Document number: TTDS-050
Issue: 4
Date: April 2011

TECHNICAL DATA SHEET

DESCRIPTION

TTMS (-2X) & TTMS-MP heat-shrinkable identification tubing

APPLICATION / USE

Thin wall flame retarded radiation cross-linked modified polyolefin heat-shrinkable tubing, flattened and spooled.

Most sizes of TTMS & TTMS-MP tubing have a 3:1 shrink ratio; TTMS-2X has a 2:1 shrink ratio, see tables 1 & 2 for details.

Used in the identification of wires and cables by computer-based printing onto the tube. Tubing can also provide terminal insulation and strain relief. Suitable for a variety of applications, where wiring system complexity is relatively low.

TTMS-MP variant is flattened to an oval shape for ease of installation

RECOMMENDED PRINTER & RIBBONS

New Applications
Printer T2000CT-PRINTER or T6112DS-PRINTER (Optional cutter perforator)
Ribbon 2000P-4TT (black) or 2000P-4AG (silver) and 2000P-WH (white)

Legacy system
Printer TMS-2000Plus printer,
Ribbon 2000P-4TT (black) or 2000P-4AG (silver) and 2000P-WH (white)

Software TE Connectivity WinTotal software v4.5 or later.

APPROVALS

Tubing meets the material and performance requirements of SAE AMS-DTL-23053/5 Classes 1 & 3.
TTMS-2X product also meets dimensional
UL recognized Standard 224 (File E35586).
CSA certified (File 31929).

See TE Connectivity specification RW 2517 for full performance & dimensional details.

While TE Connectivity has made every reasonable effort to ensure the accuracy of the information in this datasheet, TE Connectivity does not guarantee that it is error-free, nor does TE Connectivity make any other representation, warranty or guarantee that the information is accurate, correct, reliable or current. TE Connectivity reserves the right to make any adjustments to the information contained herein at any time without notice. TE Connectivity expressly disclaims all implied warranties regarding the information contained herein, including, but not limited to, any implied warranties of merchantability or fitness for a particular purpose. The dimensions in this document are for reference purposes only and are subject to change without notice. Specifications are subject to change without notice. Consult TE Connectivity for the latest dimensions and design specifications.

PRODUCT SIZE RANGE

Table 1: TTMS and TTMS-MP

Size TTMS- or TTMS-MP	Minimum Internal diameter as supplied mm (inch)	Maximum Internal diameter after Full Recovery mm (inch)	Wall Thickness After Full Recovery mm ± 0.08 (inch ± 0.003)
2.4	2.4 (3/32)	0.79 (0.031)	0.58 (0.023)
3.2	3.2 (1/8)	1.06 (0.042)	0.58 (0.023)
4.8	4.8 (3/16)	1.57 (0.062)	0.58 (0.023)
6.4	6.4 (1/4)	2.11 (0.083)	0.58 (0.023)
9.5	9.5 (3/8)	3.17 (0.125)	0.61 (0.023)
12.7	12.7 (1/2)	4.21 (0.166)	0.61 (0.024)
19.0	19.0 (3/4)	6.35 (0.250)	0.61 (0.024)
25.4	25.4 (1.0)	8.45 (0.333)	0.64 (0.025)
38.1	38.1 (1.5)	19.0 (0.750)	0.51 (0.020)
50.8	50.8 (2.0)	25.4 (1.000)	0.64 (0.025)

Table 2: TTMS-2X

Size TTMS-2X	Minimum Internal diameter as supplied mm (inch)	Maximum Internal diameter after Full Recovery mm (inch)	Wall Thickness After Full Recovery mm ± 0.08 (inch ± 0.003)
2.4	2.4 (3/32)	1.20 (0.047)	0.51 (0.020)
3.2	3.2 (1/8)	1.60 (0.063)	0.51 (0.020)
4.8	4.8 (3/16)	2.40 (0.094)	0.51 (0.020)
6.4	6.4 (1/4)	3.20 (0.125)	0.64 (0.025)
9.5	9.5 (3/8)	4.75 (0.187)	0.64 (0.025)
12.7	12.7 (1/2)	6.35 (0.250)	0.64 (0.025)
19.0	19.0 (3/4)	9.50 (0.374)	0.76 (0.030)

While TE Connectivity has made every reasonable effort to ensure the accuracy of the information in this datasheet, TE Connectivity does not guarantee that it is error-free, nor does TE Connectivity make any other representation, warranty or guarantee that the information is accurate, correct, reliable or current. TE Connectivity reserves the right to make any adjustments to the information contained herein at any time without notice. TE Connectivity expressly disclaims all implied warranties regarding the information contained herein, including, but not limited to, any implied warranties of merchantability or fitness for a particular purpose. The dimensions in this document are for reference purposes only and are subject to change without notice. Specifications are subject to change without notice. Consult TE Connectivity for the latest dimensions and design specifications.

PROPERTIES

Property		Value	Test Method
Heat Aging		168 hours at 175°C (347°F). 100% UE retained & Print legible	SAE-AMS-DTL-23053/5
Heat Shock		4 hours at 250°C (482°F) No cracking, dripping or flowing & print legible	SAE-AMS-DTL-23053/5
Low temperature Flexibility		4 hours at -55°C (-67°F), No cracking	SAE-AMS-DTL-23053/5
Colors		White (-9), yellow (-4) and black (-0) Other colors are available on request.	
Tensile Strength		10MPa minimum	SAE-AMS-DTL-23053/5
Ultimate Elongation		200% minimum	SAE-AMS-DTL-23053/5
Longitudinal Change		-20% maximum (±5% for TTMS-2X)	SAE-AMS-DTL-23053/5
Mold Growth		Rating 1 maximum Original tensile strength retained	ASTM G21
Water Absorption		0.5% maximum	SAE-AMS-DTL-23053/5
Corrosive Effect	Copper Mirror	Non-corrosive; no pitting or blackening of mirror after 16 hours at 175°C. (347°F)	SAE AMS-DTL-23053
	Copper Contact		SAE AMS-DTL-23053
Dielectric Strength		20MV/m minimum	ASTM D 2671
Flammability	TTMS(-MP)	SAE AMS-DTL-23053 Class 1 UL 224 Rated	ASTM D 2671 Procedure B UL 224, All tube flame test
	TTMS-2X	SAE AMS-DTL-23053 Class 1 UL 224 Rated	ASTM D 2671 Procedure B UL 224, VW-1

While TE Connectivity has made every reasonable effort to ensure the accuracy of the information in this datasheet, TE Connectivity does not guarantee that it is error-free, nor does TE Connectivity make any other representation, warranty or guarantee that the information is accurate, correct, reliable or current. TE Connectivity reserves the right to make any adjustments to the information contained herein at any time without notice. TE Connectivity expressly disclaims all implied warranties regarding the information contained herein, including, but not limited to, any implied warranties of merchantability or fitness for a particular purpose. The dimensions in this document are for reference purposes only and are subject to change without notice. Specifications are subject to change without notice. Consult TE Connectivity for the latest dimensions and design specifications.

PRINT PERFORMANCE PROPERTIES

Property		Test method	Effect
Print Adherence		SAE AS 81531 clause 4.6.2 (50 rubs)	Print Legible
Solvent Resistance		MIL-STD-202F method 215J	Print Legible
Fluid Resistance	JP 8 (F34)	All fluid resistance test samples immersed for 24hrs at 23°C (unless otherwise given) then followed by Print Adherence test SAE AS 81531 clause 4.6.2 (20 rubs)	Print Legible
	Skydrol 500 B4		Print Legible
	Methyl Ethyl Ketone		Print Legible
	Hydraulic Fluid (MIL PRF 5606)		Print Legible
	Lubricating Oil (MIL PRF 23699)		Print Legible
	Diesel Fuel		Print Legible
	Water – 1 Hr at 100°C		Print Legible
	Water – 168 hrs at 23°C		Print Legible
	MIL-A-8243 anti-icing fluid		Print Legible

ENVIRONMENTAL AND STORAGE PROPERTIES

Property	Value
Maximum storage temperature	40°C (104°F).
Service Temperature	-55°C to +135°C (-67°F to +275°F).

Product is compliant to EU RoHS Directive 2002/95/EC. This compliance information is provided based on reasonable inquiry of our suppliers and represents our current actual knowledge based on the information provided by our suppliers. This information is subject to change. For the latest compliance status, visit the TE Connectivity RoHS Customer Support Center - http://www.te.com/customersupport/rohssupportcenter

TE Connectivity (Logo) and TE Connectivity are trademarks.
Other logos, product and Company names mentioned herein may be trademarks of their respective owners.

While TE Connectivity has made every reasonable effort to ensure the accuracy of the information in this datasheet, TE Connectivity does not guarantee that it is error-free, nor does TE Connectivity make any other representation, warranty or guarantee that the information is accurate, correct, reliable or current. TE Connectivity reserves the right to make any adjustments to the information contained herein at any time without notice. TE Connectivity expressly disclaims all implied warranties regarding the information contained herein, including, but not limited to, any implied warranties of merchantability or fitness for a particular purpose. The dimensions in this document are for reference purposes only and are subject to change without notice. Specifications are subject to change without notice. Consult TE Connectivity for the latest dimensions and design specifications.

Общество с ограниченной ответственностью «МосЧип» ИНН 7719860671 / КПП 771901001
Адрес: 105318, г.Москва, ул.Щербаковская д.3, офис 1107

Данный компонент на территории Российской Федерации

Вы можете приобрести в компании MosChip.

Для оперативного оформления запроса Вам необходимо перейти по данной ссылке:

http://moschip.ru/get-element

Вы можете разместить у нас заказ для любого Вашего проекта, будь то серийное производство или разработка единичного прибора.

В нашем ассортименте представлены ведущие мировые производители активных и пассивных электронных компонентов.

Нашей специализацией является поставка электронной компонентной базы двойного назначения, продукции таких производителей как XILINX, Intel (ex.ALTERA), Vicor, Microchip, Texas Instruments, Analog Devices, Mini-Circuits, Amphenol, Glenair.

Сотрудничество с глобальными дистрибьюторами электронных компонентов, предоставляет возможность заказывать и получать с международных складов практически любой перечень компонентов в оптимальные для Вас сроки.

На всех этапах разработки и производства наши партнеры могут получить квалифицированную поддержку опытных инженеров.

Система менеджмента качества компании отвечает требованиям в соответствии с ГОСТ Р ИСО 9001, ГОСТ РВ 0015-002 и ЭС РД 009

Офис по работе с юридическими лицами:

105318, г.Москва, ул.Щербаковская д.3, офис 1107, 1118, ДЦ «Щербаковский»

Телефон: +7 495 668-12-70 (многоканальный)

Факс: +7 495 668-12-70 (доб.304)

E-mail: info@moschip.ru

Skype отдела продаж:
moschip.ru
moschip.ru_4
moschip.ru_6
moschip.ru_9