Fairview Microwave
RF COMPONENTS ON DEMAND. Done!

# FMHR0020-12 DATA SHEET

## N Female Bulkhead to SMA Male MIL-DTL-17 Cable M17/60-RG142 Coax in 12 Inch



MIL-DTL-17 N (M39012/03-0503) to SMA (M39012/55-3028) cable assemblies with test reports from Fairview Microwave are part of our full line of reliable RF components available with same-day shipping. These COTS (commercial-off-the-shelf) cable assemblies using M17/60-RG142 have traceable processes and materials that are recorded and provided in the included test report. The MIL-DTL-17 coaxial cable and MIL-PRF-39012 connectors are assembled with J-STD-001 soldering processes and meet WHMA-A-620 workmanship criteria. These carefully selected materials, assembly processes and test sequence ensure a dependable cable assembly for high reliability applications where the cost of failure or replacement is high. Each serialized N to SMA MIL-DTL-17 cable assembly is traceable to its component lots and test data ship with every cable.

This MIL-C-17 M39012/03-0503 to M39012/55-3028 cable assembly using M17/60-RG142 datasheet PDF contains specifications, CAD drawing and dimensions that are shown below. Fairview Microwave offers these high reliability RF cable assemblies with test data, and many other RF, microwave and millimeter wave components which allow designers to configure and customize their signal systems however they like. Whether the need is to provide reliable MIL-DTL-17 interconnects or supporting test reports, Fairview Microwave has the right cable assemblies for the job. Fairview can also expertly build your custom cable assemblies for you and ship same day.

### Referenced Specifications

| | |
|---|---|
| IPC/WHMA-A-620 | Requirements and Acceptance for Cable and Wire Harness Assemblies |
| MIL-DTL-17 | Cables, Radio Frequency, Flexible and Semirigid, General Specification for |
| MIL-STD-348 | Radio Frequency Connector Interfaces for MIL-DTL-3643, MIL-DTL-3650, MIL-DTL-3655, MIL-DTL-25516, MIL-PRF-31031, MIL-PRF-39012, MIL-PRF-49142, MIL-PRF... |
| MIL-PRF-39012 | Connectors, Coaxial, Radio Frequency, General Specification for |
| IPC J-STD-001 | Requirements for Soldered Electrical and Electronic Assemblies |
| IPC J-STD-006 | Requirements for Electronic Grade Solder Alloys and Fluxed and Non-Fluxed Solid Solders for Electronic Soldering Applications |
| SAE AS5942 | Marking of Electrical Insulating Materials |
| SAE AS23053 | Insulation Sleeving, Electrical, Heat Shrinkable, General Specifications For |
| SAE AS22520 | Crimping Tools, Wire Termination, General Specification For |

### Material Specifications

| Component | Specification |
|---|---|
| Cable | M17/60-RG142 in accordance with MIL-DTL-17 |
| Connector 1 | M39012/03-0503 in accordance with MIL-PRF-39012 |
| Connector 2 | M39012/55-3028 in accordance with MIL-PRF-39012 |
| Heat Shrink 1 | M23053/5-106-0 in accordance with SAE AS23053 |
| Heat Shrink 2 | M23053/5-106-0 in accordance with SAE AS23053 |

### Configuration:

- Connector 1: M39012/03-0503(N Female Bulkhead)
- Connector 2: M39012/55-3028(SMA Male)
- Cable: M17/60-RG142

### Features:

- Max Frequency 11 GHz
- 69.5% Phase Velocity
- Double Shielded
- FEP Jacket
- J-STD-Soldering
- Lot Traceability Data
- Qualified cable and connectors (QPL)
- Acceptance Test Report
- RF Test Data
- In stock and ready to ship

### Applications:

- Hi-Reliability
- Unmanned Systems
- Drones
- MIL-DTL-17 Requirements
- Military Electronics

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| | |
|---|---|
| Solder | SN63 in accordance with J-STD-006 |

## Electrical Specifications

| Description | Min | Typ | Max | Units |
|---|---|---|---|---|
| Frequency Range | DC | | 11 | GHz |
| VSWR | | | 1.7:1 | |
| Velocity of Propagation | | 69.5 | | % |
| Capacitance | | 29.3 [96.13] | | pF/ft [pF/m] |
| Dielectric Withstanding Voltage (AC) | | | 1,000 | Vrms |

### Specifications by Frequency

| Description | F1 | F2 | F3 | F4 | F5 | Units |
|---|---|---|---|---|---|---|
| Frequency | 0.4 | 1 | 3 | 8 | 11 | GHz |
| Insertion Loss (Max.) | 0.24 | 0.32 | 0.5 | 0.85 | 1.07 | dB |

Electrical Specification Notes:
The Insertion Loss data above is based on the performance specifications of the coax cable used in this assembly. The Insertion Loss includes an estimated insertion loss of 0.06*SQRT(GHz) dB maximum for the SMA Male connector and 0.1 dB for the N Female connector.

## Mechanical Specifications

### Cable Assembly

| Description | Min | Typ | Max | Units |
|---|---|---|---|---|
| Length* | 12 [304.8] | 12 [304.8] | 12.5 [317.5] | in [mm] |
| Cable Outer Diameter | 0.19 | 0.195 | 0.2 | in |
| Weight | | | 0.19 [86.18] | lbs [g] |

### Cable Characteristics

| Component | Specification |
|---|---|
| Cable Type | M17/60-RG142 |
| Impedance | 50 Ohms |
| Inner Conductor Type | Solid |
| Inner Conductor Mat. & Plat. | Copper Clad Steel, Silver |
| Dielectric Type | PTFE |
| Number of Shields | 2 |
| Shield Layer 1 | Silver Clad Copper |
| Shield Layer 2 | Silver Clad Copper |
| Outer Conductor Diameter | 0.171 in [4.34 mm] |
| Jacket Material | FEP |



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### Connector Characteristics

| Description | Connector 1 | Connector 2 |
|---|---|---|
| Type | N Female Bulkhead | SMA Male |
| Specification | MIL-PRF-39012 | MIL-PRF-39012 |
| Impedance | 50 Ohms | 50 Ohms |
| Contact Mat. & Plat. | Phosphor Bronze, Gold | Beryllium Copper, Gold |
| Contact Plating Spec. | MIL-G-45204 | |
| Dielectric Type | Teflon | PTFE |
| Outer Conductor Mat. & Plat. | Brass, Silver | |
| Outer Conductor Plating Spec. | QQ-S-365 | |
| Body Mat. & Plat. | Brass, Silver | Passivated Stainless Steel |
| Body Plating Spec. | QQ-S-365 | |
| Coupling Nut Mat. & Plat. | Brass, Silver | Passivated Stainless Steel |
| Coupling Nut Plating Spec. | QQ-S-365 | |
| Seal Gasket Material | Silicone Rubber | Silicone Rubber |
| Contact Gage Spec. | 0.187 to 0.207 in | 0.000 in min |
| Insulator Gage Spec. | | 0.000 in min |

Mechanical Specification Notes:

### Environmental Specifications

| Description | Specification |
|---|---|
| Temperature Operating Range | -55 to +165 deg C |

### Compliance Certifications (see product page for current document)

### Process Specifications

| Process | Specification |
|---|---|
| Soldering | in accordance with J-STD-001, class 3 |
| Crimping | dies in accordance with SAE AS22520 |
| Marking | shall meet the adherence requirements of SAE AS5942 |
| Workmanship | shall be in accordance with IPC/WHMA-A-620, class 3 |

### Tests and Inspections

| Test | Sampling |
|---|---|
| Connector Gaging (pin and insulator position) | 100% |
| Insertion Loss | 100% |
| VSWR | 100% |
| Dielectric Withstanding Voltage (DWV) | 100% |
| Visual - workmanship, configuration and marking | 100% |
| Length | C=0, 1.5 AQL |
| Mass | C=0, 1.5 AQL |



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## Plotted and Other Data

Notes:

- Values at 25°C, sea level.

## How to Order

Part Number Configuration: **FMHR0020 - xx uu**

- xx = Length
- uu = cm = Centimeters, <blank> = Inches

Example: FMHR0020-12 = 12 inches long cable
FMHR0020-100cm = 100 cm long cable

Cable Assembly Length Tolerances:

| Imperial English | | Metric | |
|---|---|---|---|
| "L" ≤ 1 ft | +0.5 in / -0 in | "L" ≤ 0.3 m | +12.5 mm / -0 mm |
| 1 ft < "L" ≤ 5 ft | +1 in / -0 in | 0.3 m < "L" ≤ 1.5 m | +25 mm / -0 mm |
| 5 ft < "L" ≤ 10 ft | +2 in / -0 in | 1.5 m < "L" ≤ 3 m | +50 mm / -0 mm |
| 10 ft < "L" ≤ 25 ft | +3 in / -0 in | 3 m < "L" ≤ 7.5 m | +75 mm / -0 mm |
| 25 ft < "L" | +2%"L" / -0%"L" | 7.5 m < "L" | +2%"L" / -0%"L" |

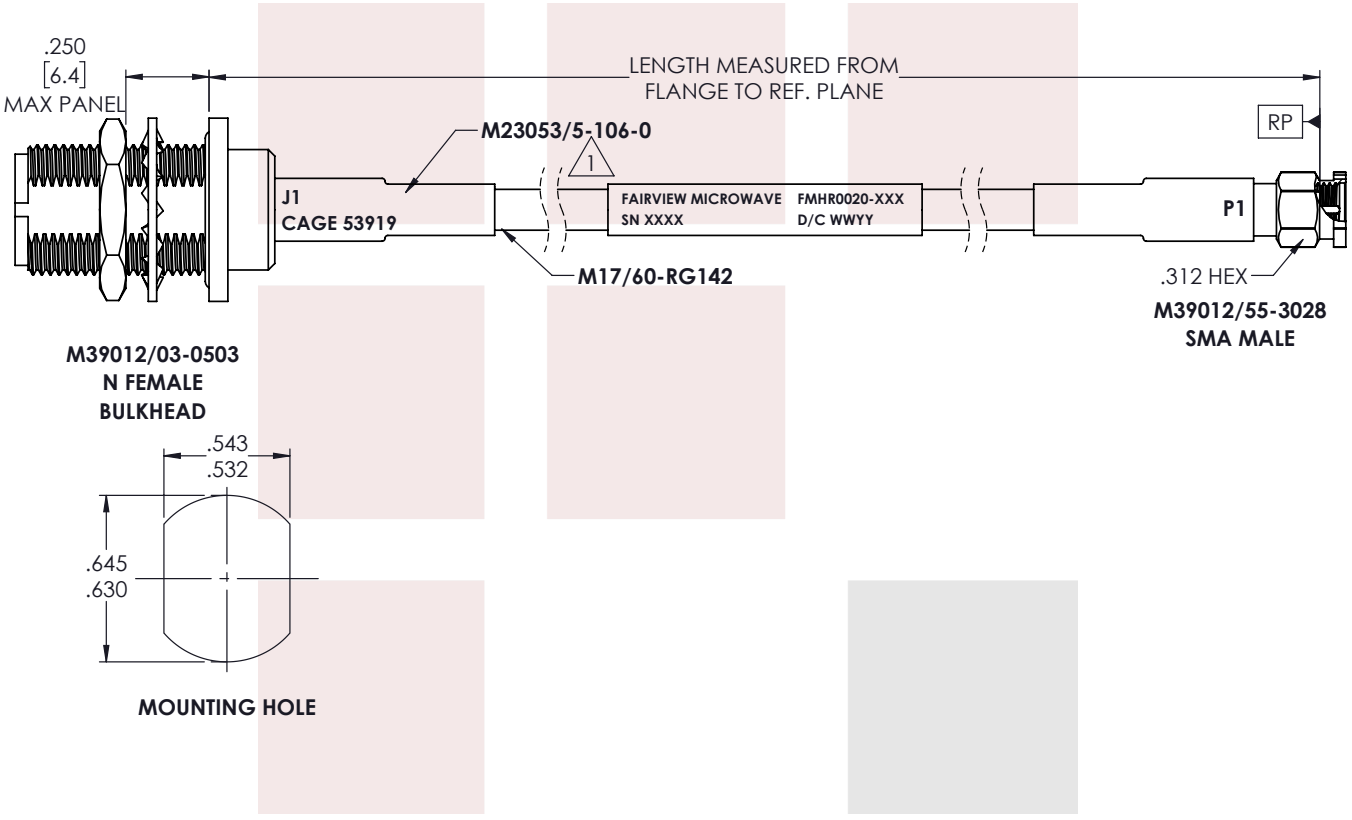
* Cable Length = "L"

N Female Bulkhead to SMA Male MIL-DTL-17 Cable M17/60-RG142 Coax in 12 Inch from Fairview Microwave has same day shipment for domestic and International orders. Our RF, microwave and fiber optic products maintain a 99% availability and are part of the broadest selection in the industry.

Click the following link to obtain additional part information: N Female Bulkhead to SMA Male MIL-DTL-17 Cable M17/60-RG142 Coax in 12 Inch FMHR0020-12

URL: https://www.fairviewmicrowave.com/n-female-sma-male-cable-m17-60-rg142-coax-fmhr0020-12-p.aspx

The information contained in this document is accurate to the best of our knowledge and representative of the part described herein. It may be necessary to make modifications to the part and/or the documentation of the part, in order to implement improvements. Fairview Microwave reserves the right to make such changes as required. Unless otherwise stated, all specifications are nominal. Fairview Microwave does not make any representation or warranty regarding the suitability of the part described herein for any particular purpose, and Fairview Microwave does not assume any liability arising out of the use of any part or documentation.




| STANDARD TOLERANCES | |
|---|---|
| .X | ±0.2 |
| .XX | ±0.01 |
| .XXX | ±0.005 |

*STANDARD TOLERANCES APPLY ONLY TO DIMENSIONS IN INCHES

NOTES:
1. BLACK HEAT SHRINK WITH WHITE MARKINGS 3 PLACES.

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NOTES:
1. UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE NOMINAL.
2. ALL SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE AT ANY TIME.
3. DIMENSIONS ARE IN INCHES [mm].

| TITLE | DWG NO | CAGE CODE | | | | |
|---|---|---|---|---|---|---|
| N Female Bulkhead to SMA Male MIL-DTL-17 Cable M17/60-RG142 Coax in 12 Inch | FMHR0020 | 3FKR5 | | | | |
| | CAD FILE 11/15/18 | SHEET 1 OF 1 | SCALE N/A | SIZE A | CN2379 | |

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