

COPPERHEAD™ SERIES FIBRE CHANNEL TRANSCEIVER

Line Interface Module



- ⊗ High Performance, low-cost alternative to completely-fiber systems
- ⊗ Compact, small package saves PCB footprint
- ⊗ Equalizer and transformers isolation provides long distance applications, better transient protection, and common mode rejection
- ⊗ Low transmit/receive jitter
- ⊗ Low power dissipation; 500mW MAX
- ⊗ Maximum Reflow: 225°C
- ⊗ Lead Finish: Sn63/Pb37
- ⊗ Moisture Sensitivity Level: 3

Transmitter		Vcc: +3.13V - 3.47V			
Parameter	SYM	MIN	TYP	MAX	UNIT
Power Supply Current (Transmitter + Receiver)	I _{CC}	-	90	110	mA
Input Data Voltage Low	V _{IL}	1.35	-	1.88	V
Input Data Voltage High	V _{IH}	2.07	-	2.58	V
Differential Input Data Voltage	V _{IN}	150	800	1200	mV P-P
Input High Voltage Common Range (Differential)	V _{IHCMR}	2	-	3.3	V
Transmitter Output Impedance (Differential)	Z _{tx-Diff}	100	150	-	Ohms
Output Differential Signal Level (p-p)	V _O	1000	1250	1600	mV
Data Rate (NRZ)	D _R	-	266	-	Mb/s
Total P-P Transmit Jitter	T _J	-	500	900	ps
Output rise-fall time (20% - 80%)	T _{RO}	-	-	500	ps

Receiver		Vcc: +3.13V - 3.47V			
Parameter	SYM	MIN	TYP	MAX	UNIT
Input tag swing (Differential)	V _{IN}	150	-	1200	mV
Differential Output Data Voltage	V _O	423	-	1175	mV P-P
Output Common-Mode Voltage	V _{O_{CMR}}	1.75	1.93	2.05	V
Data Rate (NRZ)	D _R	-	266	-	Mb/s
Total P-P Transmit Jitter	T _J	-	1000	2000	ps

ORDERING INFORMATION

TM	531	D	S	A	I	(XX)	
							(XX) - Custom product Designator
							blank - No transmit driver
							1 - 1100 mV output transmit driver and military temperature range
							2 - 1100 mV output transmit driver and industrial temperature range
							5 - Active cable equalizer circuit
							A - 5.00 Volt
							B - 3.30 Volt
							S - Impedance matched for STP and twinax (150 ohm)
							U - Impedance matched for unshielded twisted pair (100 ohm)
							V - Impedance matched for video and mini-coax (75 ohm)
							C - Impedance matched for coax (50 ohm)
							D - Gull wing DIP 28-pin package: 0.800"L x 0.400"W x 0.200"H
							F - Gull wing flat pack 28-pin package: 0.760"L x 0.610"W x 0.125"H
							H - Gull wing half DIP 16-pin package: 0.300"L x 0.500"W x 0.250"H
							(16-pin package is only available on passive units)
							133 - 132.8125 Mbaud version 1/8 Speed Fibre Channel/ATM
							266 - 265.625 Mbaud version 1/4 Speed Fibre Channel
							531 - 531.25 Mbaud version 1/2 Speed Fibre Channel
							1062 - 1.0625 Gbaud version Full Speed Fibre Channel
							1250 - 1.250 Gbaud version, Gigabit Ethernet (both short haul and long haul)
							1485 - 1.485 Gbaud version, SMPTE



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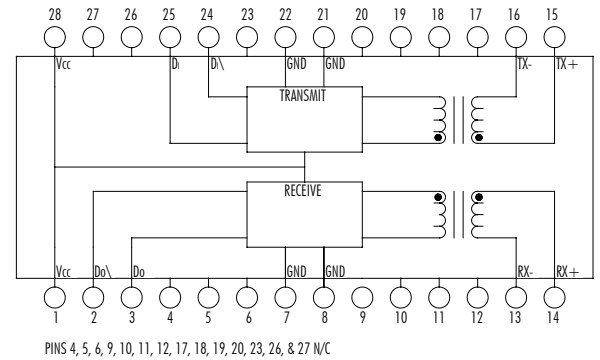
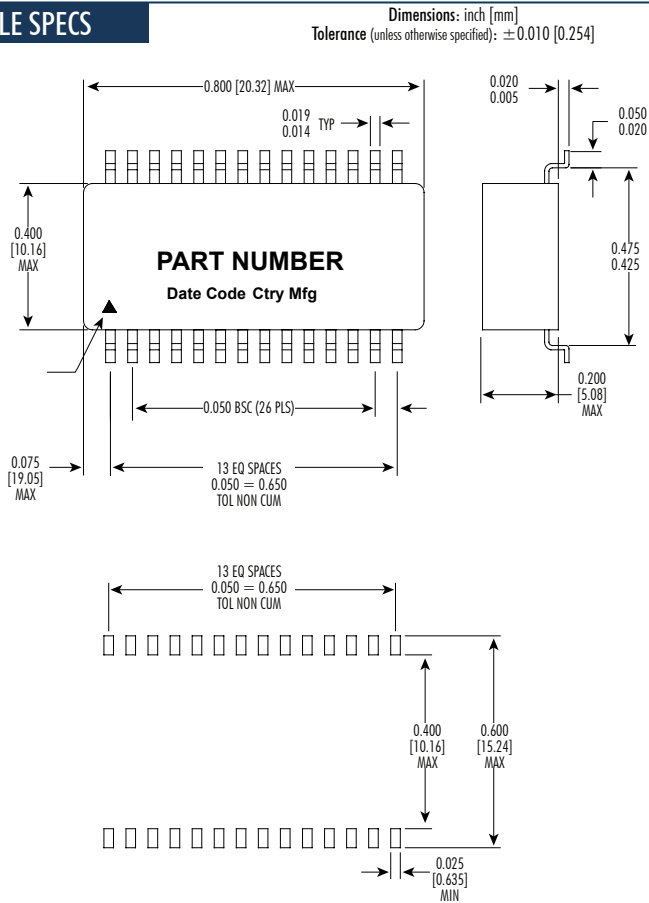
COPPERHEAD™ SERIES FIBRE CHANNEL TRANSCEIVER

Line Interface Module

Mechanicals

Electrical Schematics

SAMPLE SPECS



Pin Numbers

1, 28	The positive supply for the line interface module. Connect to +3.3V for LVPECL applications.
2, 3	DO \, DO: Differential LVPECL data outputs. These outputs can drive 50 ohm loads connected to VCC -2.0V. Recommended 150 ohms to GND.
7, 8	GND (VEE): The negative supply for the line interface module. Connect to GND for LVPECL applications.
13, 14	RX-, RX+: Transformer coupled differential inputs to receiver section. For coax applications, RX- should be connected to shield of cable/earth GND; RX+ should be connected to the center conductor. Earth GND should be AC coupled to DC signal GND using a 0.027µF capacitor, ~500V.
15, 16	TX+, TX-: Transformer coupled differential outputs to cable. For coax applications, TX- should be connected to shield of cable/earth GND; TX+ should be connected to the center conductor. Earth GND should be AC coupled to DC signal GND using a 0.027µF capacitor, 500V.
21, 22	GND (VEE): The negative supply for the line interface module. Connect to GND for LVPECL applications.
24, 25	D+ \, D-: Differential LVPECL compatible data inputs to the transmitter side of the module.
4, 5, 6, 9, 10, 11, 12, 17, 18, 19, 20, 23, 26, 27	These pins are "No Connect"; do not apply GND, VCC, or signal lines to these pins.



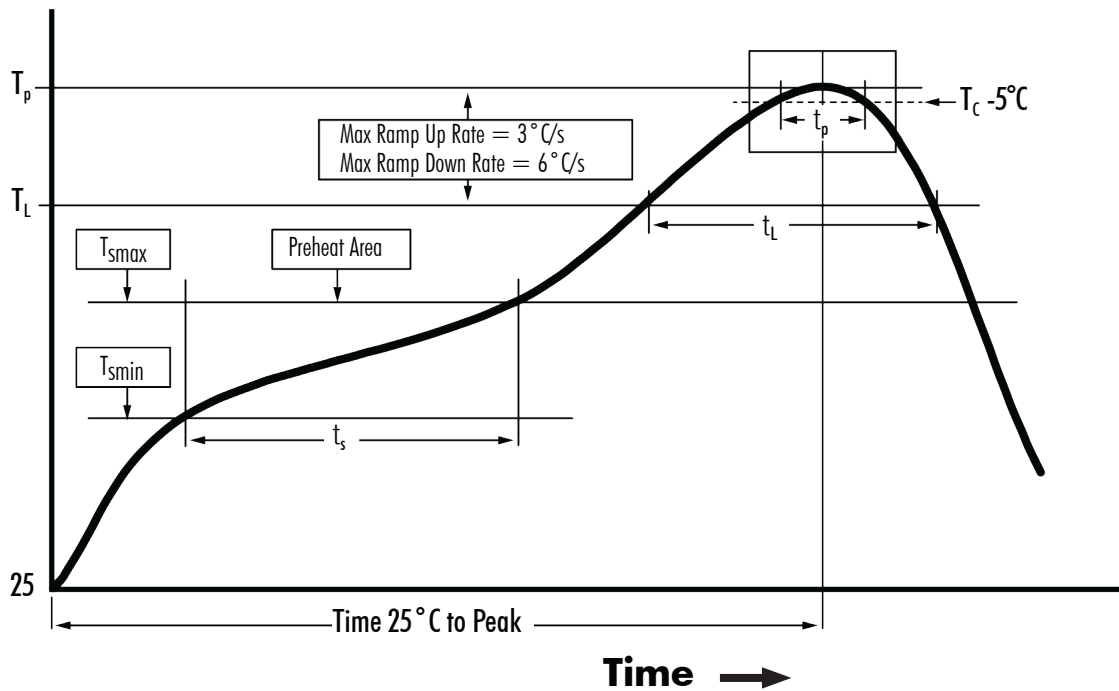
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TRANSCEIVER Recommended Reflow Profile (Based on J-STD-020D)



T_{smin} (°C)	T_{smax} (°C)	T_L (°C)	T_p (°C MAX)	t_s (s)	t_L (s)	t_p (s MAX)	Ramp-up rate (T_L to T_p)	Ramp-down rate (T_p to T_L)	Time 25°C to peak temperature (s MAX)
100	150	183	225	60 - 120	60 - 150	20	3°C/s MAX	6°C/s MAX	360

NOTES:

1. All temperatures measured on the package leads.
2. Maximum number of reflow cycles not to exceed 2.

