



**THE DATASHEET OF  
M50-3501042**



# HARWIN

## Component Specification

**C02913**

Archer  
M50 and M52 Series Connectors  
June 2023

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## 1. DESCRIPTION OF CONNECTOR AND INTENDED APPLICATION

A range of 1.27mm pitch connectors, jumper sockets and IDC cable connectors, comprising vertical surface mount, vertical and horizontal throughboard, plugs and sockets of varying heights. Board-to-board spacing and configuration is obtained by the selection of an appropriate height plug and socket.

- M50 connectors are spaced 1.27mm between rows and based on 0.40mm square/round pins.
- M52 connectors are spaced 2.54mm between rows and based on 0.46mm square pins.

## 2. RATINGS

Note:

- Individual components may exceed below ratings – check individual customer information sheets.
- For M50 Pin Header variants, use the relevant specifications for M50-350, 360 and 390. For M52 Pin Header variants, these are specified as "M52-PH".

### 2.1. Material & Finish

**All materials are listed on individual drawings.**

Housing Material:

PCB connectors .....	High Temperature Thermoplastic, UL94V-0, Black
IDC Cable connectors.....	30% Glass Filled PBT, UL94V-0 Black
Jumper Sockets .....	30% Glass Filled PBT, UL94V-0
Contact Material.....	Copper alloy

Contact Finish:

M50-380 .....	Nickel all over, Gold Flash on contact area
Other connectors: 42 finish code.....	Nickel all over, Gold Flash on contact area, 100% Tin on tails
Other connectors: 45 finish code.....	Gold Flash over Nickel

### 2.2. Electrical Characteristics

Current Rating, per contact (EIA-364-70A):

M50-355, M50-365 .....	1.75A max
M50-380, M50-90X, M50-91X.....	0.5A max
Others.....	1A max

Contact Resistance (EIA-364-06C) ..... 20mΩ max (initial),  
30mΩ max (after conditioning)

Dielectric Withstanding Voltage - Voltage Proof (EIA-364-20D):

M50-380 .....	1,000V AC <sub>rms</sub> for 1 minute
M50-310/312/430/470/480/490 .....	300V AC, 500V DC for 1 minute
M50-311 .....	1,000V AC for 1 minute (initial), 250V AC for 1 minute (final)
M50-303/313/314/315/330/350/353/355/363/365/390/393 ....	500V AC for 1 minute (initial), 250V AC for 1 minute (final)
M50-19X/20X/320 .....	800V AC <sub>rms</sub> for 1 minute
M50-90X/91X .....	300V DC for 10 seconds
M52-500/510 .....	500V AC, 1,000V DC for 1 minute
Others.....	1,000V AC <sub>rms</sub> /DC for 1 minute

Insulation Resistance (EIA-364-21D):

M50-355/365 .....	5,000MΩ min
M50-310/312/430/470/480/490 .....	500MΩ min
M50-90X/91X .....	5MΩ min
Others.....	1,000MΩ min

### 2.3. Environmental Characteristics

Operating Temperature Range (EIA-364-17B):

M50-355/365 .....	-55°C to +125°C
M50-90X/91X .....	-20°C to +105°C
Others .....	-40°C to +105°C

Vibration (EIA-364-28D):

M50-19X/20X/300/320/350/360/380/390, All M52 .....	50-2,000Hz, 3.13G <sub>rms</sub> , duration 45 mins
M50-303/313/314/311/315 .....	10-55Hz, 10G, duration 2hrs
Others .....	Not tested

Shock (EIA-364-27B):

M50-19X/20X/300/320/350/360/380/390, All M52 .....	30G for 11ms
M50-311/315 .....	50G for 11ms
M50-310/312/430/470/480/490 .....	Not tested

### 2.4. Mechanical Characteristics

Durability (EIA-364-09C):

M50-310/312/330/380/430/470/480/490/90X/91X .....	100 operations
M50-311 .....	600 operations
M50-315 .....	25 operations
M50-353/363/393 .....	500 operations
Others .....	300 operations

Maximum Insertion force (EIA-364-13D):

M50-19X/20X .....	10N
M50-320/330/380/90X/91X, M52-500/510 .....	1N per contact
M50-310/312/430 .....	2N per contact
M50-311 .....	0.8N per contact
M50-300/303/313/314/315, M52-501/505/511/515 .....	1.5N per contact

Minimum Withdrawal force (EIA-364-13D):

M50-19X/20X .....	1.3N
M50-310/312/315/330/380/430/90X/91X .....	0.15N per contact
M50-320, M52-500/510 .....	0.12N per contact
M50-300, M52-501/505/511/515 .....	0.1N per contact
M50-303/313/314 .....	0.2N per contact

Minimum Contact Retention in Housing (EIA-364-29C):

M50-19X/20X .....	4N
M50-300/320/350/360/390, M52-PH/501/505/511/515 .....	9.8N per contact
M50-310/312/430/470/480/490, M52-500/510 .....	1.5N per contact
M50-303/311/313/314/315 .....	3N per contact
M50-353/363/393 .....	2N per contact

### 2.5. Soldering Data

Solderability - PCB connectors (EIA-364-52A):

M50-311 .....	230°C for 3 seconds
M50-315 .....	260°C for 3 seconds
Others .....	245°C for 5 seconds

Soldering heat resistance - PCB connectors (EIA-364-56D) ..... 260°C for 10 seconds



### Appendix A

Permissible initial angular misalignment for secure self-centering (M50-315) - From Tip of Chamfer:



Permissible angular misalignment for secure self-centering (M50-315) - From End of Chamfer:






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