OSFP/OSFP-RHS Single Port and Ganged Cage Assemblies

1. SCOPE

1.1. Content

This specification covers performance, tests and quality requirements for the TE Connectivity (TE) OSFP Octal small form factor Pluggable (OSFP) cage assemblies.

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.

1.3. Qualification Test Results

Successful qualification testing on the subject product line was completed on 25 May 2018. The Qualification Test Report number is 501-134082. This documentation is available from Engineering Practices and Standards (EPS).

2. APPLICABLE DOCUMENTS AND FORMS

The following documents and forms constitute a part of this specification to the extent specified herein. Unless otherwise indicated, the latest edition of the document applies.

2.1. TE Documents

- 114-130009: Application Specification
- 501-134082: Qualification Test Report
- 501-160365: Qualification Test Report (Single port OSFP-RHS cage assemblies)

2.2. Industry Documents

- EIA-364: Electrical Connector/Socket Test Procedures Including Environmental Classifications

2.3. Reference Document

- 109-197 Test Specification (TE Test Specification vs EIA and IEC Test Methods)

3. REQUIREMENTS

3.1. Design and Construction

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

3.2. Ratings

Voltage	Current	Temperature
Voltage: 120 volts AC	Signal application only	-55°C to 85°C

| Indicates Change

3.3. 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.	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.
MECHANICAL		
Cage latch, axial retention	125 N [28.09 lbf] minimum. See Note.	EIA 364-98. Measure force necessary to remove OSFP module from cage assembly with latches enabled.
Durability	See Note.	EIA-364-9. Manually mate and unmate the OSFP module for 100 cycles with latches enabled.
Mating force, OSFP module to PCB connector and OSFP cage	40 N [8.99 lbf] maximum, OSFP cage without heat sink and clip. 55 N [12.36 lbf] maximum, OSFP-RHS cage with heat sink and clip. See Note.	EIA-364-13. Measure force necessary to mate specimens at a maximum rate of 12.7 mm [0.5 in] per minute.
Un-mating force, OSFP module to PCB connector and OSFP cage	30 N [6.74 lbf] maximum, OSFP cage without heat sink and clip. 45 N [10.12 lbf] maximum, OSFP-RHS cage with heat sink and clip. See Note.	EIA-364-13. Measure force necessary to un-mate specimens at a maximum rate of 12.7 mm [0.5 in] per minute with latches disabled.
Cage press fit insertion force	37.8 N [8.5 lbf] maximum average per pin. See Note.	EIA-364-5. Measure force necessary to push cage into the host board at a maximum rate of 12.7 mm [0.5 in] per minute.
Cage press fit retention force	8 N [1.80 lbf] minimum average per pin. See Note.	EIA-364-29. Measure force necessary to remove cage from the host board at a maximum rate of 12.7 mm [0.5 in] per minute.

Figure 1 cont.

TEST DESCRIPTION	REQUIREMENT	PROCEDURE
ENVIRONMENTAL		
Humidity-temperature cycling	See Note.	EIA-364-31. Subject mated specimens to 24 cycles between 25 ± 3°C at 80 ± 3% RH, and 65 ± 3°C at 50 ± 3% RH. Ramp time shall be 0.5 hour. Dwell times shall be 1 hour.
Temperature life	See Note.	EIA-364-17. Subject mated specimens to 105°C for 240 hours.
Thermal shock	See Note.	EIA-364-32, Method A, Test Condition I. Subject mated specimens to 5 cycles between -55° and 85°C with 30 minute dwells at temperature extremes and 1 minute transition between temperatures.
Heat sink downforce	36 N [8.09 lbf] maximum.	EIA-364-4. Measure force necessary which will be applied from the riding heat sink to an OSFP-RHS module at a maximum rate of 12.7 mm [0.5 in] per minute.
Solderability	Solderable areas shall have a minimum of 95% coverage.	JEDEC JESD22-B102D, Method 1 for lead-free solder using a “RA” type flux.

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

3.4. Product Qualification and Requalification Test Sequence

TEST OR EXAMINATION	TEST GROUP (a)								
	1	2	3	4	5 (d)	6 (d)	7 (c)	8 (c)	9
	Test Sequence (b)								
Initial examination of product	1	1	1	1	1	1	1	1	1
Cage latch, axial retention	6								
Durability	5				5	4	4		
Mating force, OSFP module to PCB connector and OSFP cage	3				2	2	2,5		
Un-mating force, OSFP module to PCB connector and OSFP cage	4				6	5	3,6		
Cage compliant pin insertion force	2	2	2	2					
Cage compliant pin retention force		3	4	4					
Humidity-temperature cycling			3		4				
Temperature life				3		3			
Thermal shock					3				
Heat sink downforce								2	
Solderability									2
Final examination of product	7	4	5	5	7	6	7	3	3

NOTE

(a) Specimens shall be prepared in accordance with applicable Instruction Sheets and shall be selected at random from current production. Each test group shall consist of 5 cage assemblies.

(b) Numbers indicate sequence in which tests are performed.

(c) Only for OSFP-RHS cage with riding heat sink samples.

(d) Only for OSFP-RHS cage with riding heat sink and thermal interface material (TIMs) samples.

4. QUALITY ASSURANCE PROVISIONS

4.1. Acceptance

Acceptance is based upon verification that product meets requirements of Paragraph 3.3. Failures attributed to equipment, test set-up, applied customer components or operator deficiencies shall not disqualify the product. If product failure occurs, corrective action shall be taken and samples resubmitted for requalification. Testing to confirm corrective action is required before resubmittal.

4.2. Requalification Testing

If changes significantly affecting form, fit, or function are made to product or manufacturing process, product assurance shall coordinate requalification testing, consisting of all or part of original testing sequence as determined by development, product, quality or reliability engineering.