

Blower Motor Connector - Qualified Report for Current Rating

1. INTRODUCTION

1.1. Purpose

Testing was performed on the TE Connectivity (TE) 2005542-1 (BLOWER MOTOR 3P PLUG) and 1743490-1 (BLOWER MOTOR 3P HDR ASSY) to determine its current rating.

1.2. Scope

This report covers electric performance of 2005542-1 (BLOWER MOTOR 3P PLUG), 1743490-1 (BLOWER MOTOR 3P HDR ASSY). Testing was performed at the TE Connectivity Shanghai Electrical Components Test Laboratory between Jan 29th 2021 and Feb 3rd 2021. The test file number for this testing is TP-21-00149.

1.3. Conclusion

All part numbers listed in Paragraph 1.5 conformed to the electrical performance requirements of 2005542-1, 1743490-1.

1.4. Product Description

- 2005542-1: BLOWER MOTOR 3P PLUG
- 1743490-1: BLOWER MOTOR 3P HDR ASSY
- 917683-1: 2.5 SIGNAL DBL LOCK REC CONT L
- 917684-1: 2.5 SIGNAL DBL LOCK REC CONT M

1.5. Test Specimens

Test Set	Quantity	Part Number	Description
1	5	200542-1	BLOWER MOTOR 3P PLUG
	5	1743490-1	BLOWER MOTOR 3P HDR ASSY
	15	917683-1	2.5 SIGNAL DBL LOCK REC CONT L With 20AWG
2	5	200542-1	BLOWER MOTOR 3P PLUG
	5	1743490-1	BLOWER MOTOR 3P HDR ASSY
	15	917684-1	2.5 SIGNAL DBL LOCK REC CONT M With 22AWG

Table 1

1.6. Test Sequence

Test Group		Test Sequence (b)
1	Low Level Contact Resistance	1, 3
	Current Temperature derating Curve	2



NOTE

a) See Paragraph 1.5.

b) Numbers indicate sequence in which tests shall be performed.

Table 2

1.7. Environmental Conditions

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

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

2. SUMMARY OF TESTING

2.1. Low Level Contact Resistance

Measure and record the contact resistance of the specimen under test with a test current of 10mA maximum and 20mV open circuit (source) voltage maximum, the criteria is Max 10mΩ(Initial),20mΩ(Final).

A summary of LLCR data is shown below. Unit: mΩ

Test Group	Description	Initial			Final			Conclusion
		Min	Max	Mean	Min	Max	Mean	
1	With 917683-1 20 AWG	4.58	5.14	4.97	3.24	5.41	4.97	Meet Spec
	With 917684-1 22 AWG	4.67	5.32	4.94	5.72	8.44	7.6	Meet Spec

Table 3

2.2. Current Temperature derating Curve

5set sample for each test, Measure the temperature rise for each sample, make the curve with 20% current derating. Temperature rise: 30°C max.

A summary of derating curve data is shown below.

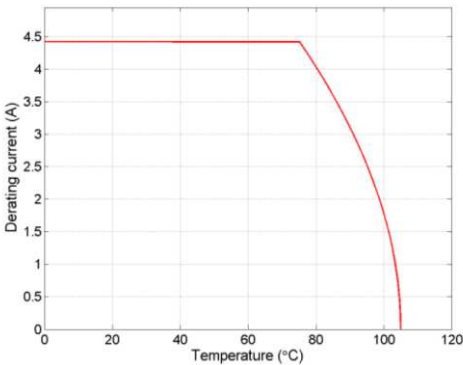
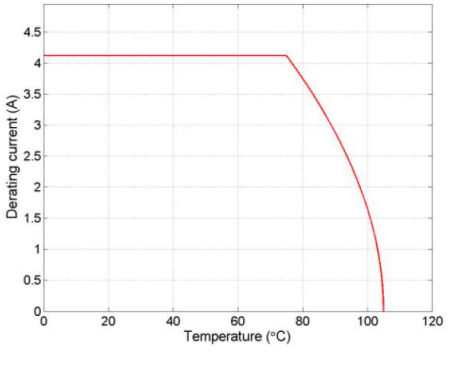
	With 917683-1 20 AWG	With 917684-1 22 AWG
Derating Curve		
Result	The derating curve shows the current rating for the product is 4.43A min which is over 3A.	The derating curve shows the current rating for the product is 4.12A min which is over 3A.

Table 4

3. TEST METHODS

3.1. Low Level Contact Resistance

Sample Preparation:

- Subsequent measurements were made at the same point to reduce variability due to path length changes.
- Solder the specimen to a printed circuit board or wires fixing the measurement points.

The test specimens were mated or fixed as in normal service. Fixture of specimens did not disturb the natural normal force of the mating contacts.

Execute visual examination before test and take picture of initial testing to make insurance of the same method is used

Four wires resistance measurement method was used.

Measure and record the contact resistance of the specimen under test with a test current of 100 mA maximum and 20 millivolts open circuit (source) voltage maximum.

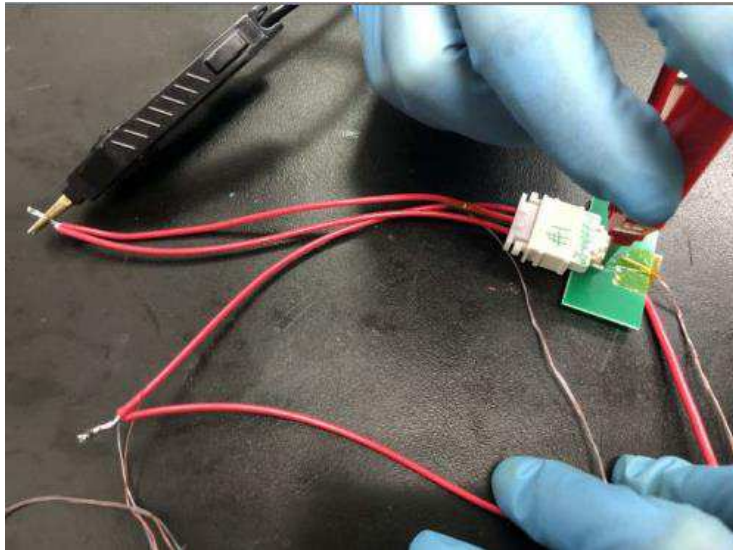


Fig 1: Test Setup

3.2. Current Temperature derating Curve

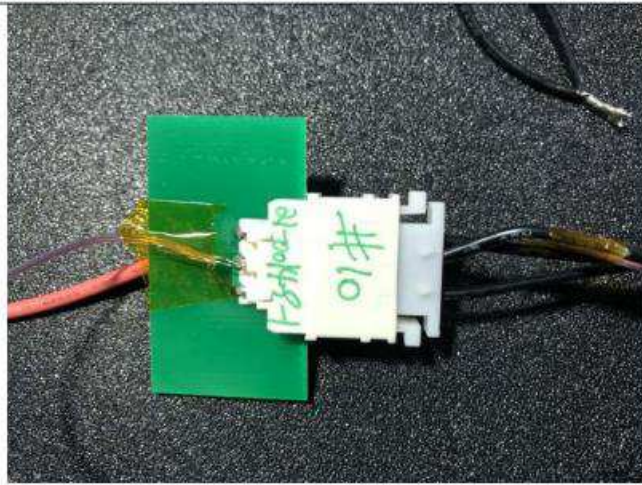
The test specimens were tested in specified state, thermocouples were soldered on the crimp.

Wire all terminal poles and connect to DC power supply, measure and record the temperature rising when the temperature is steady

Thermal stability was achieved when the temperature rising of a minimum of three consecutive reading taken at 5 minutes intervals minimum should not differ by more than ± 1 °C for each thermocouple.

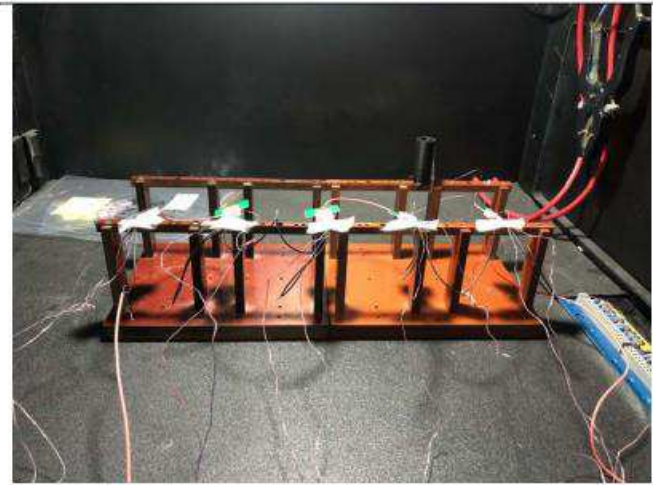
The current shall be maintained for a period approximately 1 hour after thermal stability is achieved at each of the selected levels.

Description of pre-test: Normal

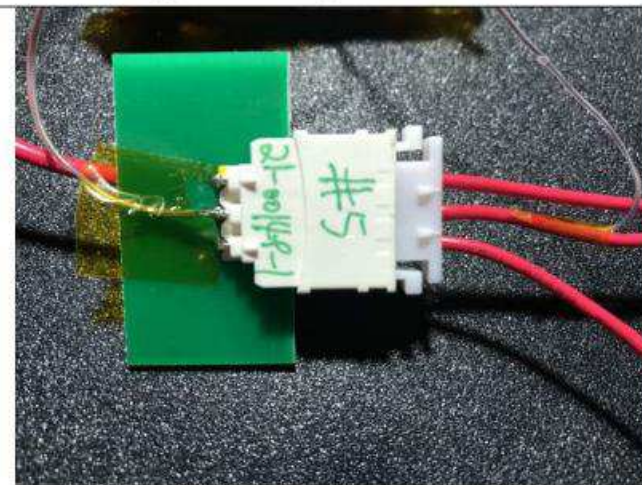


Typical thermocouple location 22AWG

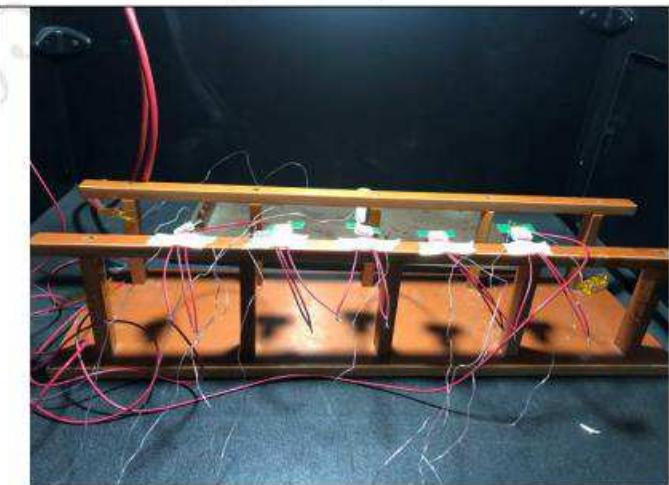
Description of post-test: Normal



Typical test setup 22AWG



Typical thermocouple location 20AWG



Typical test setup 20AWG

Fig 2: Test set up