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R2005300L

5 MHz to 200 MHz Si REVERSE HYBRID (LOW CURRENT)

Package: SOT-115J

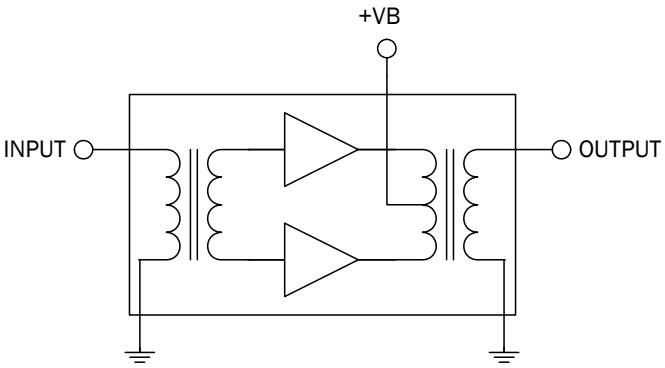
RoHS

Product Description

The R2005300L is a hybrid reverse amplifier. The part employs a silicon 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 5 MHz to 200 MHz CATV amplifiers for reverse channel systems.

Optimum Technology Matching® Applied

- ☐ GaAs HBT
- ☐ GaAs MESFET
- ☐ InGaP HBT
- ☐ SiGe BiCMOS
- ☐ Si BiCMOS
- ☐ SiGe HBT
- ☐ GaAs pHEMT
- ☐ Si CMOS
- ☑ Si BJT
- ☐ GaN HEMT
- ☐ InP HBT
- ☐ BiFET HBT
- ☐ LDMOS



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 200 MHz
- 140 mA Max. at 24 VDC

Applications

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

Parameter	Specification			Unit	Condition
	Min.	Typ.	Max.		
Overall					V_B= 24 V; T_{MB}=30 °C; Z_S=Z_L=75 Ω
Power Gain	29.5	30.2	30.5	dB	f=5 MHz
	29.3	30.3		dB	f=200 MHz
Slope [1]	-0.2	0.1	0.5	dB	f=5 MHz to 200 MHz
Flatness of Frequency Response	-0.2		+0.3	dB	f=5 MHz to 200 MHz
Input Return Loss	20.0			dB	f=5 MHz to 200 MHz
Output Return Loss	20.0			dB	f=5 MHz to 200 MHz
Noise Figure		4.7	5.0	dB	f=200 MHz
Total Current Consumption (DC)	130.0	138.0	140.0	mA	

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

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Absolute Maximum Ratings

Parameter	Rating	Unit
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	-20 to +100	°C

Caution! ESD sensitive device.

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 implied.

RoHS status based on EUDirective2002/95/EC (at time of this document revision).

Parameter	Specification			Unit	Condition
	Min.	Typ.	Max.		
Distortion data 5MHz to 200MHz					
CTB			-72	dBc	7 ch flat; V_O=50dBmV[2]
XMOD			-65	dBc	7 ch flat; V_O=50dBmV[2]
CSO			-72	dBc	7 ch flat; V_O=50dBmV[2]
d_2			-62	dBc	[3]
V_O	62.0			dBmV	D_{IM}=-60dB[4]

2. 7 channels, NTSC frequency raster: T7-T13(7.0MHz to 43.0MHz) +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=50dBmV; 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.

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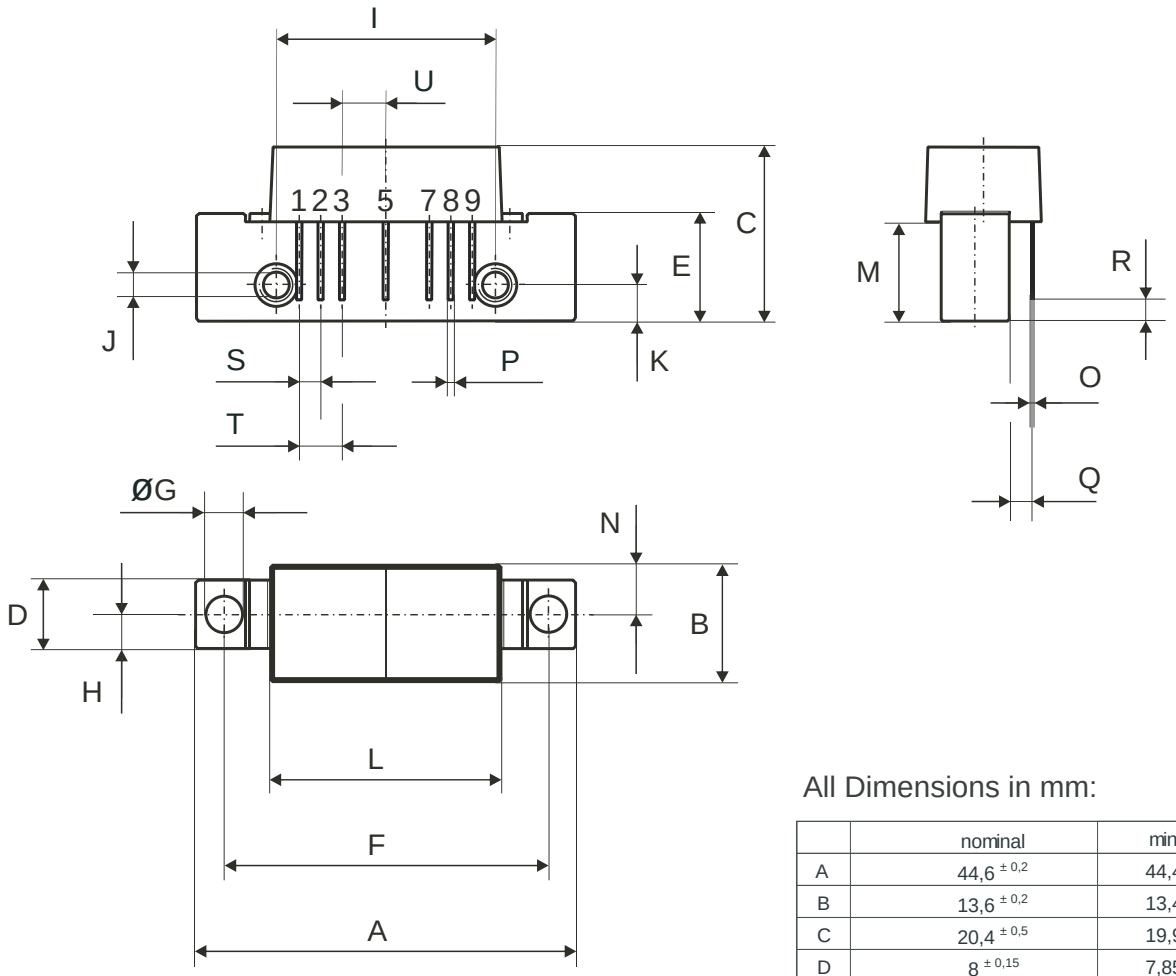

All Dimensions in mm:

	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

0 5 10mm
scale

Pinning:

1	2	3	4	5	6	7	8	9
INPUT	GND	GND		+VB		GND	GND	OUTPUT

Notes:

European Projection

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