THE DATASHEET OF

M50-3530342

Component Specification

C02913

Archer
M50 and M52 Series Connectors
June 2023

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_{rms} 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_{rms} 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_{rms}/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_{rms}, 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

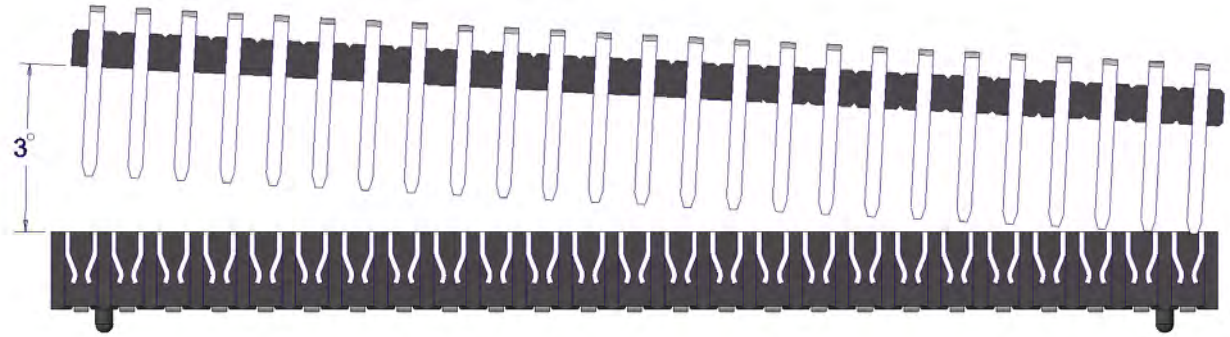
2.5. Soldering Data

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

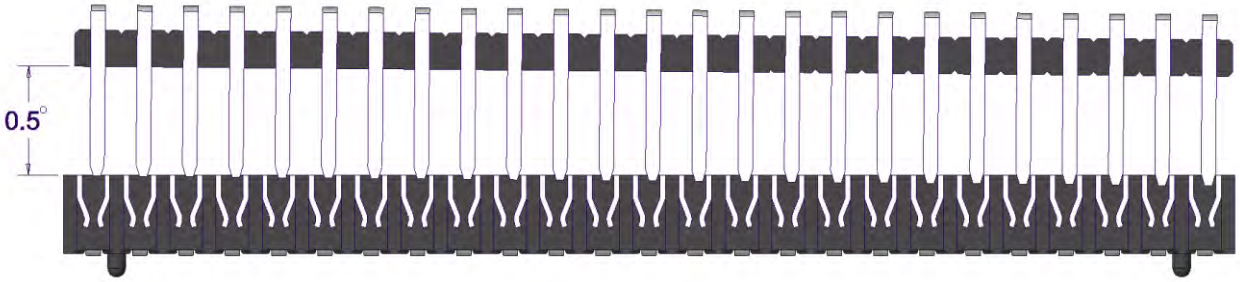
Soldering heat resistance - PCB connectors (EIA-364-56D) ..... 260°C for 10 seconds

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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