

# MASTER SPECIFICATION CAT 6 F/UTP CABLE 4 PAIR #23 AWG NON-PLENUM

Design Number:  
**LT48257**

## DESCRIPTION

SCREENED TWISTED PAIR (F/UTP) CATEGORY 6 CABLE FOR USE IN HORIZONTAL CABLING SYSTEMS PER ANSI/TIA-568-C AND ISO/IEC 11801:2002 CLASS E. THE CABLE EXCEEDS ANSI/TIA-568-C.2 AND ISO/IEC 11801:2002 CATEGORY 6 ELECTRICAL CHARACTERISTICS. THE CABLE CONSISTS OF #23 AWG SOLID BARE COPPER INSULATED CONDUCTORS, ASSEMBLED INTO FOUR TIGHTLY TWISTED PAIRS, WITH A FLEXWEB® CORE SEPARATOR, AN OVERALL FOIL SHIELD & DRAIN, UNDER AN OVERALL JACKET. PRINT INCLUDES DESCENDING FOOTAGE MARKERS FROM 1000 TO 0. SEE BELDEN.COM/P FOR ANY/ALL APPLICABLE PATENT DETAILS.

THE CABLE IS RISER (NON-PLENUM) RATED FOR USE AS A VERTICAL RUN IN A SHAFT AND FOR GENERAL PURPOSE COMMUNICATIONS USE IN ACCORDANCE WITH ARTICLE 800 OF THE NATIONAL ELECTRICAL CODE (NEC). THE CABLE IS UL (USA) & cUL (CANADA) LISTED FOR THIS APPLICATION BY PASSING UL 1666 RISER CABLE FLAMMABILITY TEST. THE CABLE ALSO PASSES THE CSA FT4 VERTICAL FLAME TEST - CABLES IN CABLE TROUGH FROM CLAUSE 4.11.4 OF CSA C22.2 NO. 0.3.

## SUPPORTED APPLICATIONS

IEEE 802.3 10BASE-T (ETHERNET), 100BASE-T (FAST ETHERNET), AND 1000BASE-T (GIGABIT ETHERNET), ANSI.X3.263 FDDI TP-PMD, IEEE 802.5 4 AND 16 Mbps TOKEN RING, 550 MHz BROADBAND VIDEO AND ATM UP TO 2.4 Gbps.

## CONSTRUCTION

**PRIMARIES:** CONDUCTOR: 23 AWG (.6 mm) SOLID BARE COPPER  
INSULATION: THERMOPLASTIC

**PAIR ASSEMBLY:** 2 PRIMARIES TWISTED IN VARIED LAYS

**COLOR CODE:** SEE TABLE 1

**CABLE ASSEMBLY:** 4 PAIRS CABLED TOGETHER WITH A FLEXWEB CORE SEPARATOR

**BARRIER:** OVERALL POLYESTER TAPE, 25% OVERLAP

**DRAIN:** #24 AWG SOLID TINNED COPPER

**SCREEN (SHIELD):** OVERALL ALUMINUM/POLYESTER TAPE, ALUM SIDE FACING IN, 25% OVERLAP, 100% COVERAGE, LIGHTLY BONDED TO JACKET

**JACKET:** NO LEAD FLAME RETARDANT THERMOPLASTIC  
JACKET COLOR: SEE TABLE 2  
NOMINAL CABLE OD: .288" (7.32 mm)

**LISTING:** C(UL)US OR C(ETL)US TYPE CMR  
UL OR ETL VERIFIED CAT 6

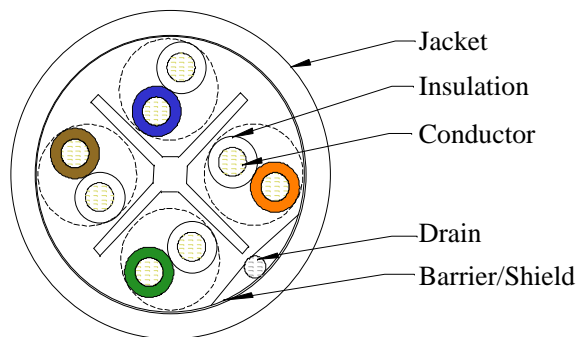


TABLE 1

PAIR NUMBER	PAIR COLOR CODE	
1	WHITE-BLUE	BLUE
2	WHITE-ORANGE	ORANGE
3	WHITE-GREEN	GREEN
4	WHITE-BROWN	BROWN

TABLE 2

MOHAWK PART NUMBER	MOHAWK DESIGN NUMBER	JACKET COLOR
M58155	LT47975	WHITE
M58156	LT48258	BLUE
M58157	LT48259	PINK
M58158	LT48260	YELLOW
M58159	LT48261	GRAY
M58160	LT48262	GREEN
M58161	LT48263	RED
M58162	LT48264	ORANGE
M58163	LT48265	BLACK
M58164	LT48266	VIOLET
M58843	LT56777	TEAL

## PHYSICAL CHARACTERISTICS

**CABLE WEIGHT w/reel:** 51 lbs/1000ft (76 kg/km)

**BENDING RADIUS:** 1.15" (29 mm) MIN (4 x CABLE OD)

**PULLING TENSION:** 25 lbf (110 N) MAX

**OPERATING TEMP.:** -20°C to +60°C (-4°F to +140°F)

**STORAGE TEMP.:** -20°C to +75°C (-4°F to +167°F)

**\*INSTALLATION TEMP.:** 0°C to +60°C (+32°F to +140°F)

\* THE INSTALLATION TEMPERATURE REFERS TO THE TEMPERATURE OF THE CABLE WHILE BEING INSTALLED OR PULLED.



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Rev	Description	Date	Init.
S	UPDATE PATENT INFO	04/24/14	JS
T	DELETE RIPCORD; ADD TAPE BOND; ADJUST WGT	08/29/14	JS
U	UPDATE PATENT INFO	02/05/16	JS
V	UPDATE FOOTER	02/21/17	JS
Date: 12/18/01		Page 1 of 2	
Orig:		Review:	
			Design Number: <b>LT48257</b>

# MASTER SPECIFICATION

## CAT 6 F/UTP CABLE

### 4 PAIR #23 AWG NON-PLENUM

Design Number:  
**LT48257**

#### ELECTRICAL CHARACTERISTICS (REF TABLE 3)

**STANDARDS:** EXCEEDS ANSI/TIA-568-C.2 CAT 6,  
ICEA S-90-661-1997 CAT 6 &  
ISO/IEC 11801:2002 CAT 6  
HORIZONTAL CABLE

**CONDUCTOR DCR:** 7.8 Ω/100m (23.8 Ω/Mft) MAX

**DCR UNBALANCE:** 3% MAX

**MUTUAL CAPACITANCE:** 46 pF/m NOM

**CAPACITANCE UNBALANCE PAIR/GROUND:** 66 pF/100m MAX

**CHARACTERISTIC IMPEDANCE:** 100 Ω ± 15% (1-300 MHz)

**INPUT IMPEDANCE:** 100 Ω ± 15% (1-100 MHz)  
100 Ω ± 22% (>100-200 MHz)  
100 Ω ± 32% (>200 MHz)

**RETURN LOSS (RL):** 20 + 5 log<sub>10</sub>(f) dB MIN (1-10 MHz)  
25 dB MIN (>10-20 MHz)  
25 - 7 log<sub>10</sub>(f/20) dB MIN (>20 MHz)

#### INSERTION LOSS

**(ATTENUATION):**  $1.808\sqrt{f} + .017f + \frac{.20}{\sqrt{f}}$  dB/100m MAX

**NEAR END CROSSTALK (NEXT):** 44.3 - 15 log<sub>10</sub>(f/100) dB/100m MIN

**POWER SUM NEAR END CROSSTALK (PS-NEXT):** 42.3 - 15 log<sub>10</sub>(f/100) dB/100m MIN

**EQUAL LEVEL FAR END CROSSTALK (ELFEXT):** 30 - 20 log<sub>10</sub>(f/100) dB/100m MIN

**POWER SUM EQUAL LEVEL FAR END CROSSTALK (PS-ELFEXT):** 28 - 20 log<sub>10</sub>(f/100) dB/100m MIN

**PROPAGATION DELAY:** 534 + 36/√f ns/100m MAX

**DELTA DELAY (SKEW):** 30 ns/100m MAX

**NOMINAL VELOCITY OF PROPAGATION (NVP):** 68%

WHERE f = FREQUENCY IN MHz from .772 to 250 MHz

TABLE 3

#### REFERENCE ELECTRICAL CHARACTERISTICS

FREQ (MHz)	INSERTION LOSS (dB/100m)		NEXT (dB/100m)		ACR (dB/100m)	PS-NEXT (dB/100m)		PS-ACR (dB/100m)	ELFEXT (dB/100m)	PS-ELFEXT (dB/100m)	RL (dB)
	avg	max	avg	min	min	avg	min	min	min	min	min
.772	1.7	1.8	86	76.0	74.2	80	74.0	72.2	-	-	-
1.0	1.9	2.0	82	74.3	72.3	75	72.3	70.3	70.0	68.0	20.0
4.0	3.6	3.8	73	65.3	61.5	65	63.3	59.5	58.0	56.0	23.0
8.0	5.0	5.3	69	60.8	55.5	61	58.8	53.5	51.9	49.9	24.5
10.0	5.6	6.0	67	59.3	53.3	60	57.3	51.3	50.0	48.0	25.0
16.0	7.1	7.6	66	56.2	48.6	58	54.2	46.6	45.9	43.9	25.0
20.0	7.9	8.5	64	54.8	46.3	56	52.8	44.3	44.0	42.0	25.0
25.0	8.9	9.5	63	53.3	43.8	54	51.3	41.8	42.0	40.0	24.3
31.25	10.0	10.7	62	51.9	41.2	53	49.9	39.2	40.1	38.1	23.6
62.5	14.4	15.4	58	47.4	32.0	49	45.4	30.0	34.1	32.1	21.5
100.0	18.5	19.8	54	44.3	24.5	45	42.3	22.5	30.0	28.0	20.1
155.0	23.6	25.2	52	41.4	16.3	43	39.4	14.3	26.2	24.2	18.8
200.0	27.1	29.0	50	39.8	10.8	42	37.8	8.8	24.0	22.0	18.0
250.0	30.7	32.8	49	38.3	5.5	40	36.3	3.5	22.0	20.0	17.3
300.0	34.0	36.4	48	37.1	0.7	39	35.1	-	20.5	18.5	16.8
350.0	37.2	39.8	47	36.1	-	38	34.1	-	19.1	17.1	16.3
400.0	40.2	43.0	46	35.3	-	37	33.3	-	18.0	16.0	15.9
500.0	45.7	48.9	45	33.8	-	36	31.8	-	16.0	14.0	15.2
550.0	48.4	51.8	44	33.2	-	35	31.2	-	-	-	14.9

SWEEP TESTED TO 550 MHz; VALUES ABOVE 250 MHz ARE FOR ENGINEERING INFORMATION ONLY.



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