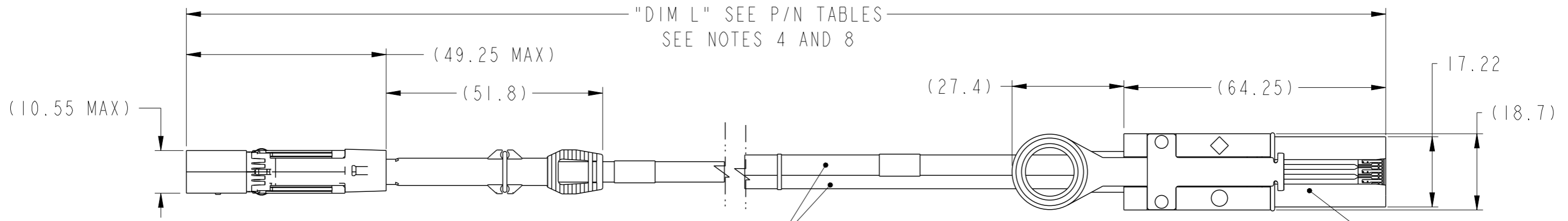


| PRODUCT NUMBER | DESCRIPTION | NOTES |
|------------------|------------------|------------|
| 10117946-XXXXLF | NON-HF | SEE SHT. 3 |
| 10117946-XXXXHLF | HALOGEN FREE (H) | SEE SHT. 3 |

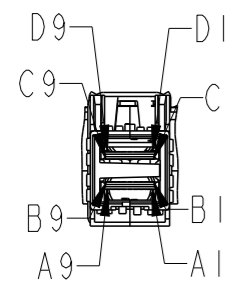


2X CABLE
SEE NOTE 15

END P2
MINI SAS
CABLE CONNECTOR

HEAT SHRINK
TUBE (2X)

END P1
MINI SAS HD 4X
CABLE CONNECTOR



(10.45)

("DIM M")
SEE P/N TABLES

100mm ± 15mm

2X (13.0)

P1 LABEL
SEE NOTE 5

P2 LABEL
SEE NOTE 5

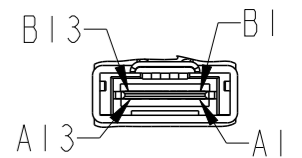
CABLE TIE
COLOR: BLACK

(0.5 METER) SEE NOTE 10

HEAT SHRINK
TUBE

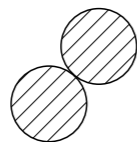
60mm ± 15mm

12.75



(25.0)

SECTION A-A
SCALE 2:1
CABLE ORIENTATION ONLY
MSAS END P2

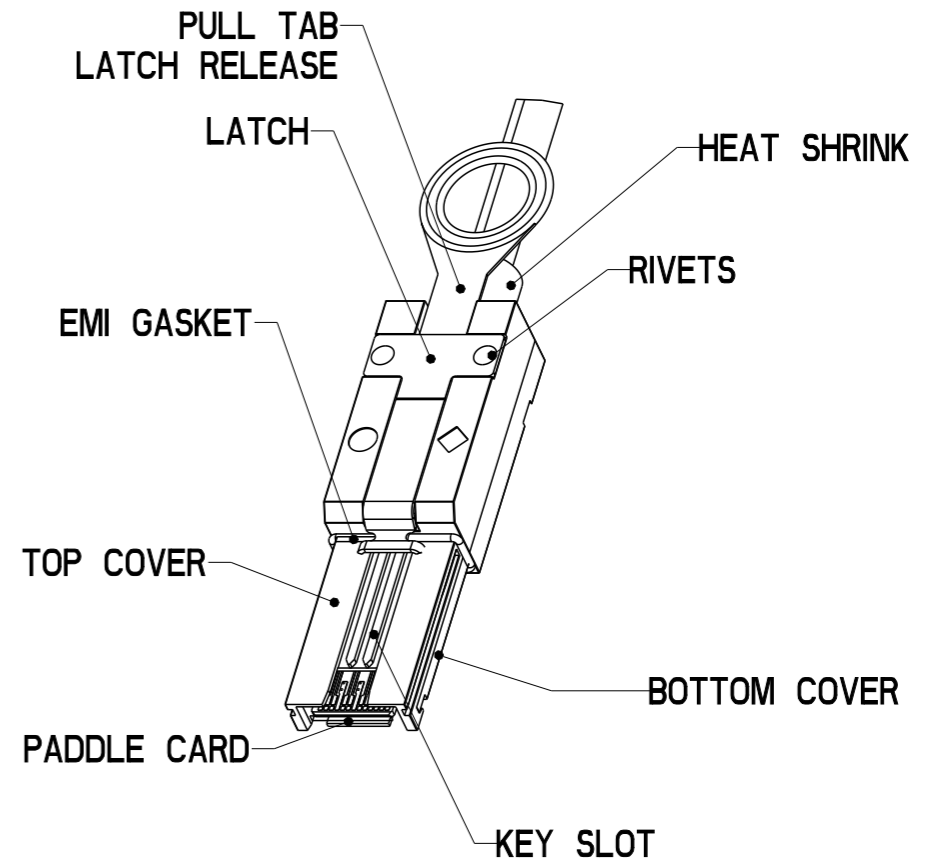


| | | | | | | | | |
|-------------|----------------|-------------------------------------------------------------------|----------------|--------------------|------------------------|---------------|--------------|-----|
| dr | Deborah Ingram | 2011/06/07 | projection | MM | size | A3 | scale | 1:1 |
| eng | Tom Feng | 2015/08/12 | | | ecn no | ELX-N-21245-1 | | |
| chr | - | - | | | rel level | Released | | |
| appr | Frank Mao | 2015/08/12 | product family | C&A | | | | |
| | | title Mini SAS HD 4X TO Mini SAS 2.1 FINAL ASSEMBLY (6Gb/s) | | dwg no 10117946 | rev D | | | |
| www.fci.com | | cat. no. | - | | Product - Customer Drw | | sheet 1 of 6 | |

| PRODUCT NUMBER | DESCRIPTION | NOTES |
|------------------|------------------|------------|
| 10117946-XXXXLF | NON-HF | SEE SHT. 3 |
| 10117946-XXXXHLF | HALOGEN FREE (H) | SEE SHT. 3 |



END P1
Mini SAS HD 4X
ISOMETRIC VIEW



END P2
Mini SAS
ISOMETRIC VIEW

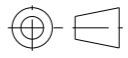

(KEY SLOT 2, 4 & 6
○ ◇ UNIVERSAL PORT)

| | | | | | | | | | |
|-------------|----------------|------------|----------------|-----|------------------------|--------------------------------|--------------|--------|----------|
| dr | Deborah Ingram | 2011/06/07 | projection | MM | size | A3 | scale | 1:1 | |
| eng | Tom Feng | 2015/08/12 | | | ecn no | ELX-N-21245-1 | | | |
| chr | - | - | product family | C&A | rel level | Released | | | |
| appr | Frank Mao | 2015/08/12 | | | title | Mini SAS HD 4X TO Mini SAS 2.1 | | dwg no | 10117946 |
| www.fci.com | | cat. no. | - | | Product - Customer Drw | | sheet 2 of 6 | | |

| PRODUCT NUMBER | DESCRIPTION | NOTES |
|------------------|------------------|------------|
| 10117946-XXXXLF | NON-HF | SEE SHT. 3 |
| 10117946-XXXXHLF | HALOGEN FREE (H) | SEE SHT. 3 |

| PRODUCT NUMBER (HALOGEN FREE) SEE NOTE 9 & 15 | AWG | "DIM L" LENGTH (Meters) | "DIM M" HIEGHT (mm) |
|-----------------------------------------------------|--------|-------------------------------|---------------------------|
| 10117946-5030HLF | 24 AWG | 3 M | (20.1) |
| 10117946-5040HLF | 24 AWG | 4 M | (20.1) |
| 10117946-5050HLF | 24 AWG | 5 M | (20.1) |
| 10117946-5060HLF | 24 AWG | 6 M | (20.1) |
| 10117946-5070HLF | 24 AWG | 7 M | (20.1) |
| 10117946-5080HLF | 24 AWG | 8 M | (20.1) |
| 10117946-5090HLF | 24 AWG | 9 M | (20.1) |
| 10117946-5100HLF | 24 AWG | 10 M | (20.1) |
| 10117946-4020HLF | 26 AWG | 2 M | (20.1) |
| 10117946-4030HLF | 26 AWG | 3 M | (20.1) |
| 10117946-4040HLF | 26 AWG | 4 M | (20.1) |
| 10117946-4050HLF | 26 AWG | 5 M | (20.1) |
| 10117946-4060HLF | 26 AWG | 6 M | (20.1) |
| 10117946-4070HLF | 26 AWG | 7 M | (20.1) |
| 10117946-4080HLF | 26 AWG | 8 M | (20.1) |
| 10117946-3005HLF | 28 AWG | 0.5 M | (17.3) |
| 10117946-3010HLF | 28 AWG | 1 M | (17.3) |
| 10117946-3015HLF | 28 AWG | 1.5 M | (17.3) |
| 10117946-3020HLF | 28 AWG | 2 M | (17.3) |
| 10117946-3025HLF | 28 AWG | 2.5 M | (17.3) |
| 10117946-3030HLF | 28 AWG | 3 M | (17.3) |
| 10117946-3035HLF | 28 AWG | 3.5 M | (17.3) |
| 10117946-3040HLF | 28 AWG | 4 M | (17.3) |
| 10117946-3050HLF | 28 AWG | 5 M | (17.3) |
| 10117946-3060HLF | 28 AWG | 6 M | (17.3) |
| 10117946-2005HLF | 30 AWG | 0.5 M | (17.3) |
| 10117946-2010HLF | 30 AWG | 1 M | (17.3) |
| 10117946-2020HLF | 30 AWG | 2 M | (17.3) |
| 10117946-2030HLF | 30 AWG | 3 M | (17.3) |
| 10117946-2040HLF | 30 AWG | 4 M | (17.3) |

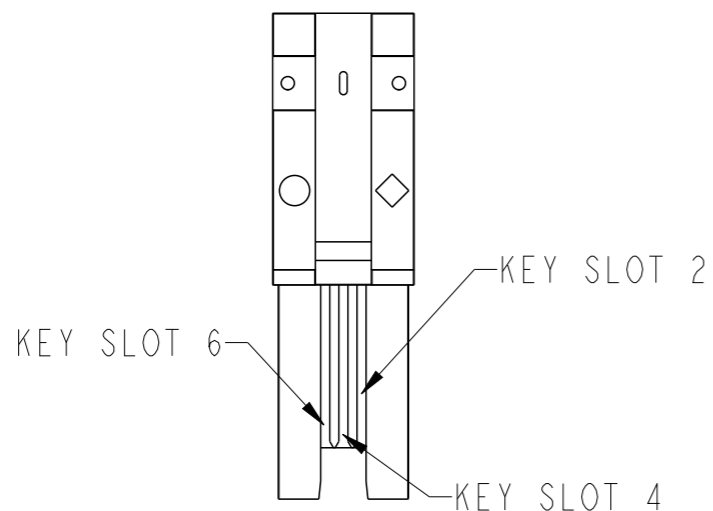
| PRODUCT NUMBER (NON-HALOGEN FREE) SEE NOTE 15 | AWG | "DIM L" LENGTH (Meters) | "DIM M" HIEGHT (mm) |
|-----------------------------------------------------|--------|-------------------------------|---------------------------|
| 10117946-5030LF | 24 AWG | 3 M | (20.1) |
| 10117946-5040LF | 24 AWG | 4 M | (20.1) |
| 10117946-5050LF | 24 AWG | 5 M | (20.1) |
| 10117946-5060LF | 24 AWG | 6 M | (20.1) |
| 10117946-5070LF | 24 AWG | 7 M | (20.1) |
| 10117946-5080LF | 24 AWG | 8 M | (20.1) |
| 10117946-5090LF | 24 AWG | 9 M | (20.1) |
| 10117946-5100LF | 24 AWG | 10 M | (20.1) |
| 10117946-4020LF | 26 AWG | 2 M | (20.1) |
| 10117946-4030LF | 26 AWG | 3 M | (20.1) |
| 10117946-4040LF | 26 AWG | 4 M | (20.1) |
| 10117946-4050LF | 26 AWG | 5 M | (20.1) |
| 10117946-4060LF | 26 AWG | 6 M | (20.1) |
| 10117946-4070LF | 26 AWG | 7 M | (20.1) |
| 10117946-4080LF | 26 AWG | 8 M | (20.1) |
| 10117946-3005LF | 28 AWG | 0.5 M | (17.3) |
| 10117946-3010LF | 28 AWG | 1 M | (17.3) |
| 10117946-3015LF | 28 AWG | 1.5 M | (17.3) |
| 10117946-3020LF | 28 AWG | 2 M | (17.3) |
| 10117946-3025LF | 28 AWG | 2.5 M | (17.3) |
| 10117946-3030LF | 28 AWG | 3 M | (17.3) |
| 10117946-3035LF | 28 AWG | 3.5 M | (17.3) |
| 10117946-3040LF | 28 AWG | 4 M | (17.3) |
| 10117946-3050LF | 28 AWG | 5 M | (17.3) |
| 10117946-3060LF | 28 AWG | 6 M | (17.3) |
| 10117946-2005LF | 30 AWG | 0.5 M | (17.3) |
| 10117946-2010LF | 30 AWG | 1 M | (17.3) |
| 10117946-2020LF | 30 AWG | 2 M | (17.3) |
| 10117946-2030LF | 30 AWG | 3 M | (17.3) |
| 10117946-2040LF | 30 AWG | 4 M | (17.3) |

| | | | | | |
|---------------------------------------------------------------------------------------|----------------|-------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|------------------------|---------------|
| dr | Deborah Ingram | 2011/06/07 | projection  | size A3 | scale 1:1 |
| eng | Tom Feng | 2015/08/12 | | | |
| chr | - | - | | | |
| appr | Frank Mao | 2015/08/12 | | | |
| product family | | | C&A | ecn no | ELX-N-21245-1 |
| rel level | | | Released | rel level | |
|  | | title Mini SAS HD 4X TO Mini SAS 2.1 FINAL ASSEMBLY (6Gb/s) | | dwg no 10117946 | rev D |
| www.fci.com | | cat. no. | - | Product - Customer Drw | |
| | | | | sheet 3 of 6 | |



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| PRODUCT NUMBER | DESCRIPTION | NOTES |
|------------------|------------------|------------|
| 10117946-XXXXLF | NON-HF | SEE SHT. 3 |
| 10117946-XXXXHLF | HALOGEN FREE (H) | SEE SHT. 3 |



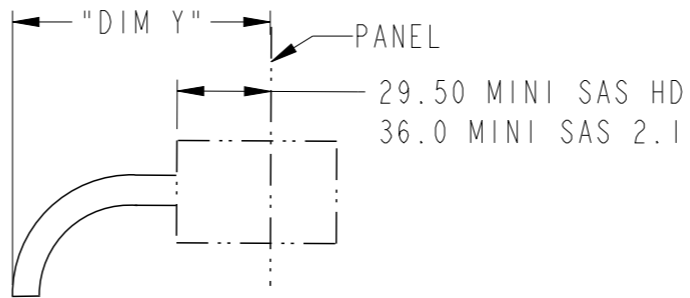
KEY SLOT 2, 4 & 6
 ○◇ UNIVERSAL PORT

**END P2
 MINI SAS**

| WIRING LIST (SEE NOTE 6) | | | | |
|--------------------------|------|--------------------|------------------|--------|
| P1 (MINI SAS HD) | | CONDUCTOR # | P2 (MINI SAS) | |
| SIGNAL | PIN# | | PIN# | SIGNAL |
| GND | A9 | | B7 | GND |
| Rx 1- | A5 | PAIR 2 | B6 | Tx 1- |
| Rx 1+ | A4 | | B5 | Tx 1+ |
| GND | A3 | | B4 | GND |
| Rx 3- | A8 | PAIR 4 | B12 | Tx 3- |
| Rx 3+ | A7 | | B11 | Tx 3+ |
| GND | A6 | | B13 | GND |
| N/C | A1 | NO THRU CONNECTION | | |
| Interrupt | A2 | | | |
| GND | B9 | | | GND |
| RX 0- | B5 | PAIR 1 | B3 | TX 0- |
| RX 0+ | B4 | | B2 | TX 0+ |
| GND | B3 | | B1 | GND |
| RX 2- | B8 | PAIR 3 | B9 | TX 2- |
| RX 2+ | B7 | | B8 | TX 2+ |
| GND | B6 | | B10 | GND |
| N/C | B1 | NO THRU CONNECTION | | |
| Mod_PRS_L (GND) | B2 | | | |
| GND | C9 | | A7 | GND |
| TX 1- | C5 | PAIR 2 | A6 | RX 1- |
| TX 1+ | C4 | | A5 | RX 1+ |
| GND | C3 | | A4 | GND |
| TX 3- | C8 | PAIR 4 | A12 | RX 3- |
| TX 3+ | C7 | | A11 | RX 3+ |
| GND | C6 | | A13 | GND |
| SCL | C1 | NO THRU CONNECTION | | |
| SDA | C2 | | | |
| GND | D9 | | | GND |
| TX 0- | D5 | PAIR 1 | A3 | RX 0- |
| TX 0+ | D4 | | A2 | RX 0+ |
| GND | D3 | | A1 | GND |
| TX 2- | D8 | PAIR 3 | A9 | RX 2- |
| TX 2+ | D7 | | A8 | RX 2+ |
| GND | D6 | | A10 | GND |
| N/C | D1 | NO THRU CONNECTION | | |
| V+3.3 for EEPROM | D2 | | | |
| SHELL | | BRAID | | SHELL |

| | | | | | | | | |
|-------------|----------------|----------------------------------------------------------|------------|------------------------|----------------|--------------|--------|---------------|
| dr | Deborah Ingram | 2011/06/07 | projection | MM | size | A3 | scale | 1:1 |
| eng | Tom Feng | 2015/08/12 | | | product family | C&A | ecn no | ELX-N-21245-1 |
| chr | - | - | | | | | | |
| appr | Frank Mao | 2015/08/12 | | | | | | |
| | | MIni SAS HD 4X TO Mini SAS 2.1 FINAL ASSEMBLY (6Gb/s) | | dwg no 10117946 | rev D | | | |
| www.fci.com | | cat. no. | - | Product - Customer Drw | | sheet 4 of 6 | | |

| PRODUCT NUMBER | DESCRIPTION | NOTES |
|------------------|------------------|------------|
| 10117946-XXXXLF | NON-HF | SEE SHT. 3 |
| 10117946-XXXXHLF | HALOGEN FREE (H) | SEE SHT. 3 |



PEND RADIUS
TOP VIEW OF CONNECTOR

| MINI SAS HD MINIMUM BEND TABLE | | |
|-----------------------------------|-----------------|---------------------|
| CABLE | "DIM Y" (HF) | "DIM Y" (NON-HF) |
| 24 AWG | 92.8 | 90.5 |
| 26 AWG | 87.5 | 85.1 |
| 28 AWG | 81.5 | 79.1 |
| 30 AWG | 77.9 | 74.3 |

| MINI SAS 2.1 MINIMUM BEND TABLE | | |
|------------------------------------|-----------------|---------------------|
| CABLE | "DIM Y" (HF) | "DIM Y" (NON-HF) |
| 24 AWG | 90.6 | 88.3 |
| 26 AWG | 85.3 | 82.9 |
| 28 AWG | 79.3 | 76.9 |
| 30 AWG | 75.7 | 72.1 |

| | | | | | | | | | |
|-------------|----------------|------------|----------------|----------------------------------------------------------|------------------------|---------------|--------------|-----|---|
| dr | Deborah Ingram | 2011/06/07 | projection | MM | size | A3 | scale | 1:1 | |
| eng | Tom Feng | 2015/08/12 | | | ecn no | ELX-N-21245-1 | | | |
| chr | - | - | product family | MiniSAS/SATA | rel level | Released | | | |
| appr | Frank Mao | 2015/08/12 | | | | | | | |
| www.fci.com | | | title | Mini SAS HD 4X TO Mini SAS 2.1 FINAL ASSEMBLY (6Gb/s) | | dwg no | 10117946 | rev | D |
| | | | cat. no. | - | Product - Customer Drw | | sheet 5 of 6 | | |



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| PRODUCT NUMBER | DESCRIPTION | NOTES |
|------------------|------------------|------------|
| 10117946-XXXXLF | NON-HF | SEE SHT. 3 |
| 10117946-XXXXHLF | HALOGEN FREE (H) | SEE SHT. 3 |

NOTES:

1 - MATERIALS MINI SAS HD (END P1)
 BACK SHELLS: ZINC DIE CAST/ COPPER UNDER PLATE/NICKEL OVER PLATE
 PULL TAB: THERMOPLASTIC POLYMER
 LATCH: STAINLESS STEEL
 FERRULE: BRASS
 EMI GASKETS: STAINLESS STEEL
 LOCTITE
 HEAT SHRINK: HIGH POLYMER
 PADDLE CARD: PRINTED CIRCUIT SUBSTRATE

MATERIALS MINI SAS (END P2)
 BACK SHELLS: ZINC DIE CAST
 PULL TAB: THERMOPLASTIC POLYMER
 LATCH: STAINLESS STEEL
 JET MELT: POLYAMIDE POLYMER
 HEAT SHRINK: POLYOLEFIN
 PADDLE CARD: PRINTED CIRCUIT SUBSTRATE

2 - ELECTRICAL PERFORMANCE PER CURRENT REVISION: T10/SAS-2.1

3 - THIS PRODUCT MEETS THE RESTRICTION OF HAZARDOUS SUBSTANCES IN ELECTRICAL AND ELECTRONIC EQUIPMENT (ROHS) DIRECTIVE (2011/65/EU)

4 - UNLESS OTHERWISE SPECIFIED ASSEMBLED LENGTH TOLERANCE IS TO BE:
 "DIM L" < 1 METERS = ±25mm
 "DIM L" = 1 METER TO 10 METER = 2% OF "DIM L"

5- LABEL DETAILS:

| | |
|-------------------------------|----------------|
| MANUFACTURER CODE OR NAME | COUNTRY ORIGIN |
| FCI P/N | CE MARK |
| FCI CUSTOMER DRAWING REVISION | |
| FCI SERIAL NUMBER | |
| BAR CODE OF SERIAL NUMBER | |

FONT SHALL BE CLEARLY VISIBLE AND BLACK IN COLOR.
 CE MARK VERTICAL DIMENSION MAY NOT BE LESS THAN 5mm.

6 - ALL CABLE ASSEMBLIES SHALL BE 100% TESTED FOR CONTINUITY AS DEFINED IN WIRING LIST.

7 - PACKAGING OF LEAD FREE PRODUCTS MEETS LABELING AND PACKAGING PER SPECIFICATION GS-14-920. PACKAGE CABLE ASSEMBLIES PER GS-14-1272. DUST COVER IS TO BE APPLIED TO MINI SAS HD CONNECTOR PRIOR TO SHIPPING. CE MARK SHOULD BE ADDED ON FCI STANDARD PACKAGE LABEL(G1 LABEL),CE MARK VERTICAL DIM. MAY NOT BE LESS THAN 5mm.

8- THIS DIMENSION IS A FINISHED PRODUCT LENGTH.

9. "H" IN THE PART NUMBER DENOTES USE OF HALOGEN FREE CABLE.

10. PLACE A CABLE TIE EVERY 0.5 METERS, IN THE CASE OF A 0.5 METER CABLE LENGTH, PLACE THE CABLE TIE MIDWAY BETWEEN CONNECTORS.

11. A "△" SYMBOL WILL BE NEXT TO ANY DIMENSION, VIEW, OR NOTE WHICH HAS BEEN MODIFIED WITH THE CURRENT DRAWING REVISION. THE CURRENT REVISION WILL BE SHOWN IN THE SYMBOL.

12. MATES TO SERIES: MINI SAS HD - 10112626 or 10112627 or 10112628
 MINI SAS 2.1 - BOARD CONNECTOR 10098870 AND CAGE 10098871

13. OTHER TESTING PERFORMED AS REQUIRED BY PRODUCT SPECIFICATION: MINISAS HD GS-12-651, MINI SAS 2.1 GS-12-548

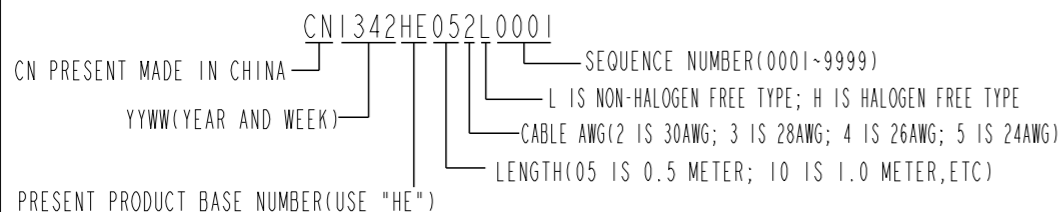
14. EEPROM INFORMATION OF MSHD SIDE REFER TO FCI PRODUCT SPEC. GS-12-651.

15. CABLE IS OPTIONAL, WHICH HAD BEEN QUALIFIED BY FCI AND MEET FCI PRODUCT SPEC. GS-12-651/548.

△ CABLE LABEL EXAMPLE:



FCI SERIAL NUMBER IS ONLY USED FOR TRACKING PRODUCT , SERIAL NUMBER IS DEFINED AS BELOW:



CE MARK VERTICAL DIMENSION MAY NOT BE LESS THAN 5mm,

| | | | | | |
|----------------|----------------|----------------------------------------------------------|----------------|------------------------|---------------|
| dr | Deborah Ingram | 2011/06/07 | projection | size A3 | scale 1:1 |
| eng | Tom Feng | 2015/08/12 | | | |
| chr | - | - | | | |
| appr | Frank Mao | 2015/08/12 | | | |
| product family | | | C&A | ecn no | ELX-N-21245-1 |
| rel level | | | Released | | |
| | | Mini SAS HD 4X TO Mini SAS 2.1 FINAL ASSEMBLY (6Gb/s) | | dwg no 10117946 | rev D |
| www.fci.com | | cat. no. | - | Product - Customer Drw | |
| | | | sheet 6 of 6 | | |