ACA3753

870 MHz, 28 dB Gain
CATV Power Doubler Amplifier

PRELIMINARY DATA SHEET - Rev 1.1

FEATURES

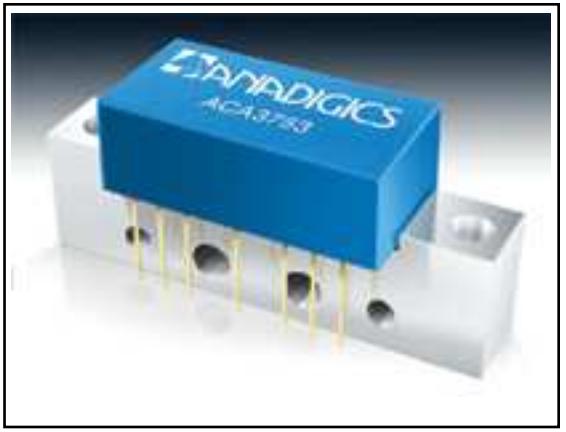
- 28 dB Gain
- 40 MHz to 870 MHz Operating Range
- 0.5 dB Gain Flatness
- 24 V Supply
- Supply Current: 430 mA (Typ.)
- Very Low Distortion & Noise
- Robust Design and Insensitive to Voltage Transients
- GaAs Monolithic IC-Based
- Standard SOT115J Package

APPLICATIONS

- Distribution Nodes and Line Extenders in CATV Systems

PRODUCT DESCRIPTION

The ACA3753 is a GaAs Hybrid Amplifier for CATV HFC distribution systems. It consists of two pairs of parallel amplifiers that are optimized for exceptionally low distortion and noise figure. The ACA3753 is offered in a standard SOT115J package.



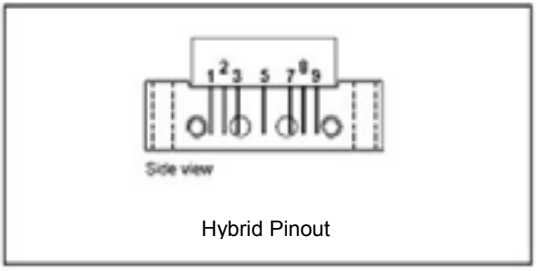


Figure 2: Hybrid Pinout

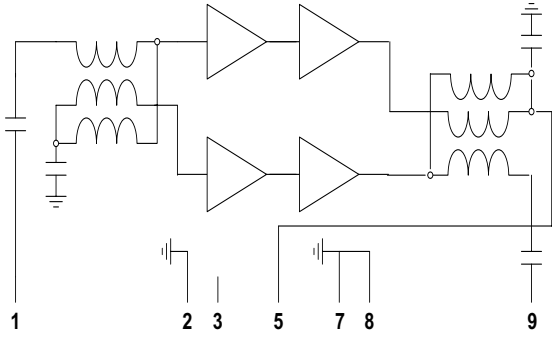


Figure 1: Simplified Hybrid Internal Arrangement

Table 1: SOJ115J Pinning

PIN	Description
1	RF Input
2	GND
3	GND or No Connection
5	24 V
7, 8	GND
9	RF Output

Table 2: Absolute Minimum and Maximum Ratings

	Symbol	Min	Typ	Max	Unit	Conditions
Supply Voltage	V_{DD}	-	+24	+28	V_{DC}	
RF Power at inputs	-	-	-	+70	dBmV	single tone
Operating mounting Base temperature	T_{MB}	-20	-	+100	°C	
Storage Temperature	T_{STG}	-40		+100	°C	

Table 3: Operating Ranges

	Symbol	Min	Typ	Max	Unit	Conditions
RF Frequency	-	40	-	870	MHz	

Table 4: Electrical Characteristics
(Test condition: 40 to 870 MHz, TMB = 30 °C, 75 Ω loading, see note 1)

	Symbol	Min	Typ	Max	Unit	Conditions
Power Gain	G_P	27.0	27.8	28.6	dB	f = 870 MHz
Slope cable equivalent	SL	0	0.8	1.4	dB	47 MHz to 870 MHz
Gain Flatness	FL	-	0.5	0.7	dB	47 MHz to 870 MHz (peak to valley)
Input Return Loss	S_{11}	- - -	- - -	-20 -18 -16	dB	40 MHz to 380 MHz 381 MHz to 780 MHz 781 MHz to 870 MHz
Output Return Loss	S_{22}	- - -	- - -	-20 -18 -16	dB	40 MHz to 380 MHz 381 MHz to 780 MHz 781 MHz to 870 MHz
CTB	- -	- -	-66 -60	-64 -	dBc	79 flat NTSC channels (1) 112 flat NTSC channels (2)
CSO	- -	- -	-68 -64	-66 -	dBc	79 flat NTSC channels (1) 112 flat NTSC channels (2)
XMOD	-	-	-59 -55	-57 -	dBc	79 flat NTSC channels (1) 112 flat NTSC channels (2)
Noise Figure	-	-	3.5	5.0	dB	
Supply Current	-	-	430	460	mA	

Notes:
(1) 79 flat NTSC channels at +48 dBmV per channel output.
(2) 112 flat NTSC channels at +48 dBmV per channel output.

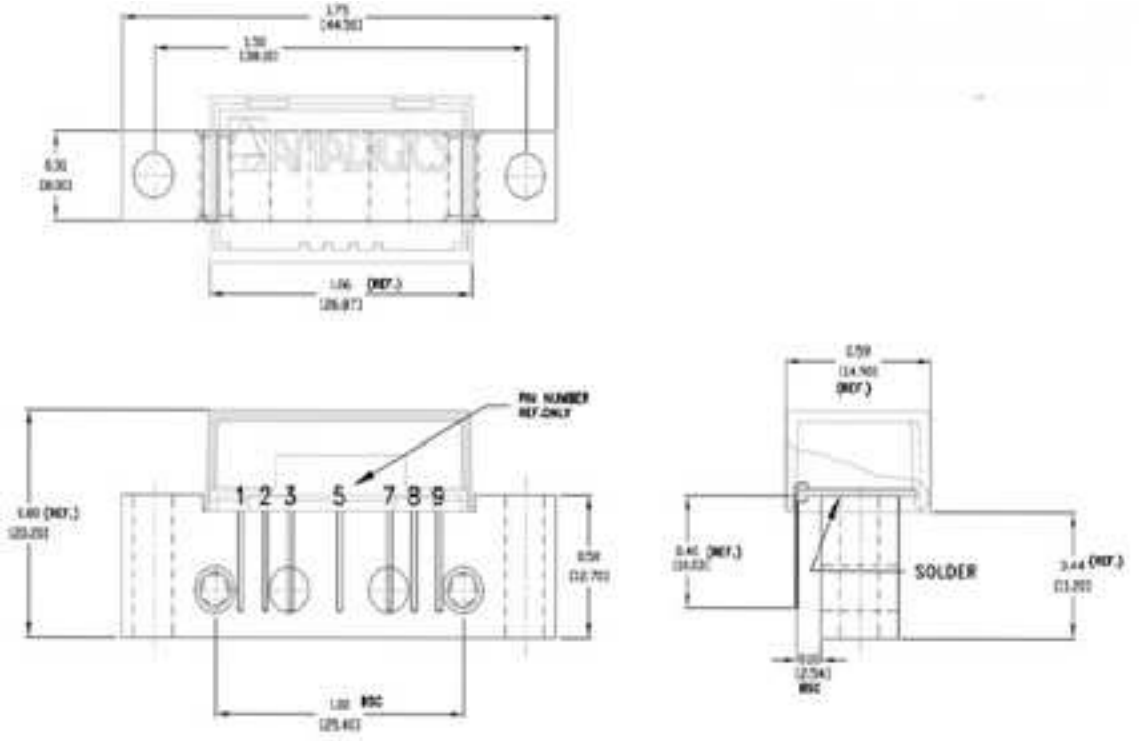


Figure 3: Hybrid Line Amp Physical Outline

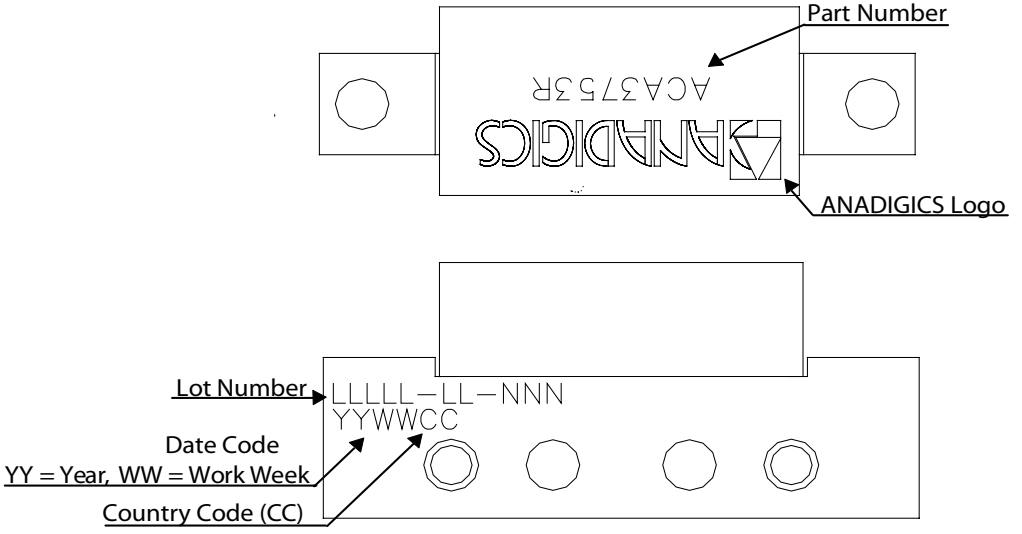


Figure 4: Branding Specification

ORDERING INFORMATION

ORDER NUMBER	TEMPERATURE RANGE	PACKAGE DESCRIPTION	COMPONENT PACKAGING
ACA3753RJ6Q9	-20 °C to +100 °C	SOT115J Hybrid Amplifier	25 Piece Box
ACA3753RJ6P9	-20 °C to +100 °C	SOT115J Hybrid Amplifier	Special handling

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