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**400 Form-Factor Pluggable (CDFP) Receptacle Connectors**

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**1. SCOPE**

## 1.1. Content

This specification covers performance, tests, and quality requirements for TE Connectivity (TE) CDFP receptacle connectors. These receptacle connectors are printed circuit (pc) board mounted and designed for intra-building use only.

## 1.2. Qualification

When tests are performed on the subject product line, procedures specified in Figure 1 shall be used. All inspections shall be performed using the applicable inspection plan and product drawing.

**2. APPLICABLE DOCUMENTS**

The following documents form a part of this specification to the extent specified herein. Unless otherwise specified, the latest edition of the document applies. 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. TE Documents

<a href="#">109-197</a>	Test Specification: TE Test Specifications versus EIA and IEC Test Methods
<a href="#">114-32114</a>	Application Specification: CDFP Connectors
<a href="#">501-134040</a>	Qualification Test Report: CDFP Receptacle Connectors

## 2.2. Industry Documents

EIA-364:	Electrical Connector/Socket Test Procedures Including Environmental Classifications
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**3. REQUIREMENTS**

## 3.1. Design / Construction / Materials

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

## 3.2. Ratings

Voltage: 120 volts AC  
Current: Signal application only  
Temperature: -40 to 85°C

### 3.5. Test Requirements and Procedures Summary

Unless otherwise specified, all tests shall be performed at ambient environmental conditions.

Test Description	Requirement	Procedure
Initial Examination of Product	Meets requirements of product drawing and 114-32114.	EIA-364-18 Visual and dimensional (C of C) inspection per product drawing.
Final Examination of Product	Meets visual requirements.	EIA-364-18 Visual inspection.
<b>Electrical</b>		
Low Level Contact Resistance (LLCR)	80 milliohms maximum initial. $\Delta R$ 20 milliohms maximum for signal contacts.	EIA-364-23 Subject specimens to 100 milliamperes maximum and 20 millivolts maximum open circuit voltage.
Insulation Resistance	1000 megohms minimum	EIA-364-21 500 volts DC, 2-minute hold. Test between adjacent contacts.
Withstanding Voltage	One-minute hold with no breakdown or flashover.	EIA-364-20, Condition I 300 volts AC at sea level. Test between adjacent contacts, signal to ground as applicable.
<b>Mechanical</b>		
Random Vibration	No discontinuities of 1 microsecond or longer duration. See Note.	EIA-364-28, Test Condition VII, Condition Letter D Subject mated specimens to 3.10 Gs rms between 20 to 500 Hz. Fifteen minutes in each of 3 mutually perpendicular planes.
Mechanical Shock	No discontinuities of 1 microsecond or longer duration. See Note.	EIA-364-27, Method H Subject mated specimens to 30 Gs half-sine shock pulses of 11 milliseconds duration. Three shocks in each direction applied along 3 mutually perpendicular planes, 18 total shocks.
Durability	See Note.	EIA-364-9 Manually mate and unmate specimens (as indicated in Figure 2) at a maximum rate of 300 cycles per hour with latches disengaged and 2 transceivers per test sequence.
Mating Force	150 N [33.7 lbf] maximum	EIA-364-13 Measure force necessary to mate specimens with latches disengaged at a maximum rate of 6.35 mm [.25 in.] per minute.
Unmating Force	75 N [16.9 lbf] maximum	EIA-364-13 Measure force necessary to unmate specimens with latches disengaged at a maximum rate of 6.35 mm [.25 in.] per minute.

Figure 1 Cont.

Cage Retention	114 N [25.6 lbf]	Apply force to complete cage assembly in vertical direction.
Retention, Axial	90 N [20.2 lbf] minimum No functional damage to mated pair without unmating.	Apply axial load to mated specimens with latch engaged.
Retention, Perpendicular	45 N [10.1 lbf] minimum No functional damage to mated pair without unmating.	Apply perpendicular load in all 4 directions to mated specimens with latch engaged.
Latch Strength	100 N [22.5 lbf] minimum No functional damage to latch below the minimum. Separation of mated pair is acceptable.	EIA-364-98 Apply axial load to specimens with latch engaged.
Press-Fit Insertion Force	24.5 N [5.5 lbf] maximum per pin	Measure force necessary to press specimens onto pc board into proper seating location.
Press-Fit Extraction Force	93.4 N [21 lbf] minimum	Measure force necessary to extract specimens from pc board with hardware removed.

**Environmental**

Thermal Shock	See note.	EIA-364-32, Test Condition I Subject mated specimens to 10 cycles between -55°C and 85°C with 30-minute dwells at temperature extremes and 1-minute transition between temperatures.
Humidity/Temperature Cycling	See note.	EIA-364-31, Method III. Subject mated specimens to 10 cycles (10 days) between 25°C and 65°C at 80 to 100% RH.
Temperature Life	See note.	EIA-364-17, Method A, Test Condition 3, Test Time Condition C. Subject mated specimens to 85°C for 500 hours.
Mixed Flowing Gas	See note.	EIA-364-65, Class IIA (4 gas). Subject specimens to environmental Class IIA for 20 days, 10 days unmated followed by 10 days mated.
Thermal Disturbance	See note.	Subject mated and board-mounted specimens to 10 temperature cycles between 15±3° C and 85±3°C as measured on the part. Ramp times shall be a minimum of 2°C per minute with dwell times long enough to ensure contacts reach the temperature extremes (5 minutes minimum). Humidity not controlled.



**NOTE**

*Shall meet visual requirements, show no physical damage, and meet requirements of additional tests as specified in the product qualification and requalification test sequence shown in Figure 2.*

**Figure 1 end**

3.6. Product Qualification and Re-Qualification Test Sequence

TEST OR EXAMINATION	TEST GROUP (a)					
	1	2	3	4	5	6
	TEST SEQUENCE (b)					
Initial Examination of Product	1	1	1	1	1	1
LLCR	4(e),6(e), 8(f),11(e)	2(e),5(e)	2(e),5(e)			
Insulation Resistance				2,6		
Withstanding Voltage				3,7		
Random Vibration	9					
Mechanical Shock	10					
Durability, 100 Cycles Total	7(c)					
Durability, Module, 50 Cycles						6(d),11(d)
Mating Force	2,13					
Unmating Force	3,12					
Retention, Axial						2,7,12
Retention, Perpendicular						3,8,13
Latch Strength						4,9,14
Press-Fit Insertion Force					2	
Press-Fit Extraction Force					3	
Thermal Shock		3(g)		4		
Humidity/Temperature Cycling		4		5		
Temperature Life	5					
Mixed Flowing Gas			3(e)			
Thermal Disturbance			4			
Final Examination of Product	14	6	6	8	4	15
Cage Retention						5,10

- a. Specimens shall be prepared in accordance with applicable instruction sheets and shall be selected at random from current production. Test groups 1 through 5 shall consist of 4 specimens each with 8 transceivers for test group 1 durability testing. Test group 6 shall consist of 4 specimens each.
- b. Numbers indicate sequence in which tests are performed.
- c. Mate and unmate specimens for 40 cycles, measure LLCR (baseline), change transceivers and mate and unmate for an additional 50 cycles.
- d. Precondition specimens with 25 durability cycles with latches engaged.
- e. Precondition specimens with 5 durability cycles with latches disengaged.
- f. Measure using original transceiver.
- g. Precondition specimens with 25 durability cycles with latches disengaged

**Figure 2**