

FEATURES

- 25 dB Gain
- 40 MHz to 870 MHz Operating Range
- 0.2 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
- Ruggedized design with integrated ring wave protection
- Superior ESD protection, > 7 kV

APPLICATIONS

- Distribution Nodes and Line Extenders in CATV Systems

PRODUCT DESCRIPTION

The ACA3748 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 ACA3748 is offered in a standard SOT-115J package.

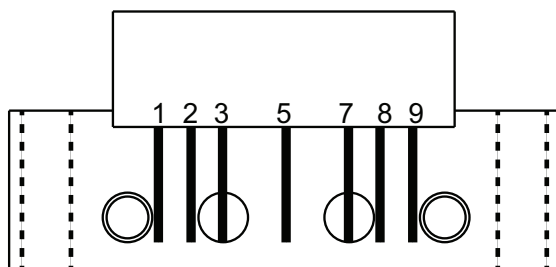


Figure 2: SOT-115 Pinout

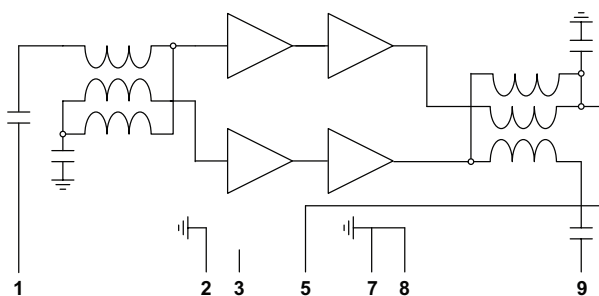


Figure 1: Simplified Hybrid Internal Arrangement

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	□	
Storage Temperature	T _{STG}	-40		+100	□	

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	24	25	27	dB	f = 870 MHz
Slope cable equivalent	SL	-	1.0	-	dB	47 - 870 MHz
Gain Flatness	FL	-	0.5	-	dB	47 - 870 MHz (peak to valley)
Input Return Loss	S ₁₁	-	-	-20 -18 -16	dB	40 - 380 MHz 380 - 700 MHz 700 - 870 MHz
Output Return Loss	S ₂₂	-	-	-18 -16	dB	40 - 700 MHz 700 - 870 MHz
CTB	-	-	-65 -65	-60 -	dBc	See Note 1 See Note 2
CSO	-	-	-65 -65	-60 -	dBc	See Note 1 See Note 2
XMOD	-	-	-59 -55	-57 -	dBc	See Note 3 See Note 4
Noise Figure	-	-	5.0	7.0	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 channels at +53 dBmV per channel output.
 (3) 79 flat NTSC channels at +48 dBmV per channel output.
 (4) 112 flat NTSC channels at +48 dBmV per channel output.

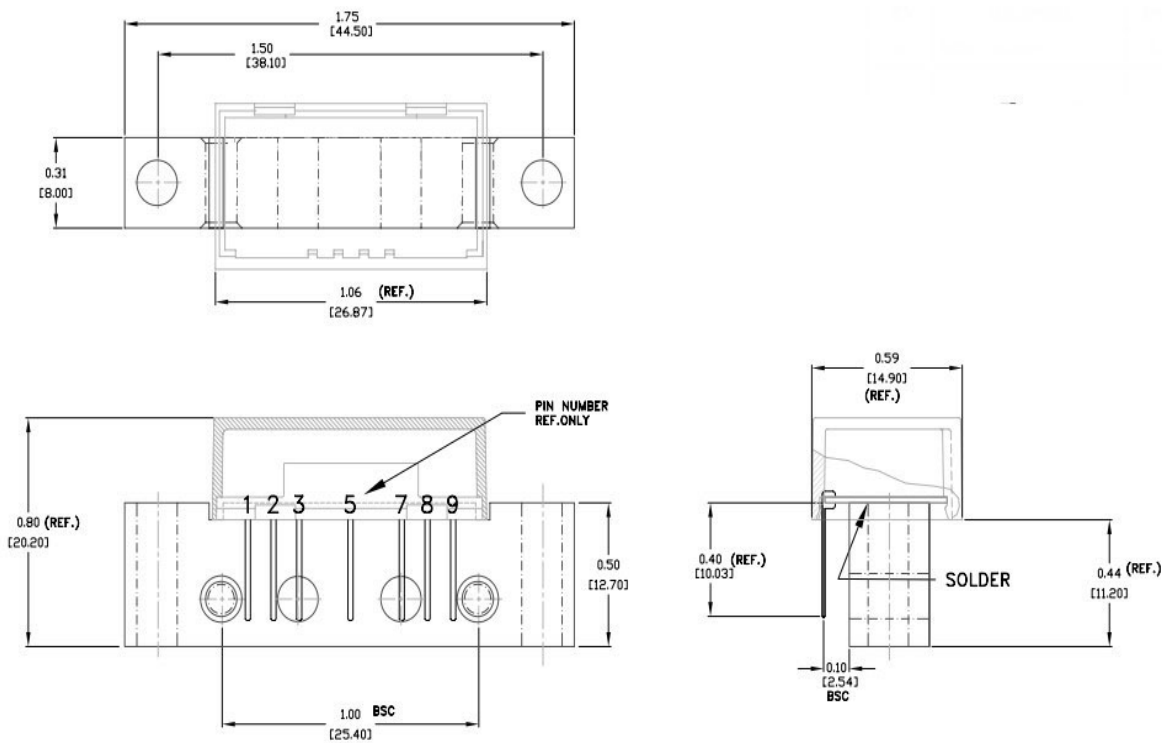


Figure 3: Hybrid Line Amp Physical Outline

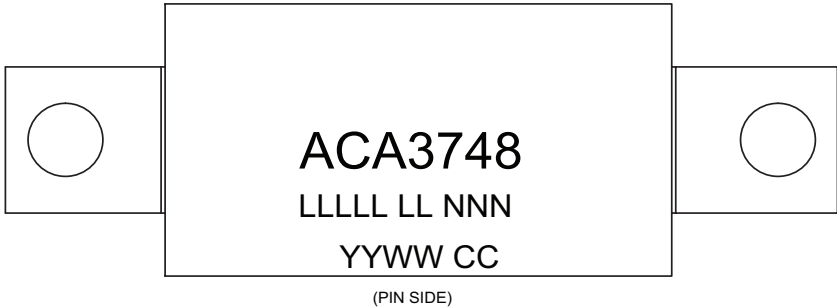


Figure 4: Branding Specification

ORDERING INFORMATION

ORDER NUMBER	TEMPERATURE RANGE	PACKAGE DESCRIPTION	COMPONENT PACKAGING
ACA3748V0	-20 °C to +100 °C	SOT-115J Hybrid Amplifier	100 Piece Box
ACA3748Q9	-20 °C to +100 °C	SOT-115J Hybrid Amplifier	Special Handling

NOTES

Copyright © 2016 Skyworks Solutions, Inc. All Rights Reserved.

Information in this document is provided in connection with Skyworks Solutions, Inc. ("Skyworks") products or services. These materials, including the information contained herein, are provided by Skyworks as a service to its customers and may be used for informational purposes only by the customer. Skyworks assumes no responsibility for errors or omissions in these materials or the information contained herein. Skyworks may change its documentation, products, services, specifications or product descriptions at any time, without notice. Skyworks makes no commitment to update the materials or information and shall have no responsibility whatsoever for conflicts, incompatibilities, or other difficulties arising from any future changes.

No license, whether express, implied, by estoppel or otherwise, is granted to any intellectual property rights by this document. Skyworks assumes no liability for any materials, products or information provided hereunder, including the sale, distribution, reproduction or use of Skyworks products, information or materials, except as may be provided in Skyworks Terms and Conditions of Sale.

THE MATERIALS, PRODUCTS AND INFORMATION ARE PROVIDED "AS IS" WITHOUT WARRANTY OF ANY KIND, WHETHER EXPRESS, IMPLIED, STATUTORY, OR OTHERWISE, INCLUDING FITNESS FOR A PARTICULAR PURPOSE OR USE, MERCHANTABILITY, PERFORMANCE, QUALITY OR NON-INFRINGEMENT OF ANY INTELLECTUAL PROPERTY RIGHT; ALL SUCH WARRANTIES ARE HEREBY EXPRESSLY DISCLAIMED. SKYWORKS DOES NOT WARRANT THE ACCURACY OR COMPLETENESS OF THE INFORMATION, TEXT, GRAPHICS OR OTHER ITEMS CONTAINED WITHIN THESE MATERIALS. SKYWORKS SHALL NOT BE LIABLE FOR ANY DAMAGES, INCLUDING BUT NOT LIMITED TO ANY SPECIAL, INDIRECT, INCIDENTAL, STATUTORY, OR CONSEQUENTIAL DAMAGES, INCLUDING WITHOUT LIMITATION, LOST REVENUES OR LOST PROFITS THAT MAY RESULT FROM THE USE OF THE MATERIALS OR INFORMATION, WHETHER OR NOT THE RECIPIENT OF MATERIALS HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Skyworks products are not intended for use in medical, lifesaving or life-sustaining applications, or other equipment in which the failure of the Skyworks products could lead to personal injury, death, physical or environmental damage. Skyworks customers using or selling Skyworks products for use in such applications do so at their own risk and agree to fully indemnify Skyworks for any damages resulting from such improper use or sale.

Customers are responsible for their products and applications using Skyworks products, which may deviate from published specifications as a result of design defects, errors, or operation of products outside of published parameters or design specifications.

Customers should include design and operating safeguards to minimize these and other risks. Skyworks assumes no liability for applications assistance, customer product design, or damage to any equipment resulting from the use of Skyworks products outside of stated published specifications or parameters.

Skyworks and the Skyworks symbol are trademarks or registered trademarks of Skyworks Solutions, Inc., in the United States and other countries. Third-party brands and names are for identification purposes only, and are the property of their respective owners. Additional information, including relevant terms and conditions, posted at www.skyworksinc.com, are incorporated by reference.

Skyworks Solutions, Inc.

Phone [781] 376-3000 • Fax [781] 376-3100 • sales@skyworksinc.com • www.skyworksinc.com

Skyworks Proprietary and Confidential information • Products and Product Information are Subject to Change Without Notice