



ACA3754

870 MHz, 28 dB Gain
CATV Power Doubler Amplifier
PRELIMINARY DATA SHEET - Rev 1.0

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 SOT-115J Package
- Rugged integrated ring wave surge protection
- Superior ESD protection, > 7 kV

APPLICATIONS

- Distribution Nodes and Line Extenders in CATV Systems

PRODUCT DESCRIPTION

The ACA3754 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 with input and output transient voltage protection. The ACA3754 is offered in a standard SOT-115J package.

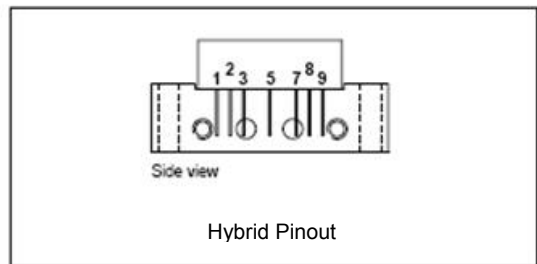
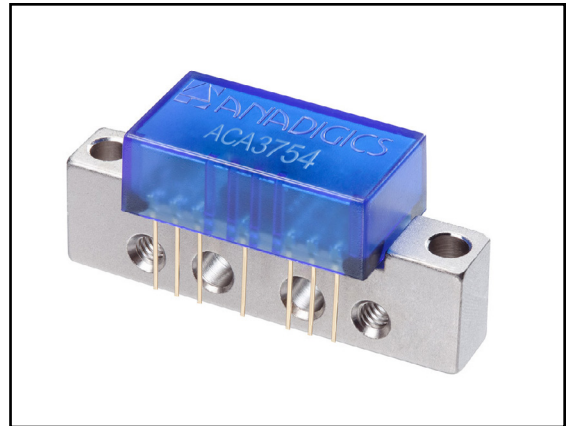


Figure 2: Hybrid Pinout

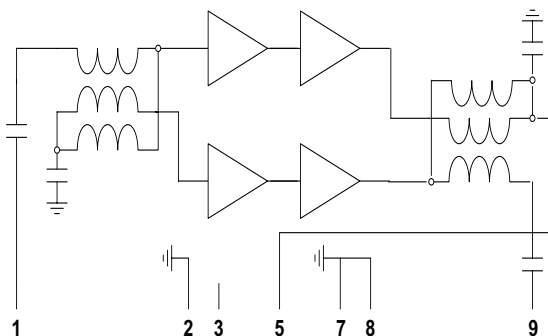


Figure 1: Simplified Hybrid Internal Arrangement

Table 1: SOT-115J 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, T_{MB} = 30 °C, 75 Ω loading)

	Symbol	Min	Typ	Max	Unit	Conditions
Power Gain	G _P	27.0	27.8	29.0	dB	f = 870 MHz
Slope cable equivalent	SL	-	1.5	-	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	-	-	-65 -65	-60 -	dBc	See Note 1 See Note 2
CSO	-	-	-65 -65	-60 -	dBc	See Note 1 See Note 2
Noise Figure	-	-	3.5	5.0	dB	
Supply Current	-	-	430	460	mA	

Notes:

(1) 79 flat NTSC analog channels @ +48 dBmV/ch output to 550 MHz, plus 53 flat analog channels @ +42 dBmV/ch above 550 MHz.

(2) 79 flat NTSC channels at +53 dBmV per channel output.

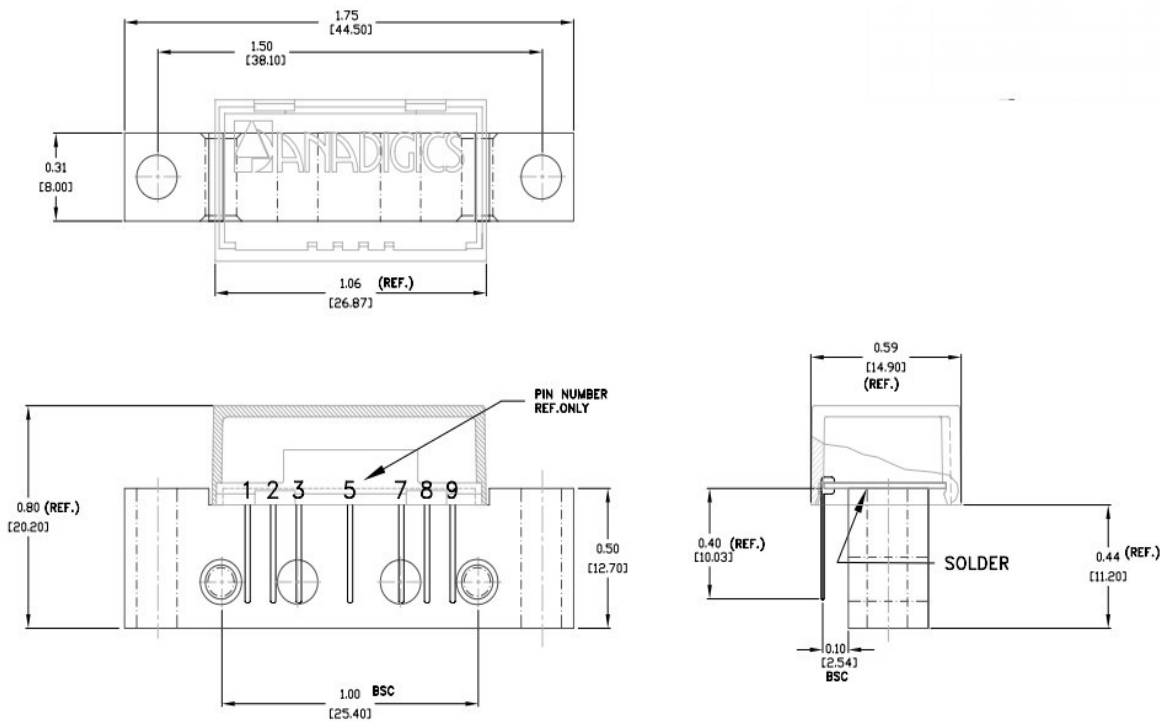


Figure 3: Hybrid Line Amp Physical Outline

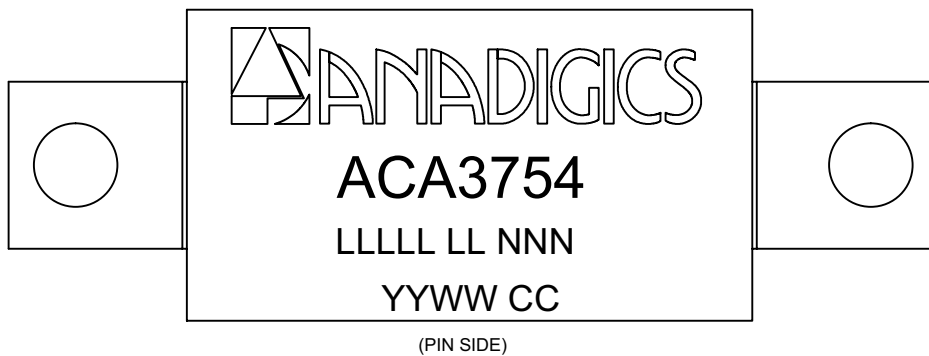


Figure 4: Branding Specification

ORDERING INFORMATION

ORDER NUMBER	TEMPERATURE RANGE	PACKAGE DESCRIPTION	COMPONENT PACKAGING
ACA3754V0	-20 °C to +100 °C	SOT-115J Hybrid Amplifier	100 Piece Box
ACA3754P9	-20 °C to +100 °C	SOT-115J Hybrid Amplifier	Special handling

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