NEW 2.0 W/B CONN REC. HOUSING DURACLIK™ ISL SERIES

1.0 SCOPE

This specification covers the 2.0mm PITCH Wire to Board Connector series. (SMT Type) for Automotive. Articles which are not included in this specification can be written in the drawings and they are prior to this specification.

2.0 PRODUCT DESCRIPTION

2.1 PRODUCT NAME AND SERIES NUMBER(S) D

NO	P/ NUMBER	DESCRIPTION	REMARK	COLOR
1	560123-020*	DURACLIK™ ISL HOUSING 2P	HOUSING	WHITE/ BLACK/RED/BLUE
2	560123-030*	DURACLIK™ ISL HOUSING 3P	HOUSING	WHITE/ BLACK/RED/BLUE
3	560123-040*	DURACLIK™ ISL HOUSING 4P	HOUSING	WHITE/ BLACK/RED/BLUE
4	560123-050*	DURACLIK™ ISL HOUSING 5P	HOUSING	WHITE/ BLACK
5	560123-060*	DURACLIK™ ISL HOUSING 6P	HOUSING	WHITE/ BLACK/RED/BLUE
6	560123-080*	DURACLIK™ ISL HOUSING 8P	HOUSING	WHITE/ BLACK/RED/BLUE
7	560123-090*	DURACLIK™ ISL HOUSING 9P	HOUSING	WHITE
8	560123-100*	DURACLIK™ ISL HOUSING 10P	HOUSING	WHITE
9	560123-120*	DURACLIK™ ISL HOUSING 12P	HOUSING	WHITE
10	560124-01**	DURACLIK™ ISL TERMINAL	TERMINAL	TIN/GOLD
11	560125-020*	DURACLIK™ ISL RETAINER 2P	RETAINER	GRAY
12	560125-030*	DURACLIK™ ISL RETAINER 3P	RETAINER	BLACK/GRAY
13	560125-040*	DURACLIK™ ISL RETAINER 4P	RETAINER	GRAY
14	560125-050*	DURACLIK™ ISL RETAINER 5P	RETAINER	GRAY
15	560125-060*	DURACLIK™ ISL RETAINER 6P	RETAINER	BLACK/GRAY
16	560125-080*	DURACLIK™ ISL RETAINER 8P	RETAINER	GRAY
17	560125-090*	DURACLIK™ ISL RETAINER 9P	RETAINER	GRAY
18	560125-100*	DURACLIK™ ISL RETAINER 10P	RETAINER	GRAY
19	560125-120*	DURACLIK™ ISL RETAINER 12P	RETAINER	GRAY
20	502352-****	WAFER ASSEMBLY (R/A)	HEADER	NATURAL
21	560020-****	WAFER ASSEMBLY (ST)	HEADER	NATURAL

3.0 RATINGS AND APPLICABLE WIRES

3.1 APPLICATION

ITEM	STANDARDS		
Rated Voltage (Max.)	125V		AC (rms) / DC Insulation Diameter 1.4mm MAX.
Rated Current (Max.)	AVSS 0.3SQ	3.0A	
Ambient temperature range	- 40℃ to 125℃		

*. Remark: Including terminal temperature rise.

4.0 STORAGE CONDITIONS

-. Storage temperature: - 20 ~ + 60℃

4.1 STORAGE DURATION

-. 6 Months after delivery date

5.0 PERFORMANCE

5.1 ELECTRICAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
1	Contact Resistance	Mate connectors, measure by dry circuit, 20mV MAX., 10mA. (JIS C5402 5.4)	10 milliohm MAX.
2	Insulation Resistance	Connectors shall be mated and apply 500V DC between adjacent terminals or ground. (JIS C5402 5.2/MIL-STD-202 Method 302)	1000 mega ohm MIN
3	Dielectric Strength	Connectors shall be mated and apply 500V AC (rms) for 1 minute between adjacent terminals or ground.(JIS C5402 5.1/MIL-STD-202 Method 301)	No breakdown
4	Contact Resistance on Crimped Portion	Crimped the applicable wire on to the terminal, measure by dry circuit, 20mV MAX., 10mA.	5 milliohm MAX.
5	Voltage Drop	Measure voltage drop by 12±1V of open circuit and 1±0.05A of short circuit at the 75or100mm of point from crimped section. Subtract wire conductor resistance from total resistance.	10mV/A MAX.

5.2 MECHANICAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT	
1	Insertion and Withdrawal Force	Insert and withdraw connectors at the speed rate of 25±3mm/minute.	See paragraph 6.	
2	Crimping Pull Out Force	Fixed crimped terminal, apply axial pull out force on the wire at the speed rate of 25±3mm/minute. (JIS C5402 6.8)	AVSS 0.3SQ	50N {5.1 kgf} MIN.
3	Terminal Insertion Force	Insert the crimped terminal into the housing.	9.8 N {1.0kgf} MAX.	
4	Terminal / Housing Retention Force	Apply axial pull out force at the speed rate of 25±3mm/minute on the terminal assembled in the housing.	50 N {5.1kgf} MIN.	
5	Pin Retention Force	Apply axial push force at the speed rate of 25±3mm/minute.	9.8 N {1.0kgf} MIN.	
6	Fitting Nail Peeling Strength	Mount product on PCB only by fitting nails and apply axial pull-up force at the speed rate of 2.5mm/min.	100 N {10.2kgf} MIN. (With both nails)	
7	Housing / Wafer Retention Force	Mate connectors and apply pull-out force at the speed rate of 25±3mm/min. This test should be done with positive lock locked.	50N {5.1kgf} MIN.	

5.3 ENVIRONMENTAL REQUIREMENTS AND OTHERS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT	
1	Repeated Insertion/ Withdrawal	When mated up to 30 cycles repeatedly by the rate of 10 cycles/minute.	Contact Resistance	20 milliohm MAX.
2	Temperature Rise	Carrying rated current load. (UL 498)	Temperature Rise	30 ℃ MAX.
3	Vibration	Acceleration : 44m/s^2 Sweep time: 20-200-20Hz in 3minutes Duration : 3hours in each X, Y, Z axes Open circuit voltage: 20mV max. Short circuit current: 10mA max.	Appearance	No Damage
			Contact Resistance	20 milliohm MAX.
			Voltage Drop	20 mV/A MAX.
			Discontinuity	1 microsecond MAX.
4	Mechanical Shock	981m/s^2 (100G), 3 strokes in each X, Y, Z axes. Operation time: 6ms	Appearance	No Damage
			Discontinuity	1 microsecond MAX.
5	Heat Resistance	125±2℃,96 hours. (JIS C0021/ MIL-STD-202 method 108)	Appearance	No Damage
			Contact Resistance	20 milliohm MAX.
6	Cold Resistance	-40±3℃,96 hours. (JIS C0020)	Appearance	No Damage
			Contact Resistance	20 milliohm MAX.
7	Humidity	Temperature: 60±2℃ Relative Humidity: 90-95% Duration: 96 hours (JIS C0022/MIL-STD-202 Method 103)	Appearance	No Damage
			Contact Resistance	20 milliohm MAX.
			Dielectric Strength	Must meet 5.1.3
			Insulation Resistance	100 mega ohm MIN.

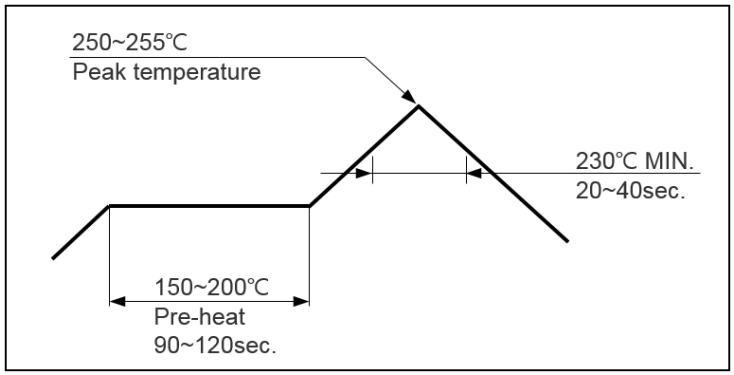
5.3 ENVIRONMENTAL REQUIREMENTS AND OTHERS (continued)

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT	
8	Temperature Cycling	1000 cycles of a) -30℃: 30 minutes b) +80℃: 30 minutes	Appearance	No Damage
			Insertion and Withdrawal Feeling	No scratches
			Terminal / Housing Retention Force	Must meet 5.2.4
			Crimping Pull Out Force	Must meet 5.2.2
			Housing / Wafer Retention Force	50 N {5.1kgf} MIN.
			Contact Resistance	20 milliohm MAX.
			Voltage Drop	20mV/A MAX.
9	Salt Spray	48±4 hours exposure to a salt spray from the 5±1% solution at 35±2 ℃ (JIS C0023/MII-STD-202 Method 101)	Appearance	No Damage
			Contact Resistance	20 milliohm MAX.
10	SO_2 gas	24 hours exposure to 50±5 ppm. SO_2 gas at 40±2℃	Appearance	No Damage
			Contact Resistance	20 milliohm MAX.
11	Solder-ability	Soldering Time: 3±0.5 sec. Solder Temperature: 245±5℃	Solder Wetting	90% of immersed area must show no voids, pinholes.
12	Resistance to Soldering Heat	Refer soldering method See paragraph 7.	Appearance	No Damage
			Contact Resistance	20 milliohm MAX.
		Press the solder trowel of 350±5℃ for 3sec.	Appearance	No Damage
			Contact Resistance	20 milliohm MAX.
13	Twisting Durability	Repeat inserting and removing the connector 10 times while twisting it upward, downward, to the right and the left by hands.	Appearance	No Damage
			Contact Resistance	20 milliohm MAX.

6.0 INSERTION / WITHDRAWAL FORCE (REFER TO PS-50515-001) D

No.of CKT.	UNIT	Insertion Force (MAX.)			Withdrawal Force(MIN.)		
		1st	6th	30th	1st	6th	30th
2	N {kgf}	35.2 {3.6}	33.3 {3.4}	33.3 {3.4}	1.0 {0.10}	1.0 {0.10}	1.0 {0.10}
3	N {kgf}	43.1 {4.4}	40.1 {4.1}	40.1 {4.1}	1.5 {0.15}	1.5 {0.15}	2.1 {0.21}
4	N {kgf}	50.9 {5.2}	47.0 {4.8}	47.0 {4.8}	2.0 {0.20}	2.0 {0.20}	3.2 {0.33}
5	N {kgf}	58.8 {6.0}	53.9 {5.5}	53.9 {5.5}	2.8 {0.29}	2.8 {0.29}	3.7 {0.38}
6	N {kgf}	64.6 {6.6}	58.8 {6.0}	58.8 {6.0}	3.5 {0.36}	3.5 {0.36}	4.2 {0.43}
7	N {kgf}	70.5 {7.2}	63.7 {6.5}	63.7 {6.5}	3.9 {0.40}	3.9 {0.40}	4.6 {0.47}
8	N {kgf}	76.4 {7.8}	68.6 {7.0}	68.6 {7.0}	4.2 {0.43}	4.2 {0.43}	5.0 {0.51}
9	N {kgf}	82.3 {8.4}	73.5 {7.5}	73.5 {7.5}	4.7 {0.48}	4.7 {0.48}	5.4 {0.55}
10	N {kgf}	88.2 {9.0}	78.4 {8.0}	78.4 {8.0}	5.3 {0.54}	5.3 {0.54}	5.8 {0.59}
11	N {kgf}	94.0 {9.6}	83.3 {8.5}	83.3 {8.5}	5.8 {0.59}	5.8 {0.59}	6.2 {0.63}
12	N {kgf}	99.9 {10.2}	88.2 {9.0}	88.2 {9.0}	6.4 {0.65}	6.4 {0.65}	6.6 {0.67}
13	N {kgf}	107.6 {11.0}	94.9 {9.7}	94.9 {9.7}	6.7 {0.68}	6.7 {0.68}	7 {0.71}
14	N {kgf}	113.9 {11.6}	100.2 {10.2}	100.2 {10.2}	7.2 {0.73}	7.2 {0.73}	7.4 {0.75}
15	N {kgf}	120.2 {12.3}	105.6 {10.8}	105.6 {10.8}	7.7 {0.79}	7.7 {0.79}	7.8 {0.80}

7.0 INFRARED REFLOW CONDITION



8.0 INSTRUCTION UPON USAGE

1) Positive lock should be released when unmating connectors.
2) Connectors should be mated straightly. Angled mating operation has possibility of deforming pins

9.0 NOTES

1) Mounting performance doesn't contain the influence of the warp of PCB.
2) Repairing with soldering iron should be done in specified condition.
3) It is necessary to consult separately when mount product on a special PCB or FPC.
4) There is no influence in the product performance though the twist might be generated in the terminal plating part according to the reflow condition.
5) There is no influence in the product performance though discoloration might be generated in the resin according to the reflow condition.
6) There is no influence in the product performance though black spots are seen on the surface of the resin of this product.
7) There is no influence in the product performance though scratches are seen on the surface of the resin of this product.
8) Coplanarity is assured only before mounting.
9) Changing recommended pattern causes problems.
10) Thickness 0.15mm, aperture ratio 100% metal mask is used in thin specification.