



Broadband Fiber Optic Link AC 300 PRELIMINARY

Features

- 0.1 to 2.0 GHz Frequency
- 1.3 μm Low Noise Laser
- High Dynamic Range
- Optical Stabilization
- Monitoring and Alarm Capability
- Singlemode Fiber
- High Volume OEM format

February 6, 2002

Threshold info from Jim Stewart of Anacom:

AC300R: 0-50mV is Loss of Optical Input, 51-106mV is low Optical Input, >107mV is OK.

AC300T: >1.20V is a Laser Fault.

May 2001 Lg Volume Pricing:

AC300T \$412 US AC300T-4 \$650 US

AC300R \$313 US

Description

The AC 300 is a linear, low noise broadband RF fiber optic transmitter and receiver designed for low loss RF transmission and distribution applications. The system is composed of a fully integrated transmitter and receiver module. The transmitter utilizes a high performance, linear laser diode operating at 1.3 μm over 9/125 μm singlemode fiber. For optimal stability, the laser incorporates average optical power feedback which monitors and actively adjusts the laser for constant power output over temperature and lifetime.

The receiver utilizes a high-speed, low distortion InGaAs PIN diode photodetector. The RF interface is via a 50 Ω SMA connector and the optical connector is a low reflection FC/APC connector. The unit requires a single 12 volt DC supply with no external settings necessary. A laser and received optical power monitor are provided. The AC 300 has uses as an OEM RF to fiber interface for premise distribution of broadband RF signals in systems such as PCS, Cellular, LMDS, MMDS, WLL or DBS.

Specifications (Tc = +25°C)

Parameter	Min	Typ	Max	Units
Wavelength, peak	1280	1310	1360	nm
Bandwidth	100		2000	MHz
Frequency Response, 100 to 2000 MHz		+/- 2.5		dB
Input and Output VSWR		1.8:1	2.0:1	--
Spur Free Dynamic Range (1)	100			dB/Hz ^{2/3}
RF Link Gain (2)		- 5		dB
Input Noise Floor		- 131		dBm/Hz
Input 3rd Order Intercept		20		dBm

Notes:

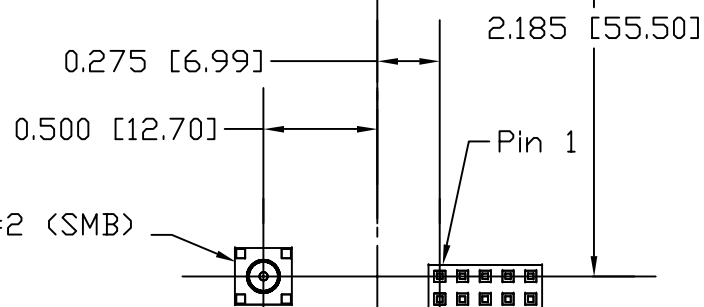
(1) SFDR specified with 1,000 feet of fiber.

(2) Link Gain specified with 1 meter fiber.

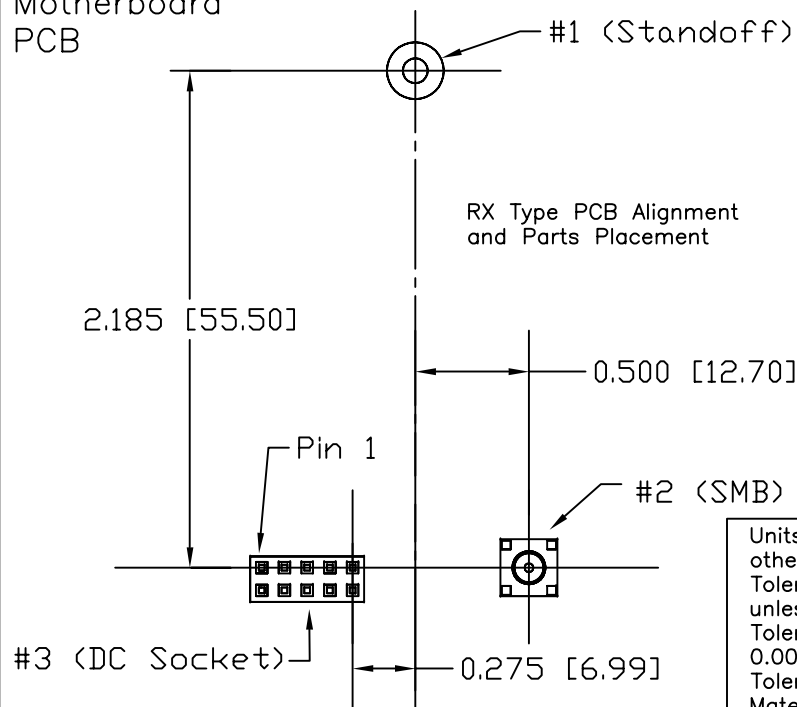
ABSOLUTE MAXIMUMS

Parameter	
Operating Temperature	-40 to +75°C
Storage Temperature	-45 to +85°C
Maximum RF Input to Transmitter	+10 dBm
Maximum Optical Input to Receiver	4 mW
D.C. Supply Voltage	12 volts +/-5%

TX Type PCB Alignment and Parts Placement



Top View of Motherboard PCB



BOM for 7108-0004

Item #	Part Type	Description	Recommended Vendors In order of preference	Part Number
1	Standoff	0.5" +/- 0.002" height x 0.25" OD 4-40 thread	McMaster-Carr	91125A170 / 4-40 or equivalent
2	SMB PCB Mount Jack	Reference line (notch of engagement) must be 0.158 +/- 0.002 above plane of PCB for correct seating of Anacom part.	Applied Engineering Johnson Components Johnson Components Johnson Components ITT Cannon Amphenol Berg Electronics (FCI) Johnson Components Johnson Components	2009-1511-000 131-3701-201 short pins 131-3701-211 long pins 131-3701-261 short pins 131-3701-271 long pins B51-351-0000-220 903-499J-51P 32JR119-1 131-1701-201 short pins 131-1701-211 long pins
3	DC Socket	0.100" x 0.100" spacing, 2 row x 5 position socket. Overall height < 0.360".	Samtec Molex 3M	SSW series 90151-2110 or 2210 929 Series

Notes:

- Sheet 1 shows placement of mounting components on motherboard before installation of Anacom parts.
- Sheet 2 shows the outline of Anacom parts after installation.
- Dimensions are referenced from center of standoff.
- Gold plated contacts on RF and DC connectors preferred.
- See BOM for recommended components.
- Fiber protrudes from module along centerline between DC and RF connectors. Fiber should be protected from strain and fiber bend radius should not be below 0.5"
- Anacom part designed in inches.
- SMD parts are not recommended due to alignment issues.
- Laser_Enable: Gnd = Laser Off, +5V to +12V= Laser On.
- TX_MON, (Laser Bias), 10mV = 1mA.
- Optional TX Alarm is an open collector output when laser bias is normal. Open collector saturates to ground when laser bias exceeds maximum limit.
- RX_MON, (Received Optical Power), 1V = 1mW.
- Optional RX Alarm is an open collector output when receiver has light. When low or no light is present, the open collector saturates to ground.
- Shield on Anacom parts floats 0.095" +/- 0.005" above motherboard PCB when mounted. Note shield limit area. Overall mated dimensions: 1.5" x 2.5" x 0.6". Height dimension is to limit of Anacom part pins. Use flathead screw to mounting standoff to minimize total height.
- SMB connectors with rectangular bases must have faces parallel to shield limit area to prevent interference with shield.
- Side by side configuration of Anacom parts shown in Sheet 2 isometric view is example installation only.
- To remove Anacom part, carefully pry between faces of SMB connectors to overcome snap fit. Work part straight up for removal. Protect fiber and header pins from damage.

Units are inches unless otherwise noted.
Tolerances are as shown unless otherwise noted:
Tolerance Linear X.XXX ± 0.005
Tolerance Angle 1°
Material:

Date: 2/2/01

Drawn by: J. McSpiritt



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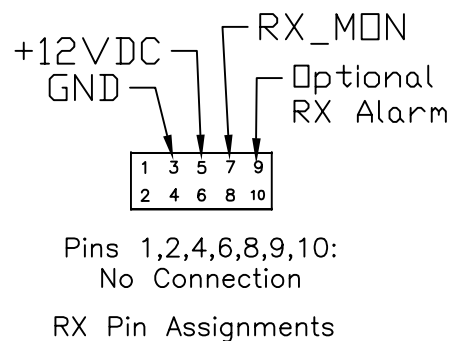
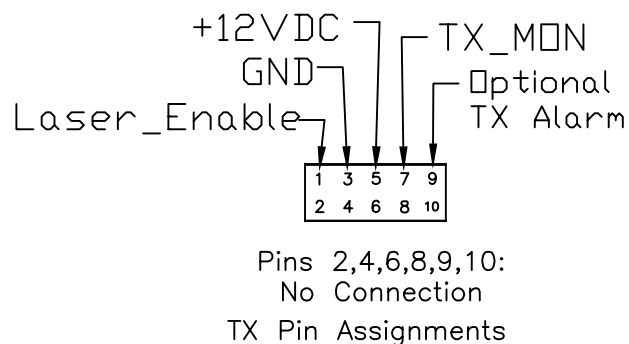
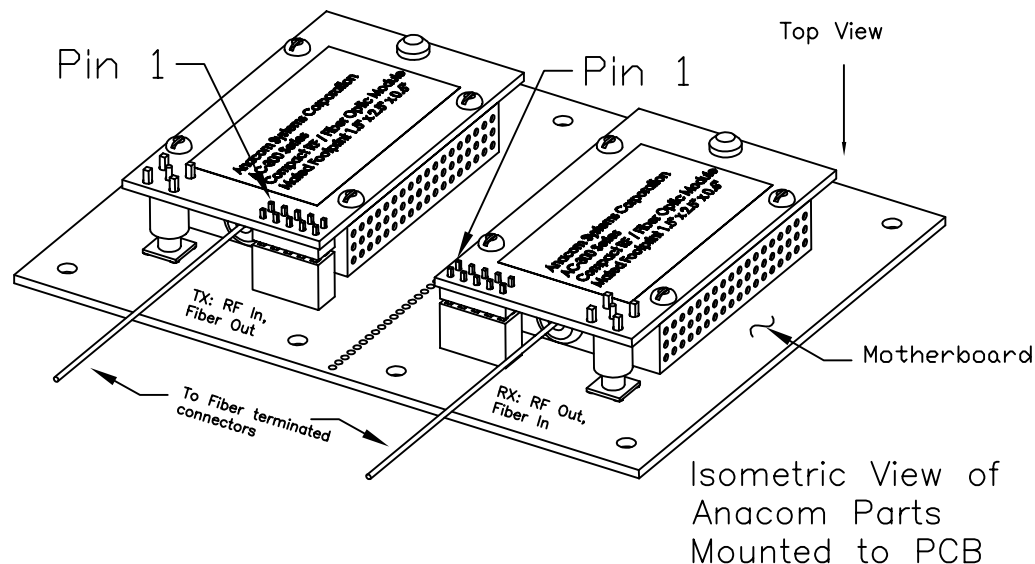
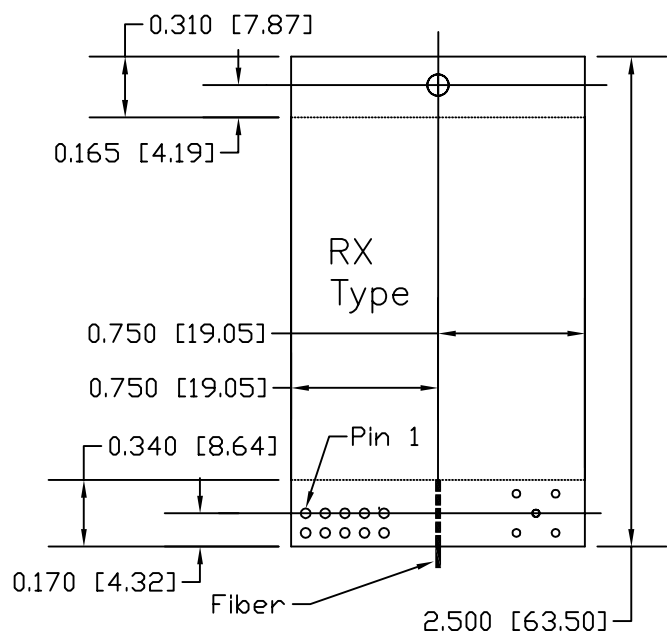
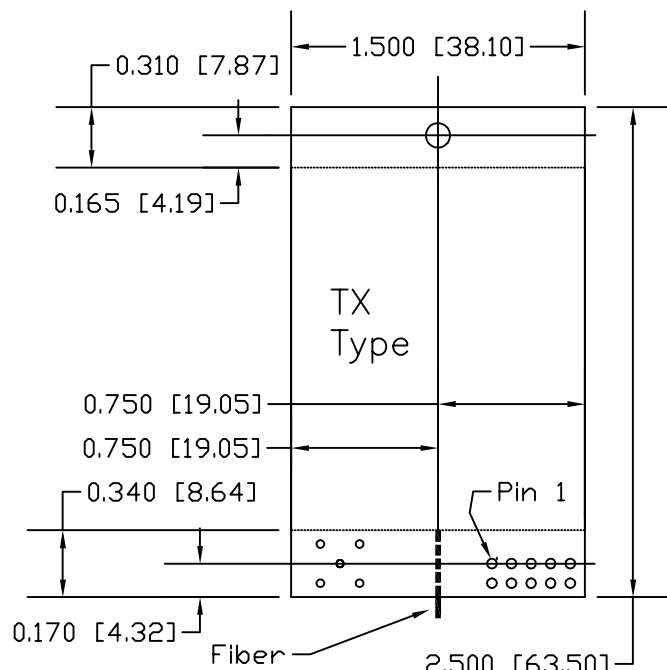
APP, Application Note, AC300
Series, Mounting Guidelines

SIZE
A

FSCM NO.
0Z4Y2

DWG NO.
7108-0004

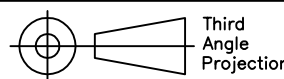
REV
6



See notes for pin function descriptions

Top View of Sockets

Units are inches unless otherwise noted.
Tolerances are as shown unless otherwise noted:
Tolerance Linear X.XXX ± 0.005
Tolerance Angle 1°
Material:



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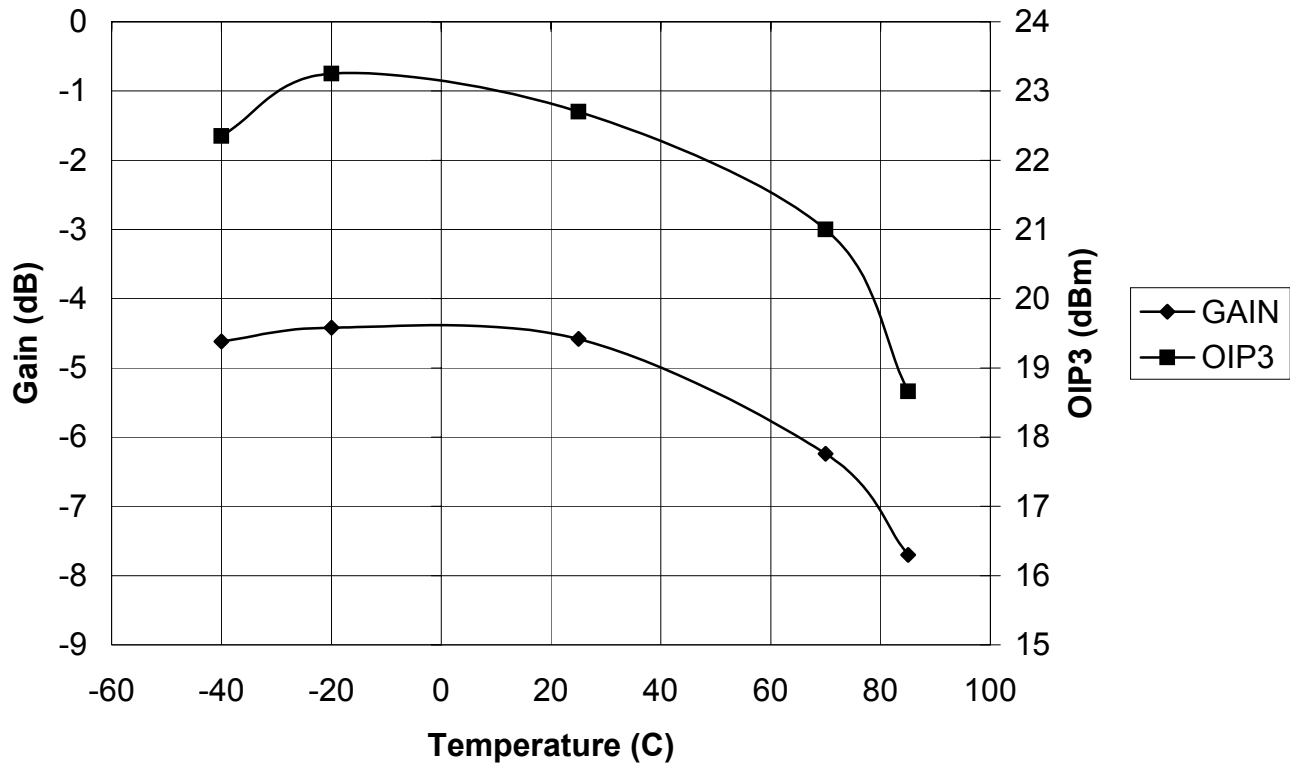
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SIZE A
FSCM NO. 0Z4Y2

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REV 6

AC300 Gain and OIP3 vs Temperature



AC300 SFDR and NF vs Temperature

