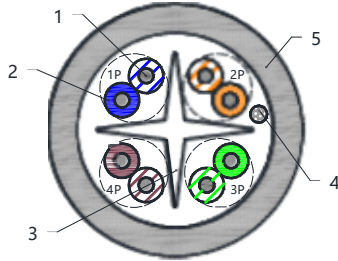


Schema



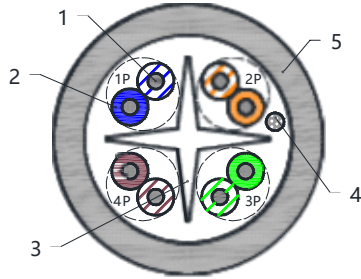
Product Description

①	Inner Conductor
②	Insulation
③	Cross Member
④	Ripcord
⑤	Jacket

Construction Item Description

Item	Property	Unit	Description
Conductor	Construction	AWG	23 AWG
	Material	/	Bare Solid Copper
Insulation	Material	/	HDPE
	Proportion	g/cm ³	2.1
	Outside Diameter	mm	1.00±0.05
	Average Thickness	mm	0.22±0.05
	Color	/	1p: blue stripe + white + blue stripe & blue 2p: orange stripe + white + orange stripe & orange 3p: green stripe + white + green stripe & green 4p: brown stripe + white + brown stripe & brown
Pair Twist	Lay & Direction	/	1p: S=18.5 mm (26%)
			2p: S=15.5 mm (21%)
			3p: S=20.5 mm (30%)
			4p: S=14.0 mm (19%)
Inner Assemble	Lay & Direction	/	S=90 ± 5 mm
	Cross Member	mm	cross member 4.5X4.5X0.4mmT
	Material		LDPE
	Ripcord	/	3*250D
Outside Shield	Material		Polyester
	Shield	/	/
	Construction	mm	/
	Material	/	/
Jacket	Coverage	%	/
	Material	/	PVC
	Hardness	A	81 ± 3
	Outside Diameter	mm	6.1 ± 0.2
	Average Thickness	mm	0.55 ~ 0.60
	Color	/	Blue/White/Black/Grey/Green/Red/Yellow/Purple/Orange/Pink
Marking	Marking Color	/	Black
	Jacket	/	CAT6 550MHz CMP PLENUM UTP 4-PAIR 23AWG EIA/TIA-568-C.2-10002FT-1000FT

Schema



Product Description

① Inner Conductor	Composition : Solid Bare Copper (BC)
	Diameter : See table below
② Insulation	Composition : HDPE
	Diameter : See table below
③ Filler	Type of filler : Cross-Member
	Composition : Low-Density Polyethylene (LDPE)
④ Filler	Type of filler : Ripcord
	Composition : Polyester
⑤ Jacket	Composition : PVC
	Dimensions : See table below
	COLOR : Blue/White/Black/Grey/Green/Red/Yellow/Purple/Orange/Pink

Dimensional Table

Nb pairs	Section	Diameter of	Diameter of insulated conductor (mm)	Minimal thickness of jacket (mm)	Diameter of outer jacket (mm)
	(AWG)	inner conductor (mm)			
4	23	NA	1.00± 0.05	0.55~ 0.60	6.1 ± 0.2

Diameters of inner conductor and insulated conductor must be designed in order to reach the electrical and transmission properties of CAT6.

Color Table

Pair No.	Conductor 1	Conductor 2
1	blue stripe + white + blue stripe	Blue
2	orange stripe + white + orange stripe	Orange
3	green stripe + white + green stripe	Green
4	brown stripe + white + brown stripe	Brown

Reference Standard

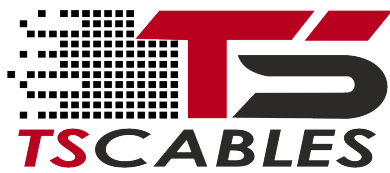
Materials		Fire performance	Electrical performance	Low	Zero Halogen (ZH)		Reach regulation	RoHs Directive
				Smoke Density during combustion	Amount of Halogen acid gas during combustion	Degree of acidity (corrosivity) of gases for materials during combustion		
Insulation	Jacket							
EN 50290-2-23 UL444	EN 50290-2-27 UL444	EN60332-1-2 GB/T18380.12	ANSI/TIA-568.2-D ISO/IEC 1 1801 IEC 61156-5 EN 50173	NA	NA	NA	NA	

Mechanical Properties

Test Method	According to		
	In Standard	NF EN 60811-1-1 (IEC 60811-501)	
	<i>L₀</i> = 200mm, speed = 100mm/min	<i>L₀</i> = 20mm, speed = 250mm/min (or 25mm/min for PE&PP insulation)	
	INNER CONDUCTOR	INSULATION	JACKET
Tensile Strength (MPa)	-	≥ 16 MPa	≥ 13.5 MPa
Elongation (%)	9%~24%	≥ 300%	≥ 150 %

Thermal Properties

Operating Temperature Range (°C)	-20°C to +75°C (static)
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Cable Specification

Cat6 Plenum UTP 100% Solid Bare Copper Ethernet Cable

Date: 26/06/2023

Electrical Properties		
Conductor Resistance at 20 °C	NF EN 50289-1-2 / IEC 60189-1	≤ 9.5 Ω / 100m
Resistance unbalance within a pair	NF EN 50289- 1-2/ IEC 60708	≤ 2%
Dielectric Strength <i>Test Voltage (cd/cd): 1.00KV DC or 0. 7 KV AC for 1 min</i> <i>Test Voltage (cd/screen): 1.00KV DC or 0. 7 KV AC for 1 min</i>	NF EN 50289-1-3 / IEC 61196-1-105	No breakdown
Insulation Resistance at 20 °C after 2min of electrification under a DC voltage between 100 & 500V	NF EN 50289-1-4 / IEC 60885-1	>1500 MΩ / 100m
Mutual capacitance	NF EN 50289- 1-5 / IEC 60189- 1	5600pF / 100m MAX
Capacitance unbalance pair to ground at 800Hz or 1 kHz	NF EN 50289- 1-5 / IEC 60189- 1	≤ 160 pF / 100m
Characteristic impedance at 100 MHz	NF EN 50289- 1- 11/ IEC 61156- 1	100 ± 15 Ω
Spark Test	UL444	2000 ± 250VOC

Transmission Properties									
ANSI/TIA-568.2-D ISO/IEC 1 1801/IEC 61156-5/EN 50173									
No.	Frequency	Attenuation (Max)	Propagation Delay (MAX)	Propagation Delay Skew (MAX)	Return Loss (Min)	NEXT (Min)	PS NEXT (Min)	EL-FEXT (Min)	PS EL-FEXT (Min)
	MHz	dB/100m	ns/100m	ns/100m	dB(on 100m)	dB(on 100m)	dB(on 100m)	dB(on 100m)	dB(on 100m)
1	4	3.78	552	45	23.01	66.27	63.27	55.96	52.96
2	8	5.32	546.73	45	24.52	61.75	58.75	49.94	46.94
3	10	5.95	545.38	45	25	60.3	57.3	48	45
4	16	7.55	543	45	25	57.24	54.24	43.92	40.92
5	20	8.47	542.05	45	25	55.78	52.78	41.98	38.98
6	25	9.51	541.2	45	24.32	54.33	51.33	40.04	37.04
7	31.25	10.67	540.44	45	23.64	52.88	49.88	38.1	35.1
8	50	13.66	539.09	45	22.21	49.82	46.82	34.02	31.02
9	62.5	15.38	538.55	45	21.54	48.36	45.36	32.08	29.08
10	100	19.8	537.6	45	20.11	45.3	42.3	28	25
11	125	22.36	537.22	45	19.43	43.85	40.85	26.06	23.06
12	200	28.98	536.55	45	18	40.78	37.78	21.98	18.98
13	250	32.85	536.28	45	17.32	39.33	36.33	20.04	17.04
14	350 *	39.8	/	45	16.3	36.1	34.1	16.9	13.9
15	400 *	43	/	45	15.9	35.3	33.7	15.7	12.7
16	450 *	46.3	/	45	15.5	34.5	32.5	14.7	11.7
17	500 *	48.9	/	45	15.2	33.8	31.8	13.8	10.8
18	550 *	51.8	/	45	14.9	33.2	31.2	12.9	9.9

Remarks: * are the reference values.

Application
The cable must support class E applications and must be compatible POE, POE+ and UPOE.

Marking	
Type	ink
Color	Black
Text	CAT6 550MHz CMP PLENUM UTP 4-PAIR 23AWG EIA/TIA-568-C.2-10002FT-1000FT

Beltsville MD 20705 - Riverside CA 92508 - Kansas City KS 66103

(301) 825-9890 - Sales@tscables.com

Product Design Card

Product Description : Cat6 Plenum UTP 100% Solid Bare Copper Ethernet Cable

Rev. : A

ECN Description :

Construction		Item Description	Electrical Property		
Conductor	Material	Bare Solid Copper (elongation : 19-24%)	Conductor Resistance at 20 °C		
	OD	23 AWG	≤ 9.5 Ω / 100m		
Insulation	Material	HDPE	Resistance unbalance within a pair		
	OD	1.00 ± 0.05 mm	≤ 2%		
	Average THK	0.22 mm	Insulation Resistance at 20 °C after 2 min of electrification under a DC voltage between 100 & 500V		
	Color	1p: white + 2 blue stripes & blue	> 1500 MΩ / 100m		
		2p: white + 2 orange stripes & orange	Mutual capacitance		
3p: white + 2 green stripes & green		5600 pF / 100m MAX			
4p: white + 2 brown stripes & brown	Capacitance unbalance pair to ground at 800Hz or 1 kHz		≤ 160 pF / 100m		
Pair Twist	Lay & Direction	1p: S=18.5 mm (26%)	Mechanical Property		
		2p: S=15.5 mm (21%)			
		3p: S=20.5 mm (30%)			
		4p: S=14.0 mm (19%)			
	OD	/	elongation before aging		≥ 300%
		/	tensile strength before aging		≥ 16 MPa
		/	elongation before aging		≥ 150 %
		/	tensile strength before aging		≥ 13.5 MPa
Inner Assemble	Lay	S=90±5 mm	elongation after aging		≥ 125 %
	Direction	according to the drawing	tensile strength after aging		≥ 12.5 MPa
	Filler	cross member 4.5X4.5X0.4mmT			
	OD	/			
Filler	Ripcord	250D*3			
	Material	Polyester			
Outside Shield	Shield	/			
	Construction	/			
	Material	/			
	Coverage	/			
Jacket	Material	PVC			
	Hardness	81 ± 3			
	OD	6.1 ± 0.2			
	Average THK	0.55~0.60			
	Color	Black			
Marking Color	Blue/White/Black/Grey/Green /Red/Yellow/Purple/Orange/ Pink				
Marking	CAT6 550MHz CMP PLENUM UTP 4-PAIR 23AWG EIA/TIA-568-C.2-10002 FT-1000FT				

