

**Circular Plastic Connector With Size 20 Contacts**

**1. INTRODUCTION**

1.1. Purpose

Testing was performed on the AMP\* circular plastic connector with size 20 contacts to determine its conformance to the requirements of AMP Product Specification 108-10024-3 Revision A.

1.2. Scope

This report covers the electrical and mechanical performance of the circular plastic connector with size 20 contacts. Testing was performed at the Americas Regional Laboratory under test numbers CGL5029-41 and CTL4993-018.

1.3. Conclusion

The circular plastic connector with size 20 contacts listed in paragraph 1.5, conformed to the electrical and mechanical performance requirements of AMP Product Specification 108-10024-3 Revision A.

1.4. Product Description

The circular plastic connector family is designed to provide reliable signal and power connections for electronic, electric power and control circuits. They are available in sizes 11, 13, 17, and 23. The size 20 contacts is a removable 'F' crimp contact designed for application on 19 to 28 AWG wire.

1.5. Test Specimens

Test specimens were representative of normal production lots. Specimens identified with the following part numbers were used for test:

Test Group	Quantity	Part Number	Description
1	27	2-66506-4	Size 20 pin contact crimped on 20 AWG wire
1	27	5-66504-9	Size 20 socket contact crimped on 20 AWG wire
2	300	745254-3	Size 20 pin contact crimped on 20 AWG wire
2	300	745253-3	Size 20 socket contact crimped on 20 AWG wire
1	3	205838-1	Series 2, Size 11-9 plug assembly
1	3	205841-1	Series 2, Size 11-9 receptacle assembly
2	3	206485-1	Series 2, Size 11-9 plug assembly
2	3	206486-1	Series 2, Size 11-9 receptacle assembly
2	3	205839-3	Series 2, Size 17-28 plug assembly
2	3	205840-3	Series 2, Size 17-28 receptacle assembly
2	3	205842-1	Series 2, Size 23-63 plug assembly
2	3	205843-1	Series 2, Size 23-63 receptacle assembly

Figure 1

1.6 Environmental Conditions

Unless otherwise stated, the following environmental conditions prevailed during testing:

- Temperature: 15 to 35°C
- Relative Humidity: 20 to 80%

1.7. Qualification Test Sequence

Test or Examination	Test Group (a)	
	1	2
	Test Sequence (b)	
Initial examination of product	1	1
Temperature rise vs current		2
Contact retention	2	
Final examination of product	3	3

**NOTE**

- (a) See paragraph 1.5.
- (b) Numbers indicate sequence in which tests are performed.

Figure 2

**2. SUMMARY OF TESTING**

2.1. Initial Examination of Product - All Test Groups

All specimens submitted for testing were representative of normal production lots. A Certificate of Conformance was issued by Product Assurance.

2.2. Temperature Rise vs Current - Test Group 2

All specimens had a temperature rise of less than 30°C above ambient when tested using a baseline rated current of 8.34 amperes and the correct derating factor value based on the specimens wiring configuration.

2.3. Contact Retention - Test Group 1

No physical damage occurred to either the contacts or the housing, and no contacts dislodged from the housings as a result of applying an axial load of 22.25 N [5 lb] to the contacts.

2.4. Final Examination of Product - All Test Groups

All specimens were visually examined and no evidence of physical damage detrimental to product performance was observed.

**3. TEST METHODS**

3.1. Examination of Product

Where specified, specimens were visually examined for evidence of physical damage detrimental to product performance.

### 3.2. Temperature Rise vs Current

Temperature rise curves were produced by measuring individual contact temperatures at 5 different current levels. These measurements were plotted to produce a temperature rise vs current curve. Thermocouples were attached to individual contacts to measure their temperatures. The ambient temperature was then subtracted from this measured temperature to find the temperature rise. When the temperature rise of 3 consecutive readings taken at 5 minute intervals did not differ by more than 1°C, the temperature measurement was recorded.

### 3.3. Contact Retention

An increasing axial load was applied to each contact until it backed out of the test cavity.

### 3.4. Final Examination of Product

Where specified, specimens were visually examined for evidence of physical damage detrimental to product performance.