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Test Report Summary

HT06202

General Testing of Datamate T-Contact
M80-2060005 (M80 Series)

T-CONTACT

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1. Introduction

1.1. Description and Purpose

The Harwin T-Contact, M80-2060005 is a contact designed to be used up to 8.5A as part of the Datamate 2mm pitch connector series. The following tests were performed to establish the component specification criteria for the new product introduction.

1.2. Conclusion

The following data has been collated from Harwin test report 1686. These tests show that the T-Contact outperforms the standard Datamate contact system, and exceeds the performance levels of commercial connectors on a similar pitch.

2. Test Method, Requirements and Results

2.1. Specification Parameters

Testing Standard	Description of Test	Section	Page No.
EIA-364-70A: 1998	Temperature Rise versus Current & De-Rating Curves	3.1	2-4
EIA-364-28D: 1999	Vibration – 40G, 6 hours total	3.2	5
EIA-364-27B: 1996	Mechanical Shock – 18 shocks total	3.3	5

2.2. List of Samples

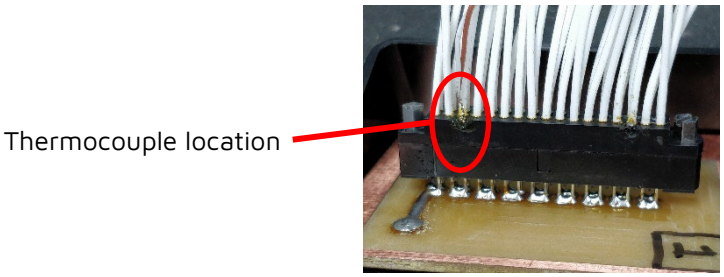
The following samples were used throughout this test:

- M80-4133498 female cable housing fully populated with M80-2060005 T-Contacts, crimped to 300mm 22AWG cable loops
- M80-5003442 male vertical throughboard connector

3. Test Methods and Results

3.1. Temperature Rise versus Current: EIA-364-70A: 1998, Method 2

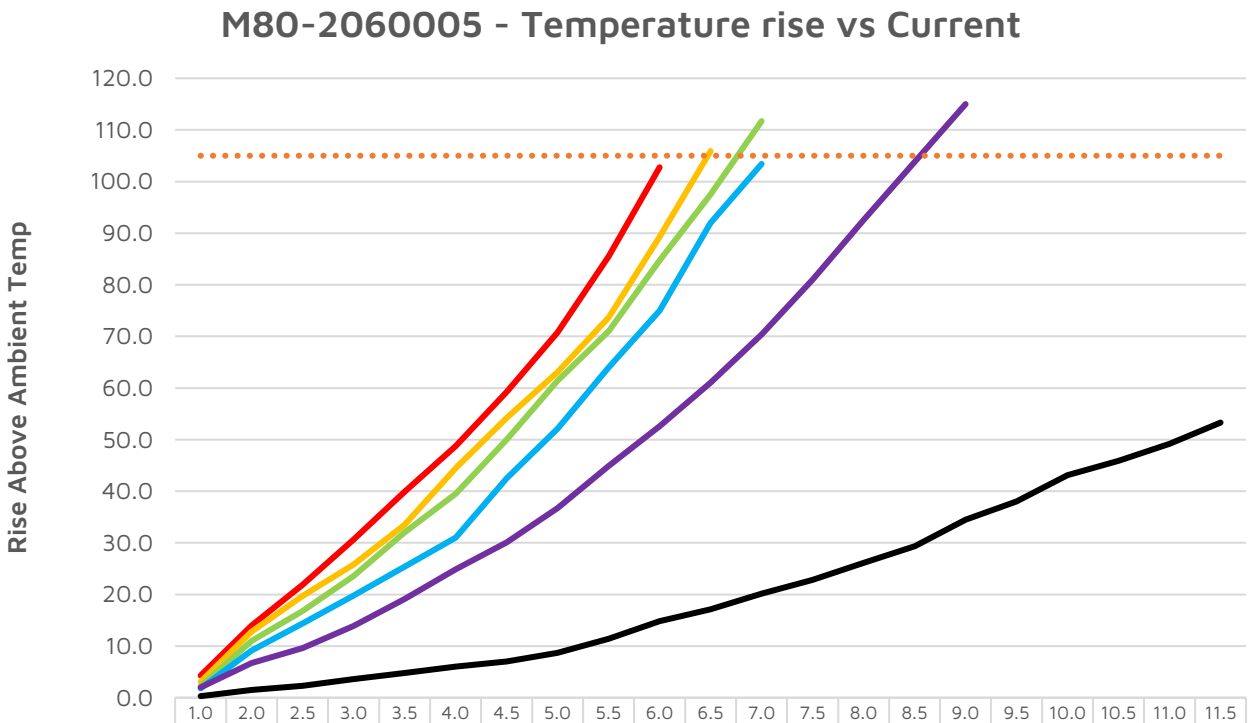
Methodology: A cable-to-board configuration was used as a representative of the entire range of M80 T-Contact series connector options. The male throughboard connector was soldered to a single layer PCB. The parts were wired up to create a circuit in series; the female cable assembly had 300mm of wire attached to link 2 adjacent contacts in a loop. The PCB connector also has links to adjacent pins. The combinations tested were 1, 6, 10, 18, 26, 34 contacts, with contacts carrying the same current. The test was carried out at an average ambient temperature of 20.5-23.0°C.



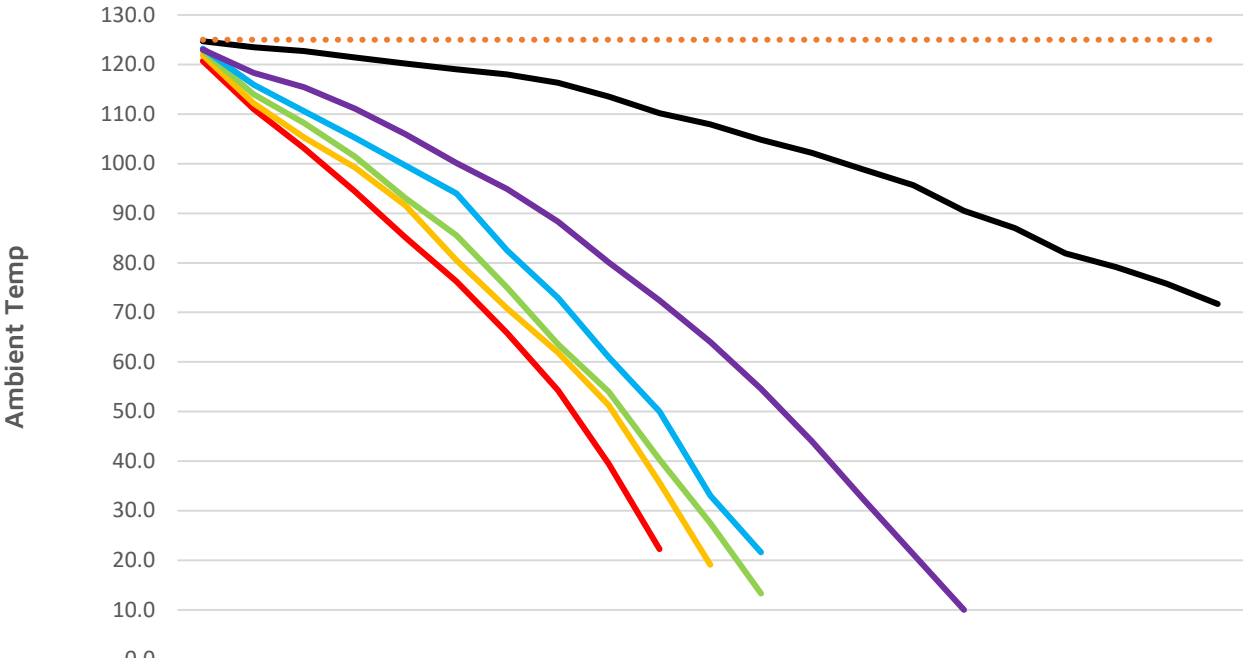
Specification:

- Current Rating (when only one contact is electrically loaded) = 8.5A max
- Current Rating (when all contacts are electrically loaded) = 4.0A max
- Test to confirm what current would achieve a 30°C temperature rise over ambient.

Results:



	1.0	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0	10.5	11.0	11.5
34 pins	4.3	14.0	21.9	30.7	39.9	48.8	59.2	70.8	85.5	102.											
26 pins	3.1	12.8	19.7	25.8	33.5	44.5	54.2	63.1	73.7	89.3	105.										
18 pins	2.2	11.0	16.8	23.6	32.0	39.5	50.0	61.4	71.0	84.7	97.5	111.									
10 pins	1.8	9.1	14.4	19.8	25.4	31.0	42.5	52.1	64.0	75.0	92.0	103.									
6 pins	2.0	6.7	9.6	13.9	19.1	24.9	30.1	36.7	44.9	52.6	61.0	70.4	81.0	92.5	103.	115.					
1 pin	0.3	1.5	2.3	3.6	4.8	6.0	7.0	8.7	11.4	14.8	17.1	20.2	22.8	26.1	29.3	34.5	38.0	43.1	45.9	49.2	53.3
Max rise	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105



	1.0	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0	10.5	11.0	11.5
34 pins	120.7	111.1	103.1	94.4	85.1	76.3	65.8	54.3	39.5	22.3											
26 pins	121.9	112.2	105.3	99.2	91.5	80.5	70.8	61.9	51.3	35.7	19.1										
18 pins	122.8	114.0	108.2	101.4	93.0	85.5	75.0	63.6	54.0	40.3	27.5	13.3									
10 pins	123.2	115.9	110.6	105.2	99.6	94.0	82.5	72.9	61.0	50.0	33.0	21.6									
6 pins	123.0	118.3	115.4	111.1	105.9	100.1	94.9	88.3	80.1	72.4	64.0	54.6	44.0	32.5	21.2	10.0					
1 pin	124.7	123.5	122.7	121.4	120.2	119.0	118.0	116.3	113.6	110.2	107.9	104.8	102.2	98.9	95.7	90.5	87.0	81.9	79.1	75.8	71.7
Max Temp	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125

3.2. Vibration: EIA-364-28D: 1999

Methodology: Two female cabled connectors were wired in series. An initial sweep across the test sequence was carried out, followed by a 2 hour endurance sweep at the same levels. During this test, the samples were monitored continuously for discontinuities of 1 millisecond or greater, using a constant current source of 100mA.

Vertical Test Axis

Transverse Test Axis

Longitudinal Test Axis

Specification: Vibration Test Sequence: Swept sine test sweeping between 10Hz and 2000Hz using the following profile:

- 10-13.6Hz at 35mm peak to peak
- 13.6-41.6Hz at 1.5m/s
- 41.6-2,000Hz at 40G

Results: No discontinuities were found on any samples during any axis of the test, and a visual inspection revealed no distortion or bending to any components.

3.3. Mechanical Shock: EIA-364-27B: 1996, Condition G

Methodology: Two female cabled connectors were wired in series and mounted on the same test rig as shown in section 3.2. An initial sweep across the test sequence was carried out, followed by a 2 hour endurance sweep at the same levels. During this test, the samples were monitored continuously for discontinuities of 1 millisecond or greater, using a constant current source of 100mA.

Specification: Shock Test Sequence: Test condition G was applied in all three axes (across the mated pair). T-Contacts were terminated to 300mm long cable loops, not 200mm as stated in EIA-364-27B.

- Pulse Acceleration = 100G (981m/s^2)
- Duration = 3ms
- Pulse shape = Terminal peak sawtooth
- Number of pulses = 3 in both directions on each axis
- Number of Shocks: - 3 shocks in each sense, 6 Shocks per axis, 18 shocks in total.

Results: No discontinuities were found on any samples during any axis of the test, and a visual inspection revealed no distortion or bending to any components.