



ATA01501D1C
ATA01501S2C

AGC Transimpedance Amplifier
SONET OC-3

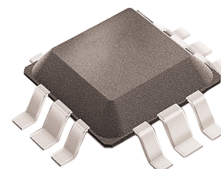
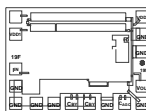
Preliminary Data Sheet - Rev 5

FEATURES

- Single +5 Volt Supply
- Automatic Gain Control
- Excellent Sensitivity
- 0 dBm Optical Overload

APPLICATIONS

- SONET OC-3 Receiver
- FDDIk Ethernet Fiber LAN
- Low Noise RF Amplifier



D1

S2
12 Pin 4 Sided
SQFP Package

Electrical Characteristics ⁽¹⁾ ($T_A = 25^\circ\text{C}$, $V_{DD} = +5.0\text{V} \pm 10\%$, $C_{DIODE} + C_{STRAY} = 0.5\text{pF}$, Det. Cathode to I_{IN})

PARAMETER	MIN	TYP	MAX	UNIT
Transresistance ($R_L = \infty, I_{dc} < 500\text{nA}$)		17		$\text{K}\Omega$
Transresistance ($R_L = 50\Omega$) ⁽¹⁾	5.5	8	10	$\text{K}\Omega$
Bandwidth -3dB (D1C)	150	175		MHz
Bandwidth -3dB (S2C)	130	75		MHz
Input Resistance ⁽²⁾		500		Ω
Output Resistance	30	50	60	Ω
Supply Current		30	45	mA
Input Offset Voltage	1.4	1.6	1.9	Volts
Output Offset Voltage		1.8		Volts
AGC Threshold (I_{IN}) ⁽³⁾	15	30		μA
Optical Overload ⁽⁴⁾	-3	0		dBm
Input Noise Current ⁽⁵⁾		14	20	nA
AGC Time Constant ⁽⁶⁾		16		μsec
Offset Voltage Drift		1		$\text{mV}/^\circ\text{C}$
Optical Sensitivity -(D1C) ⁽⁷⁾		-38		dBm
Optical Sensitivity - (S2C) ⁽⁷⁾		-37		dBm
Operating Voltage Range	+ 4.5	+ 5.0	+ 6.0	Volts
Operating Temperature Range	- 40		85	$^\circ\text{C}$

1. $f = 50\text{MHz}$
2. Measured with I_{IN} below AGC Threshold. During AGC, input impedance will decrease proportionally to I_{IN}
3. Defined as the I_{IN} where Transresistance has decreased by 50%.
4. See note on "Indirect Measurement of Optical Overload".
5. See note on "Measurement of Input Referred Noise Current".
6. $C_{AGC} = 220\text{pF}$
7. Parameter is guaranteed (not tested) by design and characterization data @155Mb assuming detector responsivity of 0.9

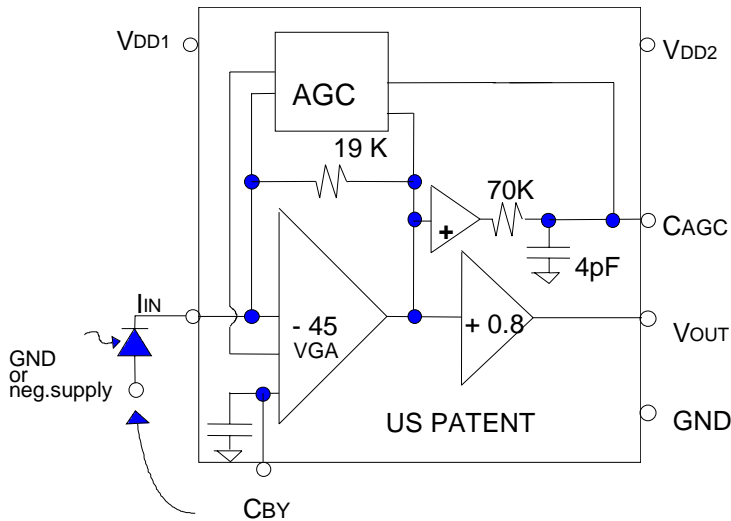
Absolute Maximum Ratings

V_{DD1}	7.0 V
V_{DD2}	7.0 V
I_{IN}	5 mA
T_A	Operating Temp. - 40 C to 125 C
T_S	Storage Temp. - 65 C to 150 C

Pad Description

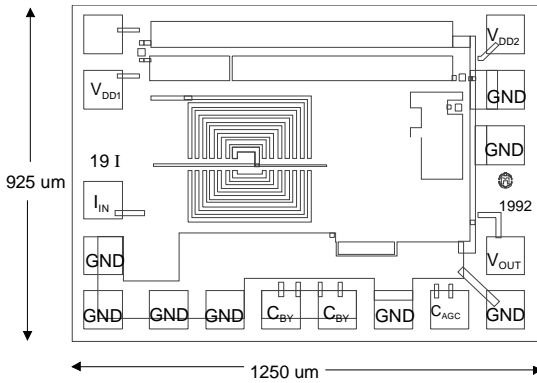
PAD	Description	Comment
V_{DD1}	V_{DD1}	Positive supply for input gain stage
V_{DD2}	V_{DD2}	Positive supply for second gain stage
I_{IN}	TIA Input Current	Connect detector cathode for proper operation
V_{OUT}	TIA Output Voltage	Requires external DC block
C_{AGC}	External AGC Capacitor	$70K * C_{AGC} = AGC \text{ time constant}$
C_{BY}	Input gain stage bypass capacitor	$>56 \text{ pF}$

Equivalent Circuit

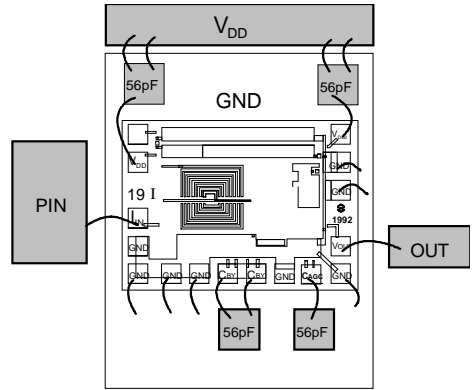


Photodiode cathode must be connected to lin for proper AGC operation

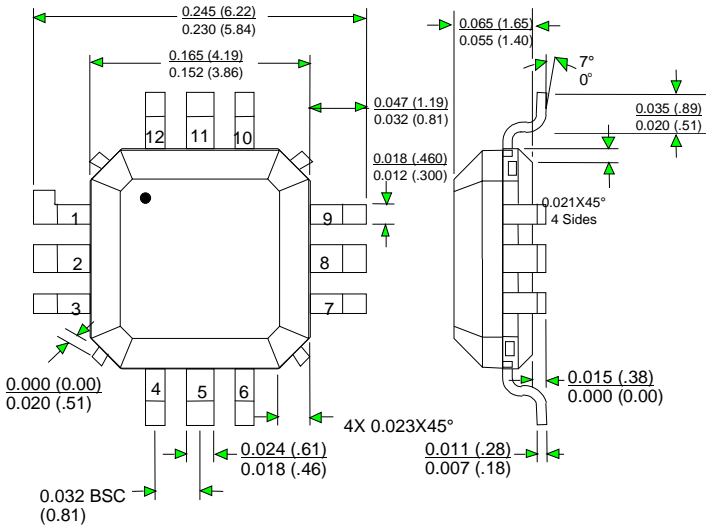
ATA01501D1C Die Bonding Pads



ATA01501D1C Die Typical Bonding

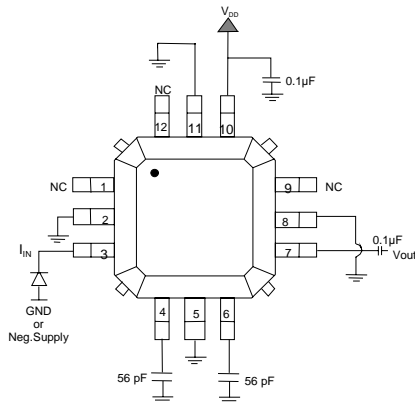


ATA01501DS2C SQFP Package Outline



PIN NO.	FUNCTION
1	NC
2	GND
3	I _{IN}
4	C _{BY}
5	GND
6	C _{AGC}
7	V _{OUT}
8	GND
9	NC
10	V _{DD}
11	GND
12	NC

ATA01501DS2C Typical SQFP Connection Package





ANADIGICS, Inc.
35 Technology Drive
Warren, New Jersey 07059
Tel: (908) 668-5000
Fax: (908) 668-5132

<http://www.anadigics.com>
Mktg@anadigics.com

IMPORTANT NOTICE

ANADIGICS, Inc. reserves the right to make changes to its products or discontinue any product at any time without notice. The Advanced Product data sheets and product specifications contained in this data sheet are subject to change prior to a products formal introduction. The information in this data sheet has been carefully checked and is assumed to be reliable. However, ANADIGICS assumes no responsibility for inaccuracies. ANADIGICS strongly urges customers to verify that the information they are using is current before placing orders.

WARNING

ANADIGICS products are not intended for use in life support appliances, devices, or systems. Use of an ANADIGICS product in any such application without written consent is prohibited.