

Micro-Fit (3.0) Connector System (Wire to Wire & Wire to Board)

1.0 SCOPE

This Test Specification covers the 3.00 mm (.118 inch) centerline (pitch) connector series terminated with 20-30 AWG wire using crimp technology.

2.0 PRODUCT DESCRIPTION

2.1 PRODUCT NAME, SERIES, AND PART NUMBER(S)

Micro-Fit (3.0) Receptacle Series : 43025, 43645, 44133 (BMI)
 Micro-Fit (3.0) Plug Series : 43020, 43640, 44300 (BMI)
 Micro-Fit (3.0) Right Angle & Vertical Header Series : 43045, 43650, 44067
 Micro-Fit (3.0) Compliant Pin Vertical Header Series : 44914
 Micro-Fit (3.0) Female Crimp Terminal Series : 43030
 Micro-Fit (3.0) Male Crimp Terminal Series : 43031
 Micro-Fit (3.0) Female Crimp Terminal with Lubricant : 45773

2.1.1 SERIES NUMBERS TESTED

Micro-Fit (3.0) Receptacle : 43025
 Micro-Fit (3.0) Plug : 43020
 Micro-Fit (3.0) Right Angle & Vertical Headers : 43045
 Micro-Fit (3.0) Female Crimp Terminal : 43030
 Micro-Fit (3.0) Male Crimp Terminal : 43031

2.2 DIMENSIONS, MATERIALS, PLATINGS AND MARKINGS

See the appropriate sales drawings for information on dimensions, materials, plating, and markings.

2.3 PRODUCT SPECIFICATION TITLE AND DOCUMENT NUMBER

Product Specification Micro-Fit Dual Row Connectors
 Document Number: PS-43045
 Product Specification Micro-Fit Single Row Connectors
 Document Number: PS-43650
 Product Specification Micro-Fit (3.0) BMI Floating Connector System
 Document Number: PS-44300-001

3.0 APPLICABLE DOCUMENTS AND SPECIFICATIONS

3.1 TESTING PROCEDURES AND SEQUENCES

EIA-364-1000.01

<u>REVISION:</u> A2	<u>ECR/ECN INFORMATION:</u> EC No: 109530 DATE: 2016 / 10 /18	<u>TITLE:</u> TEST SUMMARY MICRO-FIT (3.0) CONNECTORS	<u>SHEET No.</u> 1 of 10
<u>DOCUMENT NUMBER:</u> TS-43045-001		<u>CREATED / REVISED BY:</u> JDFOX	<u>CHECKED BY:</u> SSOUSEK
		<u>APPROVED BY:</u> FSMITH	

3.2 OTHER DOCUMENTS AND SPECIFICATIONS

None

4.0 QUALIFICATION

Laboratory conditions and sample selection are in accordance with **EIA-364**.

5.0 PERFORMANCE RESULTS

5.1 ELECTRICAL PERFORMANCE RESULTS

WIRE TO WIRE CONFIGURATION

ITEM	DESCRIPTION	TREATMENT	REQUIREMENT	MEAN	MINIMUM	MAXIMUM
1A	CONTACT RESISTANCE (LOW LEVEL)	Initial **	10 milliohms MAXIMUM	19.95 mΩ	19.74 mΩ	20.40 mΩ
		After Durability Δ mΩ	20 milliohms MAXIMUM	-0.23 mΩ	-0.03 mΩ	0.67 mΩ
		After Temperature Life Δ mΩ	20 milliohms MAXIMUM	0.38 mΩ	0.08 mΩ	1.01 mΩ
		After Reseating Δ mΩ	20 milliohms MAXIMUM	0.25 mΩ	-0.53 mΩ	1.32 mΩ

NOTE : ** APPROXIMATELY 16.6 mΩ OF THE MEASUREMENT VALUE IS ATTRIBUTED TO THE BULK RESISTANCE OF THE 13 INCHES OF WIRE USED IN SAMPLE PREPARATION.

WIRE TO BOARD CONFIGURATION

ITEM	DESCRIPTION	TREATMENT	REQUIREMENT	MEAN	MINIMUM	MAXIMUM
1B	CONTACT RESISTANCE (LOW LEVEL)	Initial	10 milliohms MAXIMUM	4.75 mΩ	4.55 mΩ	4.98 mΩ
		After Durability Δ mΩ	20 milliohms MAXIMUM	-0.23 mΩ	-0.03 mΩ	0.67 mΩ
		After Temperature Life Δ mΩ	20 milliohms MAXIMUM	0.38 mΩ	0.08 mΩ	1.01 mΩ
		After Reseating Δ mΩ	20 milliohms MAXIMUM	0.25 mΩ	-0.53 mΩ	1.32 mΩ

NOTE : SEE APPENDIX "A" FOR TEST SEQUENCE DESCRIPTION.

REVISION: A2	ECR/ECN INFORMATION: EC No: 109530 DATE: 2016 / 10 /18	TITLE: TEST SUMMARY MICRO-FIT (3.0) CONNECTORS	SHEET No. 2 of 10
DOCUMENT NUMBER: TS-43045-001	CREATED / REVISED BY: JDFOX	CHECKED BY: SSOUSEK	APPROVED BY: FSMITH

5.1 ELECTRICAL PERFORMANCE RESULTS (continued)

WIRE TO WIRE CONFIGURATION

ITEM	DESCRIPTION	TREATMENT	REQUIREMENT	MEAN	MINIMUM	MAXIMUM
2A	Contact Resistance (Low Level)	Initial **	10 milliohms MAXIMUM	20.01 mΩ	19.59 mΩ	23.29 mΩ
		After Durability Δ mΩ	20 milliohms MAXIMUM	0.19 mΩ	-0.02 mΩ	0.64 mΩ
		After Thermal Shock Δ mΩ	20 milliohms MAXIMUM	0.34 mΩ	0.08 mΩ	0.74 mΩ
		After Cyclic Humidity Δ mΩ	20 milliohms MAXIMUM	0.62 mΩ	0.14 mΩ	1.77 mΩ
		After Reseating Δ mΩ	20 milliohms MAXIMUM	0.61 mΩ	0.11 mΩ	3.09 mΩ

NOTE : ** APPROXIMATELY 16.6 mΩ OF THE MEASUREMENT VALUE IS ATTRIBUTED TO THE BULK RESISTANCE OF THE 13 INCHES OF WIRE USED IN SAMPLE PREPARATION.

WIRE TO BOARD CONFIGURATION

ITEM	DESCRIPTION	TREATMENT	REQUIREMENT	MEAN	MINIMUM	MAXIMUM
2B	Contact Resistance (Low Level)	Initial	10 milliohms MAXIMUM	4.75 mΩ	4.55 mΩ	4.98 mΩ
		After Durability Δ mΩ	20 milliohms MAXIMUM	0.42 mΩ	-0.02 mΩ	2.03 mΩ
		After Thermal Shock Δ mΩ	20 milliohms MAXIMUM	1.56 mΩ	0.25 mΩ	5.71 mΩ
		After Cyclic Humidity Δ mΩ	20 milliohms MAXIMUM	1.28 mΩ	0.15 mΩ	4.60 mΩ
		After Reseating Δ mΩ	20 milliohms MAXIMUM	2.19 mΩ	0.23 mΩ	8.04 mΩ

NOTE : SEE APPENDIX "A" FOR TEST SEQUENCE DESCRIPTION

REVISION: A2	ECR/ECN INFORMATION: EC No: 109530 DATE: 2016 / 10 /18	TITLE: TEST SUMMARY MICRO-FIT (3.0) CONNECTORS	SHEET No. 3 of 10
DOCUMENT NUMBER: TS-43045-001	CREATED / REVISED BY: JDFOX	CHECKED BY: SSOUSEK	APPROVED BY: FSMITH

5.1 ELECTRICAL PERFORMANCE RESULTS (continued)

WIRE TO BOARD CONFIGURATION – 2 CIRCUIT VERSION

ITEM	DESCRIPTION	TREATMENT	REQUIREMENT	MEAN	MINIMUM	MAXIMUM
3A	Contact Resistance (Low Level)	Initial **	10 milliohms MAXIMUM	10.26 mΩ	10.17 mΩ	10.46 mΩ
		After Durability Δ mΩ	20 milliohms MAXIMUM	0.75 mΩ	0.16 mΩ	1.57 mΩ
		After Temperature Life Pre-Conditioned Δ mΩ	20 milliohms MAXIMUM	1.88 mΩ	0.58 mΩ	3.77 mΩ
		After Vibration Δ mΩ	20 milliohms MAXIMUM	1.28 mΩ	0.15 mΩ	4.60 mΩ
		No Discontinuity	Discontinuity < 1 microsecond			

NOTE : ** APPROXIMATELY 7.8 mΩ OF THE MEASUREMENT VALUE IS ATTRIBUTED TO THE BULK RESISTANCE OF THE 6 INCHES OF WIRE USED IN SAMPLE PREPARATION.

WIRE TO BOARD CONFIGURATION –12 CIRCUIT VERSION

ITEM	DESCRIPTION	TREATMENT	REQUIREMENT	MEAN	MINIMUM	MAXIMUM
3B	Contact Resistance (Low Level)	Initial **	10 milliohms MAXIMUM	10.24 mΩ	9.85 mΩ	10.52 mΩ
		After Durability Δ mΩ	20 milliohms MAXIMUM	0.41 mΩ	0.14 mΩ	2.13 mΩ
		After Temperature Life Pre-Conditioned Δ mΩ	20 milliohms MAXIMUM	0.81 mΩ	0.16 mΩ	3.68 mΩ
		After Vibration Δ mΩ	20 milliohms MAXIMUM	1.14 mΩ	0.25 mΩ	3.56 mΩ
		No Discontinuity	Discontinuity < 1 microsecond			

NOTES : ** APPROXIMATELY 7.8 mΩ OF THE MEASUREMENT VALUE IS ATTRIBUTED TO THE BULK RESISTANCE OF THE 6 INCHES OF WIRE USED IN SAMPLE PREPARATION.

SEE APPENDIX "A" FOR TEST SEQUENCE DESCRIPTION

REVISION: A2	ECR/ECN INFORMATION: EC No: 109530 DATE: 2016 / 10 /18	TITLE: TEST SUMMARY MICRO-FIT (3.0) CONNECTORS	SHEET No. 4 of 10
DOCUMENT NUMBER: TS-43045-001	CREATED / REVISED BY: JDFOX	CHECKED BY: SSOUSEK	APPROVED BY: FSMITH

5.1 ELECTRICAL PERFORMANCE RESULTS (continued)

WIRE TO WIRE CONFIGURATION

ITEM	DESCRIPTION	TREATMENT	REQUIREMENT	MEAN	MINIMUM	MAXIMUM
4A	Contact Resistance (Low Level)	Initial **	10 milliohms MAXIMUM	20.07 mΩ	19.95 mΩ	20.50 mΩ
		After Durability Δ mΩ	20 milliohms MAXIMUM	0.31 mΩ	-0.02 mΩ	0.72 mΩ
		After Temperature Life Pre-Conditioned Δ mΩ	20 milliohms MAXIMUM	0.34 mΩ	0.07 mΩ	0.97 mΩ
		Thermal Cycling 167 Hours Δ mΩ	20 milliohms MAXIMUM	0.42 mΩ	0.10 mΩ	2.01 mΩ
		Thermal Cycling 334 Hours Δ mΩ	20 milliohms MAXIMUM	0.41 mΩ	-0.06 mΩ	1.03 mΩ
		Thermal Cycling 500 Hours Δ mΩ	20 milliohms MAXIMUM	0.64 mΩ	0.03 mΩ	2.79 mΩ
		After Reseating Δ mΩ	20 milliohms MAXIMUM	0.54 mΩ	0.14 mΩ	2.45 mΩ

NOTES : ** APPROXIMATELY 16.6 mΩ OF THE MEASUREMENT VALUE IS ATTRIBUTED TO THE BULK RESISTANCE OF THE 13 INCHES OF WIRE USED IN SAMPLE PREPARATION.

SEE APPENDIX "A" FOR TEST SEQUENCE DESCRIPTION

REVISION: A2	ECR/ECN INFORMATION: EC No: 109530 DATE: 2016 / 10 /18	TITLE: TEST SUMMARY MICRO-FIT (3.0) CONNECTORS	SHEET No. 5 of 10
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5.1 ELECTRICAL PERFORMANCE RESULTS (continued)

WIRE TO BOARD CONFIGURATION

ITEM	DESCRIPTION	TREATMENT	REQUIREMENT	MEAN	MINIMUM	MAXIMUM
4B	Contact Resistance (Low Level)	Initial	10 milliohms MAXIMUM	4.78 mΩ	4.56 mΩ	5.53 mΩ
		After Durability Δ mΩ	20 milliohms MAXIMUM	0.48 mΩ	0.06 mΩ	2.35 mΩ
		After Temperature Life Pre-Conditioned Δ mΩ	20 milliohms MAXIMUM	1.07 mΩ	0.13 mΩ	5.80 mΩ
		Thermal Cycling 167 Hours Δ mΩ	20 milliohms MAXIMUM	1.38 mΩ	0.30 mΩ	4.68 mΩ
		Thermal Cycling 334 Hours Δ mΩ	20 milliohms MAXIMUM	1.63 mΩ	0.31 mΩ	5.17 mΩ
		Thermal Cycling 500 Hours Δ mΩ	20 milliohms MAXIMUM	3.04 mΩ	0.69 mΩ	8.51 mΩ
		After Reseating Δ mΩ	20 milliohms MAXIMUM	3.48 mΩ	0.41 mΩ	8.94 mΩ

NOTE : SEE APPENDIX "A" FOR TEST SEQUENCE DESCRIPTION

REVISION: A2	ECR/ECN INFORMATION: EC No: 109530 DATE: 2016 / 10 /18	TITLE: TEST SUMMARY MICRO-FIT (3.0) CONNECTORS	SHEET No. 6 of 10
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5.1 ELECTRICAL PERFORMANCE RESULTS (continued)

ITEM	DESCRIPTION	WIRE GAUGE	REQUIREMENT	AMPERAGE
5	Temperature Rise & Current Cycling	30 AWG	30°C Max. Temp. Rise	2.5 Amps
		26 AWG	30°C Max. Temp. Rise	3.0 Amps
		24 AWG	30°C Max. Temp. Rise	4.0 Amps
		20 AWG	30°C Max. Temp. Rise	5.5 Amps

5.2 MECHANICAL PERFORMANCE RESULTS

ITEM	DESCRIPTION	Wire Gauge	REQUIREMENT	MEAN	MINIMUM	MAXIMUM
6	Wire Pullout Force (Newtons)	20 AWG	57.8 N Minimum	127.4	117.5	134.7
		22 AWG	35.6 N Minimum	86.1	80.2	90.4
		24 AWG	22.2 N Minimum	53.6	44.7	58.08
		26 AWG	13.3 N Minimum	36.1	33.8	38.3
		28 AWG	8.9 N Minimum	21.1	18.1	23.2
		30 AWG	6.6 N Minimum	18.2	13.5	24.6

ITEM	DESCRIPTION	REQUIREMENT	MEAN	MINIMUM	MAXIMUM
7	Contact Normal Force (grams)	275 g Min	331 g	322 g	343 g

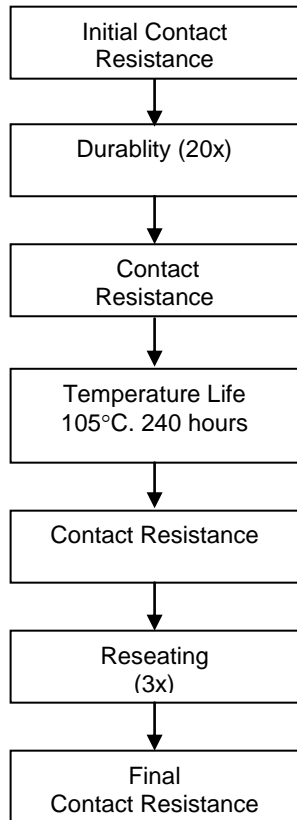
REVISION: A2	ECR/ECN INFORMATION: EC No: 109530 DATE: 2016 / 10 /18	TITLE: TEST SUMMARY MICRO-FIT (3.0) CONNECTORS	SHEET No. 7 of 10
DOCUMENT NUMBER: TS-43045-001	CREATED / REVISED BY: JDFOX	CHECKED BY: SSOUSEK	APPROVED BY: FSMITH

APPENDIX A
TEST SEQUENCES

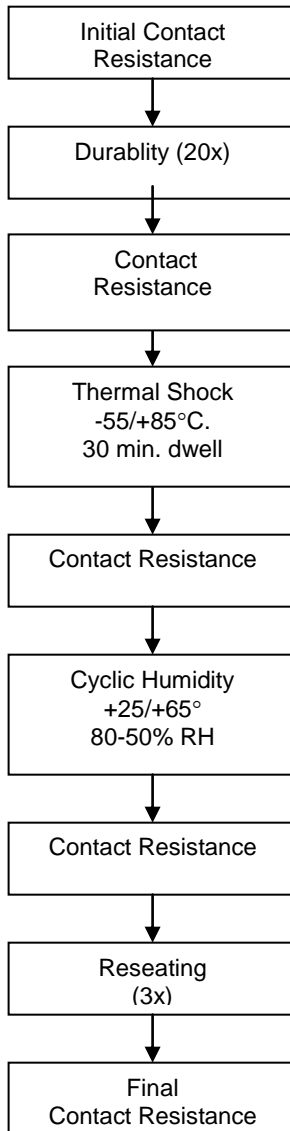
REVISION: A2	ECR/ECN INFORMATION: EC No: 109530 DATE: 2016 / 10 /18	TITLE: TEST SUMMARY MICRO-FIT (3.0) CONNECTORS	SHEET No. 8 of 10
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A.1 TEST SEQUENCES

SEQUENCE 1 1A Wire to Wire 1B Wire to Board



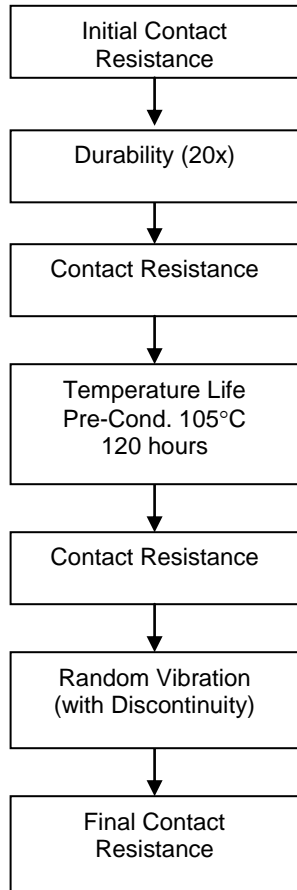
SEQUENCE 2 2A Wire to Wire 2B Wire to Board



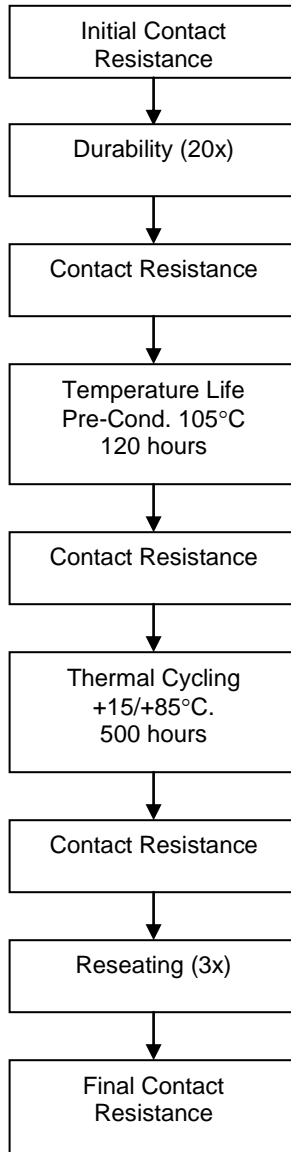
REVISION: A2	ECR/ECN INFORMATION: EC No: 109530 DATE: 2016 / 10 /18	TITLE: TEST SUMMARY MICRO-FIT (3.0) CONNECTORS	SHEET No. 9 of 10
DOCUMENT NUMBER: TS-43045-001	CREATED / REVISED BY: JDFOX	CHECKED BY: SSOUSEK	APPROVED BY: FSMITH

A.1 TEST SEQUENCES (continued)

SEQUENCE 3 3A Wire to Wire 3B Wire to Board



SEQUENCE 4 4A Wire to Wire 4B Wire to Board



REVISION: A2	ECR/ECN INFORMATION: EC No: 109530 DATE: 2016 / 10 /18	TITLE: TEST SUMMARY MICRO-FIT (3.0) CONNECTORS	SHEET No. 10 of 10
DOCUMENT NUMBER: TS-43045-001	CREATED / REVISED BY: JDFOX	CHECKED BY: SSOUSEK	APPROVED BY: FSMITH