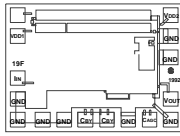
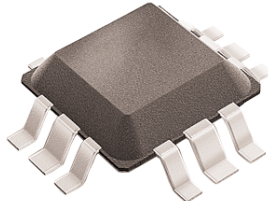


FEATURES
<ul style="list-style-type: none"> <li>Single +5 Volt Supply</li> <li>Automatic Gain Control</li> <li>Excellent Sensitivity</li> <li>0 dBm Optical Overload</li> </ul>
APPLICATIONS
<ul style="list-style-type: none"> <li>SONET OC-3 Receiver</li> <li>FDDIk Ethernet Fiber LAN</li> <li>Low Noise RF Amplifier</li> </ul>

	
D1	S2 12 Pin 4 Sided SQFP Package

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

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

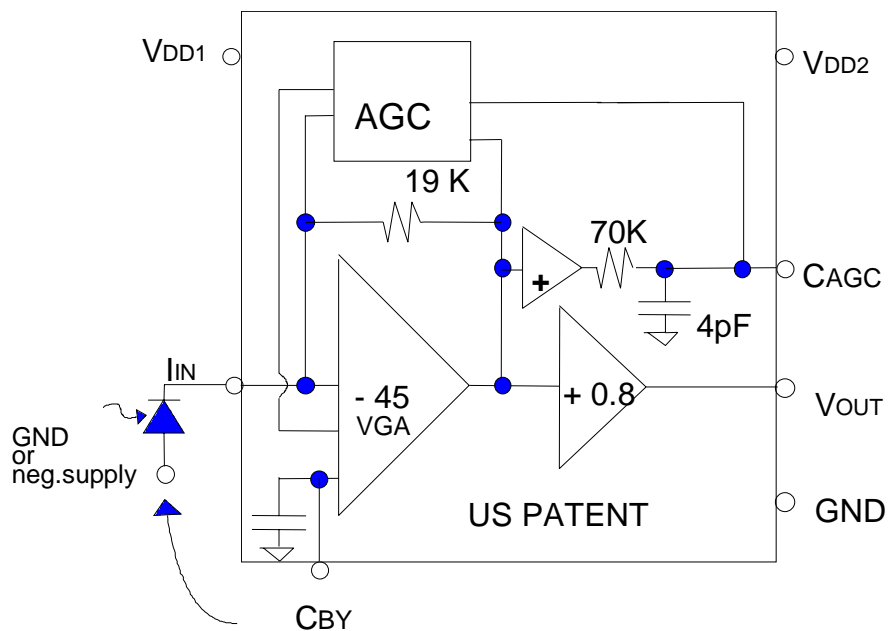
**Absolute Maximum Ratings**

$V_{DD1}$	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**

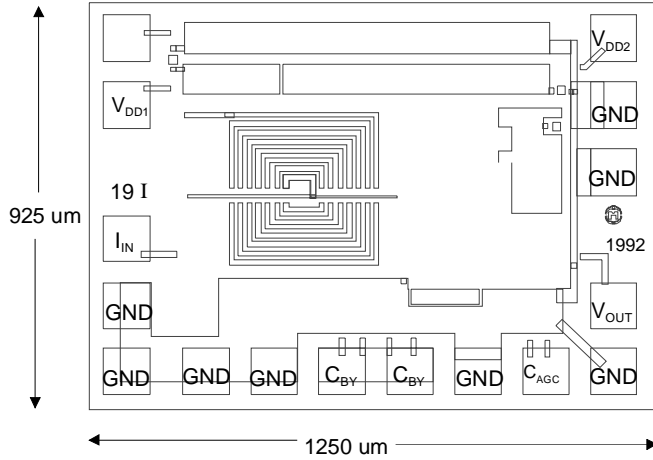
PAD	Description	Comment
$V_{DD1}$	$V_{DD1}$	Positive supply for input gain stage
$V_{DD2}$	$V_{DD2}$	Positive supply for second gain stage
$I_{IN}$	TIA Input Current	Connect detector cathode for proper operation
$V_{OUT}$	TIA Output Voltage	Requires external DC block
$C_{AGC}$	External AGC Capacitor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

**Equivalent Circuit**

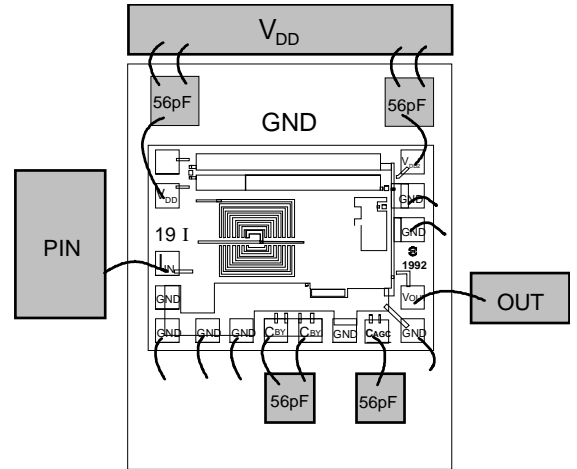


Photodiode cathode must be connected to IIN for proper AGC operation

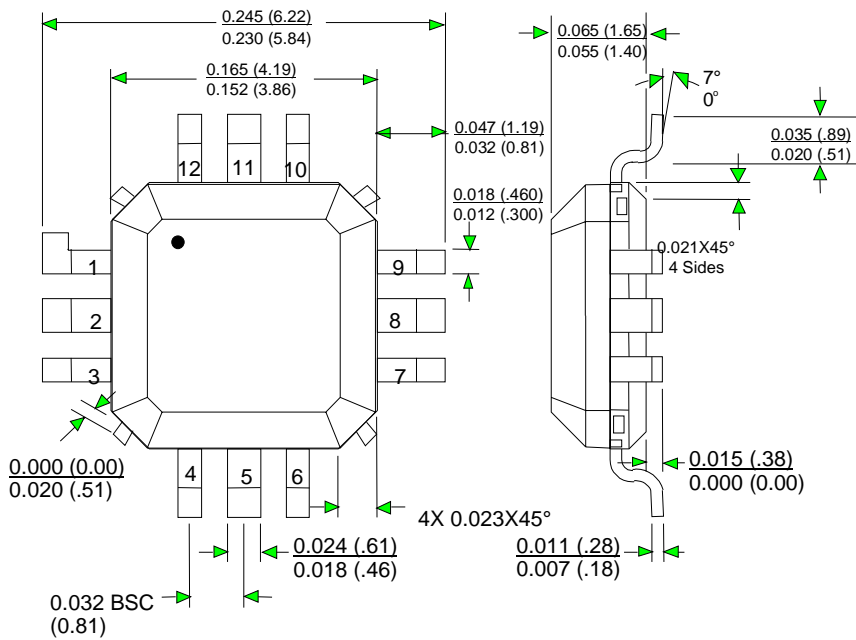
ATA01501D1C Die Bonding Pads



ATA01501D1C Die Typical Bonding

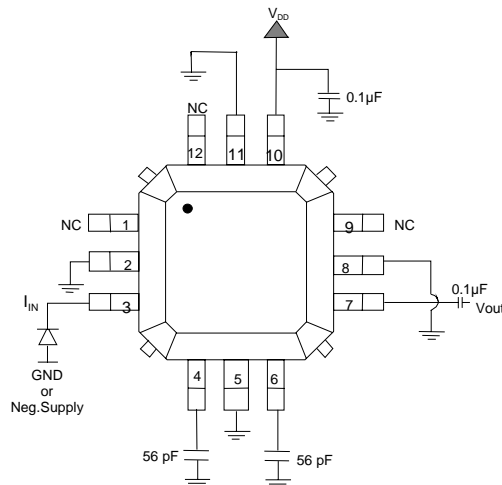


ATA01501DS2C SQFP Package Outline



PIN NO.	FUNCTION
1	NC
2	GND
3	I <sub>IN</sub>
4	C <sub>BY</sub>
5	GND
6	C <sub>AGC</sub>
7	V <sub>OUT</sub>
8	GND
9	NC
10	V <sub>DD</sub>
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](mailto: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.

