

Technical Datasheet

FTLF1319F1GTL-C

Avago Broadcom® Compatible 2x5 2.5Gbps Transceiver

+3.3V, LC, Single-Mode, 1310nm, 20km, Industrial Temperature

FEATURES

- 2x5 Pin Package, Single-Mode Transceiver
- RoHS Compliant, Lead Free
- FP/DFB Laser Diode Transmitter
- 3.3V power supply
- Up to 20km on 9/125µm SMF
- LC duplex optical interface
- CML Differential Inputs
- (LV)PECL/CML Differential Inputs, CML Outputs and (LV)TTL signal detect
- Class 1 Laser International Safety Standard IEC 825 Compliant
- Industrial Operating Temperature Range: -40°C to 85°C

APPLICATIONS

- Fiber Channel Switch Infrastructure
- STM16 Optical Interface
- SONET / SDH Switch Infrastructure
- Other optic links

DESCRIPTION

ATGBICS® FTLF1319F1GTL-C transceiver module is the perfect solution for high-speed communication networks. The transceiver module supports data rates up to 3.1Gbps. The module is fully compliant with the 2X5 standard package defined by the Small Form Factor Multi-Sourcing Agreement (MSA). The transceiver module provides the system designer with Telecom, Datacom, and other Fibre Channel applications.

Technical Datasheet

Absolute Maximum Ratings

Parameter	Symbol	Min	Max	Units	Note
Storage Temperature	TST	-40	+85	°C	-
Relative Humidity	RH	5	95	%	-
Supply Voltage	VCC	0	+3.6	V	-

Recommended Operating Environment and Electrical Characteristics:

Parameter	Symbol	Min	Typ	Max	Units	Note
Supply Voltage	VCC	+3.1	+3.3	+3.5	V	-
Supply Current	Icc	-	-	260	mA	-
Operating Case Temperature	TOP	0	-	+70	°C	1
		-40	-	+85		2
Data Rate	B	100	2500	3100	Mbps	-
Soldering temperature		-	-	260	°C	3
Soldering duration		-	-	10	Sec	3

Notes:

1. Standard level
2. Industrial level
3. Not recommended wave soldering

Technical Datasheet

Optical Parameters

Transceiver Optical Characteristics (Ambient Operating Temperature $T_a = +25 \pm 5^\circ\text{C}$, $V_{CC} = 3.3 \pm 0.2\text{V}$)

Parameter	Symbol	Min	Typ	Max	Units	Notes
Transmitter	-	-	-	-	-	-
Data rate	B	100	2500	3100	Mbps	-
Output Center Wavelength	λ_C	1260	1310	1360	nm	-
Output Spectral width (RMS)	λ	-	-	4.0	nm	-
Average Optical Output Power	P_o	-10	-	-3	dBm	1,2
Extinction Ratio	ER	5	-	-	dB	-
Optic Output Eye: Compliant ITU-T G.957	-	-	-	-	-	-
Receiver	-	-	-	-	-	-
Receiver Sensitivity	S	-	-	-18	dBm	1,2
Maximum Input Power	P _{MAX}	-3	-	-	dBm	1,2
Operation Center Wavelength	λ_c	1200	-	1600	nm	-
Signal Detect (De-assert)	PD	-30	-	-	dBm	1,2
Signal Detect (Assert)	PA	-	-	-18	dBm	1,2
Signal Detect--Hysteresis	PHYS	0.5	-	-	dB	-

Notes:

1. The optical power is launched into 9/125 μm SMF.
2. With a PRBS 223-1 test pattern@ 2500Mbps.

Technical Datasheet

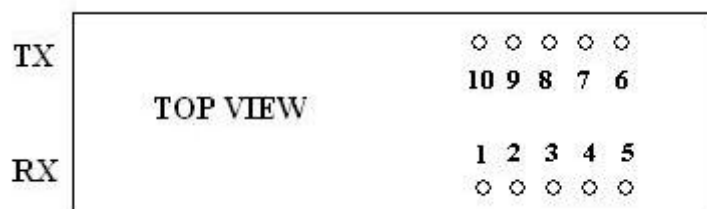
Electrical Parameters

Transceiver Electrical Characteristics (Ambient Operating Temperature $T_a = +25 \pm 5^\circ\text{C}$, $V_{CC} = 3.3 \pm 0.2\text{V}$)

Parameter	Symbol	Min	Typ	Max	Units	Notes
Supply Voltage	VCC	+3.1	+3.3	+3.5	V	-
Supply Current	ICC	-	-	260	mA	-
Transmitter	-	-	-	-	-	-
Differential Input Voltage	V _{in}	400	-	2000	mV _{PP}	-
Input Differential Impedance	Z _{in}	90	100	110	Ω	-
Data Input Voltage - Low	V _{IL}	VCC - 1.81	-	VCC - 1.48	V	-
Data Input Voltage - High	V _{IH}	VCC - 1.17	-	VCC - 0.88	V	-
Receiver	-	-	-	-	-	-
Differential Output Voltage	V _{OUT}	400	-	2000	mV _{PP}	-
Data Output Voltage – Low	V _{OL}	VCC - 1.83	-	VCC - 1.56	V	-
Data Output Voltage – High	V _{OH}	VCC - 1.09	-	VCC - 0.88	V	-
SD Output Voltage-Low	V _{OL}	0	-	0.8	V	1
SD Output Voltage-High	V _{OH}	2	-	VCC	V	1

Technical Datasheet

Pin Assignment



Pin Function Definitions

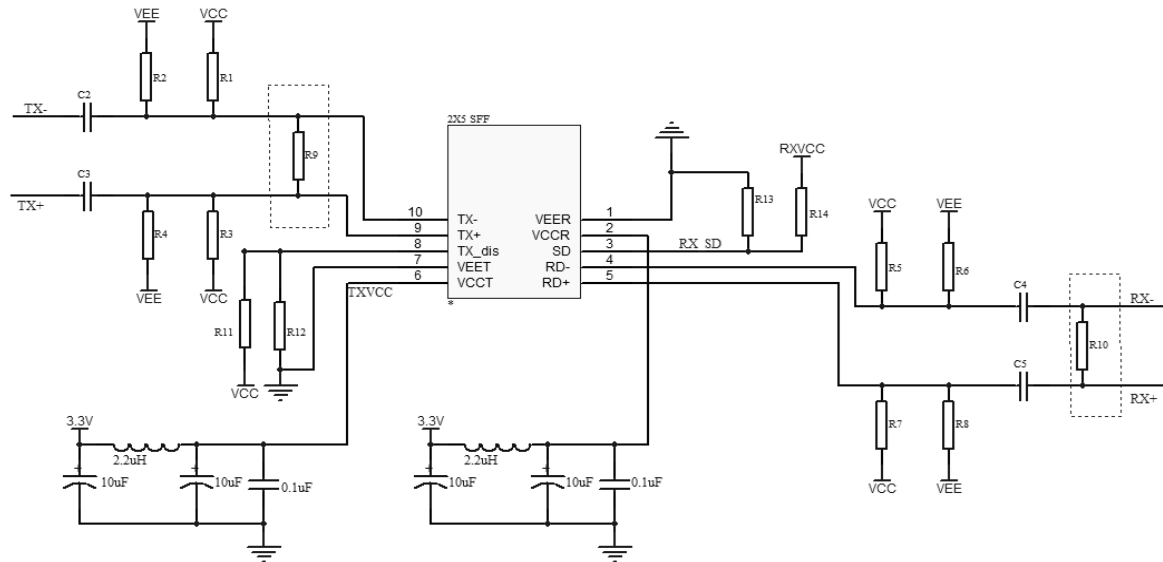
Pin #	Pin Name	Description	Note
1	VEER	Receiver Ground	-
2	VCCR	Receiver Power Supply	-
3	SD	Signal Detect. (LV)PECL or (LV)TTL output	1
4	RD-	Inv. Received Data Out	-
5	RD+	Received Data Out	-
6	VCCT	Transmitter Power Supply	-
7	VEET	Transmitter Ground	-
8	TDIS	Transmitter Disable	2
9	TD+	Transmit Data In	-
10	TD-	Inv. Transmit Data In	-

Notes:

- (LV)PECL-Normal optical input levels to the receiver result in logic "1" output, pull-down 130Ω or 270Ω resistor, (LV)TTL-Normal optical input levels to the receiver result in logic "0" output, pull-up 10kΩ resistor.
- There is an input that is used to shut down the transmitter optical output. Transmitter on in logic "0".

Technical Datasheet

Recommended Circuit



$R_1=R_3=R_5=R_7=130\Omega$, $R_2=R_4=R_6=R_8=82\Omega$, $C_2=C_3=C_4=C_5=104p$, $R_5=R_{10}=100\Omega=NC$,
 $R_{11}=R_{12}=10K$,

SD=LVPECL:R14=10K=NC, R13=130Ω,SD=LVTTL:R14=10K, R12=130Ω=NC。

Technical Datasheet

Mechanical Dimensions (units: mm)

