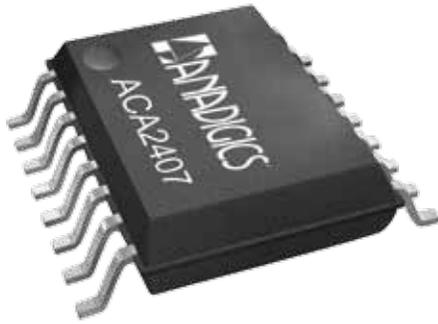


# PARADIGMS

## CATV PRODUCTS





# Surface Mount Line Amplifier ICs

Extensive Family of Proven High Reliability CATV Infrastructure Line Amplifier ICs

Our 12 V and 24 V CATV surface mount line amplifier ICs provide exceptionally low distortion and noise figure over the entire frequency spectrum up to 1 GHz for PCB direct-mount applications. These monolithic GaAs IC designs are available with high gain in push-pull or power doubler configurations. Our new “eco” power doublers are optimized for CATV systems in Asia by combining low power consumption and enhanced thermal performance with a wide gain range. The product line is field-proven and meets high reliability standards for CATV head-end and distribution equipment.

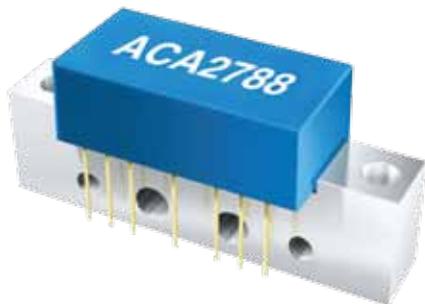
- **Low CSO, CTB, and Noise Figure** for excellent signal integrity
- **Bandwidth to 1.2 GHz** to enable advanced services like HDTV and VOD
- **Reliable MESFET Technology** for long mean time failure rates

## 24 V Line Amplifiers

Application	Operating Frequency (MHz)	Typical Current Consumption (mA)	Typical Gain (dB)	Part Number
Push-Pull Amplifier	40 – 870	250	21.8	ACA2402E
	40 – 1000	250	21.8	ACA2402
Eco-PD Amplifier	40 – 1000	300	22	ACA2460E
			25	ACA2461E
			28	ACA2462E
Power Doubler Amplifier	40 – 870	425	21.3	ACA2407E
	40 – 1000	425	21.3	ACA2407
		520	21.5	ACA2420
GaN PD Amplifier	40 – 1200	420	25	ACA2429

## 12 V Line Amplifiers

Application	Frequency Band (MHz)	Max Current Consumption (mA)	Typical Gain (dB)	Part Number
Push-Pull Amplifier	40 – 870	200/275	12	ACA0861A/C
		200	15	ACA1205
	40 – 1000	200-350	14.2	ACA1206
		250	18	ACA1210
Power Doubler Amplifier	40 – 870	330/490	12	ACA0861B/D
	40 – 1000	445/610	11.3	ACA0862B/D
		600	27	ACA1216



# Hybrid Line Amplifier Modules

Complete Line of Reliable and Rugged Hybrid CATV Infrastructure Power Doubler Modules

Our hybrid line amplifier modules are optimized for exceptionally low distortion and noise figure. Available in an industry-standard SOT 115J package, and supporting system bandwidths of 870 MHz or 1 GHz, these products deliver high gain and output power. With industry-leading linearity, exceptional return loss, an integrated RF matching network and high tolerance to ESD and voltage transients, our hybrid amplifiers are used in distribution nodes, system/trunk amplifiers, and line extenders in CATV hybrid fiber-coax (HFC) networks.

- **Bandwidth to 1GHz** to enable advanced services like HDTV, VOD, Triple Play and DOCSIS 3.0
- **Low CSO and CTB** for low distortion and excellent signal integrity
- **Gain up to 28 dB** to customize your solution
- **Output Power up to +52 dBmV** optimized for deep fiber architectures
- **Reliable MESFET Technology** proven to provide long mean time failure rates

## Hybrid Line Amplifier Modules

Frequency (dB)	Gain (dB)	Output Power (dBmV)	Typical CSO/CTB (dBc)	Gain Slope (dB)	Gain Flatness (dB)	Input/Output Return Loss (dB)	Supply Current (mA)	Part Number
50 - 870	25.0	+48 <sup>A</sup>	-70/-70 <sup>A</sup>	1.5	±0.25	-16/-16	430	ACA3748
	28.0	+48 <sup>A</sup>	-68-66 <sup>A</sup>	1.5	±0.25	-20/-20	430	ACA3754
50 - 1000	25.0	+55 <sup>B</sup>	-74/-82 <sup>B</sup>	1.5	±0.5	-20/-19	420	ACA2786
	28.0	+55 <sup>B</sup>	-74/-82 <sup>B</sup>	1.5	±0.5	-20/-19	420	ACA2788

<sup>A</sup> Measured at rated output power with 79 NTSC analog channels (flat) + 53 flat analog channels @ -6 dB offset

<sup>B</sup> Measured at rated output power with 79 NTSC analog channels + 75 digital channels @ -6 dB offset, 15.5 dB tilt



# Optical Receiver Front-End and Gain Block Amplifiers

High Performance FTTH/FTTB,  
Drop Amplifier, and Gain Block Solutions

Our highly integrated RF amplifiers operate up to 1 GHz and are optimized for HFC networks and Fiber-to-the-Home/Building (FTTH/FTTB) applications. This family offers a low-noise front-end and greater than 20 dB of voltage-controlled gain adjustment, delivering +18 to +21 dBmV output power in a space-saving, high-performance solution. These devices also deliver excellent linearity to maintain low CTB and CSO levels in a fully loaded spectrum.

- **Low noise and high linearity** for exceptional signal integrity
- **Wide bandwidth** to provide a single solution for 860 MHz and 1 GHz applications
- **Balanced design option** provides excellent second order linearity
- **Compact surface mount packages** to reduce valuable PCB space

## FTTH/FTTB RF Amplifiers

Supply Voltage (V)	Operating Frequency (MHz)	Typical Gain (dB)	Gain Adjust Range (dB)	Typical Equiv. Input Noise (pA/Hz)	Typical CSO/CTB (dB)	Input Impedance (Ohms)	Part Number
+5	50 - 1000	24	22	4.5	-65/-65	400	ACA2604

## 5 V and 8 V Gain Blocks for 1 GHz Systems

Supply Voltage (V)	Typical Gain (dB)	Input/Output RF Interface	Typical Noise Figure (dB)	Typical CSO/CTB (dBc)	Typical Supply Current (mA)	Package	Part Number
+5	4.3 (37 dB range)	Single-Ended/Balanced	4.5	-62/-63	80	3x3 QFN	ABA3130
		Balanced/Balanced	2.3	-63/-75	80	SOT-89	ADA1200
	12	Balanced/Balanced	2.5	-72/-75	150	16 LD SOIC	ABA3100
+8	12	Balanced/Balanced	2.5	-70/-72	200	16 LD SOIC	ABA3101
		Single-Ended/Single-Ended	2.3	-62/-74	150 (Max)	SOT-89 or 16 LD SOIC	ADA10000
			2.0	-60/-65		16 LD SOIC	ADA10001



# Reverse Path Amplifiers

Upstream and Reverse Path Amplifiers  
With Exceptional Performance  
and Reliability

Our GaAs upstream amplifiers are designed for CATV infrastructure and subscriber applications with an integrated step attenuator that provides attenuation ranges up to 58 dB, with steps as small as 1 dB, and easy-to-implement serial or parallel controls. With an operating range up to 85 MHz, these amplifiers provide the highest output power in the industry and meet DOCSIS requirements for linear power and harmonic performance. These products feature a single +5 V supply and provide typical gains (at 0 dB attenuation) of 29 dB or more with exceptionally low noise.

- **Low Harmonic Distortion** for high signal integrity and DOCSIS compatibility
- **Programmable Step Attenuator with a variety of attenuator steps and control schemes** for precise control of output levels and the best match of application needs
- **Single +5 Volt Supply** for simplified designs

## Reverse Amplifiers

Attenuator Control	Program-mable Address	Attenuation Range/Step (dB)	Typical 1 dB Compression Point (dBmV)	Typical 2nd Harmonic Level (dBc)	Typical 3rd Harmonic Level (dBc)	Maximum Noise (dBmV) @ Max Attenuation (160 kHz BW)	Typical Gain (dB)	Part Number
Parallel	-	30/2	+70	-60 @ 5 MHz	-63 @ 5 MHz	-54.6	32	ARA05050
				-63 @ 25 MHz	-63 @ 25 MHz			
Serial	Yes	58/1	+68.5	-75 @ 10 MHz	-60 @ 10 MHz	-53.8	29.3	ARA2000
	No	58/1	+68.5	-75 @ 10 MHz	-60 @ 10 MHz	-53.8	29.3	ARA2004
	No	58/2	+73	-55	-55	-53.8 Typ	33	ARA2017



# Active Splitters

Complete Family of High Performance Splitters for STB and Gateway Applications

We offer active splitters with up to 8 output paths for a variety of Set-Top Box (STB) and gateway applications, including MoCA enabled products. The splitters are designed in fixed gain or adjustable gain configurations with high linearity and low noise figure over a bandwidth up to 1.1 GHz for optimal signal integrity. For maximum design flexibility, the adjustable gain splitters feature independent gain paths, each with a wide gain control range.

- **Wide operating range** up to 1.1 GHz for high-bandwidth systems
- **Low Noise Figure** for exceptional signal reception
- **Low CTB and CSO** to maintain excellent signal integrity
- **Adjustable Gain Product with wide gain control range, independent for each signal path** for superior picture quality
- **Fixed Gain Products Available in Small Package Sizes** to minimize PCB space
- **MoCA Splitters Offer Gain Profiles** which compensate for in band line filter attenuation
- **Special 5-Way Splitter** for gateway applications requiring phone bypass during power outages

## Active Splitters

Application	Number of Output Paths	Frequency Band (MHz)	Typical Gain	Typical Gain Control Range (dB)	Typical Noise Figure (dBc)	Typical CSO/CTB (dBc)	Typical Supply Current (mA)	Part Number
Active Splitters with Gain Control	3	50 - 1100	5.5 (at max gain)	33	4.3	-70/-70	175	APS3606
				29.5	4.8	-70/-70	175	APS3608
Active Splitters with Fixed Gain	3	50 - 1000	2.5	N/A	5.5	-64/-77	100	APS3605
	6		5.0	N/A	4.0	-57/-70	140	APS3626
	8		4.2	N/A	4.0	-58/-64	220	APS3628
Active Splitters with Fixed Gain for MoCA Apps	2	50 - 870	3.5	N/A	4.8	-70/-80	120	APS3611
	3	50 - 1000	3.9 - 6.0	N/A	4.5	-65/-77	140	APS3623
Active Splitters with Phone Bypass	5		4.0	N/A	4.8	-60/-70	130	APS3625



# Upconverters/ Downconverters

High Linearity, Low Noise  
Tuner Components for  
Crystal Clear Video

Our tuner components provide a family of signal upconverters and downconverters with high conversion gain and linearity, low distortion, and include dual synthesizers that support 256 QAM digital signals. GaAs MESFET and CMOS technologies are employed to achieve excellent performance and integration, reduce the number of external components, simplify design, and ease the labor-intensive task of production alignment. Select designs offer a 3-wire serial programming interface.

- **High Conversion Gain** of up to 31 dB
- **Low Distortion** of -53 dBc for excellent signal integrity
- **Dual Synthesizers** on select products support noise sensitive digital signals, including 256 QAM
- **Double-Conversion Architecture** for superior linearity
- **3-Wire Interface** for flexibility and compatibility

## Upconverters

Typical Conversion Gain (dB)	Typical CSO/CTB or IMD3 (dBc)	Typical Noise Figure (dB)	Typical 10 KHz Offset Phase Noise (dBc/Hz)	Typical Power Consumption (W)	RF Input Frequency (MHz)	RF Output Frequency (MHz)	Part Number
8	-62/-68	6.5	-89	0.770	50 - 860	900 - 1200	ACU2109
	-60/-60	6.5	-84	0.600	50 - 860	900 - 1200	ACU50752

## Downconverters

Programming Interface	Typical Conversion Gain (dB)	Typical CSO/CTB or IMD3 (dBc)	Typical Noise Figure (dB)	Typical 10 KHz Offset Phase Noise (dBc/Hz)	Typical Power Consumption (W)	RF Input Frequency (MHz)	RF Output Frequency (MHz)	Part Number
3 Wire	31	-53 Max	8	-90	1.065	900 - 1200	35 - 150	ACD2206
	10	-53 Max	8	-90	0.565	900 - 1200	35 - 150	ACD2202
N/A	9.5	-59	8	-89	0.400	900 - 1200	35 - 150	ACD0900



## Your RF Advantage

At ANADIGICS, our singular focus is developing best-in-class RF solutions that deliver a competitive edge. Our exceptional team of RF designers continuously innovates to create next-generation products that provide measurably superior performance. These performance advantages are backed by our outstanding sales and applications support teams to help you reduce time-to-market and achieve your design goals. So, whether you are trying to extend coverage range, ensure optimal thermal design, or achieve greater throughput, trust ANADIGICS for your next project.

### The ANADIGICS Advantage

- Industry-Leading RF Performance
- World-Class RF Integration
- Advanced Process Technology
- Innovative Design Techniques
- Manufacturing Prowess
- Applications Expertise
- Global Presence

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