



R2005300L

CATV Reverse Hybrid 200MHz 30dB

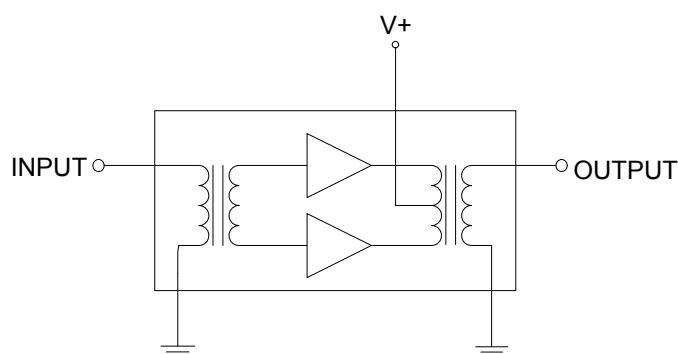
Product Description

The R2005300L is a Hybrid Reverse amplifier. The part employs a Silicon die and is operated from 5 MHz to 200 MHz or 210 MHz. It provides excellent linearity and superior return loss performance with low noise and optimal reliability.



Package: SOT-115J

Functional Block Diagram



Product Features

- Excellent Linearity
- Superior Return Loss Performance
- Extremely Low Distortion
- Optimal Reliability
- Low Noise
- Unconditionally Stable Under all Terminations
- 30.3 dB Typ. Gain at 210 MHz
- 140 mA Max. at 24 VDC

Applications

- 5 – 200 MHz CATV Amplifier for Reverse Channel Systems

Ordering Information

Part No.	Description
R2005300L	Box with 50 pcs

R2005300L Absolute Maximum Ratings

Parameter	Value / Range
RF Input Voltage (single tone)	65 dBmV
DC Supply over-voltage (5 minutes)	+30 V
Storage Temperature	-40 to 100 °C
Operating Mounting Base Temperature	-30 to 100 °C

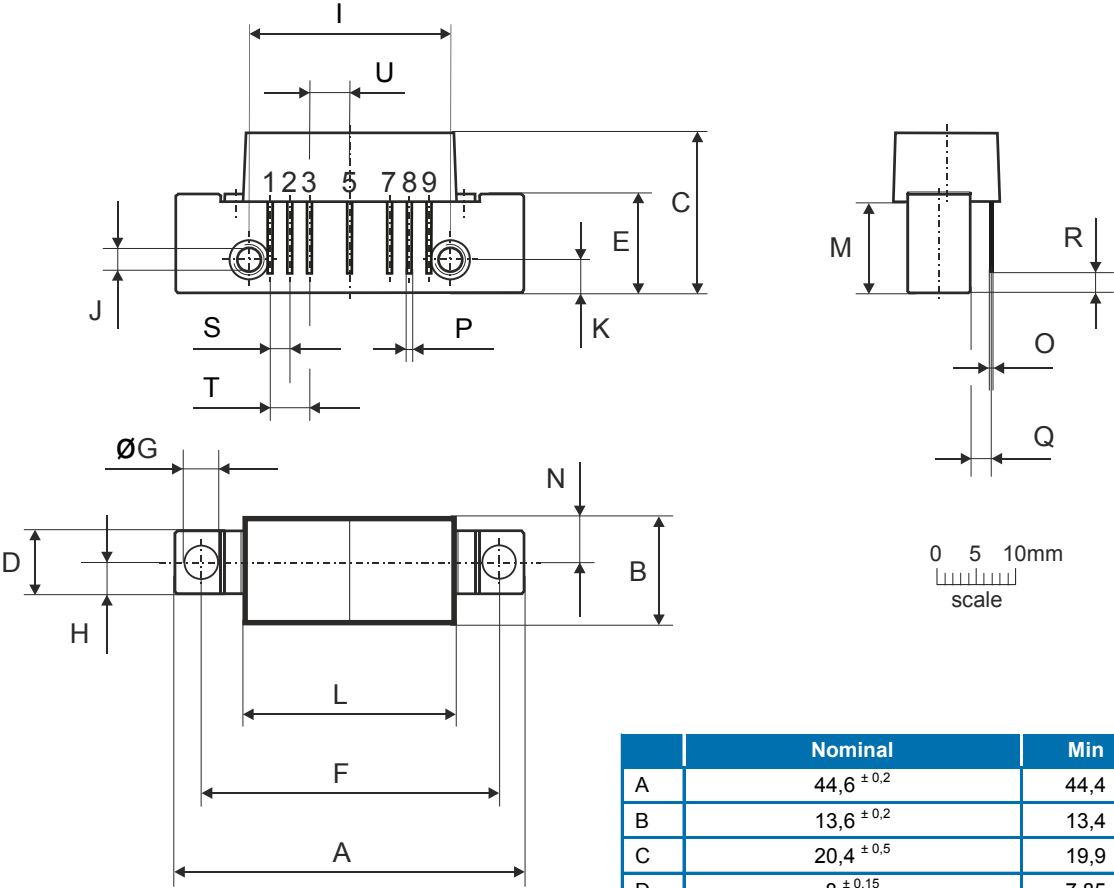
Operation of this device outside the parameter ranges given above may cause permanent damage.

Electrical Specifications

Parameter	Test Conditions: $V_+ = 24V$, $T_{MB} = 30^\circ C$, $Z_s = Z_L = 75\Omega$	Min	Typ	Max	Unit
Operational Frequency Range	–	5	–	210	MHz
Gain	$f_o = 5$ MHz	29.5	30.2	30.5	dB
Gain	$f_o = 200$ MHz	29.3	30.3		
Gain	$f_o = 210$ MHz	29.3	30.3		
Gain Slope	$f_o = 5$ to 200 MHz ^[1]	-0.2	0.1	0.5	
Gain Slope	$f_o = 5$ to 210 MHz ^[1]	-0.2	0.1	0.5	
Gain Flatness	$f_o = 5$ to 200 MHz			±0.3	
Gain Flatness	$f_o = 5$ to 210 MHz			±0.3	
Input Return Loss	$f_o = 5$ to 200 MHz	20.0		–	dB
	$f_o = 200$ to 210 MHz	20.0		–	
Output Return Loss	$f_o = 5$ to 200 MHz	20.0		–	dB
	$f_o = 200$ to 210 MHz	20.0		–	
Noise Figure	$f_o = 200$ MHz	–	4.7	5.0	dB
	$f_o = 210$ MHz	–	4.8	5.0	
IDC			138	140	mA
CTB				-72	dBc
XMOD	$V_o = 50.0$ dBmV, 7 channels flat ^[2]			-65	dBc
CSO				-72	dBc
d2				-62	dBc
Vo	$D_{IM} = -60$ dB ^[4]	62			dBmV

- The slope is defined as the difference between the gain at the start frequency and the gain at the stop frequency.
- 7 analog channels, NTSC frequency raster: T7-T13 (7.00MHz to 43.00MHz), +50dBmV flat output level.
- $f_1 = 83.25$ MHz; $V_1 = 50$ dBmV; $f_2 = 109.25$ MHz; $V_2 = 50$ dBmV; f-TEST = $f_1 + f_2 = 192.5$ MHz.
- $f_1 = 187.25$ MHz; $V_1 = 50$ dBmV; $f_2 = 149.25$ MHz; $V_2 = V_1 - 6$ dB; $f_3 = 196.25$ MHz; $V_3 = V_1 - 6$ dB; f-TEST = $f_1 + f_2 - f_3 = 185.25$ MHz according to DIN45004B.
- Composite Triple Beat (CTB) - The CTB parameter is defined by ANSI/SCTE 6.
Composite Second Order (CSO) - The CSO parameter (both sum and difference products) is defined by ANSI/SCTE 6.
Cross Modulation (XMOD) - Cross modulation (XMOD) is defined by ANSI/SCTE 58, measured at baseband (selective voltmeter method), referenced to 100% modulation of the carrier being tested.

Package Drawing (Dimensions in millimeters)



Notes:

European Projection

Pinning:

Pin	Name
1	Input
2-3	GND
4	
5	V+
6	
7-8	GND
9	Output

	Nominal	Min	Max
A	44,6 ± 0,2	44,4	44,8
B	13,6 ± 0,2	13,4	13,8
C	20,4 ± 0,5	19,9	20,9
D	8 ± 0,15	7,85	8,15
E	12,6 ± 0,15	12,45	12,75
F	38,1 ± 0,2	37,9	38,3
G	4 +0,2 / -0,05	3,95	4,2
H	4 ± 0,2	3,8	4,2
I	25,4 ± 0,2	25,2	25,6
J	UNC 6-32	-	-
K	4,2 ± 0,2	4,0	4,4
L	27,2 ± 0,2	27,0	27,4
M	11,6 ± 0,5	11,1	12,1
N	5,8 ± 0,4	5,4	6,2
O	0,25 ± 0,02	0,23	0,27
P	0,45 ± 0,03	0,42	0,48
Q	2,54 ± 0,3	2,24	2,84
R	2,54 ± 0,5	2,04	3,04
S	2,54 ± 0,25	2,29	2,79
T	5,08 ± 0,25	4,83	5,33
U	5,08 ± 0,25	4,83	5,33

Handling Precautions

Parameter	Rating	Standard
ESD – Human Body Model (HBM)	1C	ANSI/ESD/JEDEC JS-001-2012



Caution!
ESD-Sensitive Device

RoHS Compliance

This part is compliant with 2011/65/EU RoHS directive (Restrictions on the Use of Certain Hazardous Substances in Electrical and Electronic Equipment) as amended by Directive 2015/863/EU.

Contact Information

For the latest specifications, additional product information, worldwide sales and distribution locations:

Web: www.qorvo.com

Tel: 1-844-890-8163

Email: customer.support@qorvo.com

Important Notice

The information contained herein is believed to be reliable; however, Qorvo makes no warranties regarding the information contained herein and assumes no responsibility or liability whatsoever for the use of the information contained herein. All information contained herein is subject to change without notice. Customers should obtain and verify the latest relevant information before placing orders for Qorvo products. The information contained herein or any use of such information does not grant, explicitly or implicitly, to any party any patent rights, licenses, or any other intellectual property rights, whether with regard to such information itself or anything described by such information. **THIS INFORMATION DOES NOT CONSTITUTE A WARRANTY WITH RESPECT TO THE PRODUCTS DESCRIBED HEREIN, AND QORVO HEREBY DISCLAIMS ANY AND ALL WARRANTIES WITH RESPECT TO SUCH PRODUCTS WHETHER EXPRESS OR IMPLIED BY LAW, COURSE OF DEALING, COURSE OF PERFORMANCE, USAGE OF TRADE OR OTHERWISE, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.**

Without limiting the generality of the foregoing, Qorvo products are not warranted or authorized for use as critical components in medical, life-saving, or life-sustaining applications, or other applications where a failure would reasonably be expected to cause severe personal injury or death.

Copyright 2016 © Qorvo, Inc. | Qorvo is a registered trademark of Qorvo, Inc.