



## Data Sheet

# 3M Temflex™ 1700

## Vinyl Electrical Tape

### Data Sheet

#### Product Description

Temflex™ 1700 Electrical Tape is a good quality, economical general purpose vinyl insulating tape. It has excellent resistance to: abrasion, moisture, alkalis, acid, copper corrosion and varying weather conditions (including sunlight). It is a polyvinyl chloride (PVC) tape that is flame-retardant and conformable. Temflex 1700 provides excellent mechanical protection with minimum bulk. It is a UL Listed and 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

#### Applications

- Primary electrical insulation for all wire and cable splices rated up to 600 volts.
- Protective jacketing for high voltage cable splices and repairs.

Harnessing of wires and cables.

For indoor or outdoor applications.

For above or below grade applications.

#### Typical Data/Physical Properties

##### Temperature Rating

UL 510	80°C (176°F)
CSA 22.2	80°C (176°F)

##### Flammability

UL 510	Pass
--------	------

##### Dielectric Strength\*

Standard Condition	>1000 V/mil
After Humidity Condition	>90% of Standard

##### Insulation Resistance\*

>10<sup>6</sup> Megohms

**Thickness\*** 7 mils

**Elongation\*** 200%

**Breaking Strength\*** 17 lbs/in

##### Adhesion\*

To Steel	24 oz/in
To Backing	22 oz/in

\*ASTM D1000

**Note:** *These are typical properties and should not be used for specification purposes.*

#### Installation Techniques

The tape shall be applied in half-lapped layers with sufficient tension to conform and produce a uniform covering. In most applications, this tension will reduce the tape's width to approximately 5/8 of its original width. On pigtail splices, the tape should be wrapped beyond the end of the wires and then folded back, leaving a protective cushion to resist cut-through. Always wrap the tape "uphill". **Apply the tape with no tension on the last wrap to prevent flagging.**

#### Shelf Life

Temflex 1700 Electrical Tape has a 5 year shelf-life (from date of manufacture) when stored under the following recommended storage conditions. Store behind present stock in a clean dry place at a temperature of 70°F and 40-50% relative humidity. Good stock rotation is recommended.

#### Availability

Temflex 1700 Electrical Tape is available from your local 3M authorized electrical distributor in the following standard roll size:

3/4 in. x 60 ft.

Other lengths and widths available by special order.

**Temflex 1700P Printed Tape is available in two roll sizes. 3/4 in. x 66 ft. and 1 1/2 in. x 44 ft., for use in MSHA-approved (Mine Safety and Health Administration) splicing kits.**

**Important Notice:**

All statements, technical information and recommendations related to the Seller's products are based on information believed to be reliable, but the accuracy or completeness thereof is not guaranteed. Before utilizing the product, the user should determine the suitability of the product for its intended use. The user assumes all risks and liability whatsoever in connection with such use.

Any statements or recommendations of the Seller which are not contained in the Seller's current publications shall have no force or effect unless contained in an agreement signed by an authorized officer of the Seller. The statements contained herein are made in lieu of all warranties expressed or implied, including but not limited to the implied warranties of merchantability and fitness for a particular purpose which warranties are hereby expressly disclaimed.

**SELLER SHALL NOT BE LIABLE TO THE USER OR ANY OTHER PERSON UNDER ANY LEGAL THEORY, INCLUDING BUT NOT LIMITED TO NEGLIGENCE OR STRICT LIABILITY, FOR ANY INJURY OR FOR ANY DIRECT OR CONSEQUENTIAL DAMAGES SUSTAINED OR INCURRED BY REASON OF THE USE OF THE SELLER'S PRODUCTS.**



## Data Sheet

# 3M Scotch™ Super 33+ Vinyl Electrical Tape

### Product 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, alkalis, 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. Super 33+ is an Underwriters' Laboratories Listed and Canadian Standards Association 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.

### Applications:

- Primary electrical insulation for all wire and cable splices rated up to 600 volts and 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.

### Typical Data / Physical Properties:

#### Temperature Rating:

UL 510 80 °C (176 °F)

#### CSA

C22.2 No. 197-M1983  
Handling -18 °C (0 °F)  
Continuous  
Operation 105 °C (220 °F)

**Color** Black

#### Thickness

ASTM D1000 7 mils

#### Adhesion to Steel

ASTM D1000  
22 °C (72 °F) 28 oz./in.  
-18 °C (0 °F) 60 oz./in.

#### Adhesion to Backing

ASTM D1000  
22 °C (72 °F) 25 oz./in.  
-18 °C (0 °F) 60 oz./in.

#### Breaking Strength

ASTM D1000  
22 °C (72 °F) 15lbs./in.

#### Ultimate Elongation

ASTM D1000  
22 °C (72 °F) 250%  
-18 °C (0 °F) 100%

#### Flammability (Maximum)

UL 510 1 sec.  
ASTM D1000 4 sec.

#### Accelerated Aging

ASTM D1000 80%

#### Flagging

ASTM D1000 <0.1 inch

#### Telescoping

24 Hours @ 50 °C (<0.1 inch  
°F). (120

### Electrical Properties:

#### Voltage Rating

UL 510 600V

#### Dielectric Strength

ASTM D1000  
Standard Condition 1150  
V/mil  
High Humidity 90% of std.

#### Insulation Resistance

ASTM D1000 >1 x10<sup>6</sup>  
megohms  
(High Humidity Method)

**Note:** These are typical values and should not be used for specification purposes.

## **Specification:**

### **Product:**

The 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 Weather 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).

## **Engineering/Architectural Specification:**

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 Scotchfil™ Electrical Insulation Putty or Scotch 130C Rubber Splicing Tape prior to insulating with Scotch Super 33+ Vinyl Electrical Tape.

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

## **Installation Techniques:**

The 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.

## **Shelf Life:**

Scotch Super 33+ Vinyl Electrical Tape complies with the requirements of UL 510 for storage. When maintained under normal storage conditions the tape will remain stable and has a five year shelf-life.

## **Availability:**

Scotch Super 33+ Vinyl Electrical Tape is available from your local 3M authorized distributor in the following standard roll sizes:

3/4 in. x 66 ft.

3/4 in. x 44 ft.

3/4 in. x 20 ft.

Other lengths and widths are available by special request.

Scotch and Scotchfil are trademarks of 3M.

### **Important Notice**

All statements, technical information and recommendations related to the Seller's products are based on information believed to be reliable, but the accuracy or completeness thereof is not guaranteed. Before utilizing the product, the user should determine the suitability of the product for its intended use. The user assumes all risks and liability whatsoever in connection with such use.

Any statements or recommendations of the Seller which are not contained in the Seller's current publications shall have no force or effect unless contained in an agreement signed by an authorized officer of the Seller. The statements contained herein are made in lieu

of all warranties, expressed or implied, including but not limited to the implied warranties of merchantability and fitness for a particular purpose which warranties are hereby expressly disclaimed.

SELLER SHALL NOT BE LIABLE TO THE USER OR ANY OTHER PERSON UNDER ANY LEGAL THEORY, INCLUDING BUT NOT LIMITED TO NEGLIGENCE OR STRICT LIABILITY, FOR ANY INJURY OR FOR ANY DIRECT, INDIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES SUSTAINED OR INCURRED BY REASON OF THE USE OF ANY OF THE SELLER'S PRODUCTS THAT WERE DEFECTIVE.



# Data Sheet



## Vinyl Electrical Tape Super 88

---

### Product Description

Scotch® Vinyl Electrical Tape Super 88 is a premium grade, 8.5-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 applications 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® Vinyl Electrical Tape Super 88 is an Underwriters' Laboratories Listed and Canadian Standards Association Certified "Insulating Tape."

---

### Regulatory Agencies

**UL Listed** - UL 510 Standard "Insulating Tape" (product category OANZ), UL File No. E129200.



Maximum Operating Temperature: 80°C (176°F)

Maximum Voltage Rating: 600 volts

**CSA Certified** - CSA Standard C22.2, No. 197-M1983 "PVC Insulating Tape," File No. LR 48769.

Handling: -18°C (0°F)

Continuous Operation: 105°C (220°F)

Voltage Rating: 600 volts

---

### Tape Features

- 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

---

### Applications

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

**Note: These are for typical values and should not be used for specification purposes.**

Typical Physical Properties:		ASTM Test Method
<b>Color</b>	Black	
<b>Thickness</b>	8.5 mils	D-1000
<b>Adhesion to Steel</b>		D-1000
22°C (72°F)	25 oz. /in.	
-18°C (0°F)	60 oz. /in.	
<b>Adhesion to Backing</b>		D-1000
22°C (72°F)	25 oz. /in.	
-18°C (0°F)	60 oz. /in.	
<b>Breaking Strength</b>		D-1000
22°C (72°F)	.20 lbs. /in.	
<b>Ultimate Elongation</b>		D-1000
22°C (72°F)	250%	
-18°C (0°F)	100%	
<b>Flammability (Maximum)</b>		
UL510	1 sec.	
D-1000	4 sec.	
<b>Accelerated Aging</b>	80%	D-1000
<b>Flagging</b>	<0.1 inch	D-1000
<b>Telescoping</b>		
24 hrs. W 50°C (120°F)	<0.1 inch	
<b>Typical Electrical Properties:</b>		
<b>Dielectric Breakdown</b>		D-1000
Standard Condition	10,000 volts	
High Humidity Condition	90% of Standard	
<b>Insulation Resistance</b>		D-1000
(High Humidity Method)	>1x10 <sup>6</sup> megohms	

**Specifications – Product** The tape is based on polyvinyl chloride (PVC) and/or its copolymers and has a rubber-based, pressure-sensitive adhesive. The tape shall be 8.5 mils thick, and be UL Listed and marked per UL Standard 510 as “Flame Retardant, Cold and Weather 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)

**Specifications - Engineering/Architectural** 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® Vinyl Electrical Tape Super 88. 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® Vinyl Electrical Tape Super 88.

### Mechanical Protection (outer jacketing)

All rubber and thermoplastic insulating high voltage power cable tape splices and repairs shall be over wrapped with at least two half-lapped layers of Scotch® Vinyl Electrical Tape Super 88.

---

#### Installation Techniques

The 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.

---

#### Availability

Scotch® Vinyl Electrical Tape Super 88 is available from your local 3M authorized distributor in the following standard roll sizes.

3/4 in. x 44 ft. (19 mm x 13,4 m)  
3/4 in. x 66 ft. (19 mm x 20,1 m)  
3/4 in. x 36 yd. (19 mm x 32,9 m)  
1 in x 36 yd (25,4 mm x 32,9 m)  
2 in x 36 yd (51 mm x 32,9 m)  
1-1/2 in. x 44 ft. (38 mm x 13,4 m)  
1-1/2 in. x 36 yd. (38 mm x 32,9 m)

Other lengths and widths are available by special request.

---

#### Storage

Store behind present stock in a clean dry place at a temperature of 70°F (21°C) and 40-50% relative humidity.

---

#### Shelf-Life

Scotch® Vinyl Electrical Tape Super 88 has a 5-year shelf life (from date of manufacture) when stored under the above recommended storage conditions.

---

#### Important Notice

All statements, technical information, and recommendations related to 3M's products are based on information believed to be reliable, but the accuracy or completeness is not guaranteed. Before using this product, you must evaluate it and determine if it is suitable for your intended application. You assume all risks and liability associated with such use. Any statements related to the product which are not contained in 3M's current publications, or any contrary statements contained on your purchase order shall have no force or effect unless expressly agreed upon, in writing, by an authorized officer of 3M.

---

#### Warranty; Limited Remedy; Limited Liability:

This product will be free from defects in material and manufacture at the time of purchase. **3M MAKES NO OTHER WARRANTIES INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.** If this product is defective within the warranty period stated above, your exclusive remedy shall be, at 3M's option, to replace or repair the 3M product or refund the purchase price of the 3M product. **Except where prohibited by law, 3M will not be liable for any indirect, special, incidental or consequential loss or damage arising from this 3M product, regardless of the legal theory asserted.**

---

3M, Scotch and Scotchfil are trademarks of 3M Company.