

# Scotch® Super 33+™

## Vinyl Electrical Tape

Data Sheet

October 2014

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### Description

Scotch® Super 33+™ Vinyl Electrical Tape is a premium grade, 7 mil thick, all-weather vinyl-insulating tape. It is designed to perform continuously in ambient temperatures up to 105°C (220°F). The tape is conformable for cold weather application down to -18°C (0°F). It has excellent resistance to abrasion, moisture, alkalies, acids, corrosion and varying weather conditions (including ultraviolet exposure). The combination of elastic backing and aggressive adhesive provides moisture-tight electrical and mechanical protection with minimum bulk. Scotch® Super 33+™ Vinyl Electrical Tape is UL Listed and is a Canadian Standards Association (CSA) Certified “Insulating Tape.”

- UL Listed; UL 510 Standard “Insulating Tape” (product category OANZ), File E129200
- CSA Certification; Standard C22.2 No.197-M1983 “PVC Insulating Tape,” File LR 48769
- Polyvinyl chloride (PVC) backing.
- Pressure-sensitive rubber based adhesive.
- Compatible with solid dielectric cable insulations.
- Compatible with rubber and synthetic splicing compounds, as well as epoxy and polyurethane resins.
- Inhibits corrosion of electrical conductors.
- For indoor or outdoor applications.

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### Applications

- Primary electrical insulation for all wire and cable splices rated up to 600 volts and up to 105°C (220°F).
- Primary electrical insulation for 600 volt bus applications, and protective jacketing for low and high voltage bus.
- Protective jacketing for high voltage cable splices and repairs.
- Harnessing of wires and cables.

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### Specifications

Scotch® Super 33+™ Vinyl Electrical Tape is based on polyvinyl chloride (PVC) and/or its copolymers and has a rubber-based, pressure-sensitive adhesive. The tape shall be 7 mils thick, and be UL Listed and marked per UL Standard 510 as “Flame Retardant, Cold and Sunlight Resistant.” The tape must be applicable at temperatures ranging from 0°F through 100°F (-18°C through 38°C) without loss of physical properties. The tape shall be classified for use in both indoor and outdoor environments. The tape shall be compatible with synthetic cable insulations, jackets and splicing compounds. The tape will remain stable and will not telescope more than 0.1 inches when maintained at temperatures below 120°F (50°C).

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# Scotch® Super 33+™ Vinyl Electrical Tape

## Agency Approvals & Self Certifications

- UL Listed; UL 510 Standard "Insulating Tape" (product category OANZ), File E129200
- CSA Certification; Standard C22.2 No.197-M1983 "PVC Insulating Tape," File LR 48769
- Meets A-A-55809

For RoHS information, please visit [www.3M.com/ROHS](http://www.3M.com/ROHS)

## Typical Properties

Not for specifications. Values are typical, not to be considered minimum or maximum. Properties measured at room temperature 73°F (23°C) unless otherwise stated.

| Physical Properties                                                                   | Typical Value<br>US units (metric) |
|---------------------------------------------------------------------------------------|------------------------------------|
| <b>Temperature Rating</b> - UL 510                                                    | 176°F (80°C)                       |
| <b>CSA</b> - C22.2 No. 197-M1983<br>handling<br>continuous operation                  | 0°F (-18°C)<br>221°F (105°C)       |
| <b>Color</b>                                                                          | BLACK                              |
| <b>Thickness</b>                                                                      | 7 mils (0.177 mm)                  |
| <b>Adhesion to Steel</b> (ASTMD 1000)<br>72°F (22°C)<br>0°F (-18°C)                   | 28 oz/in.<br>60 oz/in.             |
| <b>Adhesion to Backing</b> (ASTMD 1000)<br>72°F (22°C)<br>0°F (-18°C)                 | 28 oz/in.<br>60 oz/in.             |
| <b>Backing Strength</b> (ASTMD 1000)<br>72°F (22°C)                                   | 15 lbs/in.                         |
| <b>Ultimate Elongation</b> (ASTMD 1000)<br>72°F (22°C)<br>0°F (-18°C)                 | 250%.<br>100%                      |
| <b>Flammability</b> (Maximum)<br>UL 510<br>ASTM D-1000                                | 1 sec.<br>4 sec.                   |
| <b>Accelerated Aging</b> (ASTM D-1000)                                                | 80%                                |
| <b>Flagging</b> (ASTM D-1000)                                                         | <0.1 in.                           |
| <b>Telescoping</b><br>24 Hours @ 120°F (50°C)                                         | <0.1 in                            |
| Electrical Property                                                                   | Typical Value<br>US units          |
| <b>Voltage Rating</b> - UL 510                                                        | 600V                               |
| <b>Dielectric Strength</b> (ASTM D-1000)<br>Standard Condition<br>V/mil High Humidity | 1,150 V/mil<br>90% of std.         |
| <b>Insulation Resistance</b> (ASTM D-1000)<br>( High Humidity Method)                 | >1x10 <sup>6</sup> megohms         |

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| <b>Shelf Life &amp; Storage</b>                                   | This product has a 5-year shelf life from date of manufacture when stored in a humidity controlled storage (10°C / 50°F to 27°C / 80 °F and <75% relative humidity).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Availability</b>                                               | <p>Scotch® Super 33+™ Vinyl Electrical Tape is available from your local 3M authorized distributor in the following standard roll sizes:</p> <p>3/4 in. x 66 ft.<br/>3/4 in. x 52 ft.<br/>3/4 in. x 20 ft.</p> <p>Other lengths and widths are available by special request.</p> <p>Please contact your local distributor; available from 3M.com/electrical [Where to Buy] or call 1.800.245.3573.</p>                                                                                                                                                                                                                                                                                                                         |
| <b>Engineering/ Architectural Specification:</b>                  | <p>Primary electrical insulation (branch wiring in wet or dry locations): All splices for 600 volt wire rated 105°C (220°F) and below shall be insulated with a minimum of two half-lapped layers of Scotch® Super 33+™ Vinyl Electrical Tape. All connectors having irregular surfaces shall be padded with 3M™ Scotchfil™ Electrical Insulation Putty or Scotch® Linerless Rubber Splicing Tape 130C prior to insulating with Scotch® Super 33+™ Vinyl Electrical Tape.</p> <p>Mechanical protection (outer jacketing): All rubber and thermoplastic insulating high voltage power cable tape splices and repairs shall be overwrapped with at least two half-lapped layers of Scotch® Super 33+™ Vinyl Electrical Tape.</p> |
| <b>Installation Techniques:</b>                                   | Scotch® Super 33+™ Vinyl Electrical Tape shall be applied in half-lapped layers with sufficient tension to produce a uniform wind (for most applications this tension will reduce the tape's width to approximately 5/8 of its original width). On pigtail splices, the tape shall be wrapped beyond the end of the wires and then folded back, leaving a protective cushion to resist cut-through. Wrap tape up-hill, taping from a smaller diameter surface to a larger diameter surface. Apply the tape with no tension on the last wrap to prevent flagging.                                                                                                                                                               |
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