

**Q2-Z**

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

**Features/Applications**

An environment friendly, flame retardant shrink tubing. Specially designed formulation to meet UL 224 and CSA 22.2 on the basis of no harmful substance such as PBB, PBBE, PBBO and toxic metal compounds. Widely used for insulation, strain relief, harnessing, bundling and color coding of wire with a low shrink temperature. Good flexibility and superior mechanical strength in such fields as electronics, communication and automobile.

- Operating temperature: -55°C to +125°C
- Minimum shrink temperature: 70°C
- Full recovery temperature: 100°C
- Approvals: File No. E236137, File No. 242540, 125°C, VW-1, 600V
- Meets: Sony SS-00259,
- Material: No PBB's, PBBO's, PBBE's
- Cadmium content <5 ppm, Lead content <10 ppm
- Standard colors: Black, red, blue, yellow, green, white
- Other colors are available upon request.
- RoHS Compliant

**Technical Data**

| Property                                              | Test Method                   | Typical Data            |
|-------------------------------------------------------|-------------------------------|-------------------------|
| Operating Temperature                                 | UL 224                        | -55°C to +125°C         |
| Tensile Strength                                      | ASTM D 2671                   | > 14 MPa                |
| Ultimate Elongation                                   | ASTM D 2671                   | > 400%                  |
| Longitudinal Shrinkage                                | UL 224                        | 0 ± 5%                  |
| Eccentricity                                          | ASTM D 2671                   | < 30%                   |
| Heat Aging<br>Tensile Strength<br>Ultimate Elongation | 158°C, 168 hrs.               | > 12 MPa<br>> 350%      |
| Flammability                                          | VW-1                          | Pass                    |
| Voltage Withstand                                     | ASTM D 2671 / AC 2500, 1 min. | No Breakdown            |
| Volume Resistance                                     | IEC 93                        | > 10 <sup>14</sup> Ω.cm |
| Copper Stability                                      | UL 224                        | Pass                    |
| Copper Corrosion                                      | UL 224                        | No Corrosion            |

**Product Dimensions**

| Size (mm) | As Supplied (mm)       | After Recovered (mm)   |                       | Standard Spool *(SS) (Meter) |
|-----------|------------------------|------------------------|-----------------------|------------------------------|
|           | Inside Diameter (min.) | Inside Diameter (max.) | Wall Thickness (min.) |                              |
| 1.0       | 1.0                    | 0.50                   | 0.33                  | 200                          |
| 1.5       | 1.5                    | 0.75                   | 0.36                  | 200                          |
| 2.0       | 2.0                    | 1.00                   | 0.44                  | 200                          |
| 2.5       | 2.5                    | 1.25                   | 0.44                  | 200                          |
| 3.0       | 3.0                    | 1.50                   | 0.44                  | 200                          |
| 3.5       | 3.5                    | 1.75                   | 0.44                  | 200                          |
| 4.0       | 4.0                    | 2.00                   | 0.44                  | 200                          |
| 5.0       | 5.0                    | 2.50                   | 0.56                  | 100                          |
| 6.0       | 6.0                    | 3.00                   | 0.56                  | 100                          |
| 7.0       | 7.0                    | 3.50                   | 0.56                  | 100                          |
| 8.0       | 8.0                    | 4.00                   | 0.56                  | 100                          |
| 9.0       | 9.0                    | 4.50                   | 0.56                  | 100                          |
| 10.0      | 10.0                   | 5.00                   | 0.56                  | 100                          |
| 11.0      | 11.0                   | 5.50                   | 0.56                  | 100                          |
| 12.0      | 12.0                   | 6.00                   | 0.56                  | 50                           |
| 13.0      | 13.0                   | 6.50                   | 0.65                  | 50                           |
| 14.0      | 14.0                   | 7.00                   | 0.69                  | 50                           |
| 15.0      | 15.0                   | 7.50                   | 0.69                  | 50                           |
| 16.0      | 16.0                   | 8.00                   | 0.69                  | 50                           |
| 18.0      | 18.0                   | 9.00                   | 0.80                  | 50                           |
| 20.0      | 20.0                   | 10.00                  | 0.80                  | 50                           |
| 22.0      | 22.0                   | 11.00                  | 0.80                  | 50                           |
| 25.0      | 25.0                   | 12.50                  | 0.90                  | 50                           |
| 28.0      | 28.0                   | 14.00                  | 0.90                  | 50                           |
| 30.0      | 30.0                   | 15.00                  | 0.90                  | 50                           |
| 35.0      | 35.0                   | 17.50                  | 0.90                  | 50                           |
| 40.0      | 40.0                   | 20.00                  | 1.00                  | 50                           |
| 50.0      | 50.0                   | 25.00                  | 1.00                  | 50                           |
| 60.0      | 60.0                   | 30.00                  | 1.00                  | 30                           |
| 70.0      | 70.0                   | 35.00                  | 1.20                  | 30                           |
| 80.0      | 80.0                   | 40.00                  | 1.20                  | 30                           |
| 100.0     | 100.0                  | 50.80                  | 1.30                  | 30                           |
| 125.0     | 125.0                  | 63.50                  | 1.30                  | 15                           |
| 150.0     | 150.0                  | 76.00                  | 1.30                  | 15                           |

**Product Dimensions**

| Size (Inch) | As Supplied (mm)       | After Recovered (mm)   |                       | Standard Packaging      |                             |                         |                                      |     |
|-------------|------------------------|------------------------|-----------------------|-------------------------|-----------------------------|-------------------------|--------------------------------------|-----|
|             | Inside Diameter (min.) | Inside Diameter (max.) | Wall Thickness (min.) | Mini Spool *(MS) (Feet) | Standard Spool *(SS) (Feet) | Box Length *(QX) (Feet) | Cut to Length Pcs. *(QB) Qty per bag |     |
|             |                        |                        |                       |                         |                             |                         | 6"                                   | 48" |
| 3/64        | 1.2                    | 0.60                   | 0.33                  | 100                     | 1000                        | 50                      | 40                                   | 25  |
| 1/16        | 1.6                    | 0.80                   | 0.36                  | 100                     | 1000                        | 50                      | 36                                   | 25  |
| 3/32        | 2.4                    | 1.20                   | 0.44                  | 100                     | 500                         | 50                      | 32                                   | 25  |
| 1/8         | 3.2                    | 1.60                   | 0.44                  | 100                     | 500                         | 50                      | 28                                   | 25  |
| 3/16        | 4.8                    | 2.40                   | 0.56                  | 100                     | 500                         | 30                      | 24                                   | 25  |
| 1/4         | 6.4                    | 3.20                   | 0.56                  | 100                     | 500                         | 30                      | 20                                   | 25  |
| 5/16        | 8.0                    | 4.00                   | 0.56                  | 100                     | 250                         | 30                      | 18                                   | 25  |
| 3/8         | 9.5                    | 4.80                   | 0.56                  | 100                     | 250                         | 30                      | 16                                   | 25  |
| 1/2         | 12.7                   | 6.40                   | 0.65                  | 100                     | 200                         | 15                      | 14                                   | 5   |
| 5/8         | 16.0                   | 8.00                   | 0.69                  | 50                      | 200                         | 15                      | 14                                   | 5   |
| 3/4         | 19.1                   | 9.50                   | 0.80                  | 50                      | 200                         | 15                      | 12                                   | 5   |
| 1           | 25.4                   | 12.70                  | 0.90                  | 50                      | 200                         | 15                      | 8                                    | 5   |
| 1 1/4       | 31.8                   | 15.90                  | 0.90                  | 50                      | 100                         | -                       | 8                                    | 5   |
| 1 1/2       | 38.1                   | 19.10                  | 1.02                  | 50                      | 100                         | -                       | 5                                    | 5   |
| 2           | 50.8                   | 25.40                  | 1.02                  | 50                      | 100                         | -                       | 3                                    | 5   |
| 3           | 76.2                   | 38.10                  | 1.20                  | -                       | 100                         | -                       | 2                                    | 2   |
| 4           | 101.6                  | 50.80                  | 1.30                  | -                       | 100                         | -                       | 1                                    | 2   |
| 5           | 126.0                  | 63.50                  | 1.30                  | -                       | 50                          | -                       | 1                                    | 2   |
| 6           | 150.0                  | 76.00                  | 1.30                  | -                       | 50                          | -                       | 1                                    | 2   |

**Notes:**

- \* See Part Number Guide for standard packaging codes..
- Cross Reference Guide available.
- Special sizes, packaging, colors and cut pieces are available upon request.