

Technical Datasheet

AFCT-5961ATGZ-C

Avago Broadcom® Compatible SFF 155Mbps Transceiver

+3.3V, LC Duplex, LD-FP, Single-Mode, 1300nm, 15km, Industrial Temperature

FEATURES

- 2x5 Pin Package, Single-Mode Transceiver
- RoHS Compliant, Lead Free
- FP Laser Diode Transmitter
- Up to 15km on 9/125µm SMF
- 3.3V power supply
- LC duplex optical interface
- (LV)PECL/CML Differential Inputs /Outputs and (LV)PECL or (LV)TTL signal detect
- Class 1 Laser International Safety Standard IEC 825 Compliant
- Industrial Operating Temperature Range: -40°C to 85°C

APPLICATIONS

- ATM 155Mbps
- SONET/SDH
- 100Mbps Ethernet Equipment
- Other Optic Links

DESCRIPTION

ATGBICS AFCT-5961ATGZ-C Transceiver is a high-performance, cost-effective transceiver module. They are the perfect solution for low-speed communication networks. It supports data rates up to 200Mbps. The module is fully compliant with the 2X5 standard package defined by the Small Form Factor Multi-Sourcing Agreement (MSA). It provides the system designer with products to implement a range of SONET/OC-3, SDH/STM-1 for Telecommunication.

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Absolute Maximum Ratings

Parameter	Symbol	Min.	Typical	Max.	Unit
Operating Temperature	T _o	-40		85	°C
Storage Temperature	T _s	-40		85	°C
Supply Voltage	V _{cc}	0		+3.6	V
Relative Humidity	RH	5		95	%

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	I _{cc}	-	-	260	mA	-
Operating Case Temperature	TOP	0	-	+70	°C	1
		-40	-	+85		2
Data Rate	B	10	155	200	Mbps	-
Soldering temperature		-	-	260	°C	3
Soldering duration		-	-	10	Sec	3

Notes:

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

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Optical Parameters (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	Unit	Not
Transmitter						
Data rate	B	10	155	200	Mbp	-
Output Center Wavelength	λ_C	1260	1310	1360	nm	-
Output Spectral width (RMS)	λ	-	-	4.0	nm	-
Average Optical Output Power	Po	-14	-	-5	dBm	1,2
Extinction Ratio	ER	10	-	-	dB	-
Optic Output Eye: Compliant ITU-T G.957						1,2
Receiver						
Receiver Sensitivity	S	-	-	-32	dBm	1,2
Maximum Input Power	P _{MAX}	-3	-	-	dBm	1,2
Operation Center Wavelength	λ_c	1200	-	1600	nm	-
Signal Detect	Deassert	PD	-45	-	dBm	1,2
	Assert	PA	-	-32	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 at 155Mbps

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

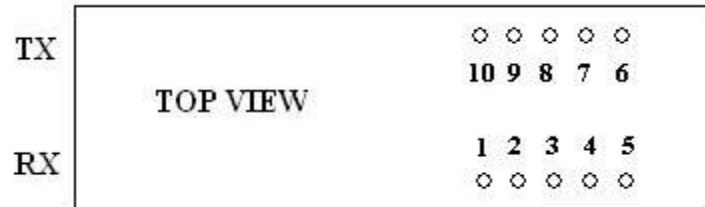
Parameter	Symbol	Min	Typ	Max	Units	Note
Supply Voltage	VCC	+3.1	+3.3	+3.5	V	-
Supply Current	ICC	-	-	260	mA	-
Transmitter						
Differential Input Voltage	V _{in}	400	-	2000	mVP-P	-
Input Differential Impedance	Z _{in}	90	100	110	Ω	-
Data Input Voltage - Low	V _{IL}	VCC -1.81	-	VCC -1.48	V	-
Data Input Voltage - High	V _{IH}	VCC -1.17	-	VCC -0.88	V	-
Receiver						
Differential Output Voltage	V _{OUT}	400	-	2000	mVP-P	-
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}	VCC -2.0	-	VCC -1.56	V	1
SD Output Voltage-High	V _{OH}	VCC -1.1	-	VCC -0.75	V	1
SD Output Voltage-Low	V _{OL}	0	-	0.8	V	2
SD Output Voltage-High	V _{OH}	2	-	VCC	V	2

Notes:

1. (LV)PECL signal detect;
2. (LV)TTL signal detect;

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Pin Assignment



Pin Function Definitions

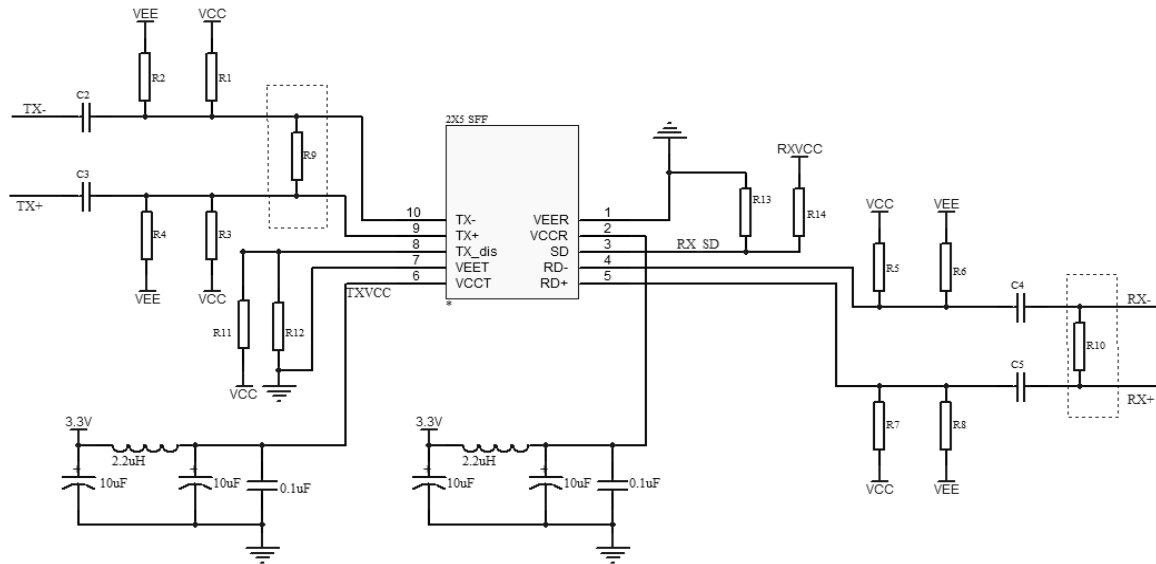
Pin #	Pin Name	Description	Note
1	VEER	Receiver Ground	-
2	VCCR	Receiver Power Supply	-
3	SD	Signal Detect. (LV)PECL or (LV)TTL output	1
4	RD-	Inv. Received Data Out	-
5	RD+	Received Data Out	-
6	VCCT	Transmitter Power Supply	-
7	VEET	Transmitter Ground	-
8	TDIS	Transmitter Disable	2
9	TD+	Transmit Data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

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Recommended Circuit



Mechanical Dimensions (units: mm)

