

CTF-10/40/100-MM

PDS - 272



Amphenol Aerospace adds the CTF-10/40/100-MM protocol agnostic fiber to copper converter to the Integrated Electronics Product Line.

This unit features up to 160GBps Bi-Directional bandwidth over standard Ethernet Interface. It features a 24 channel transceiver at 10Gbps per lane. This can be configured for 10/40/100 GbE applications and others! This product line is rugged, flexible, and affordable with many options available. The converter couples fiber optics and copper conversion with a new level of ruggedization.

FIBER INTERFACE:

The fiber optic connector is a size 21 MIL-DTL 38999 style connector featuring four 12 channel MT connectors. Behind the connector interface are four mounting holes for panel or wall mount configuration.

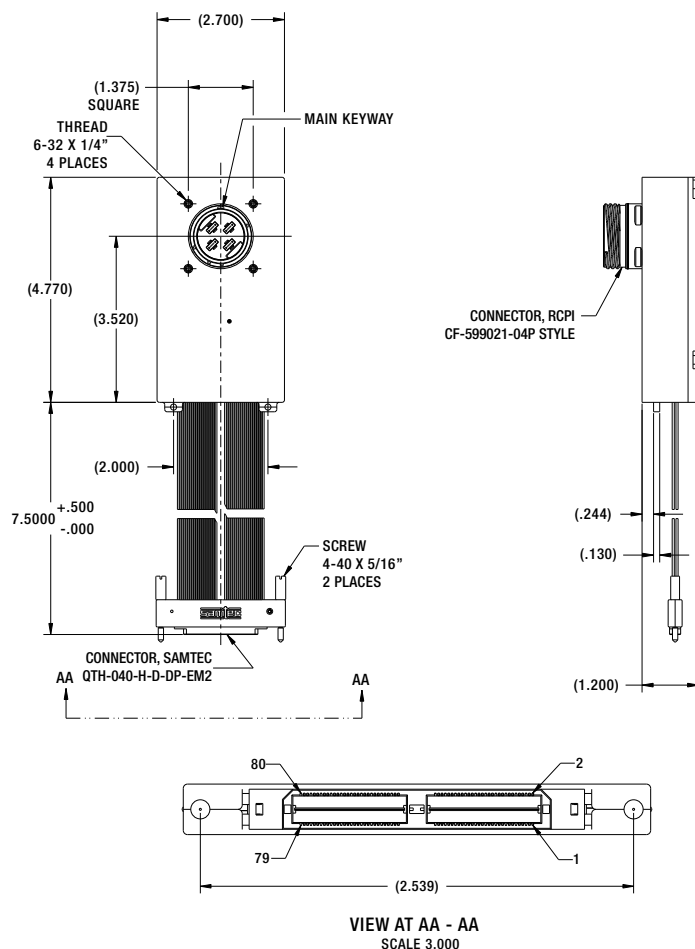
COPPER INTERFACE:

The ribbon coming off of the CTF-10/40/100-MM is part of the Samtec Q Series High Speed Cable Assembly and vertical mount board connectors. The condensed ribbon allows 2 banks of 20 differential pairs for all 16 channel conversions. Among the high speed differential pairs is an I²C interface sharing a common clock and separate SDA lines.

FEATURES & BENEFITS:

- 1 port of 100GbE copper to fiber and fiber to copper conversion
- 16 ports of 10GbE copper to fiber and fiber to copper conversion
- 8 ports of 40GbE copper to fiber and fiber to copper conversion
- CDR
- Configurable pre-emphasis and equalization
- Compliant with IEEE 802.3ba Ethernet Standards and Specifications
- Protocol-agnostic to support multiple clock embedded protocols
- 8b/10b and 64b/66b compatible
- Approximately 5W at 10.3125Gbps

CTF-10/40/100-MM DRAWINGS



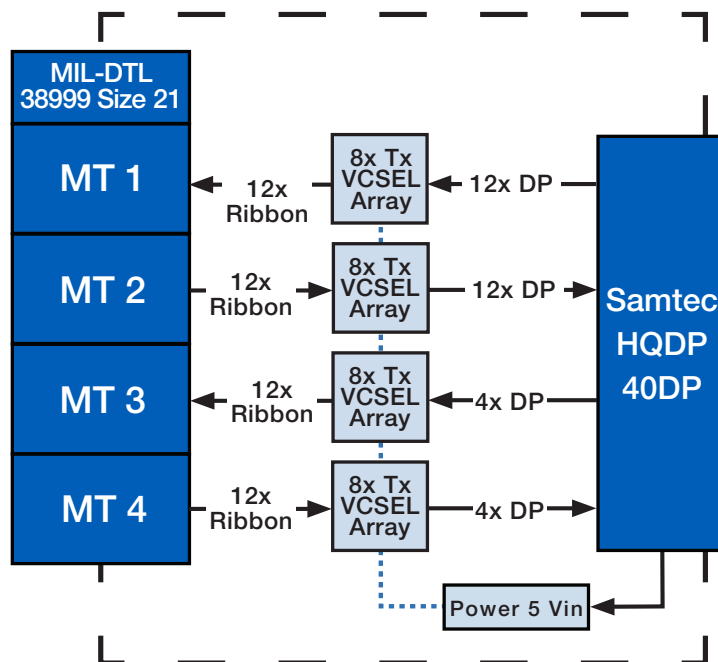
APPLICATIONS:

- 10G BASE-SR
- 10G BASE-KX4
- 10G BASE-KR
- 40G BASE-SR4
- 40G BASE-CR4
- 40G BASE-KR4
- 100G BASE-SR10
- 100G BASE-CR10
- Data Aggregation
- Backplane and Proprietary Protocol and Density Applications
- High Performance and High Productivity Computer Interconnects
- Switch Fabric Interconnects

RUGGEDIZATION:

- Natural convection cooled (no fan)
- Operational Temperature -40°C to +85°C
- Storage Temperature -40°C to +85°C
- EI/MC Resistant

FUNCTIONAL BLOCK DIAGRAM



CTF-10/40/100-MM

Samtec HQDP-040 (40 pairs; 80 signals)

Pin	Description	Pin	Description	Pin	Description	Pin	Description
1	A: CH1 TX+	2	A: CH5 TX+	41	C: CH9 TX+	42	C: CH13 TX+
3	A: CH1 TX-	4	A: CH5 TX-	43	C: CH9 TX-	44	C: CH13 TX-
5	B: CH1 RX+	6	B: CH5 RX+	45	D: CH9 RX+	46	D: CH13 RX+
7	B: CH1 RX-	8	B: CH5 RX-	47	D: CH9 RX-	48	D: CH13 RX-
9	A: CH2 TX+	10	A: CH6 TX+	49	C: CH10 TX+	50	C: CH14 TX+
11	A: CH2 TX-	12	A: CH6 TX-	51	C: CH10 TX-	52	C: CH14 TX-
13	B: CH2 RX+	14	B: CH6 RX+	53	D: CH10 RX+	54	D: CH14 RX+
15	B: CH2 RX-	16	B: CH6 RX-	55	D: CH10 RX-	56	D: CH14 RX-
17	A: CH3 TX+	18	A: CH7 TX+	57	C: CH11 TX+	58	C: CH15 TX+
19	A: CH3 TX-	20	A: CH7 TX-	59	C: CH11 TX-	60	C: CH15 TX-
21	B: CH3 RX+	22	B: CH7 RX+	61	D: CH11 RX+	62	D: CH15 RX+
23	B: CH3 RX-	24	B: CH7 RX-	63	D: CH11 RX-	64	D: CH15 RX-
25	A: CH4 TX+	26	A: CH8 TX+	65	C: CH12 TX+	66	C: CH16 TX+
27	A: CH4 TX-	28	A: CH8 TX-	67	C: CH12 TX-	68	C: CH16 TX-
29	B: CH4 RX+	30	B: CH8 RX+	69	D: CH12 RX+	70	D: CH16 RX+
31	B: CH4 RX-	32	B: CH8 RX-	71	D: CH12 RX-	72	D: CH16 RX-
33	5V Power	34	5V Power	73	5V Power	74	5V Power
35	Ground	36	Ground	75	Ground	76	Ground
37	A: I ² C SDA	38	A-D: I ² C SLC	77	D: I ² C SDA	78	Spare
39	B: I ² C SDA	40	C: I ² C SDA	79	Spare	80	Spare

MIL-DTL-38999 with MT Insert

Cavity	Pin	Description	Cavity	Pin	Description	Cavity	Pin	Description	Cavity	Pin	Description
A	1	CH1 RX	B	1	CH1 TX	C	1	CH9 RX	D	1	CH9 TX
	2	CH2 RX		2	CH2 TX		2	CH10 RX		2	CH10 TX
	3	CH3 RX		3	CH3 TX		3	CH11 RX		3	CH11 TX
	4	CH4 RX		4	CH4 TX		4	CH12 RX		4	CH12 TX
	5	CH5 RX		5	CH5 TX		5	CH13 RX		5	CH13 TX
	6	CH6 RX		6	CH6 TX		6	CH14 RX		6	CH14 TX
	7	CH7 RX		7	CH7 TX		7	CH15 RX		7	CH15 TX
	8	CH8 RX		8	CH8 TX		8	CH16 RX		8	CH16 TX
	9	Spare		9	Spare		9	Spare		9	Spare
	10	Spare		10	Spare		10	Spare		10	Spare
	11	Spare		11	Spare		11	Spare		11	Spare
	12	Spare		12	Spare		12	Spare		12	Spare

AMPHENOL INTEGRATED ELECTRONIC PRODUCTS

RUGGEDIZATION DESIGN

OVERVIEW

Amphenol integrated electronic products are designed and manufactured to our Ruggedization guidelines listed below. These guidelines ensure years of reliable operation in harsh environment applications where extreme operating temperatures, shock, vibration and corrosive atmospheres are regularly experienced.

TEMPERATURE:

- Operating Temperature- Thermal Cycles between -40°C and 85°C while device is operating
- Temperature is measured at chassis housing or card edge
- Storage Temperature- Thermal Cycles between -55°C and 125°C

HUMIDITY:

- Operating Humidity- Humidity cycle between 0-100% non-condensing humidity while device operating
- Storage Humidity- Humidity cycle between 0-100% condensing humidity

SEALING:

- Sealing can be optionally provided at the MIL-DTL-38999 interface with up to 10-5 cc/sec performance

FLUIDS SUSEPTIBILITY:

- MIL-DTL-38999 receptacle interface per EIA-364-10E

VIBRATION & SHOCK:

- Sine Vibration - 10g Peak, 5-2,000Hz
Based on a sine sweep duration of 10 minutes per axis in each of three mutually perpendicular axes. May be displacement limited from 5 to 44 Hz, depending on specific test.
- Random Vibration - 0.0005 @ 5Hz, 0.1 @ 15 Hz, 0.1 @ 2,000 Hz
60 minutes per axis, in each of three mutually perpendicular axes.
- 40 G Peak Shock Cycle
Three hits in each axis, both directions, ½ sine and terminal-peak saw tooth, Total 36 hits.

ALTITUDE:

- -1,500 to 60,000 ft Altitude Testing w/ Rapid Depressurization

ELECTROMAGNETIC COMPATIBILITY:

- Designed to comply with MIL-STD-461E

PRINTED CIRCUIT BOARD ASSEMBLIES:

- Conformal Coat
Amphenol performs Conformal Coating to both sides of printed circuit board assemblies using HUSMISEAL IB31 in accordance with IPC-610, Class 3.
- Printed Circuit Board Rigidity
Amphenol printed circuit boards are fabricated in accordance with IPC-6012, Class 3.
- Printed Circuit Board Fabrication
Amphenol printed circuit boards acceptance criteria is in accordance with IPC-610, Class 3.

RELIABILITY PREDICTIONS (MTBF):

Amphenol can perform Mean Time Between Failure (MTBF) reliability analysis in full compliance with MIL-HDBK-217F-1 Parts Count Prediction and MIL-HDBK-217F-1 Parts Stress Analysis Prediction. We can also perform reliability analyses in full compliance of ANSI/VITA 51.1 if it is required or preferred over the later method.

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