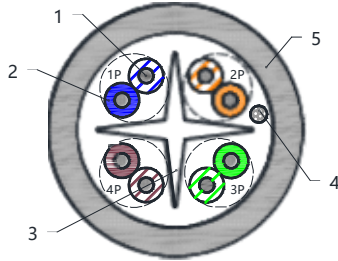


Schema



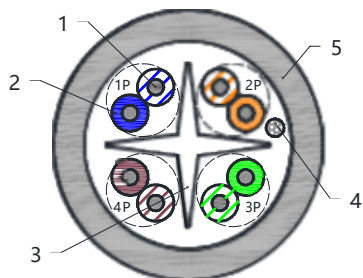
Product Description

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

Construction Item Description

| | | | |
|----------------|-------------------|-------------------|--|
| Conductor | Construction | AWG | 23 AWG |
| | Material | / | Bare Solid Copper |
| Insulation | Material | / | HDPE |
| | Proportion | g/cm ³ | 2.1 |
| | Outside Diameter | mm | 1.01 ± 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=11.5 mm (26%) |
| | | | 2p: S=13.5 mm (21%) |
| | | | 3p: S=10.5 mm (30%) |
| | | | 4p: S=17.0 mm (19%) |
| Inner Assemble | Lay & Direction | / | S=90 ± 5 mm |
| | Cross Member | mm | cross member 4.5X4.5X0.45mmT |
| | Material | | LDPE |
| | Ripcord | / | 3*250D |
| Outside Shield | Material | | Polyester |
| | Shield | / | / |
| | Construction | mm | / |
| | Material | / | / |
| Jacket | Coverage | % | / |
| | Material | / | PVC |
| | Hardness | A | 81 ± 3 |
| | Outside Diameter | mm | 6.3 ± 0.2 |
| | Average Thickness | mm | 0.55 ~ 0.65 |
| | Color | / | Blue/White |
| Marking | Marking Color | / | Black |
| | Jacket | / | CAT6ACMRUTP4-PAIR23AWG 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 |

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 | 1.01± 0.05 | 0.55 ~ 0.65 | 6.3 ± 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

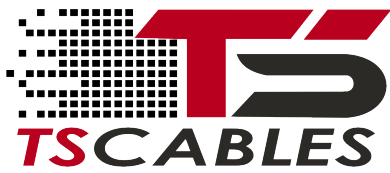
| Materials | | Fire performance | Electrical performance | Low | Zero Halogen (ZH) | | Reach regulation | RoHs Directive |
|--------------------------------------|----------------------------------|-----------------------------|--|---------------------------------|--|--|------------------|----------------|
| | | | | Smoke Density during combustion | Amount of Halogen acid gas during combustion | Degree of acidity (corrosivity) of gases for materials during combustion | | |
| Insulation EN 50290-2-23 UL444 | Jacket 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 | |

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) |
|----------------------------------|-------------------------|



Cable Specification

CAT6A UTP RISER BARE COPPER 23AWG SOLID CMR 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 | 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 |

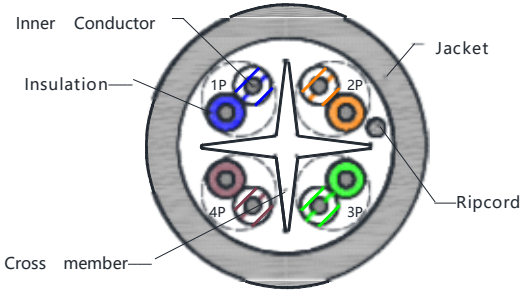
Remarks: * are the reference values.


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

| Marking | |
|---------|---|
| Type | ink |
| Color | <i>Black</i> |
| Text | CAT6A CMR UTP 4- PAIR 23AWG EIA/TIA-568-C.2-1 0002FT-1000FT c |

Beltsville MD 20705 - Riverside CA 92508 - Kansas City KS 66103
(301) 825-9890 - Sales@tscables.com

| Product Design Card | | | | | |
|--|--|--|---|--|------------|
| Product Description: CAT6A UTP RISER BARE COPPER 23AWG SOLID CMR CABLE | | | | | |
| Rev. : A | ECN Description : | | | | |
| Construction | Item Description | Electrical Property | | | |
| Conductor | Material | Bare Solid Copper (elongation : 19-24%) | Conductor Resistance at 20 °C | ≤ 9.5 Ω / 100m | |
| | OD | 23 AWG | Resistance unbalance within a pair | ≤ 2% | |
| Insulation | Material | HDPE | Insulation Resistance at 20 °C after 2 min of electrification under a DC voltage between 100 & 500V | > 1500 MΩ / 100m | |
| | OD | 1.01 ± 0.05 mm | Mutual capacitance | 5600 pF / 100m MAX | |
| | Average THK | 0.22 mm | Capacitance unbalance pair to ground at 800Hz or 1 kHz | ≤ 160 pF / 100m | |
| | Color | 1p: white + 2 blue stripes & blue | Characteristic impedance at 100MHz | 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 | |
| Pair Twist | Lay & Direction | 3p: white + 2 green stripes & green | Mechanical Property | | |
| | | 4p: white + 2 brown stripes & brown | insulation | elongation before aging | ≥ 300% |
| | | 1p: S=11.5 mm (26%) | | tensile strength before aging | ≥16 MPa |
| | | 2p: S=13.5 mm (21%) | jacket | elongation before aging | ≥ 150 % |
| | 3p: S=10.5 mm (30%) | tensile strength before aging | | ≥ 13.5 MPa | |
| | 4p: S=17.0 mm (19%) | elongation after aging | | ≥ 125 % | |
| | OD | / | | tensile strength after aging | ≥ 12.5 MPa |
| | Inner Assemble | Lay | S=90±5 mm | Packing | |
| Direction | | according to the drawing | Inner Box | according to the customer's requirements | |
| Filler | | cross member 4.5X4.5X0.45mmT | Master Carton | according to the customer's requirements | |
| OD | | / | | | |
| Filler | Ripcord | 250D*3 | | | |
| | Material | Polyester | | | |
| Outside Shield | Shield | / | | | |
| | Construction | / | | | |
| | Material | / | | | |
| | Coverage | / | | | |
| Jacket | Material | PVC | | | |
| | Hardness | 81 ±3 | | | |
| | OD | 6.3 ± 0.2 | | | |
| | Average THK | 0.55~0.65 | | | |
| | Color | Blue/White | | | |
| Marking Color | Black | | | | |
| Marking | CAT6ACMRUTP4-PAIR 23AWGEIA/TIA-568-C.2-10002FT-1000FT | | | | |





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