



**Product:** [MA7SFL](#) 

MarineTuff Cat 7, S/FTP, 4 Pr 23 BC, FMPE Ins, LSZH, Indoor, LR certified

## Product Description

Marine Ethernet Cat 7, 4 Pr 23AWG Annealed Bare Copper, Foam Polyethylene Insulation, S/FTP, Low Smoke Zero Halogen (SHF1) Jacket, Indoor Shipboard, LR certified

## Technical Specifications

### Product Overview

Suitable Applications:	Shipbuilding, in-cabin passenger Wi-Fi, high-bandwidth IPTV, PoE lighting, device charging stations, onboard security cameras, etc.
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### Physical Characteristics (Overall)

#### Conductor

AWG	Stranding	Material	No. of Pairs
23	Solid	BC - Bare Copper	4

Conductor Count:	8
Total Number of Pairs:	4

#### Insulation

Material	Nominal Diameter
PO - Polyolefin (Foam)	1.35 mm

#### Color Chart

Number	Color
Pair 1	White & Blue
Pair 2	White & Orange
Pair 3	White & Green
Pair 4	White & Brown

#### Inner Shield

Element	Type	Material	Coverage [%]
Individual Shielded Pair	Tape	Bi-Laminate (Alum+Poly)	100%

#### Outer Shield

Type	Material	Coverage [%]	Drainwire Material	Drainwire AWG
Braid	Tinned Copper (TC)	30%	Tinned Copper	28 AWG

#### Outer Jacket

Material	Nominal Diameter	Diameter +/- Tolerance
LSZH - Low Smoke Zero Halogen (SHF1)	7.8 mm	0.3 mm

### Construction and Dimensions

Min Elongation at Break of Jacket:	125 %
Min Tensile Strength of Jacket:	9 MPa
Min Tensile Strength of Jacket Aged:	30 %
Min Elongation at Break of Jacket Aged:	30 %

## Electrical Characteristics

### Conductor DCR

Max. Conductor DCR	Max DCR Unbalanced Between Pairs [%]	Max. DCR Unbalanced Within Pair [%]
95 Ohm/km	4 %	2 %

### Capacitance

Max. Capacitance Unbalance	Max. Mutual Capacitance
160 pF/100m	56 pF/m

Insulation Resistance: 5000 MOhm.m

### Impedance

Nominal Characteristic Impedance
100 Ohm

### Delay

Max. Delay Skew	Nominal Velocity of Propagation (VP) [%]
25 ns/100m	78%

### High Frequency

Frequency [MHz]	Max. Insertion Loss (Attenuation)	Min. NEXT [dB]	Min. PSNEXT [dB]	Min. ACR [dB]	Min. PSACR [dB]	Min. ACRF (ELFEXT) [dB]	Min. PSACRF (PSELFEXT) [dB]	Min. RL (Return Loss) [dB]	Min. TCL [dB]	Min. ELTCTL [dB]
1 MHz	2.1 dB/100m	78 dB	75 dB	75.9 dB	72.9 dB	78 dB	75 dB	20 dB	40 dB	35 dB
4 MHz	3.7 dB/100m	78 dB	75 dB	74.3 dB	71.3 dB	78 dB	75 dB	23 dB	34 dB	23 dB
10 MHz	5.8 dB/100m	78 dB	75 dB	72.2 dB	69.2 dB	74 dB	71 dB	25 dB	30 dB	15 dB
16 MHz	7.3 dB/100m	78 dB	75 dB	70.7 dB	67.7 dB	69.9 dB	66.9 dB	25 dB	28 dB	10.9 dB
31.3 MHz	10.3 dB/100m	78 dB	75 dB	67.7 dB	64.7 dB	64.1 dB	61.1 dB	23.6 dB	25.1 dB	5.1 dB
62.5 MHz	14.6 dB/100m	75.5 dB	72.5 dB	60.9 dB	57.9 dB	58.1 dB	55.1 dB	21.5 dB	22 dB	
100 MHz	18.5 dB/100m	72.4 dB	69.4 dB	53.9 dB	50.9 dB	54 dB	51 dB	20.1 dB	20 dB	
125 MHz	20.8 dB/100m	70.9 dB	67.9 dB	50.2 dB	47.2 dB	52.1 dB	49.1 dB	19.4 dB	19 dB	
200 MHz	26.5 dB/100m	67.9 dB	64.9 dB	41.4 dB	38.4 dB	48 dB	45 dB	18 dB	17 dB	
250 MHz	29.7 dB/100m	66.4 dB	63.4 dB	36.7 dB	33.7 dB	46 dB	43 dB	17.3 dB	16 dB	
300 MHz	32.7 dB/100m	65.2 dB	62.2 dB	32.6 dB	29.6 dB	44.5 dB	41.5 dB	17.3 dB		
500 MHz	42.8 dB/100m	61.9 dB	58.9 dB	19.2 dB	16.2 dB	40 dB	37 dB	17.3 dB		
600 MHz	47.1 dB/100m	60.7 dB	57.7 dB	13.6 dB	10.6 dB	38.4 dB	35.4 dB	17.3 dB		

Table Notes: Limits below 4 MHz are for information only. Reference standard: ISO/IEC 61156-5 ed. 2.0 (2009)

Coupling Attenuation Class: Type Ib

Transfer Impedance Class: Grade 2

### Voltage

Voltage Rating [V]
72 V DC

## Temperature Range

Installation Temperature Range:	-5°C To +80°C
Operating Temperature Range:	-40°C To +80°C

## Mechanical Characteristics

Bending Test:	Low temperature bending test -40 °C : No cracks
Pressure Test for Jacket:	Test at high temperature IEC 60811-508 80±2 °C 4h : ≤ 50 %
Heat Stroke Test:	Heat Shock test at (150±3°C , 1h) : No cracks
Bulk Cable Weight:	65.5 kg/km
Min. Bend Radius During Installation:	10*D

## Standards

ISO/IEC Compliance:	ISO/IEC 11801-2, IEC 60092-360
CENELEC Compliance:	EN 50173-1
Data Category:	Category 7
ANSI Compliance:	ANSI/TIA 568.2-D (2018)
IEEE Compliance:	IEEE 802.3bt Type 1, Type 2, Type 3, Type 4

## Applicable Environmental and Other Programs

Environmental Space:	Indoor
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## Suitability

Suitability - Indoor:	Yes
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## Flammability, LS0H, Toxicity Testing

UL Flammability:	UL1581 VW-1
IEC Flammability:	IEC 60332-1-2, IEC 60332-3-22
Fluorine Content Test IEC60684-2:	HF ≤ 0.1%
IEC 60754-1 - Halogen Amount:	HCL+HBr ≤ 0.5%
IEC 60754-2 - Halogen Acid Gas Amount - Max. Conductivity:	10 µS/mm
IEC 60754-2 - Halogen Acid Gas Amount - Min. pH:	4.3
IEC 61034-2 - Smoke Density Min. Transmittance:	60%

## Related Part Numbers

Footnote:	*Ordering stock code will be created at the time of placing the order and the stock code will include cable part code, outer jacket color & putup length.
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## Product Notes

Notes:	LR (Lloyd's Register) certification
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## History

Update and Revision:	Revision Number: 0.50 Revision Date: 11-09-2022
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