Low-profile Fuse Receptacle Contact

1. Scope

1.1. Content

This specification describes characteristic, tests and quality requirements for the **Low-profile Fuse Receptacle**

1.2. Qualification

When testing the named products the following specified specifications and standards shall be used. All tests have to be done using the applicable inspection plan and product drawing.

2. Applicable Documents

The following mentioned documents, if they are referred, are part of this specification. In case of conflict between the requirements of this specification and the product drawing or in conflict between the requirements of this specification and the referenced documents, this specification has got precedence.

2.1. Tyco Electronics Document

A. 109-5000 : General Requirements for Test Specifications
B. Customer Drawing and Naming : 1897662 Low-profile Fuse Receptacle
1897663 Low-profile Fuse Receptacle
1897664 Low-profile Fuse Receptacle
C. Product Specifications : 108-61109
D. Application Specification :114-61027

3. Requirements

3.1. Design and Construction

The product must correspond with the product drawing, concerning the design and the physical dimensions.

3.2. Materials

Information hereto can be found in the production drawings.

3.3. Technical data

A. Current carrying capability see applicable current carrying capability, Diagram 1-6
B. Temperature from -40℃ to 130℃(tinned)

3.4 Performance Requirement and Test Descriptions

Product is designed to meet the electrical, mechanical and environmental performance requirements specified in Figure 1. Unless otherwise specified, all tests shall be performed at ambient environmental conditions.

3.5 Test Requirements and Procedures Summary

NO	Test Description	Requirements	Procedures
1	Confirmation of Product	Product shall be conforming to the requirements of applicable product drawing and Application Specification.	Visually, dimensionally and functionally inspected per applicable quality Inspection plan.
Electrical Requirements			
2	Termination Resistance (Specified Current)	Initial : 3 mΩ Max. After reliability Test : 10 mΩ Max.	-. Test Current : 1A -. Measure the voltage-drop from the condition of mated connectors. -. Applicable tab contact is Low-profile Fuse. -. Refer to Fig.3 According to 109-5311-2
3	Termination Resistance (Low Level)	Initial : 3 mΩ Max. After reliability Test : 10 mΩ Max.	-. Test Current : 10mA Max. -. Test Voltage : 20mV Max. -. Measure the contact resistance from the condition of mated connectors. -. Applicable tab contact is Low-profile Fuse. -. Refer to Fig.3 According to 109-5311-1
4	Current temperature Rise, derating free in air	See applicable current capability diagram 1-6	Temperature of test Room : 23℃ Test Current : 11, 12, 13, 18, 19, 20, 22, 23, 24A Uses the YN U/H BOX(1897654-1) and Low-profile Fuse specimen. According to ES91820-05
5	Current Cycle	10mΩ Max. (Final) 10mV/A Max. (Final) No ignition is allowed during the test.	-. Test Current : Wire Size(㎟) / Current Max(A) 0.2 / 6 0.3 / 8 0.5 / 11 0.85 / 15 1.25 / 19 2.0 / 25 -. Current Timing : 45minutes "ON" and 15minutes "OFF" make this 1cycle Repeat 200cycles at 25℃ -. Applicable tab contact is Low-profile Fuse. -. Refer to Fig.3 Tyco spec' 109-5308
6	Vibration (High Frequency)	No electrical discontinuity greater than 10 μs. Shall occur. 10 mΩ Max. (Final) 10mV/A Max. (Final)	Vibration Frequency : 20~200HZ / 3min. Accelerated Velocity : - 20~50HZ : 4.5G - 50~200HZ : 3.0G Vibration Direction : Z Axis(up and

			down) Vibration Duration : 5cycle with 24hour per 1cycle Uses the YN U/H BOX(1897654-1) and Low-profile Fuse specimen. According to ES91820-05
7	Mating and unmating force	The following values apply to the first mating Cycle : -. Mating force : 1.6kgf max. (If Fuse : 2.5kgf max.) -. Unmating force : 0.2kgf ~ 2.0kgf (If Fuse : 0.75kgf ~ 4.0kgf)	Measure the required force to mate & unmate counterpart gauge tab(Tyco P/N 965849-1) with operating speed at 25mm/min.
8	Contact retention force	10kgf Min.	-. Testing speed 25mm/min -. Tested with the YN U/H BOX(1897654-1) specimen.
9	Durability (Repeated Mate/Unmating)	10mΩ Max. (Final) 10mV/A Max. (Final)	Operation Speed : 100mm/min. No. of Cycle : 30 cycles. Uses the gauge tab(Tyco P/N : 965849-1) Tyco Spec' 109-5213
10	Handling Ergonomics	No abnormalities allowed in manual mating/unmating handling.	Manually operated
Environmental Requirements			
11	Thermal Shock	10mΩ Max. (Final) 10mV/A Max. (Final)	-30℃/60min. 100℃/60min. Making this a cycle, repeat 100 cycles. Uses the YN U/H BOX(1897654-1) and Low-profile Fuse specimen. According to ES91820-05
12	High Temperature, High Humidity	Current Leakage 3mA Max. There must not have the corrosion which affects in function.	Humidity : 85±3% RH Temperature : 85±3℃ Time : 192 hours Uses the YN U/H BOX(1897654-1) and Low-profile Fuse specimen. According to ES91820-05
13	Salt Spray	10mΩ Max. (Final) 10mV/A Max. (Final) There must not have the corrosion which affects in function.	The concentration of salt solution shall be prepared to 5% in mass ration at 35℃ and test for 48 hours -. Applicable tab contact is Low-profile Fuse. -. Refer to Fig.3 Related Test procedure : Tyco spec' 109-5101
14	Industrial Gas(SO_2)	10mΩ Max. (Final) 10mV/A Max. (Final)	SO_2 Gas : 10ppm, 95% RH Normal temperature 24hours -. Applicable tab contact is Low-profile Fuse. -. Refer to Fig.3 Related Test procedure : Tyco spec'

			109-5107
15	Temperature Life (Heat Aging)	10mΩ Max. (Final) 10mV/A Max. (Final)	100℃, Duration : 120 hours. Uses the YN U/H BOX(1897654-1) and Low-profile Fuse specimen. According to ES91820-05
16	Resistance to Cold	10mΩ Max. (Final) 10mV/A Max. (Final)	-30℃, 120 hours Uses the YN U/H BOX(1897654-1) and Low-profile Fuse specimen. According to ES91820-05
17	Icing	10mΩ Max. (Final) 10mV/A Max. (Final)	Immerse in boiling water for 60 minutes, freeze at -30℃ -. Applicable tab contact is Low-profile Fuse. -. Refer to Fig.3
18	Dust Bombardment	A drop of electric pressure - Initial : 3mΩ Max. - Final : 10mΩ Max.	Subject KR R1063 cement blow 1.5kg per 10 seconds in 15 minutes intervals, and this 1cycle repeat 8cycles Uses the YN U/H BOX(1897654-1) and Low-profile Fuse specimen. According to ES91820-05

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

3.7 Qualification and Requalification Test Sequence.

Test Items	Test Group (a)						
	1	2	3	4	5	6	7
	Test Sequence (c)						
Confirmation of Product	1	1	1	1	1	1	1,5,8
Termination Resistance (Specified Current)	4			2,4,6,8, 10,12	2,4,6, 8	2,4,6	2,4,7
Termination Resistance (Low Level)	3						
Current temperature Rise, derating free in air				11			
Current Cycle				9			
Vibration (High Frequency)						3	
Mating and unmating force	2						
Contact retention force			2				
Durability (Repeated Mate/Unmating)		2					
Handling Ergonomics	5			3,13		7	9

Thermal Shock					7		
High Temperature, High Humidity					5		
Salt Spray							3
Industrial Gas(SO_2)							6
Temperature Life(Heat Aging)					3		
Resistance to Cold						5	
Icing				7			
Dust Bombardment				5			

NOTE *(a) See paragraph 4.1.1.*
(b) Numbers indicate sequence in which tests are performed.
(c) Discontinuities shall not take place in this group, during tests.

Figure 2

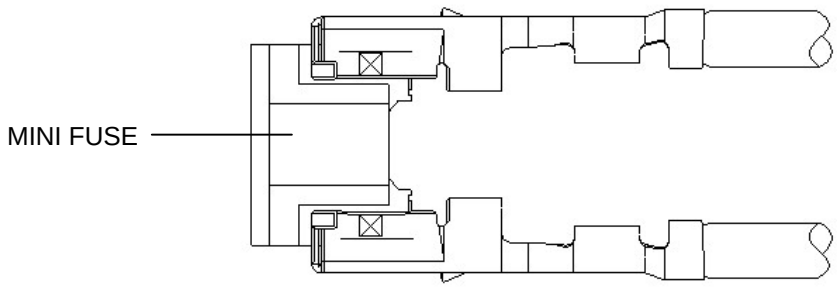


Figure 3

4. Quality Assurance Provisions

4.1. Qualification Tests

1. Selection of the samples
The samples shall be prepared in accordance with the product drawings and the application spec'(114-61027). They have to be chosen by chance from the current production.
No sample shall be reused, unless otherwise specified.

2. Test Conditions

All the tests shall be performed under any combination of the following test conditions, unless otherwise specified.

Temperature : 15~35℃
Relative Humidity : 45~75%

Atmospheric Pressure : 86.7~107kPa(650~800 mmHg)

3. Test groups

All tests have to be done in accordance with the test groups mentioned in paragraph 3.6

4.2 Renewed qualification testing

The responsible engineering department shall co-ordinate a renewed qualification testing if significant changes of the product were made

- concerning the form, fit or function
- pertaining the manufacturing process

This test consists of a part or the whole original test groups. The tests will be scheduled by the engineering and quality assurance department.

4.3. Acceptance

Acceptance is based on verification that the product meets the requirements of Figure 1. Failures attributed to equipment, test setup or operator deficiencies shall not disqualify the product. If product failure occurs, corrective action shall be taken and specimens resubmitted for qualification. Testing to confirm corrective action is required before resubmitting.

4.4. Quality Conformance Inspection

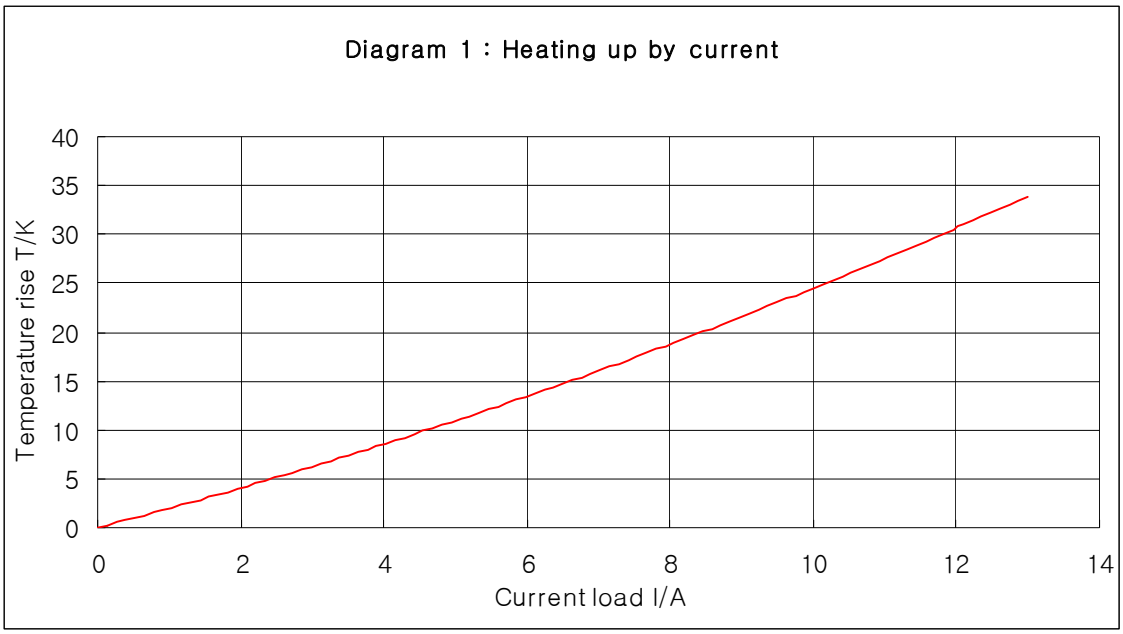
The applicable quality inspection plan shall specify the sampling acceptable quality level to be used. Dimensional and functional requirements shall be in accordance with applicable product drawing and this specification.

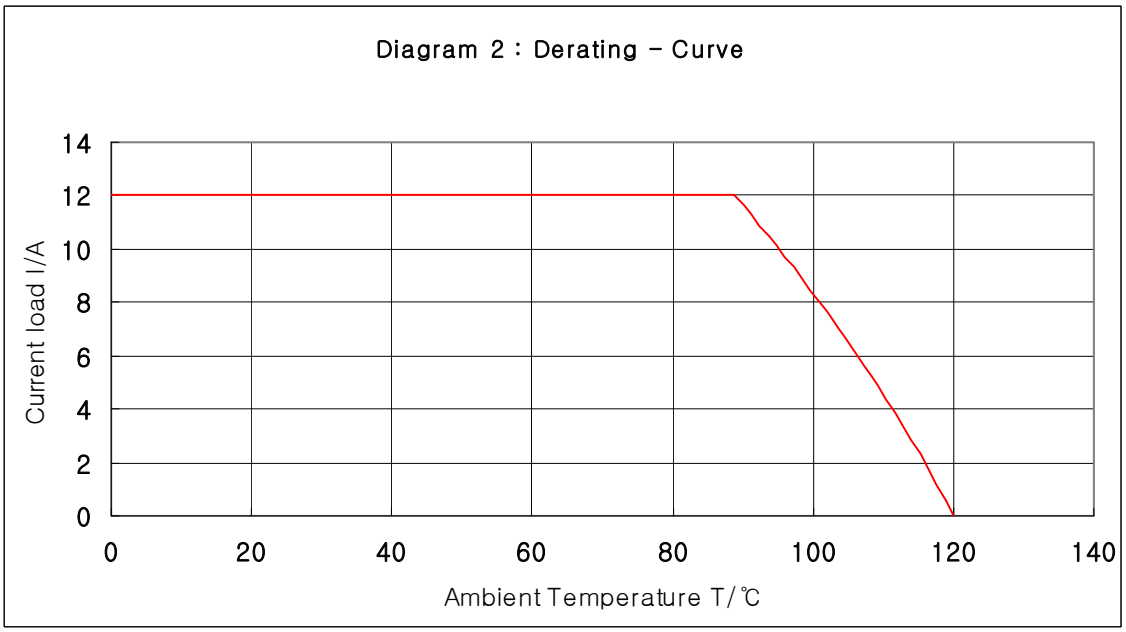
Low-profile Fuse Receptacle

(Terminal free in air)

MATERIAL : Terminal : CuNiSi Alloy / Sn
Low-profile Fuse : Zn Alloy / Ag(maker : PEC)

Wire cross section : 0.5 ㎟



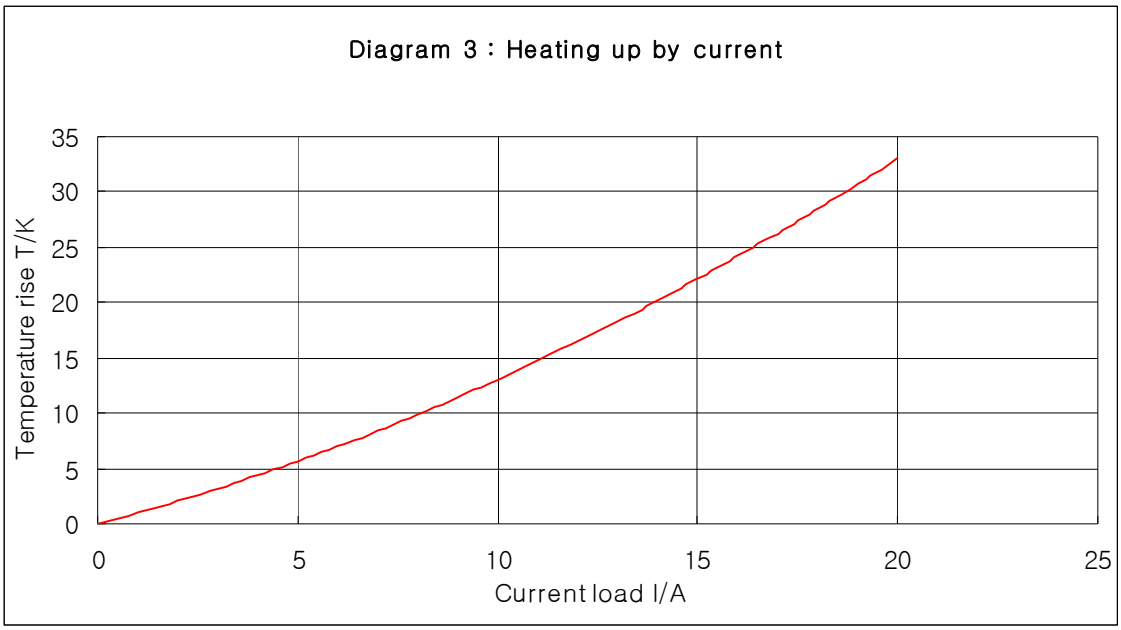


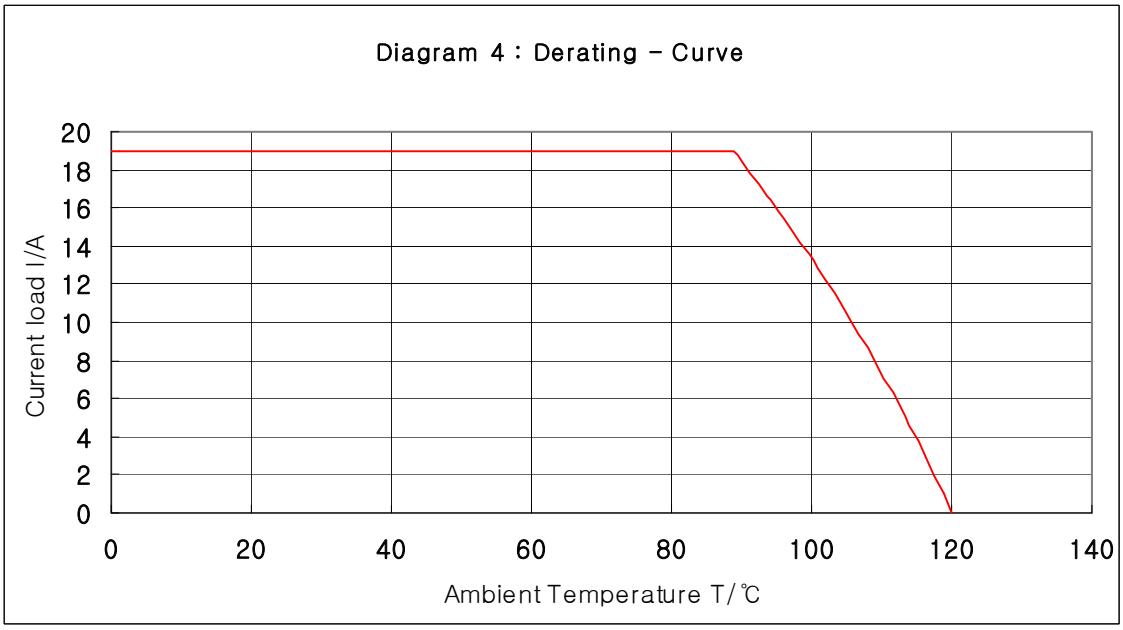
Low-profile Fuse Receptacle

(Terminal free in air)

MATERIAL : Terminal : CuNiSi Alloy / Sn
Low-profile Fuse : Zn Alloy / Ag(maker : PEC)

Wire cross section : 1.25 ㎟



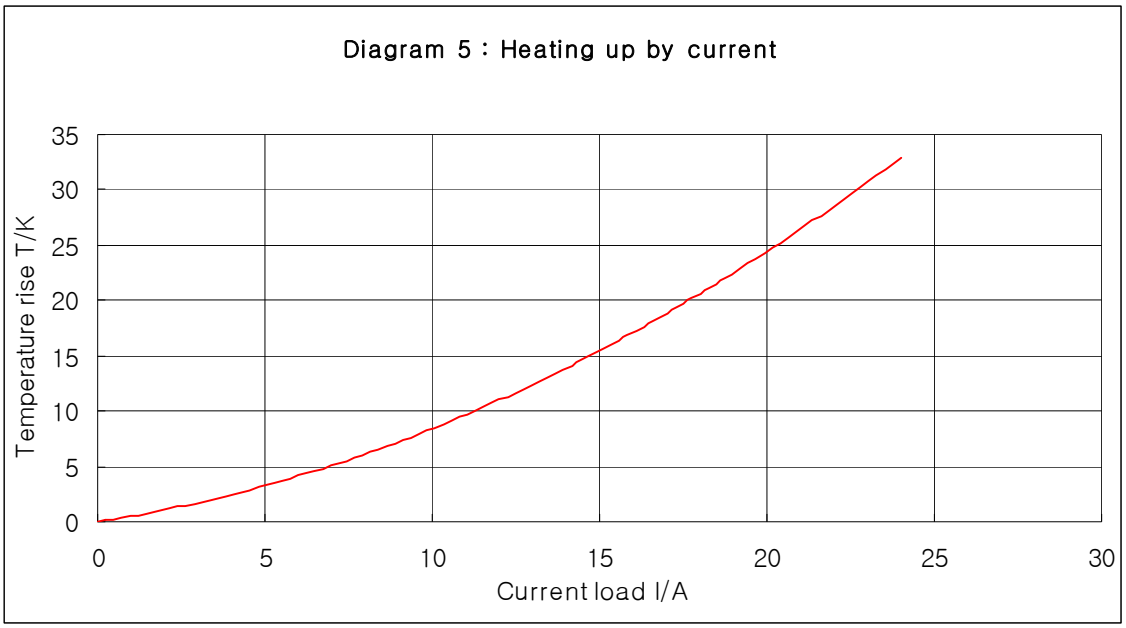


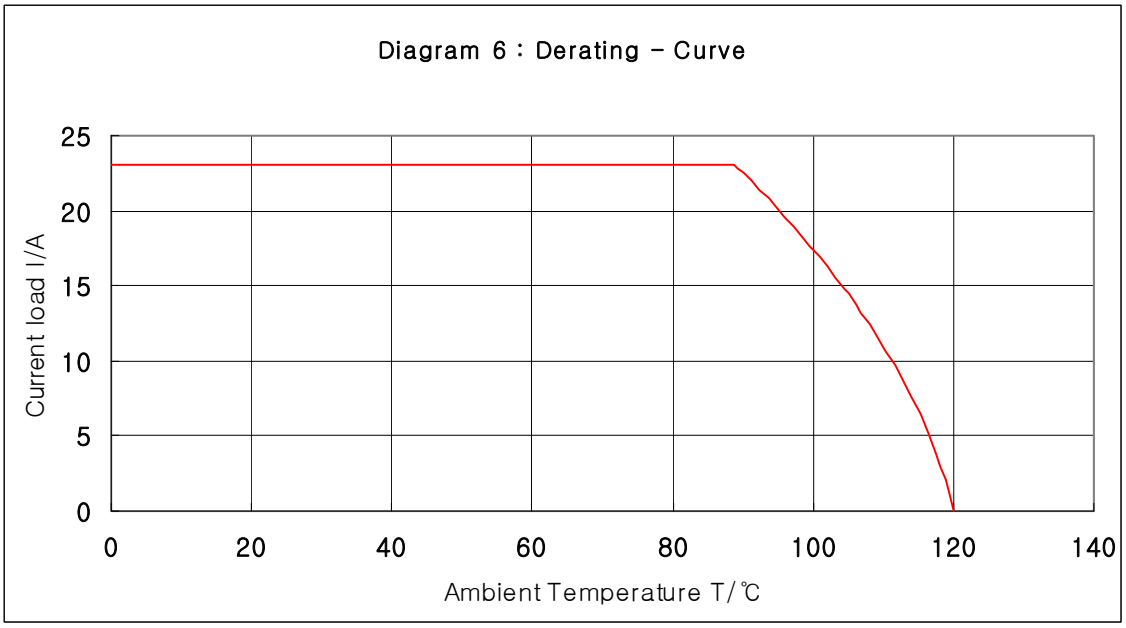
Low-profile Fuse Receptacle

(Terminal free in air)

MATERIAL : Terminal : CuNiSi Alloy / Sn
Low-profile Fuse : Zn Alloy / Ag(maker : PEC)

Wire cross section : 3.0 ㎟





5. REVISION HISTORY

Current Revision	New Revision	Changes	Reason for Change	EC No.(DATE)
-	A	-	RELEASE	2009.06.17

6. SPECIFICATION APPROVAL

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