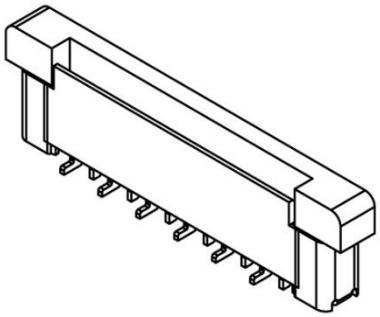
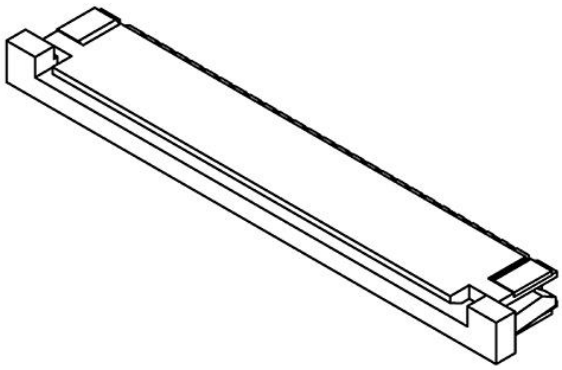
PRODUCT SPECIFICATION

Part Number	FFC3XXX		**Rev**	C2		**Date**	22/05/24
Product Description	1.0mm Pitch ZIF FPC					**Page**	1
Doc Number	1.0mm FFC Spec	**Prepared**	**YR**	**Checked**	**VJ**	**Approved**	**PH**

Top Entry



Side Entry



PRODUCT SPECIFICATION

Part Number	FFC3XXX			**Rev**	C2	**Date**	22/05/24
Product Description	1.0mm Pitch ZIF FPC					**Page**	2
Doc Number	1.0mm FFC Spec	**Prepared**	**YR**	**Checked**	**VJ**	**Approved**	**PH**

1.0 SCOPE

This specification covers performance, tests and quality requirements for 1.0mm Pitch ZIF FFC/FPC Connectors.

2.0 APPLICABLE DOCUMENTS

EIA-364 Electronics Industries Association

3.0 REQUIREMENTS

3.1 Design and Construction

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

3.2 Materials and Finish

3.2.1 Housing: Specified on product drawing
3.2.2 Actuator: Specified on product drawing
3.2.3 Contact: High performance copper alloy (phosphor bronze)
Finish: (a) Finish: see ordering information
(b) Under-plate: Nickel-plated all over
3.2.4 Fitting Nail: Brass, Tin-plated overall

3.3 Ratings

3.3.1 Voltage rating: Specified on product drawing
3.3.2 Current rating: Specified on product drawing
3.3.3 Operating Temperature Range: -25°C to +85°C or better

4.0 PERFORMANCE

Item	Test Condition	Requirement
Examination of Product	Visual, dimensional and functional per applicable quality inspection plan.	Product shall meet requirements of applicable product drawing and specification.

4.1 Electrical Performance

Item	Test Condition	Requirement
Low-signal Level Contact Resistance	Mate connectors, measure by dry circuit, 20mV Max., 100mA Max., in accordance with EIA-364-23.	Specified on product drawing
Insulation Resistance	Unmated connectors, apply 250 V DC min. between adjacent terminals, in accordance with EIA-364-21.	100 M Ω Min.
Dielectric Withstanding Voltage	Test between adjacent contacts of unmated connectors, in accordance with EIA-364-20.	250 VAC Min. at sea level for 1 minute. No discharge, flashover or breakdown. Current leakage: 0.5 mA max.
Temperature Rise	Mate connector: measure the temperature rise at rated current after: 0.5 A/Power contact. The temperature rise above ambient shall not exceed 30°C The ambient condition is still air at 25°C, in accordance with EIA-364-70, Method 2.	30°C Max. Change allowed

4.2 Mechanical Performance

Item	Test Condition	Requirement
Durability	The sample should be mounted in the tester and fully mated and unmated the number of cycles specified at the rate of 10 ±3mm/min, in accordance with EIA-364-09.	20 Cycles Min.
FPC Retention Force	Insert the actuator, pull the FPC at the speed rate of 10 ±3 mm/min.	Refer to FPC withdrawal force Refer to paragraph 7

PRODUCT SPECIFICATION

Item	Test Condition	Requirement
Repeated Actuator Insertion/Withdrawal	Insert and withdraw actuator up to 20 cycles at the speed rate of less than 10 cycles/minute.	Appearance: No Damage LLCR: As specified on product drawing
Terminal/Housing Retention Force	Apply axial pull out force at the speed rate of 10±3 mm/minute. On the terminal assembled in the housing.	0.15kgf Min.
Fitting Nail/Housing Retention Force	Apply axial pull out force at the speed rate of 10±3 mm/minute. On the fitting nail assembled in the housing.	0.01kgf Min.
Vibration	The electrical load condition shall be 100 mA maximum for all contacts. Subject to a simple harmonic motion having amplitude of 0.76mm (1.52mm maximum total excursion) in frequency between the limits of 10 and 55 Hz. The entire frequency range, from 10 to 55 Hz and return to 10 Hz, shall be traversed in approximately 1 minute. This motion shall be applied for 2 hours in each of three mutually perpendicular directions. In accordance with EIA-364-28, Condition I	Appearance: No Damage LLCR: 60mΩ Max. Discontinuity: 1 u sec Max.
Shock (Mechanical)	Subject mated connectors to 50 G's (peak value) half-sine shock pulses of 11 milliseconds duration. Three shocks in each direction shall be applied along the three mutually perpendicular axes of the test specimen (18 shocks). The electrical load condition shall be 100mA maximum for all contacts. In accordance with EIA-364-27, test condition A	Appearance: No Damage LLCR: 60mΩ Max. Discontinuity: 1 u sec Max.

PRODUCT SPECIFICATION

Part Number	FFC3XXX			**Rev**	C2	**Date**	22/05/24
Product Description	1.0mm Pitch ZIF FPC					**Page**	5
Doc Number	1.0mm FFC Spec	**Prepared**	**YR**	**Checked**	**VJ**	**Approved**	**PH**

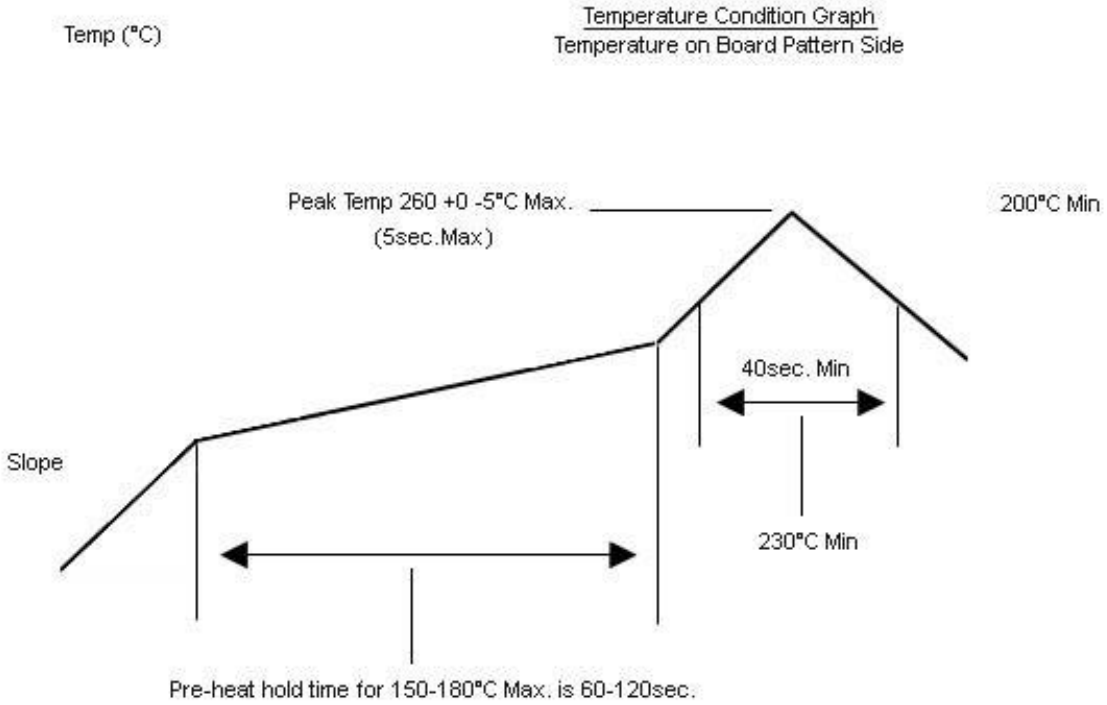
4.3 Environmental Performance

Item	Test Condition	Requirement
Resistance to Reflow Soldering Heat	Pre Heat: 150°C~180℃, 60~90sec. Heat: 230°C Min., 40sec Min. Peak Temp.: 260°C Max, 10sec Max.	No Damage
Resistance to Hand Soldering Heat	Soldering iron: 350±10°C Duration: 3~4 sec.	No Damage
Thermal Shock	Mate module and subject to follow condition for 5 cycles. 1 cycle: -55 +0/-3°C, 30 minutes +85 +3/-0°C, 30 minutes In accordance with EIA-364-32, test condition I	Appearance: No Damage LLCR: 60mΩ Max.
Humidity	Mated Connector 40°C, 90~95% RH, Refer to Method II. In accordance with EIA-364-31, test condition A	Appearance: No Damage LLCR: 60 mΩ Max. Insulation Resistance: 50MΩ Min. Dielectric Withstanding Voltage: No discharge, flashover or breakdown. Current leakage: 0.5 mA max.
Temperature Life	Subject mated connectors to temperature life at 85°C for 96 hours. Measure Signal. In accordance with EIA-364-17, test condition A	Appearance: No Damage LLCR: 60mΩ Max.
SO2 Gas	Mate applicable FPC and expose them to the following SO2 gas atmosphere. Temperature: 40±2°C Gas Density: 50±5 ppm Duration: 24 hours	Appearance: No Damage LLCR: 60mΩ Max.
Salt Spray	Subject mated/unmated connectors to 5% salt-solution concentration, 35°C for 48 hours. In accordance with EIA-364-26,test condition B	Appearance: No Damage LLCR: 60mΩ Max.
Solderability	Subject the test area of contacts into the flux for 5-10 sec. And then into solder bath, Temperature at 245 ±5°C, for 4-5 sec. In accordance with EIA-364-52	Solderable area shall have minimum of 95% solder coverage.
Halogen Free	Test report available on request	See product drawing

Note. Flowing Mixed Gas shell be conduct by customer request.

5.0 INFRA RED REFLOW CONDITION

5.1 Lead-Free Process: Duration = 2 times



PRODUCT SPECIFICATION

Part Number	FFC3XXX			Rev	C2	Date	22/05/24
Product Description	1.0mm Pitch ZIF FPC					Page	7
Doc Number	1.0mm FFC Spec	Prepared	YR	Checked	VJ	Approved	PH

6.0 PRODUCT QUALIFICATION AND TEST SEQUENCE

Test or Examination	Test Group											
	1	2	3	4	5	6	7	8	9	10	11	12
	Test Sequence											
Examination of Product	1,3	1,7	1,6	1,5	1,9	1,5	1,3	1,4	1,3	1,6	1,3	1,3
Low-signal Level Contact Resistance		2,6	2,5	2,4	2,8	2,4		2,5				
Insulation Resistance					3,7							
Dielectric Withstanding Voltage					4,6							
Temperature Rise	2											
Durability		4										
Vibration			3									
Shock (Mechanical)			4									
Thermal Shock				3								
Humidity					5							
Temperature Life						3						
SO_2 Gas							2					
Salt Spray								3				
Solderability									2			
Repeated Actuator Insertion/Withdrawal										2		
FPC Retention Force										3		
Terminal / Housing Retention Force										4		
Fitting Nail / Housing Retention Force										5		
Resistance to Soldering Heat											2	
Resistance to Hand Soldering Heat												2
Sample Size	2	5	5	5	5	5	5	5	5	5	5	5

PRODUCT SPECIFICATION

Part Number	FFC3XXX			**Rev**	C2	**Date**	22/05/24
Product Description	1.0mm Pitch ZIF FPC					**Page**	8
Doc Number	1.0mm FFC Spec	**Prepared**	**YR**	**Checked**	**VJ**	**Approved**	**PH**

7.0 FPC WITHDRAWAL FORCE

No. Of Ckt.	Withdrawal Force (Min)	No. Of Ckt.	Withdrawal Force (Min)
4	0.3Kgf	29	1.0Kgf
5		30	
6		31	1.5Kgf
7		32	
8		33	
9		34	
10	0.5Kgf	35	
11		36	
12		37	
13		38	
14		39	
15		40	
16		41	
17		42	
18		43	
19		44	
20	1.0Kgf	45	
21		46	
22		47	
23		48	
24		49	
25		50	
26		51	
27		52	
28		53	

PRODUCT SPECIFICATION

Part Number	FFC3XXX			**Rev**	C2	**Date**	22/05/24
Product Description	1.0mm Pitch ZIF FPC					**Page**	9
Doc Number	1.0mm FFC Spec	**Prepared**	**YR**	**Checked**	**VJ**	**Approved**	**PH**

Revision Details:

Revision	Information	Page	Release Date
A	Specification Released	-	16/06/2010
B	Leaded temperature profile removed	5 & 6	26/11/2015
C	Change LLCR specification from 20mΩ max. to 40mΩ max.	2	11/09/2019
C1	Update thermal shock test condition and requirement	4	10/08/2023
C2	Various updates	All	22/05/2024