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R2005280L

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

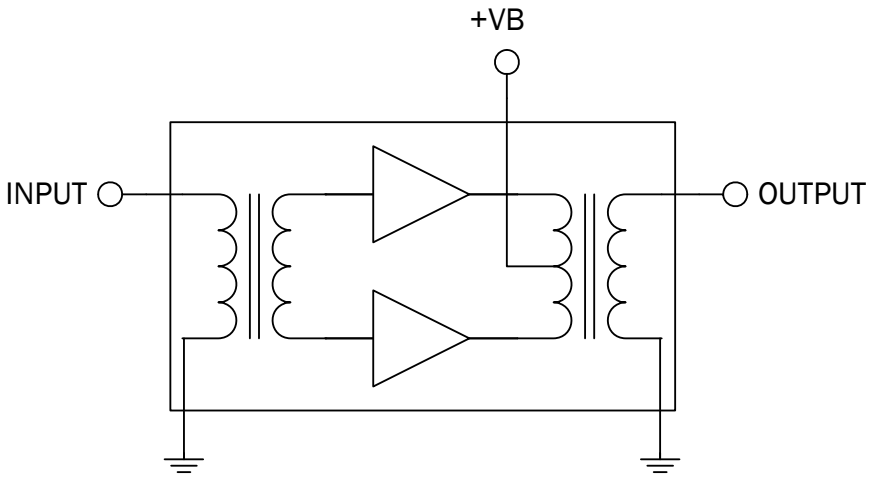
Package: SOT-115J

Features

- Excellent Linearity
- Superior Return Loss Performance
- Extremely Low Distortion
- Optimal Reliability
- Low Noise
- Unconditionally Stable Under All Terminations
- 28.3dB Typical Gain at 200MHz
- 140mA Maximum at 24V_{DC}

Applications

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



Functional Block Diagram

Product Description

The R2005280L 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 5MHz to 200MHz CATV amplifiers for reverse channel systems.

Optimum Technology Matching® Applied

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

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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	-30 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 (Restriction of Hazardous Substances): Compliant per EU Directive 2002/95/EC.

Parameter	Specification			Unit	Condition
	Min.	Typ.	Max.		
Overall					V_B= 24V; T_{MB}=30°C; Z_S=Z_L=75Ω
Power Gain	27.5	28.2	28.5	dB	f=5MHz
	27.3	28.3		dB	f=200MHz
Slope [1]	-0.2	0.1	0.5	dB	f=5MHz to 200MHz
Flatness of Frequency Response			±0.3	dB	f=5MHz to 200MHz
Input Return Loss	20.0			dB	f=5MHz to 200MHz
Output Return Loss	20.0			dB	f=5MHz to 200MHz
Noise Figure		4.9	5.2	dB	f=200MHz
Total Current Consumption (DC)	130.0	135.0	140.0	mA	
Distortion data 5MHz to 200MHz					
CTB			-69	dBc	7 ch flat; V_O=50dBmV[2]
XMOD			-65	dBc	7 ch flat; V_O=50dBmV[2]
CSO			-70	dBc	7 ch flat; V_O=50dBmV[2]
d_2			-60	dBc	[3]
V_O	61.0			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. 7 channels, NTSC frequency raster: T7-T13(7.0MHz to 43.0MHz), 2-6 (55.25MHz - 83.25MHz), A-7 (121.25MHz - 175.25MHz), +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=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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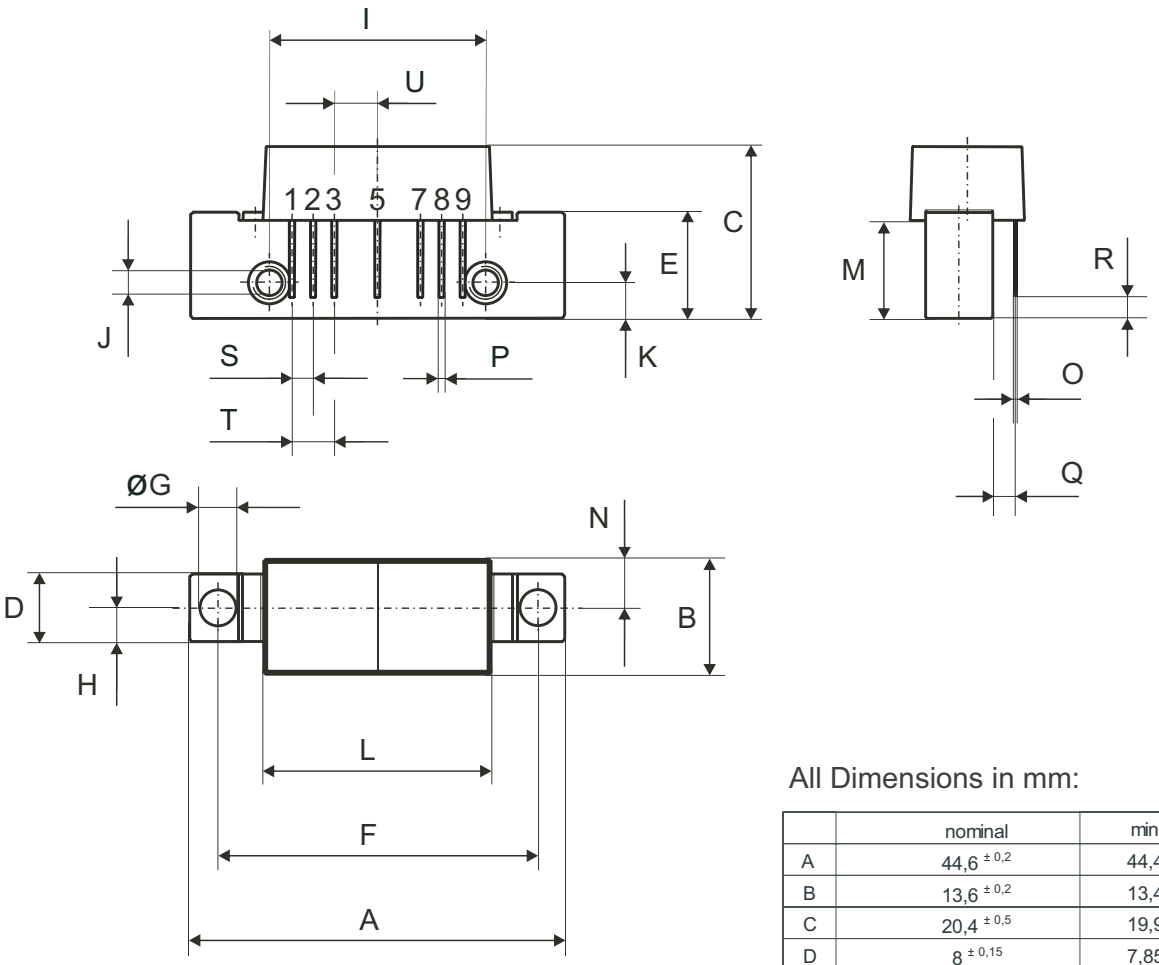
Package Drawing



Pinning:

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

0 5 10mm
scale

Notes:

European Projection

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

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