

## Thermal Transfer Printable Heat Shrink Tube

203B20BWPX, 203B20BYPX, 208B20BWPX

### PRODUCT SPECIFICATIONS:

#### Description:

Print Technology	Thermal Transfer
Material	Single Wall Polyolefin (3:1 shrink ratio)
Standard Colors	White, Yellow
Service Temperature Range	-55°C to 135°C
Operation Temperature Range	5°C to 35°C
Storage Condition	From -10°C to 40°C and from 30% to 80% Relative Humidity

#### Details

Model No.	For Wire Diameter	Supplied Diameter [before shrinkage]	Recovered Diameter [after shrinkage]	Recovered Wall Thickness [after shrinkage]
203B20BWPX 203B20BYPX	0.055" - 0.150" (1.4mm - 3.8mm)	0.16" +/- 0.01" (4.1mm +/- 0.3mm)	0.055" (1.4mm)	0.017" (0.44mm)
208B20BWPX	0.094" - 0.215" (2.4mm - 6.6mm)	0.28" +/- 0.02" (7.0mm +/- 0.4mm)	0.094" (2.4mm)	0.017" (0.44mm)

### APPLICATIONS

Wire and cable identification

Insulation, protection and reinforcement for termination and joints of electric wire.

Color identification for wire and cable

### REGULATORY/ AGENCY APPROVALS

#### UL & CSA:

Epson Heat Shrink Tube is compliant to UL224 and CSA C 22.2 No.198.1. Rating temp.: 125°C / Rating voltage: 600V / ATF

You can see the details of the original certified product on UL file E48762 (Sumitube B20(Z), SUMITOMO ELECTRIC FINE POLYMER INC) and our certified product on UL file E476852. It is available on UL.com.

**RoHS:**

Epson Heat Shrink Tube is compliant to RoHS Standards to Directive (2011/65/ EU) and (Annex II (EU) 2015/863) established on June 8, 2011.

**Flammability:**

Epson Heat Shrink Tube pass “All Tubing Flame Test (AFT)”.

**SAE:**

Epson Heat Shrink Tube meet the material and physical property requirements of SAE AS23053/5 (Class 1) for Insulation Sleeving and SAE AS -81531 for Marking of Electrical Insulating Materials.

**PROPERTIES**

Properties	Test method	Average result
Weatherability	Repeat 1 to 3 below for 100 to 700 hours during UV irradiation. 1. Spray 5% salt water for 2 hours 2. Dry condition (Temp. 60°C, 20% RH for 4 hours) 3. Wet condition (Temp. 50°C, 95% RH for 2 minute)	No visible effect
UV resistance	1.24kW/m <sup>2</sup> irradiance, B.P.T 63 °C and 50% RH	Slight discoloration, Printed text can be identified
Short High service temperature	Putting on stainless rod	
	260 °C (5 minutes)	Slight discoloration, Printed text can be identified
	180 °C (24 hours)	Slight discoloration, Printed text can be identified
High service temperature	Putting on stainless rod at 40°C/ 80% RH, 90°C for 700 hours	No visible effect
Low Service Temperature	Putting on stainless rod at -40°C for 700 hours	No visible effect
Abrasion Resistance	1. 50 cycles on 500gf pressure by Japanese 10 Yen coin	No visible effect
	2. 50 cycles on 2kgf pressure by plastic eraser.	Slight removal of printed text. But readable
	3. 100 cycles on 500gf pressure by cotton swab containing ethanol	Printed text disappears

Properties	Items	Requirements	Typical values *1
Physical	Tensile strength (before shrink)		≥ 10.4 MPa
	Tensile strength (after shrink)		≥ 7.3 MPa
	Elongation (before shrink)		≥ 200%
	Elongation (after shrink)		≥ 100%
Thermal	Min. Shrink Temperature	Full recovery	
	Heat shock (200°C x 4h)	no crack	Pass
	Low temperature bending (-30°C x 4h)	no crack	Pass
Electrical	Withstand voltage (AC2500V x 1min.)	No breakdown	Pass
	Dielectric breakdown voltage (158°C x 168h)	≥ AC2500 V	≥ AC2500 V
	Withstand voltage after shrink (AC2500V x 1min.)	No breakdown	Pass
	Volume Resistivity	≥ 1.0 x 10 <sup>(14)</sup> Ω·cm	Pass
	Copper corrosivity *2	No corrosion	Pass
	Copper stability *2	Elongation 100 or more	Pass

\*1: For reference use only

\*2: 158 °C x 168 hours Aging after holding for 24 hours in an atmosphere with a temperature of 23 ° C. and a humidity of 95%,

#### CHEMICAL/ SOLVENT RESISTANCE

Chemical reagents	Test method	Results
Trichloroethane	Put the HST labels on glass rods of Φ3mm × 100mm, then sink in each chemical / solvent for 10 minutes. After that leave for 30 minutes. Repeat 5 sets.	Failed
Sodium Hypochlorite		No Effect
Ammonia (10%)		No Effect
Sulfuric Acid (10%)		No Effect
Hydrogen Chloride (30%)		Slightly color fading
Salt Water (5%)		No Effect
Acetic Acid		No Effect
Sodium Hydroxide (50%)		No Effect
Terpene Cleaner		Failed
Fomula409 (Cleaner)		No Effect
MIL-H-5606 Oil		No Effect
Mil 7808 Oil		No Effect
Brake Cleaner		No Effect
Fluid type rust preventive		Failed
Brake Fluid DOT4		No Effect
Engine Oil		No Effect
Cleaning Solvent		No Effect
Acetone	No Effect	
Isopropyl Alcohol	No Effect	

Ethanol		No Effect
Gasoline		Failed
Jet fuel (JP-8)		Failed
Toluene		Failed
Hexane		Failed
Heptane		Failed
Water		No Effect
Mineral Spirit		Failed
Methanol		No Effect
Ethyl Methyl Ketone		Failed
Ethyl Acetate		Failed

Note:

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Product availability may vary by country. Please refer to your local Epson office for full details.

Note that the information about the characteristics, such as numeric values, described in this document are the evaluation results for information only, not for guarantees.