANICAL CHARACTERISTICS				
INSERTION AND WITHDRAWAL FORCES	MEASURED BY APPLICABLE CONNECTOR.	SIGNAL / INSERTION FORCE (N)MAX / WITHDRAWAL FORCE (N)MIN 10: 19.8 / 1.5 14: 21.3 / 2.1 20: 23.4 / 2.6 30: 27.0 / 3.4 32: 27.6 / 3.6 36: 29.0 / 4.0 40: 30.6 / 4.2 50: 34.2 / 5.0 60: 38.0 / 6.0 80: 45.0 / 7.4	X	—
MECHANICAL OPERATION	50 TIMES INSERTIONS AND EXTRACTIONS.	① CONTACT RESISTANCE: 50 mΩ MAX. ② NO DAMAGE, CRACK OR LOOSENESS OF PARTS.	X	—
VIBRATION	FREQUENCY 10 TO 55 Hz, SINGLE AMPLITUDE 0.75 mm, AT 2 h, FOR 3 DIRECTIONS.	① NO ELECTRICAL DISCONTINUITY OF 1 μs. ② NO DAMAGE, CRACK OR LOOSENESS OF PARTS.	X	—
SHOCK	490 m/s^2 DURATION OF PULSE 11 ms AT 3 TIMES FOR 3 DIRECTIONS.	① NO ELECTRICAL DISCONTINUITY OF 1 μs. ② NO DAMAGE, CRACK OR LOOSENESS OF PARTS.	X	—
ENVIRONMENTAL CHARACTERISTICS				
RAPID CHANGE OF TEMPERATURE	TEMPERATURE -65 →15 TO 35 → 125 → 15 TO 35 °C TIME 30 → 10 TO 15 → 30 → 10 TO 15 min UNDER 5 CYCLES.	① CONTACT RESISTANCE: 50 mΩ MAX. ② INSULATION RESISTANCE: 500 MΩ MIN. ③ NO DAMAGE, CRACK OR LOOSENESS OF PARTS.	X	—
DAMP HEAT (STEADY STATE)	EXPOSED AT 40 ± 2 °C, 90 TO 95 %, 96 h.	① CONTACT RESISTANCE: 50 mΩ MAX. ② INSULATION RESISTANCE: 500 MΩ MIN. ③ NO DAMAGE, CRACK OR LOOSENESS OF PARTS.	X	—
CORROSION SALT MIST	EXPOSED IN 5% SALT WATER SPRAY FOR 48 h.	① CONTACT RESISTANCE: 50 mΩ MAX. ② NO HEAVY CORROSION.	X	—
SULPHUR DIOXIDE	EXPOSED IN 10 PPM FOR 96 h. (TEST STANDARD:JEIDA-39)	① CONTACT RESISTANCE: 50 mΩ MAX. ② NO HEAVY CORROSION.	X	—
HEAT RESISTANCE OF SOLDERING	【RECOMMENDED TEMPERATURE PROFILE】 《SOLDERING AREA》 MAX250℃, 220℃ FOR 60 SECONDS MAX. 《PREHEATING AREA》 150 TO 180℃ 90～120 SECONDS. MAXIMUM TWICE ACTION IS ALLOWED UNDER THE SAME CONDITION. 【RECOMMENDED MANUAL SOLDELING CONDITION 】 SOLDERING IRON TEMPERATURE 350℃ SOLDERING TIME : WITHIN 3 SECONDS.	NO DEFORMATION OF CASE OF EXCESSIVE LOOSENESS OF THE TERMINALS.	X	—

REMARKS
NOTE1:INCLUDING THE TEMPERATURE RISE BY CURRENT.
NOTE2:STORAGEIS DEFINED AS LONG-TERM STORAGE OF UNUSED PRODUCTS.
APPLY OPERATION TEMPERATURE RANGE TO PRODUCTS MOUNTED ON PCB WITHOUT POWER SUPLLY.
UNLESS OTHERWISE SPECIFIED , REFER TO JIS C 5402 .

	COUNT	DESCRIPTION OF REVISIONS	DESIGNED	CHECKED	DATE
⚠0					

APPROVED	MO.NAKAMURA	06.01.30
CHECKED	TS.MIYAZAKI	06.01.27
DESIGNED	YH.MICHIDA	06.01.27
DRAWN	HK.MURAKAMI	06.01.27

Note QT:Qualification Test AT:Assurance Test X:Applicable Test

DRAWING NO. ELC4-163508-09

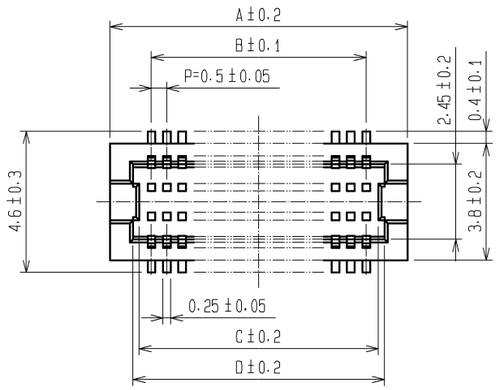
HRS SPECIFICATION SHEET — PART NO. DF12D(3.0)-*DP-0.5V(81)

HIROSE ELECTRIC CO., LTD. — CODE NO. CL537 ⚠0 1/1

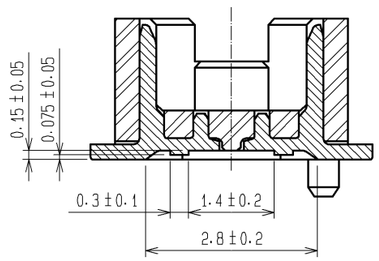
FORM HD0011-2-1

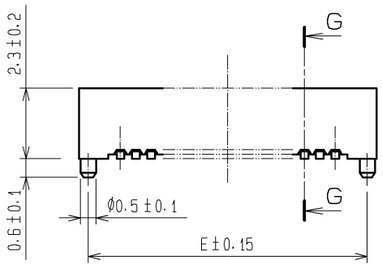
DRAWING FOR REFERENCE:This is subject to change without notice

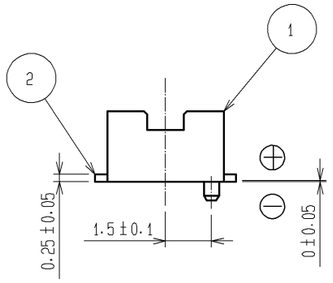
2015/09/21 19:00:16(JST) Tim Tian

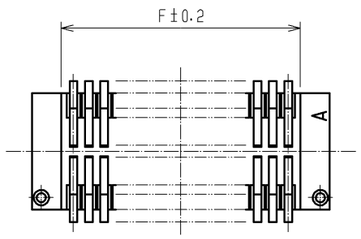


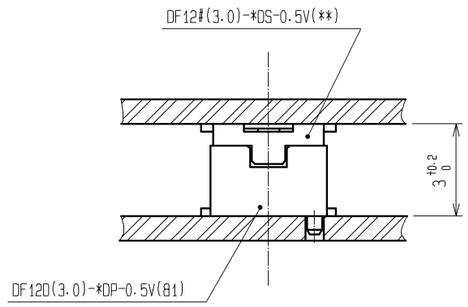
G-G(10:1)





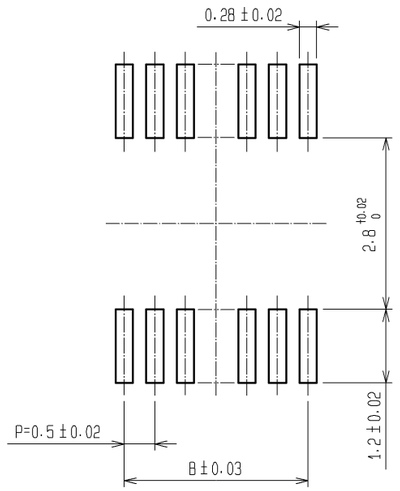




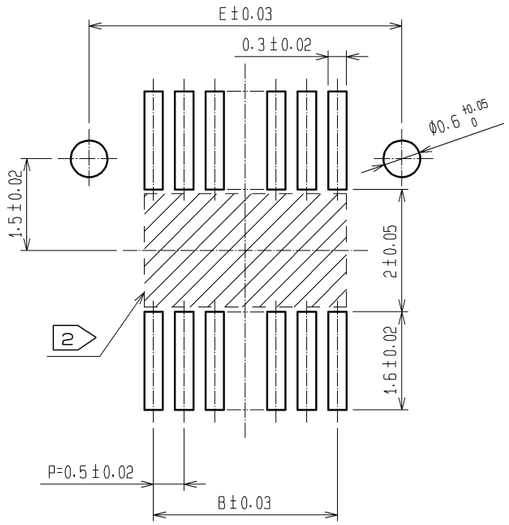


CODE No.	CONTACT	A	B	C	D	E	F
CL537-0791-5-81	10	4.7	2.0	2.8	3.2	4.1	2.8
CL537-0920-6-81	14	5.7	3.0	3.8	4.2	5.1	3.8
CL537-0793-0-81	20	7.2	4.5	5.3	5.7	6.6	5.3
CL537-0795-6-81	30	9.7	7.0	7.8	8.2	9.1	7.8
CL537-0802-0-81	32	10.2	7.5	8.3	8.7	9.6	8.3
CL537-0796-9-81	36	11.2	8.5	9.3	9.7	10.6	9.3
CL537-0797-1-81	40	12.2	9.5	10.3	10.7	11.6	10.3
CL537-0799-7-81	50	14.7	12.0	12.8	13.2	14.1	12.8
CL537-0801-7-81	60	17.2	14.5	15.3	15.7	16.6	15.3
CL537-0803-2-81	80	22.2	19.5	20.3	20.7	21.6	20.3

RECOMMEND METAL MASK PATTERN (10:1)



RECOMMENDED LAND PATTERN (10:1)



RECOMMENDED THICKNESS OF METAL MASK : 120 μm

RECOMMENDED THICKNESS OF SOLDER PASTE : 120 μm

NOTES 1 LEAD CO-PLANARITY SHALL BE 0.08 mm MAX.

2 IF THERE IS PATTERN ON ▨ PART, THERE IS A POSSIBILITY THAT IT WILL MAKE CONTACT WITH THE LEADS.

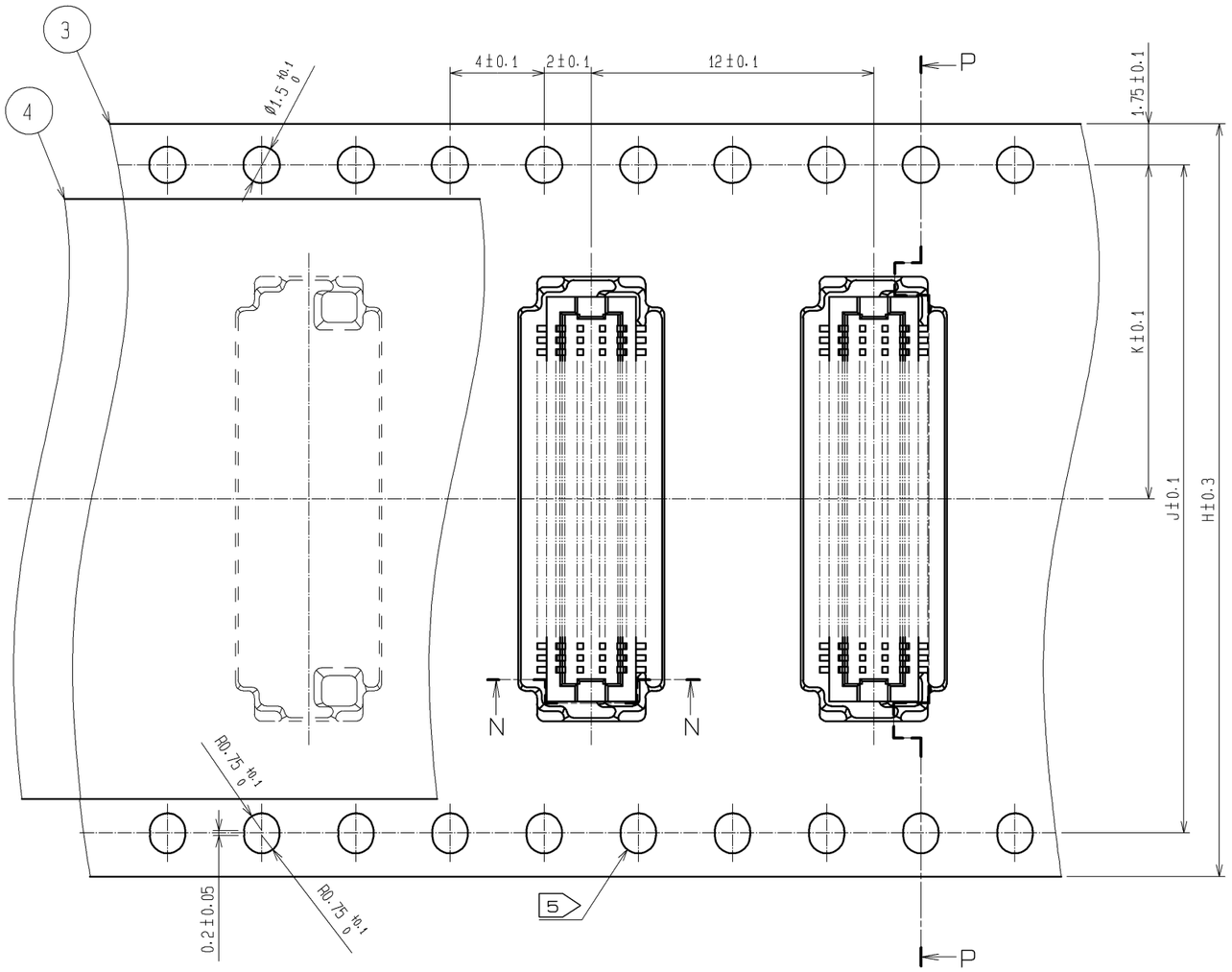
NO.	MATERIAL	FINISH , REMARKS	NO.	MATERIAL	FINISH , REMARKS
2	PHOSPHOR BRONZE	CONTACT AREA:GOLD PLATED 0.2μm min LEAD AREA:GOLD PLATED 0.015μm min OTHERS(UNDER PLATING):NICKEL PLATED 2μm min	6	PS	CLEAR (REINFORCEMENT COLLAR)
			5	PS	BLACK (PLASTIC REEL)
			4	POLYESTER	CLEAR (COVER TAPE)
1	POLYAMIDE	UL94V-0, NATURAL(BEIGE)	3	PS	CLEAR (EMBOSSED CARRIER TAPE)

UNITS	SCALE	△	COUNT	DESCRIPTION OF REVISIONS	DESIGNED	CHECKED	DATE
mm	5 : 1	△					

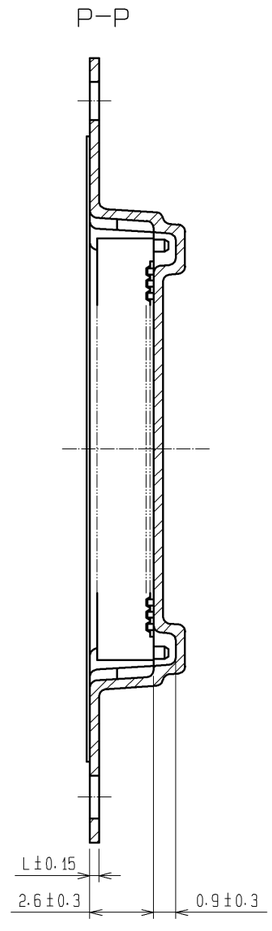
HIROSE ELECTRIC CO., LTD.

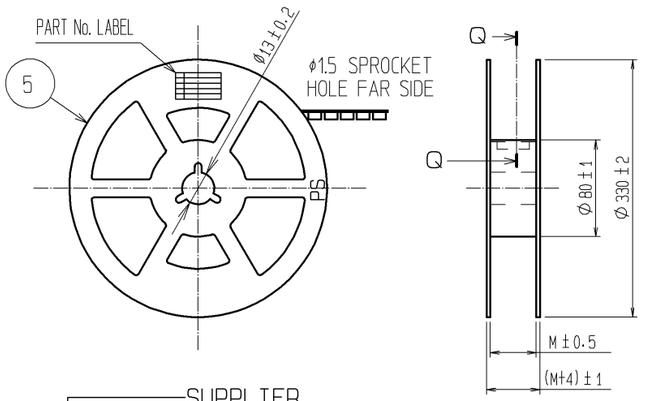
APPROVED	KH. IKEDA	13.08.19	DRAWING NO. EDC3-163508-77
CHECED	YH. MICHIDA	13.08.08	PART NO. DF12D(3.0)-*DP-0.5V(81)
DESIGNED	YN. SAKAMOTO	13.08.08	CODE NO. CL537
DRAWN	KR. AJITO	13.08.08	△ 1/2

STYLE AND DIMENTION OF REEL (FREE)



DIRECTION OF UNREELING



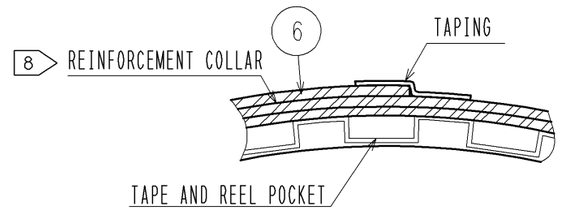


SUPPLIER
QUANTITY
PART No.
CODE No.
DATE OF MANUFACTURED

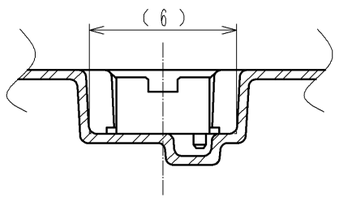
DETAIL OF PART No. LABEL

生産月日	年　月　日
図番	CL537-****-*-81
品名	DF12D(3.0)-*DP-0.5V(81)
納入数量	1000Ko
納入者	ヒロセ電機(株)

Q–Q(FREE)



N–N



CODE No.	CONTACT	H	J	K	L	M
CL537-0791-5-81	10	16	-	7.5	0.30	17.5
CL537-0920-6-81	14	16	-	7.5	0.30	17.5
CL537-0793-0-81	20	16	-	7.5	0.38	17.5
CL537-0795-6-81	30	24	-	11.5	0.38	25.5
CL537-0802-0-81	32	24	-	11.5	0.30	25.5
CL537-0796-9-81	36	24	-	11.5	0.38	25.5
CL537-0797-1-81	40	24	-	11.5	0.38	25.5
CL537-0799-7-81	50	24	-	11.5	0.38	25.5
CL537-0801-7-81	60	32	28.4	14.2	0.38	33.5
CL537-0803-2-81	80	44	40.4	20.2	0.38	45.5

NOTES 3　1 REEL 1000 CONNECTORS.
4　AT THE BEGINNING OF THE REEL, 30 COMPONENTS SHALL BE EMPTY.
AT THE END OF THE REEL, 20 COMPONENTS SHALL BE EMPTY.
5　WHEN THE TAPE WIDTH IS 32 mm OR 44mm, SPROCKET HOLES SHALL BE SET ON BOTH SIDE OF REEL AS SHOWN ON THIS DRAWING.
6　PEEL FORCE REFERS TO JIS C 0806.(IEC 60286-3)
7　THE REEL IS PACKED WITH A POLYETHYLENE MATERIAL, TOGETHER WITH A DRYING AGENT.
8　AFTER PACKING, ROLL 2 METERS OF THE REINFORCEMENT COLLAR TO OUTER CIRCUMFERENCE OF TAPE AND REEL POCKET, AND TAPE DOWN AT THE END THE COLLAR.

HRS

DRAWING NO.	EDC3-163508-77
PART NO.	DF12D(3.0)-*DP-0.5V(81)
CODE NO.	CL537

△ 2/2

TR537E-10360

QUALITY EVALUATION TEST REPORT FOR DF12 SERIES

APPROVED	SI.TOMIOKA
CHECKED	HT.SAKATA.
CHARGED	HT.SAKATA

HIROSE ELECTRIC CO.,LTD.

[1] Objective

To evaluate the performance and quality of the DF12 Series.

[2] Specimens

<Specimen A> ... 46NY resinous product

DF12E(5.0)-30DP-0.5V(81)

DF12C-30DS-0.5V(81)

<Specimen B> ... LCP resinous product

DF12LD(5.0)-30DP-0.5V(81)

DF12LA-30DS-0.5V(81)

<Specimen C> ... 46NY resinous product

DF12D(3.0)-14DP-0.5V

DF12A(3.0)-14DS-0.5V(81)

<Specimen D> ... LCP resinous product

DF12LD(3.0)-14DP-0.5V(81)

DF12LA(3.0)-14DS-0.5V(81)

[Above test specimens were tested in the condition as it is received from the client.**]**

[3] Test period:

From: 2011-08-24

To: 2011-09-16

[4] Test temperature:

18 °C to 28 °C

[5] Test humidity:

25 %RH to 75 %RH

[6] Test item, Number of specimens, Page No.

Test item No.	Test item/ (Applicable standard)	Group A	Group B	Group C	Group D	Number of Specimens	Page No.
1	Appearance, Construction (JIS C 5402 4.1 4.3)	○	○	○	○	16 sets ea.	9
2	Contact resistance (JIS C 5402 5.3)		○	○	○	12 sets ea.	10
3	Insulation resistance (JIS C 5402 5.2)		○	○		8 sets ea.	11
4	Voltage proof (JIS C 5402 5.1)		○	○		8 sets ea.	12
5	Vibration (JIS C 5402 5.5 6.1)	○				4 sets ea.	13
6	Shock (JIS C 5402 5.5 6.2)	○				4 sets ea.	14
7	Change of temperature		○			4 sets ea.	15
8	Dry heat (JIS C 5402 7.8)		○			4 sets ea.	16
9	Cold (JIS C 5402 7.9)		○			4 sets ea.	17
10	Damp heat (JIS C 5402 7.3)			○		4 sets ea.	18
11	Corrosion, salt mist (JIS C 5402 7.1)			○		4 sets ea.	19
12	Mechanical operation, 50 times (JIS C 5402 6.3)				○	4 sets ea.	20
13	Corrosion, SO_2 gas (JIS C 60068-2-42)				○	4 sets ea.	21

Note 1) "ea." in Number of specimens column indicates 4 kinds of combinations (Specimens A, B, C, D) shown in item [2] in Page 2.

Note 2) Since [Insulation resistance] and [Voltage proof] are measured without mounting the connector to the board, a different specimens are used from those for [Contact resistance] test.

Note 3) In all the tests and measurements, except test item Nos. 1, 3, 4 and 12, tests are conducted in the condition that boards of DP-side and DS-side are fixed completely with screws and spacers.

* See page 10 for figure of contact resistance measuring method.

Table for each test measurement item

Test item No.	Test item	(1)	(2)	(3)	(4)	(5)
5	Vibration	○				○
6	Shock	○				○
7	Change of temperature	○	○	○	○	
8	Dry heat	○	○	○	○	
9	Cold	○	○	○	○	
10	Damp heat	○	○	○	○	
11	Corrosion, salt mist	○	○			
12	Mechanical operation, 50 times	○	○			
13	Corrosion, SO_2 gas	○	○			

Remarks: (1) Appearance, Construction
(2) Contact resistance
(3) Insulation resistance
(4) Voltage proof
(5) Electrical discontinuity

[7] Test results

See the page which describes each test item.

See the pages shown below for variation graph and result data.

Contact resistance, graphs and result data

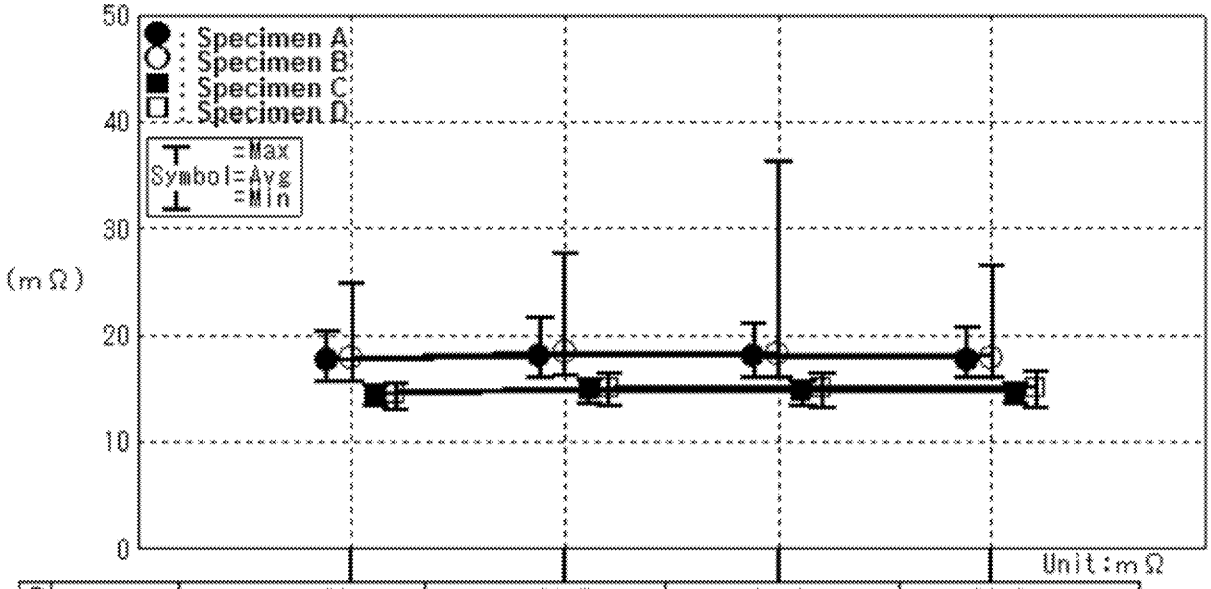
See page 5 for Group B.
See page 6 for Group C.
See page 7 for Group D.

Insulation resistance, result data

See page 8 for Groups B and C.

Group B
Contact resistance

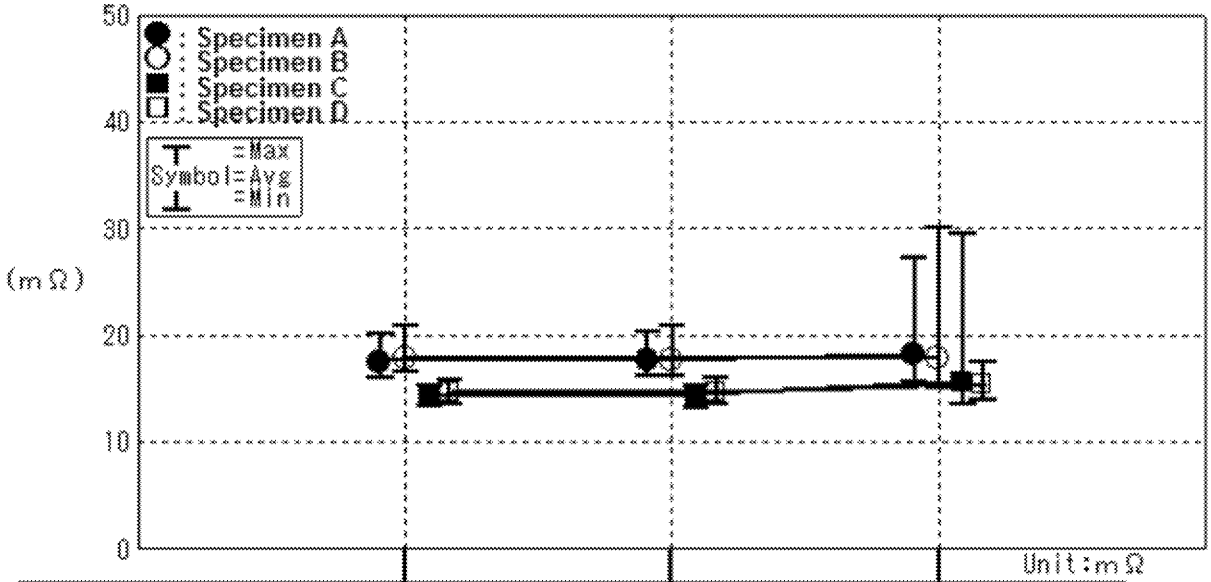
<< Requirement >>
50 mΩ or less



●	Max	20.4	21.7	21.0	20.6
	Min	15.8	16.1	16.2	16.1
	Avg	17.66	18.14	18.10	17.80
	σ_{n-1}	0.93	1.04	1.02	0.92
○	Max	24.9	27.7	36.2	26.5
	Min	15.8	16.4	16.2	16.1
	Avg	17.85	18.42	18.24	17.98
	σ_{n-1}	1.37	1.37	2.01	1.48
■	Max	15.2	15.8	15.6	15.5
	Min	13.5	13.6	13.5	13.6
	Avg	14.47	14.89	14.74	14.78
	σ_{n-1}	0.41	0.57	0.50	0.51
□	Max	15.5	16.3	16.4	16.5
	Min	13.2	13.5	13.4	13.4
	Avg	14.60	15.06	15.04	15.09
	σ_{n-1}	0.65	0.76	0.80	0.84
	Step →	Initial	Change of temperature	Dry heat	Cold

Group C
Contact resistance

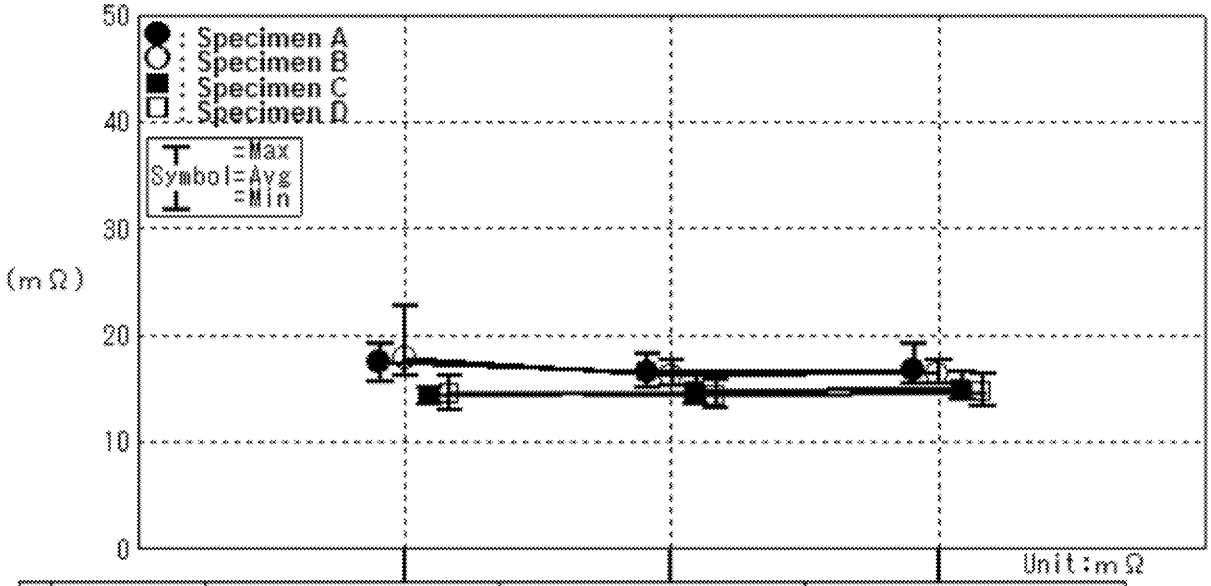
<< Requirement >>
50 mΩ or less



●	Max	20.1	20.3	27.2
	Min	16.2	16.3	15.8
	Avg	17.61	17.67	18.31
	σ_{n-1}	0.84	0.88	1.59
○	Max	20.8	20.9	30.0
	Min	16.7	16.3	15.2
	Avg	17.99	17.82	17.88
	σ_{n-1}	0.74	0.72	1.82
■	Max	15.2	15.3	28.5
	Min	13.5	13.4	13.6
	Avg	14.36	14.44	15.67
	σ_{n-1}	0.42	0.48	2.24
□	Max	15.9	16.0	17.5
	Min	13.6	13.7	14.0
	Avg	14.71	14.66	15.53
	σ_{n-1}	0.61	0.61	0.75
	Step →	Initial	Damp heat	Corrosion,salt mist

Group D
Contact resistance

<< Requirement >>
50 mΩ or less



●	Max	18.1	18.2	19.1
	Min	15.8	15.2	15.5
	Avg	17.53	16.54	16.82
	σ_{n-1}	0.74	0.68	0.78
○	Max	22.7	17.6	17.7
	Min	16.4	15.4	15.5
	Avg	17.85	16.25	16.49
	σ_{n-1}	1.06	0.37	0.38
■	Max	15.0	16.2	16.5
	Min	13.6	13.6	14.0
	Avg	14.30	14.68	15.00
	σ_{n-1}	0.35	0.57	0.63
□	Max	16.1	15.9	16.4
	Min	13.2	13.3	13.5
	Avg	14.65	14.38	14.74
	σ_{n-1}	0.71	0.68	0.75
	Step →	Initial	Mechanical operation, 50 times	Corrosion,SO2 gas

Insulation resistance

Requirements:
500 MΩ or more.

Group B

Between adjacent contacts Unit: x 10^4 MΩ

		Initial	Change of temperature	Dry heat	Cold
Specimen A	Max	20	20	20	20
	Min	20	20	20	20
Specimen B	Max	20	20	20	20
	Min	20	20	20	20
Specimen C	Max	20	20	20	20
	Min	20	20	20	20
Specimen D	Max	20	20	20	20
	Min	20	20	20	20

Group C

Between adjacent contacts Unit: x 10^4 MΩ

		Initial	Damp heat
Specimen A	Max	20	1.5
	Min	20	0.7
Specimen B	Max	20	20
	Min	20	20
Specimen C	Max	20	1.3
	Min	20	1.0
Specimen D	Max	20	20
	Min	20	20

1. Appearance, Construction

1.1 Requirements

Appearance, Construction:	No defect such as breakage or crack on the component.
Intermateability:	No defect in mating.

1.2 Test method

Appearance, Construction:	Check visually with a magnifying glass for any defect such as breakage or crack on the component.
Intermateability:	Check for any defect when specimens are mated with the applicable connector.

1.3 Test results

Appearance, Construction:

Specimen A	...	No defect.
Specimen B	...	No defect.
Specimen C	...	No defect.
Specimen D	...	No defect.

Intermateability:

Specimen A	...	No defect.
Specimen B	...	No defect.
Specimen C	...	No defect.
Specimen D	...	No defect.

2. Contact resistance

2.1 Requirements

50 mΩ or less.

2.2 Test method

Contact resistance is measured according to the conditions specified in table below:

Open circuit voltage	6 V d.c. or less
Test current	100 mA d.c.

Measuring method: Measured by voltage drop method at the points shown in the following figure.

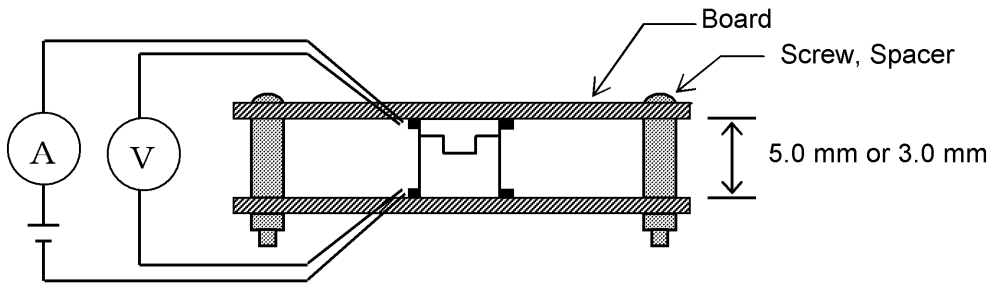


Figure: Measuring points

2.3 Test equipment

Test equipment	Model	Manufacturer
Digital multi-meter	756101	Yokogawa Electric
DC system generator	6633B	Agilent Technologies

2.4 Test results

Groups B to D

Unit: mΩ

	Specimen A	Specimen B	Specimen C	Specimen D
Max	20.4	24.9	15.2	16.1
Min	15.8	15.8	13.5	13.2
Avg	17.60	17.93	14.38	14.66
σ_{n-1}	0.84	1.09	0.40	0.66

3. Insulation resistance

3.1 Requirements

500 MΩ or more.

3.2 Test method

Insulation resistance is measured according to the conditions specified in table below:

Test voltage	100 V d.c.
Duration	For 1 min ± 5 s. However, if the results are verified as the required value or more during the testing, the measurement can be terminated.

Measuring point: Between adjacent contacts

Mated/Unmated: Mated.

3.3 Test equipment

Test equipment	Model	Manufacturer
Super Megohm-meter	SM-8210	Toa Electronics

3.4 Test results

Groups B and C

Unit: x 10^4 MΩ

	Specimen A	Specimen B	Specimen C	Specimen D
Max	20	20	20	20
Min	20	20	20	20

4. Voltage proof

4.1 Requirements

No defect such as dielectric breakdown or flashover.

4.2 Test method

Voltage proof is confirmed according to the conditions specified in table below:

Test voltage	150 V a.c.
Duration	For 1 min ± 5 s

Imposing method: Test voltage is raised in a rate of 500 V/s or less until it reaches the required value.

Leak current: Judged dielectric breakdown at 2 mA

Measuring point: Between adjacent contacts

Mated/Unmated: Mated.

4.3 Test equipment

Test equipment	Model	Manufacturer
Voltage proof tester	TOS8750	Kikusui Electronics

4.4 Test results

Groups B and C

Specimen A ... No defect.

Specimen B ... No defect.

Specimen C ... No defect.

Specimen D ... No defect.

5. Vibration

5.1 Requirements

Appearance, Construction: No defect such as breakage or crack on the component.

Electrical discontinuity: No electrical discontinuity of 1 μs or more.

5.2 Test method

The test is conducted according to the conditions specified in table below:

Frequency range	10 Hz to 55 Hz
Total Amplitude	1.5 mm
Sweeping rate	10 Hz to 55 Hz to 10 Hz, for approx. 1 min
Duration	3 axial directions, 2 h each, 6 h in total

Connection method: Series connection for all contacts

Test voltage: 5 V d.c.

Test current: 100 mA d.c.

Note) [Electrical discontinuity] is checked continuously during the test.

5.3 Test equipment

Test equipment	Model	Manufacturer
Vibration machine	F-300BM/A-E78	Emic
Digital oscilloscope	9362C	Lecroy
Variable constant dc volt and ampere generator	PAC35-3	Kikusui Electronics

5.4 Test results

Appearance, Construction:

Specimen A ... No defect.
Specimen B ... No defect.
Specimen C ... No defect.
Specimen D ... No defect.

Electrical discontinuity:

Specimen A ... No electrical discontinuity of 1 μs or more.
Specimen B ... No electrical discontinuity of 1 μs or more.
Specimen C ... No electrical discontinuity of 1 μs or more.
Specimen D ... No electrical discontinuity of 1 μs or more.

6. Shock

6.1 Requirements

Appearance, Construction: No defect such as breakage or crack on the component.

Electrical discontinuity: No electrical discontinuity of 1 μs or more.

6.2 Test method

The test is conducted according to the conditions specified in table below:

Acceleration	490 m/s^2
Duration	11 ms
Wave form	Half-sine wave
Number of shocks	3 both axial directions, 3 times each, 18 times in total

Connection method: Series connection for all contacts

Test voltage: 5 V d.c.

Test current: 100 mA d.c.

Note) [Electrical discontinuity] is checked during the test.

6.3 Test equipment

Test equipment	Model	Manufacturer
Shock testing machine	PEP-250MR	Itoh Seiki
Oscilloscope	DLM2022	Yokogawa Electric
Variable constant dc volt and ampere generator	PAB18-3A	Kikusui Electronics

6.4 Test results

Appearance, Construction:

Specimen A ... No defect.
Specimen B ... No defect.
Specimen C ... No defect.
Specimen D ... No defect.

Electrical discontinuity:

Specimen A ... No electrical discontinuity of 1 μs or more.
Specimen B ... No electrical discontinuity of 1 μs or more.
Specimen C ... No electrical discontinuity of 1 μs or more.
Specimen D ... No electrical discontinuity of 1 μs or more.

7. Change of temperature

7.1 Requirements

Appearance, Construction: No defect such as breakage or crack on the component.
Contact resistance: 50 mΩ or less.
Insulation resistance 500 MΩ or more.
Voltage proof: No defect such as dielectric breakdown or flashover.

7.2 Test method

The test is conducted according to the conditions specified in table below:

Step	1	2	3	4
Temperature (°C)	-65 ± 3	Ambient temperature	125 ± 2	Ambient temperature
Duration (min)	30	10 to 15	30	10 to 15

Number of cycles: 5 cycles are conducted with the above condition as 1 cycle.
Mated/Unmated: Mated
Recovery: After the test, let the specimens rest in ambient temperature for 1 h to 2 h.

7.3 Test equipment

Test equipment	Model	Manufacturer
Constant low temperature chamber	MC-711P	Espec
Constant high temperature chamber	ST-120B1	Espec

7.4 Test results

Appearance, Construction:
Specimen A ... No defect.
Specimen B ... No defect.
Specimen C ... No defect.
Specimen D ... No defect.
Contact resistance: See page 5 for graph and result data.
Insulation resistance: See page 8 for result data.
Voltage proof:
Specimen A ... No defect.
Specimen B ... No defect.
Specimen C ... No defect.
Specimen D ... No defect.

8. Dry heat

8.1 Requirements

Appearance, Construction: No defect such as breakage or crack on the component.

Contact resistance: 50 mΩ or less.

Insulation resistance 500 MΩ or more.

Voltage proof: No defect such as dielectric breakdown or flashover.

8.2 Test method

The test is conducted according to the conditions specified in table below:

Temperature	85 °C ± 2 °C
Duration	96 h

Mated/Unmated: Mated.

Recovery: After the test, let the specimens rest in ambient temperature for 1 h to 2 h.

8.3 Test equipment

Test equipment	Model	Manufacturer
Constant high temperature chamber	DNE610	Yamato Scientific

8.4 Test results

Appearance, Construction:

Specimen A ... No defect.
Specimen B ... No defect.
Specimen C ... No defect.
Specimen D ... No defect.

Contact resistance: See page 5 for graph and result data.

Insulation resistance: See page 8 for result data.

Voltage proof:

Specimen A ... No defect.
Specimen B ... No defect.
Specimen C ... No defect.
Specimen D ... No defect.

9. Cold

9.1 Requirements

Appearance, Construction:	No defect such as breakage or crack on the component.
Contact resistance:	50 mΩ or less.
Insulation resistance	500 MΩ or more.
Voltage proof:	No defect such as dielectric breakdown or flashover.

9.2 Test method

The test is conducted according to the conditions specified in table below:

Temperature	-55 °C ± 3 °C
Duration	96 h

Mated/Unmated: Mated.

Recovery: After the test, let the specimens rest in ambient temperature for 1 h to 2 h.

9.3 Test equipment

Test equipment	Model	Manufacturer
Constant low temperature chamber	MC-711P	Espec

9.4 Test results

Appearance, Construction:

Specimen A ... No defect.
Specimen B ... No defect.
Specimen C ... No defect.
Specimen D ... No defect.

Contact resistance: See page 5 for graph and result data.

Insulation resistance: See page 8 for result data.

Voltage proof:

Specimen A ... No defect.
Specimen B ... No defect.
Specimen C ... No defect.
Specimen D ... No defect.

10. Damp heat

10.1 Requirements

Appearance, Construction: No defect such as breakage, crack or corrosion which impairs the function of the component.

Contact resistance: 50 mΩ or less.

Insulation resistance 500 MΩ or more.

Voltage proof: No defect such as dielectric breakdown or flashover.

10.2 Test method

The test is conducted according to the conditions specified in table below:

Temperature	40 °C ± 2 °C
Humidity	90 %RH to 95 %RH
Duration	96 h

Mated/Unmated: Mated.

Recovery: After the test, let the specimens rest in ambient temperature for 1 h to 2 h.

10.3 Test equipment

Test equipment	Model	Manufacturer
Constant temperature and humidity chamber	LH-113	Espec

10.4 Test results

Appearance, Construction:

Specimen A ... No defect.
Specimen B ... No defect.
Specimen C ... No defect.
Specimen D ... No defect.

Contact resistance: See page 6 for graph and result data.

Insulation resistance: See page 8 for result data.

Voltage proof:

Specimen A ... No defect.
Specimen B ... No defect.
Specimen C ... No defect.
Specimen D ... No defect.

11. Corrosion, salt mist

11.1 Requirements

Appearance, Construction: No excessive corrosion.

Contact resistance: 50 mΩ or less.

11.2 Test method

The test is conducted according to the conditions specified in table below:

Concentration	5 wt% ± 1 wt%
Temperature	35 °C ± 2 °C
pH value	6.5 to 7.2
Duration	48 h

Mated/Unmated: Mated.

Recovery: After unmated, the specimens are rinsed with water and let them rest in ambient temperature for 24 h.

11.3 Test equipment

Test equipment	Model	Manufacturer
Salt mist tester	STP-90	Suga Test Instrument

11.4 Test results

Appearance, Construction:

Specimen A ... No excessive corrosion was found.

Specimen B ... No excessive corrosion was found.

Specimen C ... No excessive corrosion was found.

Specimen D ... No excessive corrosion was found.

Contact resistance: See page 6 for graph and result data.

12. Mechanical operation, 50 times

12.1 Requirements

Appearance, Construction: No defect such as remarkable abrasion, breakage or crack on the component.

Contact resistance: 50 mΩ or less.

12.2 Test method

50 times of insertions and withdrawals are conducted at a rate of 600 times/h or less.

12.3 Test results

Appearance, Construction:

Specimen A ... No defect.
Specimen B ... No defect.
Specimen C ... No defect.
Specimen D ... No defect.

Contact resistance: See page 7 for graph and result data.

13. Corrosion, SO_2 gas

13.1 Requirements

Appearance, Construction: No excessive corrosion.

Contact resistance: 50 mΩ or less.

13.2 Test method

The test is conducted according to the conditions specified in table below:

SO_2 gas concentration	25 ppm ± 5 ppm
Temperature	25 °C ± 2 °C
Humidity	75 %RH ± 5 %RH
Duration	96 h

Mated/Unmated: Mated.

Recovery: After the test, let the specimens rest in ambient temperature for 1 h to 2 h.

13.3 Test equipment

Test equipment	Model	Manufacturer
Gas corrosion tester	GH-180MT	Yamazaki Seiki

13.4 Test results

Appearance, Construction:

Specimen A ... No excessive corrosion was found.

Specimen B ... No excessive corrosion was found.

Specimen C ... No excessive corrosion was found.

Specimen D ... No excessive corrosion was found.

Contact resistance: See page 7 for graph and result data.