Technical data sheet

Product:	33+
Manufacturer:	3M DEUTSCHLAND GMBH
Product group:	ELEKTRO
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SCOTCH SUPER 33+ VINYL ELECTRICAL TAPE

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Scotch® Super 33+™ Vinyl Electrical Tape

Data Sheet **June 2022**

Product Description

Scotch® Super 33+™ Vinyl Electrical Tape is a black, professional grade, nominal 7-mil (0.178 mm) thick electrical insulating tape composed of an elastic vinyl (PVC) film backing coated on one side with a non-corrosive, rubber-based pressure-sensitive adhesive.

- Commonly used in these types of applications:
  - ***UL510:*** As primary insulation on applications up to 600V at max temperature of 80°C (176°F) and min temperature of -10°C (14°F) on joints and splices in wires and cables in accordance with NFPA 70, National Electrical Code
  - ***CSA C22.2 No.197:*** As primary insulation on applications up to 1000V at max temperature of 105°C (221°F) and min temperature of -18°C (0°F) on joints and splices in wires and cables in accordance with Canadian Electrical Code, Part 1
  - ***IEC 60454-3-1:*** Classification Type 7, Designation IEC 60454-3-1-7/F-PVCP/90 for thermal index of 90°C (194°F) and min temperature rating of -18°C (0°F)
  - Industrial, Commercial and Residential environments
  - Where Flame Retardant and Sunlight, Cold Resistance rating is required – UL510
  - Cable jacket repair (up to 600V (UL) / 1000V (CSA) as Primary Insulation) and as mechanical protection when overwrapping rubber splicing, and mastic tapes used on LV/MV/HV joints and splices
  - Critical indoor and outdoor operations as determined by end-user where use of a general use vinyl electrical tape is not recommended
  - Where compatibility with most solid dielectric cable insulations, rubber and synthetic splicing compounds is required
  - Where reducing moisture ingress is needed, best results achieved when used as an overwrap in combination with a rubber splicing or mastic tape product
  - For harnessing and bundling of wires and cable where minimum bulk is required
- Country of Origin: USA

Properties

Physical Properties	*Value Imperial (Metric)*
Color – Visual	Black
Adhesive	Rubber-based
Backing	Vinyl (PVC)
Flame Retardant Sunlight, Cold Resistant – UL510	Pass
Temperature Rating UL510[1] CSA - C22.2 No. 197[2] IEC 60454-3-1 - Type 7	 14°F to 176°F (-10°C to 80°C) 0°F to 221°F (-18°C to 105°C) 0°F to 194°F (-18°C to 90°C)
Electrical Properties	***Value Imperial (Metric)***
Voltage Rating - Maximum UL510[1] / CSA C22.2 No. 197[2]	600V / 1000V
Dielectric Strength[3] - Minimum Standard Condition High Humidity Condition	 1000 V/mil (39.4 kV/mm) 90% of std.
Insulation Resistance[3] - Minimum (High Humidity)	$1x10^{12}$ ohms

Mechanical Properties	*Value Imperial (Metric)*
Thickness[3]	7 mils +/- 0.7 (0.178 +/- 0.018 mm)
Adhesion to Steel[3] - Minimum 73°F (23°C) 0°F (-18°C)	 20 oz/in (2.2 N/cm) 30 oz/in (3.3 N/cm)
Adhesion to Backing[3] - Minimum 73°F (23°C) 0°F (-18°C)	 18 oz/in (2.0 N/cm) 30 oz/in (3.3 N/cm)
Tensile Strength[3,4] – Minimum	2062 psi / 14.4 lb/in (25.3 N/cm)
Elongation[3] - Minimum 73°F (23°C) 0°F (-18°C)	 225% 125%

Notes:

1. In accordance with NFPA 70, National Electrical Code
2. In accordance with Canadian Electrical Code, Part 1
3. ASTM D1000 Test Method - properties measured at room temperature 73°F (23°C) unless otherwise stated
4. Tensile Strength "lb/in (N/cm)" values for reference only, based on nominal tape thickness of 7 mils

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Agency Approvals & Self Certifications	• UL Listed: UL 510 Standard "Insulating Tape", Category OANZ, File No. E129200 • CSA Listed: CSA-C22.2 No.197 "PVC Insulating Tape", File No. 048769, Class 9052-02 • VDE Mark Certificate no. 130462; Type 7: IEC 60454-3-1-7/F-PVCP/90 • Test report RPT-794187 available to UL510 Standard testing • For Regulatory information including RoHS, REACH, please visit www.3M.com/regs
Installation Techniques	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 width to approximately 5/8 of 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 help prevent flagging.***
Shelf Life & Storage	This product has a 5-year shelf life (from date of manufacture) when stored in humidity-controlled storage (50°F/10°C to 80°F/27°C and <75% relative humidity).
Availability	Scotch® Super 33+™ Vinyl Electrical Tape is available from 3M authorized distributors Also available from www.3M.com/electrical or call 1.800.245.3573.

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