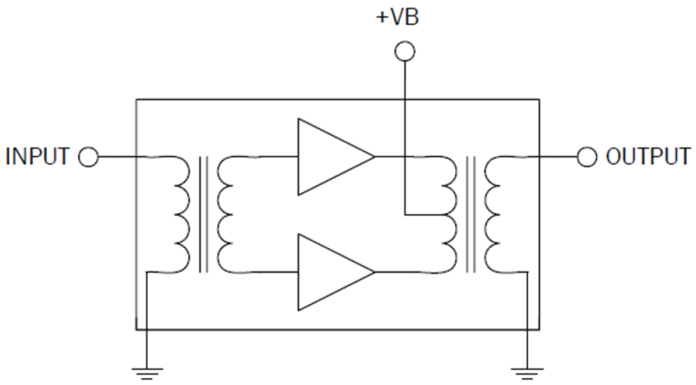
R2005240P12

GaAs Reverse Hybrid
5MHz to 200MHz

Package: SOT-115J

The R2005240P12 is a hybrid reverse amplifier. The part employs a GaAs die. It has extremely low distortion and superior return loss performance. The part also provides optimal reliability with low noise and is well suited for 5MHz to 200MHz CATV amplifiers for reverse channel systems.



Features

- Excellent Linearity
- Superior Return Loss Performance
- Extremely Low Distortion
- Optimal Reliability
- Low Noise
- Unconditionally Stable Under All Terminations
- 24.2dB Typ. Gain at 200MHz
- 360mA Max. at 12VDC

Applications

- 5MHz to 200MHz CATV Amplifier For Reverse Channel Systems

Ordering Information

R2005240P12	Box with 50 pieces

Absolute Maximum Ratings

Parameter	Rating	Unit
RF Input Voltage (single tone)	70	dBmV
DC Supply Over-Voltage (5 minutes)	15	V
Storage Temperature	-40 to +100	°C
Operating Mounting Base Temperature	-30 to +100	°C

Caution! ESD sensitive device.

RoHS (Restriction of Hazardous Substances): Compliant per EU Directive 2011/65/EU.

Exceeding any one or a combination of the Absolute Maximum Rating conditions may cause permanent damage to the device. Extended application of Absolute Maximum Rating conditions to the device may reduce device reliability. Specified typical performance or functional operation of the device under Absolute Maximum Rating conditions is not implie

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DS140205

Nominal Operating Parameters

Parameter	Specification			Unit	Condition
	Min	Typ	Max		
General Performance					**V+ = 12V; T_{MB} = 30°C; Z_S = Z_L = 75Ω**
Power Gain	23.5	24.2	24.5	dB	f = 5MHz
	23.5	24.2	25.0	dB	f = 200MHz
Slope[1]	-0.5	0.0	0.5	dB	f = 5MHz to 200MHz
Flatness of Frequency Response			±0.5	dB	
Input Return Loss	20.0			dB	
Output Return Loss	20.0			dB	
Noise Figure		3.8	5.0	dB	f = 10MHz
		1.8	2.3	dB	f = 200MHz
Total Current Consumption (DC)	350.0	355.0	360.0	mA	
Distortion Data 5MHz to 200MHz					**V+ = 12V; T_{MB} = 30°C; Z_S = Z_L = 75Ω**
CTB			-70	dBc	26 ch flat; V_0 = 50dBmV[2]
XMOD			-65	dB	
CSO			-70	dBc	
d_2			-75	dBc	[3]
V_o	65			dBmV	D_{IM} = -60dB[4]

1. The slope is defined as the difference between the gain at the start frequency and the gain at the stop frequency.

2. 26 channels, NTSC frequency raster: T7 - T13 (7.0MHz to 43.0MHz), 2 – 6 (55.25MHz – 83.25MHz), A – 11 (121.25MHz – 199.25MHz), +50dBmV flat output level.

3. f_1 = 83.25MHz; V_1 = 50dBmV; f_2 = 109.25MHz; V_2 = 50dBmV; f_{TEST} = f_1 + f_2 = 192.5MHz.

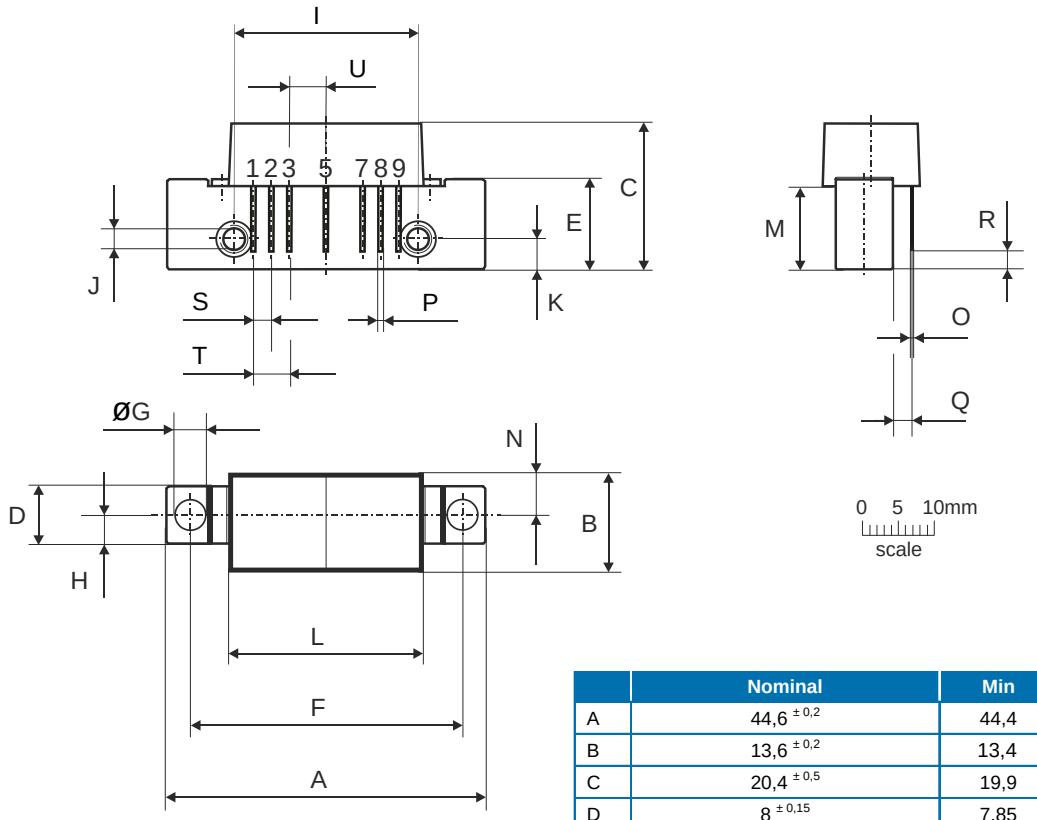
4. f_1 = 187.25MHz; V_1 = V_0; f_2 = 194.25MHz; V_2 = V_1 - 6dB; f_3 = 196.25MHz; V_3 = V_1 - 6dB; f_{TEST} = f_1 + f_2 - f_3 = 185.25MHz according to DIN45004B.

Composite Second Order (CSO) - The CSO parameter (both sum and difference products) is defined by the NCTA.

Composite Triple Beat (CTB) - The CTB parameter is defined by the NCTA.

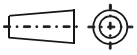
Cross Modulation (XMOD) - Cross modulation (XMOD) is measured at baseband (selective voltmeter method), referenced to 100% modulation of the carrier being tested.

Package Drawing (Dimensions in millimeters)



Notes:

European Projection



Pinning:

Pin	Name
1	Input
2-3	GND
4	
5	+VB
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

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