NUMBER	TYPE	
GS-12-1444	PRODUCT SPECIFICATION	Amphenol FCi

TITLE	PAGE	REVISION
0.8mm WIRE TO BOARD	1 of 9	A
	AUTHORIZED BY: Song.Yang	DATE: 11/15/2017
	CLASSIFICATION: UNRESTRICTED	

Scope: This product specification covers the Pitch 0.80mm Disconnectable Insulation Displacement/Wire To Board Connector series.

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1. Product Name and Part Number

Product Name	Part Number	Material and Finish
Housing / Plug	10145492 / 10169000	Insulator : LCP UL 94V-0, Color Black
	10145493 / 10169001	Copper Alloy, Tin Plated or Gold Flash, over Nickel; Copper Alloy, Tin Plated or 30u" Au, over Nickel
Wafer / Receptacle	10144042 / 10168999	Insulator : LCP UL 94V-0, Color Cream
		Contact : Copper Alloy, Tin or Gold Plated, over Nickel ; Copper Alloy, Tin or 30u" Au, over Nickel
		Solder Tab : Copper Alloy, Tin or Gold Plated, overNickel
	10144041	Insulator : LCP UL 94V-0, Color Black
		Contact : Copper Alloy, Tin or Gold Plated, over Nickel
		Solder Tab : Copper Alloy, Tin or Gold Plated, overNickel

Note: This specification include all special parts of this series.

2. Ratings and Applicable Wires

Item	Standard		
Rated Voltage	30V AC/DC		
	10144041/ 10144042 mating 10144039/10144040		10144041/ 10144042 mating 10145492 10169000 / 10169001 mating 10168999
Rated Current	0.5A AC/DC	0.2A AC/DC	1.0A AC/DC
Applicable Wire	AWG #32, #34	AWG #36	AWG #28
Insulation Outer Diameter	Ø0.28~0.40mm		Ø0.50~0.60mm
Operating Temperature Range	-25℃ ~ +85℃ *including 30℃ terminal temperature at rated current*		Not freeze in low temperature
Non operating Temperature Range	-25℃ ~ +85℃(products only)		

3. Electrical Performance

Item		Test Condition	Requirement
3-1	Contact Resistance (Low Level)	Measure it with low voltage less than 20mV and 10mA. Test Method : EIA-364-23	10144041/10144042 mating 10144039/10144040: 20mΩ Max.
			10144041/10144042 mating 10145492: 30mΩ Max. 10168999 mating 10169000/10169001: 30mΩ Max.

3-2	Insulation Resistance	Apply 250V DC between adjacent contacts and measure its resistance within 1 minute. Test Method: EIA-364-21	100MΩ Min.
3-3	Dielectric Withstanding Voltage	Apply AC 200Vr.m.s between adjacent contact measure its resistance within 1 minute. Test Metho EIA-364-20	No breakdown.
3-4	Temperature Rise	Apply specified current to contacts connected in series. Measure change of temperature on contact using thermocouples or 4 hours. Test Method : EIA-364-70B Conditions 1 Method 1	Temperature rise value: 30℃ Max.

Note: The temperature rise test part is plastic insulation surface which nearby the connecting point.

4. Mechanical Performance

Item		Test Condition	Requirement
4-1	Mating Force	Measure force necessary to mate between the counterpart connectors. Testing speed: 25±3mm / minute. Testing Method: EIA-364-13	Refer to paragraph 7
4-2	Un-mating Force	Measure force necessary to unmate between the counterpart connectors. Testing speed: 25±3mm / minute. Testing Method: EIA-364-13	Refer to paragraph 7
4-3	Contact Retention	Measure the contact retention with tensile strength tester. Testing speed: 25±3mm / minute. Testing Method: EIA-364-05	0.30kgf (Min.)
4-4	Wire Retention (10144041/10144042 mating 10144039/10144040)	Pulling load shall be applied to a correctly terminated wire in parallel and perpendicular directions.	Refer to paragraph 8

		The load to pull the wire out of the socket or break the wire shall be measured. Testing speed: 25±3mm / minute.				
4-5	Crimp Retention (10144041/10144042 mating 10145492)	Measurement of tensile strength at conductor crimp of socket contact using tensile tester. (No crimp at covered part) Testing speed : 25±3mm / minute. Test Method : EIA-364-08	Wire Size (AWG)	#28	#30	#32
			Retention (kgf)	0.40 (Min.)	0.35 (Min.)	0.30 (Min.)

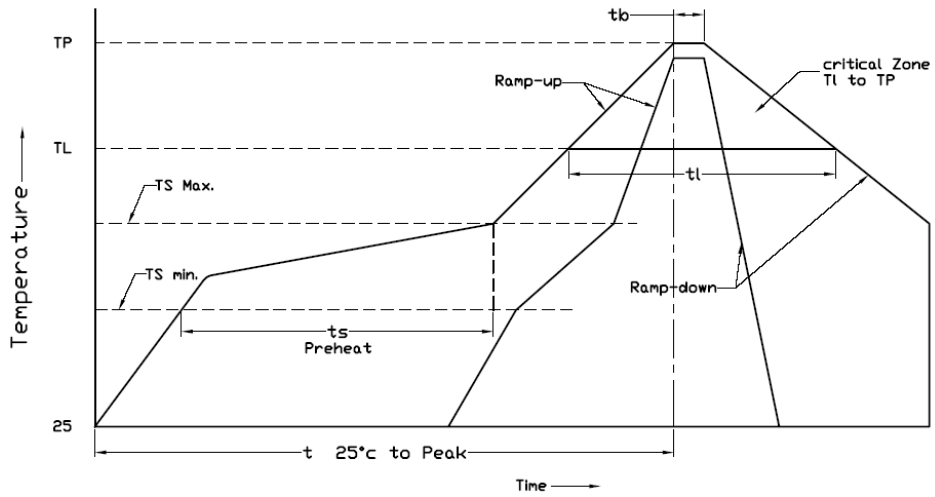
5. Environmental Performance

Item		Test Condition	Requirement
5-1	Durability	Mate and Unmate specimens for 30 cycles. Test Method: EIA-364-09	Contact Resistance: 10144041/10144042 mating 10144039/10144040 : 40mΩ Max. 10144041/10144042 mating 10145492: 50mΩ Max. 10169000 / 10169001 mating 10168999: 50mΩ Max.
5-2	Vibration	Frequency: 10-55-10 Hz / minute. Amplitude: 1.52mm. Direction: Each of X, Y, Z-axis directions. *Each axis shall be at right angles to others. Period: 2 hours for each direction. est Method : EIA-364-28	No electrical discontinuity more than 1 μs. No damage.
5-3	Shock	Max. G: 50G Duration: 11 msec. 3 strokes in each X, Y, Z axials. Test Method: EIA-364-27	

5-4	Heat Resistance	Mated connector shall be placed in an over for 96 hours at +85±2 ℃. Test Method: EIA-364-17	No damage. Insulation Resistance: 100MΩ Min. Voltage proof: 100V r.m.s. , 1minute. No breakdown. Contact Resistance: 10144041/10144042 mating 10144039/10144040 : 40mΩ Max. 10144041/10144042 mating 10145492: 50mΩ Max. 10169000 / 10169001 mating 10168999: 50mΩ Max.
5-5	Cold Resistance	Mated connector shall be placed in an over for 96 hours at -40±2℃. Test Method: EIA-364-17	
5-6	Humidity	Mated connector shall be placed in a humidity chamber on the following conditions. Temperature: 60±2℃. Relative Humidity: 90-95%. Period: 240 hours. Test Method: EIA-364-31	
5-7	Tempe ature Cycling	Mated connector shall be set to temperature cycling for 10 cycles of which 1 cycle consist of a) -55℃~ 30 minute. b) +85℃~ 30 minute. Test Method: EIA-364-32	
5-8	Salt Spray	Mated connector shall be placed on a salt spray chamber on the following conditions. Salt Solution Density : 5±1%. Temperature : 35±2℃. Period : Terminal or contact (Pressing before plated for 48 hours); Terminal or contact	Contact Resistance: 10144041/10144042 mating 10144039/10144040 : 40mΩ Max. 10144041/10144042 mating 10145492: 50mΩ Max. 10169000 / 10169001 mating 10168999: 50mΩ Max.

		(Pressing after plated for 8 hours); Test Method : EIA-364-26	
5-9	Solder ability	After dipping in the flux for 5 to 10 seconds, dip in Sn-Ag-Cu solder (Sn 96.5%) of 245±2℃for 3±0.5 seconds. Test Method: EIA-364-52	Tin plating: Solder able area shall have minimum of 95% solder coverage . Gold plating: Solder able area shall have minimum of 75% solder coverage .
5-10	Resistance to Solder Heat	A）Wave Solder Process Dip connector terminal tails in solder； Solder Duration：3-5 seconds Solder Temperature 260℃ Max. B) According to the attached reflow condition. When using Nylon 9T or LCP Peak Temp. : 260℃ Max. 10sec Max.	No damage to insulator material.

6. Reflow Temperature Profile For Receptacle



Profile feature	Pb-free Assembly Small Body
Average ramp-up rate (TL to TP)	3℃ / second Max.

Preheat - Temperature Min. (TS Min.) - Temperature Max. (TS Max.) - Time (Min. to Max.) (ts)	 150℃ 180℃ 90±30 seconds
TS Max. to TL - Ramp-up rate	3℃ / second Max.
Preheat - Temperature Min. (TL) - Time (tl)	 230℃ 30±10 seconds
Peak temperature (TP)	260 +0/-5℃
Time within 5℃ of actual Peak Temperature (tb)	20-40 seconds
Ramp-down Rate	6℃ / second Max.
Time 25℃ to Peak Temperature	8 minutes Max.

Note : All temperature refer to topside of the package, measured on the package body surface.

7. Mating / Un-mating Force:

10144041/10144042 mating 10144039/10144040: [Unit : kgf]

Circuits	Mating Force (Max.)	Un-Mating Force (Min.)
02	1.20	0.10
03	1.40	0.15
04	1.60	0.20
05	1.80	0.25
06	2.00	0.30
07	2.20	0.35
08	2.40	0.40
09	2.60	0.45
10	2.80	0.50
12	3.20	0.60
14	3.60	0.70
15	3.80	0.75
16	4.00	0.80
17	4.20	0.85
20	4.80	1.00
22	5.20	1.10

24	5.60	1.20

10144041/10144042 mating 10145492: [Unit : kgf]
10169000 / 10169001 mating10168999:

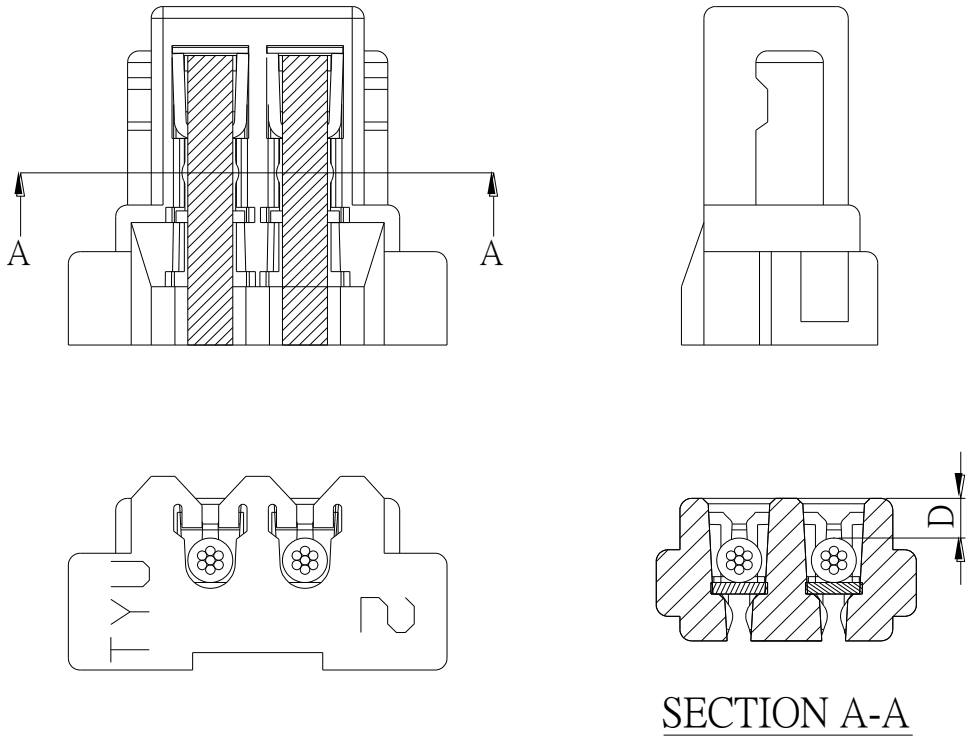
Circuits	At Initial	
	Mating Force (Max.)	Un-Mating Force (Min.)
02	1.30	0.10
03	1.45	0.10
04	1.60	0.15
05	1.75	0.15
06	1.90	0.20
07	2.05	0.20
08	2.20	0.25
10	2.50	0.30
12	2.80	0.35
14	3.10	0.45
15	3.25	0.45

8. Wire Retention Force

Wire Size	Insulation O.D.	Material of Insulation	Parallel	Perpendicular
AWG #32 / 7C	Ø0.38±0.02mm	PVC	0.55kgf (Min.)	0.30kgf (Min.)
		Halogen Free (FEP)	0.55kgf (Min.)	0.12kgf (Min.)
AWG #34 / 7C	Ø0.38±0.02mm	PVC	0.55kgf (Min.)	0.30kgf (Min.)
		Halogen Free (FEP)	0.55kgf (Min.)	0.12kgf (Min.)
AWG #34 / 7C	Ø0.33±0.01mm	PVC	0.30kgf (Min.)	0.12kgf (Min.)
		Halogen Free (FEP)	0.30kgf (Min.)	0.12kgf (Min.)
AWG #36 / 7C	Ø0.38±0.02mm	PVC	0.40kgf (Min.)	0.10kgf (Min.)
		Halogen Free (FEP)	0.40kgf (Min.)	0.10kgf (Min.)
AWG #36 / 7C	Ø0.29±0.015mm	Halogen Free (FEP)	0.25kgf (Min.)	0.10kgf (Min.)
Note : If need retention force more that must use the UV glue.				

9. Termination Depth (REF.)

Drawing



Applicable Wire		Depth Dimension"D"
Insulation O.D.	Ø0.38mm	0.35~0.40mm
	Ø0.33mm	0.38~0.43mm
	Ø0.29mm	0.40~0.46mm

Note : Please refer this depth dimensions "D".
But it's need to process the actual situation of the main.

REVISION RECORD

Rev	Page	Description	EC#	Date
A		New released		2023/03/08