EPSON

Technical Data Sheet: No. 0007-PXK

Effective Date: Nov. 9th, 2023

Thermal Transfer Printable Heat Shrink Tube (C5)

PRODUCT SPECIFICATIONS:

Description:

Print Technology	Thermal Transfer
Material	Single Wall Polyolefin (3:1 shrink ratio)
Standard Colors	White, Yellow
Shrink temperature	Min. 70 °C
Full recovery temperature	Above 110 °C
Print operating temperature*1	5°C to 35°C
Service temperature	-55°C to 135°C
Storage Condition	From -10°C to 40°C and from 30% to 80% Relative Humidity

*1: Print on tube under this condition.

Details

Model No.	Recommend wire diameter (mm) / (inch) / (AWG)	Supplied (Before shrinking) (mm) Inside diameter	Supplied (Before shrinking) (mm) Wall thickness	Recovered (After shrinking) (mm) Inside diameter	Recovered (After shrinking) (mm) Wall thickness	Length of tube	Labels per roll
BL203STBWX25PX BL203STBYX25PX	1.4mm - 3.1mm 0.056" - 0.122" AWG 14-22	4.0+/-0.4	0.20 +/-0.05	1.1+/-0.3	0.5+/-0.1	26.0+/-0.6 (mm)	500
BL208STBWX35PX BL208STBYX35PX	2.4mm - 6.0mm 0.095" - 0.236" AWG 6-18	7.0+/-0.5	0.22 +/-0.05	2.1+/-0.3	0.55+/-0.1	36.0+/-0.6 (mm)	400
205YLBBPX	1.9mm - 4.9mm 0.075" – 0.193" AWG 10-18	5.7+/-0.3	0.2+/-0.06	1.9 or less	0.55 +/-0.12	More than 2.5(m)	1 roll (cont.)
(New)203YLBWPX (New)203YLBYPX	1.11 – 2.90mm 0.044" – 0.114" AWG 16-22	3.8+/-0.4	0.2+/-0.05	1.1 or less	0.44 or more	More than 2.5(m)	1 roll (cont.)

Recovered Wall Thickness is a reference.

APPLICATIONS

Wire and cable identification

Color identification for wire and cable

REGULATORY/ AGENCY APPROVALS

UL/cUL:

Epson Heat Shrink Tube is compliant to UL224. Rating temp.: 125°C / Rating voltage: 600V / VW-1

You may refer to details on www.ul.com under catalog No. Y-C5 on file No. E510889.

RoHS:

Epson Heat Shrink Tube is compliant to RoHS Standards to Directive (2011/65/ EU Annex II) with amendment (EU)2015/863.

REACH

Epson Heat Shrink Tube is compliant to Regulation (EC) No 1907/2006 - Registration, Evaluation, Authorization and Restriction of Chemicals (REACH).

SAE:

Epson Heat Shrink Tube meets SAE AS81531 for Marking of Electrical Insulating Materials.

Epson Heat Shrink Tube meet the material and physical property requirements of SAE-AMS-DTL-23053/5* Class1 for Insulation Sleeving.

*Does Not meet SAE-AS23053.

PROPERTIES

Properties	Test method		Average result
UV resistance	1.24kW/m^2 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. 40 cycles on 500gf pressure by Japanese 10 Yen coin		No visible effect
	2. 50 cycles on 2kgf pressure by plastic eraser.		No visible effect
	3. 100 cycles on 500gf pressure by cotton swab containing ethanol		Printed text disappears

Property	Specification requirement	Test method	Typical value
Longitudinal change	≤10%	ASTM D2671	≤5%
Tensile strength	≥10.3MPa	ASTM D638	≥12MPa
Elongation at break	≥200%	ASTM D638	≥400%
Elongation at break after aging	≥100%	ASTM D638 (175˚C/168 hrs)	≥400%
Heat shock	No cracking	ASTM D2671 (225˚C/4 hrs)	No cracking
Low temperature flexibility	No cracking	ASTM D2671 (-55˚C/4 hrs)	No cracking
Dielectric voltage withstands	AC2500V/60S No breakdown	ASTM D2671	No breakdown
Dielectric strength	≥19.7kV/mm	ASTM D2671	≥25kV/mm
Volume resistivity	$\geq 10^{14}\Omega \cdot cm$	ASTM D876	$\geq 10^{14}\Omega \cdot cm$
Copper corrosion	No corrosion	ASTM D2671	No corrosion
Print performance	Print legible after 50 rubs Print legible after 30 strokes	SAE AS81531 MIL-STD-202	Pass
Fluid resistance	Print legible	SAE AS81531 (23˚C/24 hrs)	Pass
Flammability	Self-extinguishing within 1 minute after fire source removed	UL224	Pass

CHEMICAL/ SOLVENT RESISTANCE

Print HST, and shrink on glass rod of Φ3mm × 100mm. Then sink it into each chemical / solvent in a test tube for 10 minutes. After taking away from a test tube, leave for 30 minutes. Repeat this cycle for 5 times. Finally, rub prints on HST with cotton swab.

Note: Did not rub when HST was dropped from a rod due to deformation of HST.

Chemical reagents	**Results**	
	Tube and printing without swab rub	**Printing with swab rub**
Trichloroethane	No effect	No effect
Sodium Hypochlorite	No Effect	No Effect
Ammonia (10%)	Tube slight fade on 4th turn, print legible	No Effect
Sulfuric Acid (10%)	No Effect	No Effect
Hydrogen Chloride (30%)	Tube slight fade on 5th turn, print legible	No Effect
Salt Water (5%)	No Effect	No Effect
Acetic Acid	No Effect	No Effect

Sodium Hydroxide (50%)	No Effect	Swab slight get black, print legible
Terpene Cleaner	Tube deform on 2nd turn, but returned to its normal form after 30 min. On 5th time, dropped off. Print legible	(Cannot rub)
Fomula409 (Cleaner)	No Effect	No Effect
MIL-H-5606 Oil	No Effect	Swab slight get black, print legible
Mil 7808 Oil	No Effect	No Effect
Brake Cleaner	No Effect	No Effect
Fluid type rust preventive	Tube slight deform to wavy on 4th turn, print legible	No Effect
Brake Fluid DOT4	No Effect	No Effect
Engine Oil	No Effect	No Effect
Cleaning Solvent	No Effect	No Effect
Acetone	No Effect	No Effect
Isopropyl Alcohol	No Effect	No Effect
Ethanol	No Effect	No Effect
Gasoline	No Effect	No Effect
Jet fuel (JP-8)	No Effect	Swab slight get black, print legible
Toluene	Tube slight deform to wavy on 4th turn, print legible	No Effect
Hexane	No Effect	No Effect
Heptane	No Effect	No Effect
Water	No Effect	No Effect
Mineral Spirit	No Effect	No Effect
Methanol	No Effect	No Effect
Ethyl Methyl Ketone	No Effect	No Effect
Ethyl Acetate	No Effect	No Effect

Note:

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

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