

Cable Specification

Product Name: Cat 6A FFTP 4X2X23 AWG

S/N: ITI CABLE-013

Date: 08/08/2023

Schema		Product Description	
	①	Inner Conductor	
	②	Insulation	LDPE Inner Skin
			HDPE-Foam
			HDPE Outer Skin
	③	Aluminum Foil	
	④	Aluminum Foil Total shielding	
	⑤	Jacket	
	⑥	Drain Wire	
	⑦	Rip Cord	

Construction Item Description			
Conductor	Construction	AWG	23 AWG
	Material	/	Bare Solid Copper
Insulation	Material	/	LDPE+HDPE
	Outside Diameter	mm	1.32 ± 0.05
	Average Thickness	mm	0.39±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=15.5 mm (26%)
			2p: S=18.5 mm (21%)
			3p: S=19.5 mm (30%)
			4p: S=20.5 mm (19%)
Inner Assemble	Lay & Direction	/	S=90 ± 5 mm
	Ripcord	/	3*250D
	Material	/	Polyester
Outside Shield	Shield	/	Aluminum Foil Pair Shield
	Construction		13*0.063mm
	Shield	/	Aluminum Foil Total shielding
	Construction	mm	25*0.045mm
	Drain Wire	/	CCA
	norms	mm	0.40
Jacket	Material	/	LSOH
	Hardness	A	81 ± 3
	Outside Diameter	mm	7.5 ± 0.2
	Average Thickness	mm	0.55 ~ 0.65
	Color	/	according to the customer's requirements
	Marking Color	/	according to the customer's requirements
Marking	Jacket	/	according to the customer's requirements

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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	1.32 ± 0.05	0.55 ~ 0.65	7.5 ± 0.2

Diameters of inner conductor and insulated conductor must be designed in order to reach the electrical and transmission properties of CAT6A.

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 11801 IEC 61156-5 EN 50173	NA	NA	NA	NA	NA

Mechanical Properties

Test Method	According to		
	In Standard	NF EN 60811-1-1 (IEC 60811-501)	
	$L_0=200\text{mm}$, speed =100mm/min	$L_0=20\text{mm}$, speed =250mm/min (or 25mm/min for PE&PP insulation)	
	INNER CONDUCTOR	INSULATION	JACKET
Tensile Strength (MPa)	-	≥ 10 MPa	≥ 10.0 MPa
Elongation (%)	9%~24%	≥ 200%	≥ 125 %

Thermal Properties

Operating Temperature Range (°C)	-20°C to +75°C (static)
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Electrical Properties		
Conductor Resistance at 20 °C	NF EN 50289-1-2 / IEC 60189-1	$\leq 9.5 \Omega / 100m$
Resistance unbalance within a pair	NF EN 50289- 1-2/ IEC 60708	$\leq 2\%$
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	$>1500 M\Omega / 100m$
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	$\leq 160 pF / 100m$
Characteristic impedance at 100 MHz	NF EN 50289- 1- 11/ IEC 61156- 1	$100 \pm 15 \Omega$
Spark Test	UL444	2000 $\pm$ 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	300	34.27	536.08	45	17.3	38. 14	35. 14	18.46	15.46
15	350	37.25	535.92	45	17.3	37. 14	34. 14	17. 12	14. 12
16	400	40.05	535.8	45	17.3	36.27	33.27	15.96	12.96
17	450	42.71	535.7	45	17.3	35.5	32.5	14.94	11.94
18	500	45.26	535.61	45	17.3	34.82	31.82	14.02	11.02

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	According to the customer's requirements
Text	According to the customer's requirements

Packing

Type of Packing	Dimension (mm)	Qt of per Packing (m)	Label Type	Cut Allowed	Tolerance Length (%)
Inner Box	according to the customer's requirements...	305	according to the customer's requirements...	No	± 1
Master Carton	according to the customer's requirements...	305	according to the customer's requirements...	No	± 1

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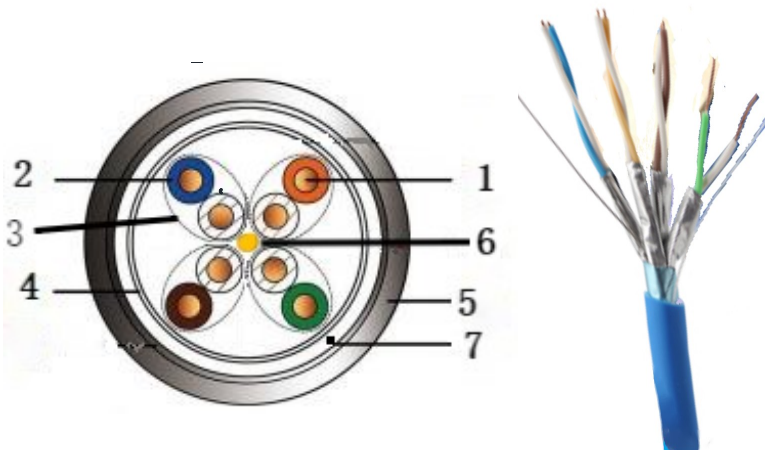
Date: 08/08/2023

Product Design Card

Product Description : Cat 6A FFTP 4X2X23AWG

Rev. : A

ECN Description:

Construction Item Description			Electrical Property					
Conductor	Material	Bare Solid Copper (elongation : 19-24%)	Conductor Resistance at 20 °C		≤ 9.5Ω/100m			
	OD	23 AWG	Resistance unbalance within a pair		≤ 2%			
Insulation	Material	1.LDPE Inner Skin	Insulation Resistance at 20 °C after 2 min of electrification under a DC voltage between 100 & 500V		> 1500 MΩ / 100m			
		2.HDPE-Foam						
		3.HDPE Outer Skin						
	OD	1.32 ± 0.05 mm	Mutual capacitance		5600 pF / 100m MAX			
	Average THK	0.39 mm± 0.05 mm	Capacitance unbalance pair to ground at 800Hz or 1 kHz		≤ 160 pF / 100m			
	Color	1p: white + 2 blue stripes & blue	Characteristic impedance at 100 MHz		100 ± 15 Ω			
		2p: white+2 orange stripes &orange	Dielectric Strength Test Voltage (cd/cd,cd/screen): 1.00KV DC or 0.7 KV AC for 1 min		No breakdown			
		3p: white + 2 green stripes & green						
4p: white + 2 brown stripes & brown		Mechanical Property						
Pair Twist	Lay & Direction	1p: S=15.5 mm (26%)	insulation	elongation before aging	≥ 200%			
		2p: S=18.5 mm (21%)		tensile strength before aging	≥10 MPa			
		3p: S=19 .5 mm (30%)	jacket	elongation before aging	≥ 120 %			
		4p: S=20.5 mm (19%)		tensile strength before aging	≥ 10.0 MPa			
Inner Assemble	OD	/	jacket	elongation after aging	≥ 100 %			
	Lay	S=90±5 mm		tensile strength after aging	≥ 8.0 MPa			
	Direction	according to the drawing		Packing				
	OD	/		Inner Box		according to the customer's requirements		
Filler	Ripcord	250D*3	Master Carton		according to the customer's requirements			
	Material	Polyeste						
Outside Shield	Shield	Aluminum Foil Pair Shield						
	Construction	13*0.063mm						
	Shield	Aluminum Foil Total shielding						
	Construction	25*0.045mm						
	Drain Wire	CCA						
Jacket	norms	0.40mm						
	Material	LSOH						
	Hardness	81 ±3						
	OD	7.5 ± 0.2						
	Average THK	0.55~0.65						
	Color	according to the customer's requirements						
Marking Color		according to the customer's requirements						
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