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Customer Specification

PART NO. ST-302-3/16

Construction

| | |
|--|---------------------------------------|
| 1) Tubing Type | Adhesive Lined Heat Shrinkable Tubing |
| 2) Tubing Material | Irradiated Polyolefin w/ Adhesive |
| 3) Minimum Supplied ID(In) | 0.187 |
| 4) Maximum Recovered ID(In) | 0.093 |
| 5) Minimum Recovered Adhesive Wall Thickness(In) | 0.026 |
| 6) Color(s) | BLACK |

Applicable Specifications

| | | |
|----------------------|--------------------------|------------------------------|
| 1) UL | Standard 224 | 125°C / 600 V _{RMS} |
| | All Tubing Flame Test | |
| 2) CSA International | Standard 198 | |
| 3) Other | AMS-DTL-23053/4, Class 2 | |

Environmental

| | |
|-------------------------------------|---|
| 1) EU Directive 2011/65/EU(RoHS2): | All materials used in the manufacture of this part are in compliance with European Directive 2011/65/EU regarding the restriction of use of certain hazardous substances in electrical and electronic equipment. Consult Alpha Wire's web site for RoHS C of C. |
| 2) REACH Regulation (EC 1907/2006): | This product does not contain Substances of Very High Concern (SVHC) listed on the European Union's REACH candidate list in excess of 0.1% mass of the item. For up-to-date information, please see Alpha's REACH SVHC Declaration. |
| 3) California Proposition 65: | The outer surface materials used in the manufacture of this part meet the requirements of California Proposition 65. |

Properties

| Physical & Mechanical Properties | | |
|----------------------------------|--------------------------------|---------------|
| 1) Temperature Range | -55 to 110°C | |
| 2) Shrink Ratio | Approximately 2:1 | |
| 3) Minimum Shrink Temperature | 110°C | |
| 4) Tensile Strength | 1500psi, Min | ASTM D638 |
| 5) Elongation | 200%, Min | ASTM D638 |
| 6) Cold Impact(-55°C) | no cracking | ASTM D746 |
| 7) Heat Shock(250°C,4hrs) | no cracking | AMS-DTL-23053 |
| 8) Longitudinal Change | +1%/5% | AMS-DTL-23053 |
| 9) Shelf Life | 3 Years @ 18 to 35°C | |
| Electrical Properties | | |
| 1) Dielectric Strength | 500 V/mil, Min | ASTM D876 |
| 2) Volume Resistivity | 1x10 ¹² ohm-cm, Min | ASTM D876 |
| Chemical Properties | | |
| 1) Water Absorption | 0.50%, Max | ASTM D570 |
| 2) Corrosion(0°C,16hrs) | no corrosion | AMS-DTL-23053 |
| 3) Fluid Resistance(23°C,24 Hrs) | 1000 PSI, Min | AMS-DTL-23053 |
| 4) Fungus Resistance | Pass | AMS-DTL-23053 |
| 5) Halogen Free | No | |
| 6) Lead Free | Yes | |

Other

| |
|-----------|
| Packaging |
|-----------|

www.alphawire.com

Alpha Wire | 711 Lidgerwood Avenue, Elizabeth, NJ 07207

Tel: 1-800-52 ALPHA (25742)

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EU/China ROHS CERTIFICATE OF COMPLIANCE

To Whom It May Concern:

Alpha Wire Part Number: ST-302-3/16

ST-302-3/16 , RoHS-Compliant Commencing With 11/5/2005 Production

Note: all colors and put-ups

This document certifies that the Alpha part number cited above is manufactured in accordance with Directive 2011/65/EU of the European Parliament, better known as the RoHS Directive (commonly known as RoHS 2), with regards to restrictions of the use of certain hazardous substances used in the manufacture of electrical and electronic equipment. This certification extends to amending Directive 2015/863/EU which expanded the list of restricted substances to 10 items (commonly known as RoHS 3) The reader is referred to these Directives for the specific definitions and extents of the Directives. **No Exemptions are required for RoHS Compliance on this item.** Additionally, Alpha certifies that the listed part number is in compliance with China RoHS "Marking for Control of Pollution by Electronic Information Products" standard SJ/T 11364-2014.

| Substance | Maximum Control Value |
|---|----------------------------|
| Lead | 0.1% by weight (1000 ppm) |
| Mercury | 0.1% by weight (1000 ppm) |
| Cadmium | 0.01% by weight (100 ppm) |
| Hexavalent Chromium | 0.1% by weight (1000 ppm) |
| Polybrominated Biphenyls (PBB) | 0.1% by weight (1000 ppm) |
| Polybrominated Diphenyl Ethers (PBDE) , | |
| Including Deca-BDE | 0.1% by weight (1000 ppm) |
| Bis(2-ethylhexyl) phthalate (DEHP) | 0.1% by weight (1000 ppm) |
| Butyl benzyl phthalate (BBP) | 0.1% by weight (1000 ppm) |
| Dibutyl phthalate (DBP) | 0.1% by weight (1000 ppm) |
| Diisobutyl phthalate (DIBP) | 0.1% by weight (1000 ppm) |

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Authorized Signatory for the Alpha Wire:

Dave Watson, Director of Engineering & QA

9/3/2019

Alpha Wire

711 Lidgerwood Ave.

Elizabeth, NJ 07207

Tel: 1-908-925-8000