

# Q2-F

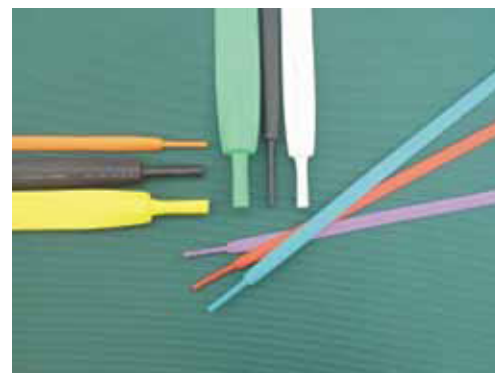


**ENVIRONMENT FRIENDLY, FLEXIBLE,  
HIGHLY FLAME RETARDANT, HEAT SHRINKABLE TUBING**  
**SHRINK RATIO 2:1**

## Features/Applications

Provides both commercial and military applications electrical insulation and protects in-line components, disconnect terminals and splices with its high strength and excellent resilience. Bundles wires for very flexible light-duty harnesses. Identifies or color-codes wires, cables, terminals and components.

- Operating temperature: -55°C to +135°C
- Minimum shrink temperature: 70°C
- Full recovery temperature: 100°C
- Approvals<sup>4</sup>: File No. E236137, File No. 242540, 125°C, VW-1, 600V
- Meets: SAE-AMS-DTL-23053/5 Class 1 & 3, Sony-SS-00259
- Material: No PBB's, PBBO's, PBBE's, Free of Cadmium & Lead
- Standard colors: Black, red, blue, yellow, green, white, clear (class 2)
- RoHS Compliant



## Technical Data

| Property                                              | Test Method                   | Typical Data           |
|-------------------------------------------------------|-------------------------------|------------------------|
| Operating Temperature                                 | IEC 216                       | -55°C to +135°C        |
| Tensile Strength                                      | ASTM D 2671                   | >14 MPa                |
| Ultimate Elongation                                   | ASTM D 2671                   | > 600%                 |
| Longitudinal Shrinkage                                | UL 224                        | 0 ± 5%                 |
| Eccentricity                                          | UL 224                        | < 30%                  |
| Heat Aging<br>Tensile Strength<br>Ultimate Elongation | 175°C, 168 hrs.               | > 11 MPa<br>> 350 %    |
| Flammability                                          | VW-1                          | Pass                   |
| Dielectric Strength                                   | ASTM D 150                    | >20kV / mm             |
| Voltage Withstand                                     | ASTM D 2671 / AC2500V. 1 min. | No Breakdown           |
| Volume Resistance                                     | ASTM D 876                    | >10 <sup>14</sup> Ω.cm |
| Copper Stability                                      | UL 224                        | Pass                   |
| Copper Corrosion                                      | UL 224                        | No Corrosion           |

## Product Dimensions

| Size  |       | As Supplied<br>(mm)       | After Recovered<br>(mm)   |                          | Standard Packaging            |                                   |                               |                                            |     |
|-------|-------|---------------------------|---------------------------|--------------------------|-------------------------------|-----------------------------------|-------------------------------|--------------------------------------------|-----|
|       |       |                           |                           |                          | Mini Spool<br>*(MS)<br>(Feet) | Standard Spool<br>*(SS)<br>(Feet) | Box Length<br>*(QX)<br>(Feet) | Cut to Length Pcs.<br>*(QB)<br>Qty per bag |     |
| Inch  | mm    | Inside Diameter<br>(min.) | Inside Diameter<br>(max.) | Wall Thickness<br>(min.) |                               |                                   |                               | 6"                                         | 48" |
| 3/64  | 1.2   | 1.2                       | 0.6                       | 0.40                     | 100                           | 1000                              | 50                            | 40                                         | 25  |
| 1/16  | 1.6   | 1.6                       | 0.8                       | 0.40                     | 100                           | 1000                              | 50                            | 36                                         | 25  |
| 3/32  | 2.4   | 2.4                       | 1.2                       | 0.48                     | 100                           | 500                               | 50                            | 32                                         | 25  |
| 1/8   | 3.2   | 3.2                       | 1.6                       | 0.48                     | 100                           | 500                               | 50                            | 28                                         | 25  |
| 3/16  | 4.8   | 4.8                       | 2.4                       | 0.48                     | 100                           | 500                               | 30                            | 24                                         | 25  |
| 1/4   | 6.4   | 6.4                       | 3.2                       | 0.56                     | 100                           | 500                               | 30                            | 20                                         | 25  |
| 5/16  | 8.0   | 8.0                       | 4.0                       | 0.62                     | 100                           | 250                               | 30                            | 18                                         | 24  |
| 3/8   | 9.5   | 9.5                       | 4.8                       | 0.62                     | 100                           | 250                               | 30                            | 16                                         | 25  |
| 1/2   | 12.7  | 12.7                      | 6.4                       | 0.62                     | 100                           | 200                               | 15                            | 14                                         | 5   |
| 5/8   | 15.9  | 15.9                      | 8.0                       | 0.68                     | 50                            | 200                               | 15                            | 14                                         | 5   |
| 3/4   | 19.1  | 19.1                      | 9.5                       | 0.68                     | 50                            | 200                               | 15                            | 12                                         | 5   |
| 1     | 25.4  | 25.4                      | 12.7                      | 0.87                     | 50                            | 200                               | 15                            | 8                                          | 5   |
| 1 1/4 | 31.8  | 31.8                      | 15.9                      | 1.00                     | 50                            | 100                               | -                             | 8                                          | 5   |
| 1 1/2 | 38.1  | 38.1                      | 19.1                      | 1.00                     | 50                            | 100                               | -                             | 5                                          | 5   |
| 2     | 50.8  | 50.8                      | 25.4                      | 1.10                     | 50                            | 100                               | -                             | 3                                          | 5   |
| 3     | 76.2  | 76.2                      | 38.1                      | 1.20                     | -                             | 100                               | -                             | 2                                          | 2   |
| 4     | 102.0 | 102.0                     | 50.8                      | 1.35                     | -                             | 100                               | -                             | 1                                          | 2   |
| 5     | 125.0 | 125.0                     | 63.5                      | 1.40                     | -                             | 50                                | -                             | 1                                          | 2   |
| 6     | 151.0 | 151.0                     | 75.0                      | 1.40                     | -                             | 50                                | -                             | 1                                          | 2   |

### Notes:

1. \* See Part Number Guide for standard packaging codes.
2. Cross Reference Guide available.
3. Special sizes, packaging, colors and cut pieces are available upon request
4. Clear tubing is not flame retardant, UL or CSA approved.