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R0605250

5MHz to 65MHz Si REVERSE HYBRID

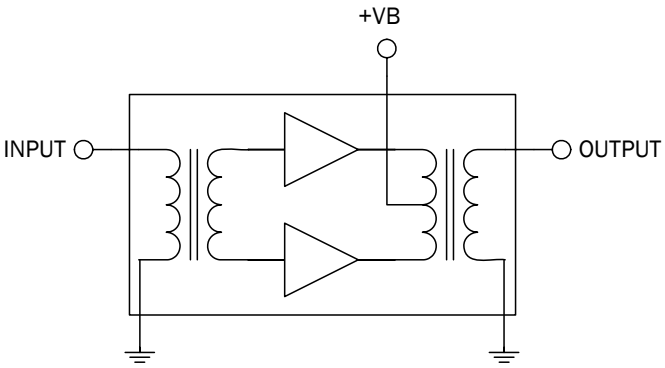
Package: SOT-115J

Product Description

The R0605250 is a hybrid reverse amplifier. The part employs 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 65MHz 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
- ☐ RF MEMS
- ☐ LDMOS



Features

- Excellent Linearity
- Superior Return Loss Performance
- Extremely Low Distortion
- Optimal Reliability
- Low Noise
- Unconditionally Stable Under All Terminations
- 25.7dB Typ. Gain at 65MHz
- 200mA Max. at 24VDC

Applications

- 5MHz to 65MHz CATV Amplifier For Reverse Channel Systems

Parameter	Specification			Unit	Condition
	Min.	Typ.	Max.		
Overall					V_B= 24V; T_{MB}=30°C; Z_S=Z_L=75Ω
Power Gain	24.9	25.5	26.4	dB	f=5MHz
	24.7	25.7		dB	f=65MHz
Slope [1]	-0.2	0.2	0.5	dB	f=5MHz to 65MHz
Flatness of Frequency Response			±0.2	dB	f=5MHz to 65MHz
Input Return Loss	20.0			dB	f=5MHz to 65MHz
Output Return Loss	20.0			dB	f=5MHz to 65MHz
Noise Figure		2.3	3.0	dB	f=65MHz
Total Current Consumption (DC)	170	190	200	mA	
Distortion data 5MHz to 65MHz					
CTB			-74	dBc	7 ch flat; V_O=50dBmV[2]
XMOD			-64	dBc	7 ch flat; V_O=50dBmV[2]
CSO			-72	dBc	7 ch flat; V_O=50dBmV[2]
d_2			-74	dBc	[3]
STB			-76	dB	[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), +50dBmV flat output level.
3. f_1=7MHz; V_1=50dBmV; f_2=25MHz; V_2=50dBmV; f_{TEST}=f_1+f_2=32MHz.
4. f_1=13MHz; V_1=50dBmV; f_2=25MHz; V_2=V_1; f_3=7MHz; V_3=V_1; f_{TEST}=f_1+f_2-f_3=31MHz.

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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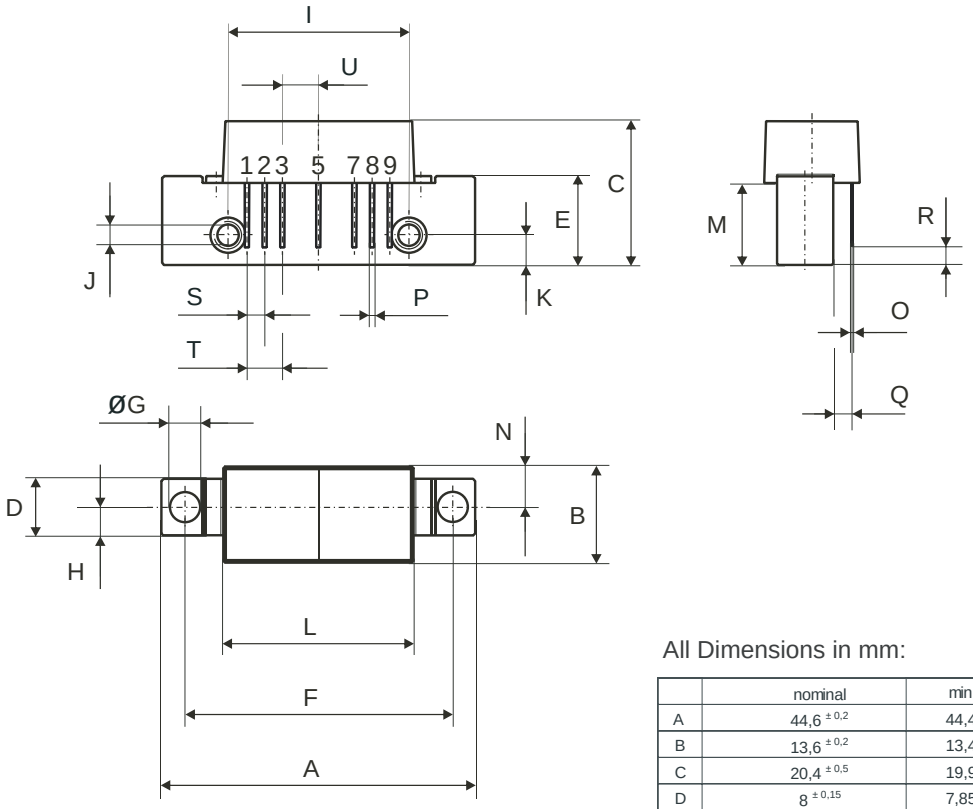
Absolute Maximum Ratings

Parameter	Rating	Unit
RF Input Voltage (single tone)	65	dBmV
DC Supply Over-Voltage (5 minutes)	28	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 status based on EUDirective2002/95/EC (at time of this document revision).



0 5 10mm
scale

Pinning:

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

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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