



PRODUCT SPECIFICATION

1.0 SCOPE

This specification covers the KinKuo 59&60 / 160 / 200 circuit LFH .050" pitch right angle and vertical shielded plug and receptacle connectors.

This represents a board-to-board and cable I/O connector system specific to the requirements set forth by KinKuo

2.0 PRODUCT DESCRIPTION

2.1 This LFH (Low Force Helix) connector system is designed to meet the industry's demand for a cost effective , high density, and low insertion force connector. The connectors utilize a gold-to-gold contact system to provide long-term reliability. The operating Temperature for these connectors is -45 °C to +85 °C.

2.2 The receptacle connector is an I/O style connector designed to be wave soldered on a PCB using conventional industry methods. The receptacle connector tail pattern is on a .050" x .050" grid.

2.3 The plug connector is an I/O style connector designed to be wave soldered to a PCB using conventional industry methods. The plug connector tail pattern is on a .050" x .050" grid.

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3 MECHANICAL SPECIFICATIONS

3.0 Materials:

3.0.1 Housings are molded of liquid crystal polymer (LCP), glass filled, black, and 94V-0 rated.

3.0.2 Contact Sticks are molded of liquid crystal polymer (LCP), glass filled, black, and 94V-0 rated.

3.0.3 Receptacle Terminals are phosphor bronze.

3.0.4 Plug Contacts are copper alloy.

3.1 Plating:

3.1.1 Contacts are plated with .000030"(0.00076mm) minimum gold plate in contact area over nickel under plate overall.

3.1.2 Contacts are plated with .00010"(0.00254mm) minimum tin in solder tail area over nickel under plate overall.

3.2 Insertion/Withdrawal forces:

3.2.1 Maximum Contact Insertion Force:
60 grams per contact.

3.2.2 Minimum Contact Withdrawal Force:
40 grams per contact.

3.3 Durability: 100 cycles

Connectors must meet the requirements set forth by this specification following durability test.

Mechanical Durability: 1000 cycles

Contact resistance not to exceed 50 milliohms following this test. Mechanical damage acceptable if it does not interfere with future connector performance.

4.0 ELECTRICAL SPECIFICATIONS

4.1 Voltage: 40 VAC RMS.

4.2 Current: 1.0 Amps at 30°C temperature rise.

4.3 Initial Contact Interface resistance; 10 milliohms max.

4.4 Dielectric Strength: 500 VRMS for 1 minute.

5.0 ELECTRICAL SPECIFICATIONS (CONTINUED)

5.1 Insulation Resistance: 100 Mohms minimum after 500 VDC for 1 minute.

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6.0 ENVIRONMENTAL SPECIFICATIONS:

6.1 Group I Sequence: Mated Environment

Test/Specification	Test Severity/Duration
6.1.1 Thermal Shock	-40°C to 105°C, 30 minute dwell at each temp., 10 cycles
6.1.2 Thermal Aging	105°C for 120 hours
6.1.3 Cyclic Humidity	Temperature cycles between 25°C to 65°C at 96% R.H. for 120 hrs.
6.1.4	Following Group I test sequence the contact resistance shall not change more than 10 milliohms from initial readings.

6.2 Group V Sequence: Mechanical – Connector Forces

Test/Specification	Test Severity/Duration
6.2.1 Thermal Aged	½ samples 105°C for 120hours
6.2.2 Mate/Unmate Cycling	100 mate /umate cycles Rate: 1"/min.
6.2.3	Following this test sequence the forces shall be: Mating Force: 25 pounds maximum. Unmating Force: 5.0 pounds maximum.

6.3 Group V Sequence: Mechanical – Individual Contact Forces

Test/Specification	Test Severity/Duration
6.3.1 Mate/Unmate Cycling	100 mate/unmate cycles
6.3.2	Following this test sequence the forces shall be: Contact Insertion Force: 60 grams max. Contact Withdrawal force: 15 grams min.
6.3.3	At the conclusion of the test, the change in contact resistance shall not increase by more than 5 milliohms over their initial values.

6.4 Group V Sequence: Mechanical – Normal Forces

Test/Specification	Test Severity/Duration
6.4.1 Thermal Aged w/Stress	1/3 of samples 105°C for 120 hours
6.4.2 Mate/Unmate Cycling	1/3 of samples 100 cycles
6.4.3	Following this test sequence the contacts of the three different test groups shall have a minimum normal force of 50 grams.

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7.0 SALT SPRAY

Test conditions:

Salt spray concentration: 5%

Spray volume: 1.2ml/80cm²/h PH: 6.8

Air compression force: 1.0kgf/cm²

Laboratory relative humidity: 80%

Laboratory temperature: 35 °C

Pressure barrel temperature: 47°C

Brine temperature: 35°C

Inspection STD:

48 hours later, the surface is free from oxidation and yellowing.

Midline, internal wall and cutting site are not the basis for judging.

8.0 Solder Ability

Test conditions:

Solder Temperature: 245±5°C

Immersion Period: 3±0.5 Seconds

Inspection STD:

Solder entirely (Tin Plated:95%/Gold Plated:75%) of immersed area must show no voids or pinholes.

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