Product Specification

R3005300L

Si Reverse, low current, 5 – 300MHz, 30.0dB typ. Gain @ 300MHz, 160mA max. @ 24VDC

FEATURES

- Excellent linearity
- Superior return loss performance
- Extremely low distortion
- Optimal reliability
- Low noise
- Unconditionally stable under all terminations

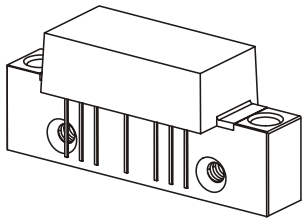
APPLICATION

- 5 to 300 MHz CATV amplifier for reverse channel systems

DESCRIPTION

- Hybrid reverse amplifier employing silicon die

R3005300L



Si Reverse Hybrid , low current
5 – 300 MHz
30.0dB typ. Gain @ 300MHz
160mA max. @ 24VDC

LIMITING VALUES

In accordance with the Absolute Maximum Rating System (IEC 60134)

SYMBOL	PARAMETER	MIN.	MAX.	UNIT
V_i	RF input voltage (single tone)	-	50	dBmV
V_{ov}	DC supply over-voltage (5 minutes)	-	30	V
T_{stg}	storage temperature	- 40	+ 100	°C
T_{mb}	operating mounting base temperature	- 30	+ 100	°C

CHARACTERISTICS

Table 1: S-Parameter, Noise Figure, DC Current; V_B = 24V; T_{mb} = 30°C; Z_S = Z_L = 75 Ω

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
G_p	power gain	f = 5 MHz	29.4	30.0	30.6	dB
		f = 300 MHz	29.1	30.0	31.1	dB
SL	Slope [1)]	f = 5 to 300 MHz	-0.3	0.0	0.5	dB
FL	flatness of frequency response	f = 5 to 300 MHz	-0.3		0.3	dB
S_{11}	Input return loss	f = 5 to 200 MHz	20.0		-	dB
		f = 200 to 300 MHz	16.0		-	dB
S_{22}	output return loss	f = 5 to 200 MHz	20.0		-	dB
		f = 200 to 300 MHz	16.0		-	dB
S_{12}	reverse isolation	f = 5 to 300 MHz	-		-40.0	dB
F	Noise figure	f = 5 to 300 MHz	-		6.3	dB
I_{tot}	total current consumption (DC)			145.0	160.0	mA

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

CHARACTERISTICS

Table 2: Distortion data 5 – 300 MHz; V_B = 24V; T_{mb} = 30°C; $Z_S = Z_L$ = 75 Ω

SYMBOL	PARAMETER	CONDITION	MIN.	TYP.	MAX.	UNIT
CTB	composite triple beat	7 ch. flat; Vo = 50 dBmV [1)] 22 ch. flat; Vo = 50 dBmV [4)]	-		- 74 - 60	dBc
XMOD	cross modulation	7 ch. flat; Vo = 50 dBmV [1)] 22 ch. flat; Vo = 50 dBmV [4)]	-		- 66 - 53	dB
CSO	composite second order distortion	7 ch. flat; Vo = 50 dBmV [1)] 22 ch. flat; Vo = 50 dBmV [4)]	-		- 72 - 68	dBc
d_2	second order distortion	[2)]			- 70	dBc
V_0	output voltage	D_{im} = -60 dB [3)]	62.0		-	dBmV

Notes:

1) 7 channels, US frequency raster: T7 – T13 (7.0 to 43.0 MHz), +50 dBmV flat output level.
2) 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.
3) f_1 = 187.25 MHz; V_1 = 50 dBmV; f_2 = 194.25 MHz; $V_2 = V_1$ – 6dB; f_3 = 196.25 MHz; $V_3 = V_1$ – 6dB; f_{TEST} = f1 + f2 - f3 = 185.25 MHz, according to DIN45004B.
4) 22 channels, NTSC frequency raster: T7 – T13 plus 2-6 (55.25 to 83.25 MHz) and A - 7 (121.25 - 175.25 MHz), +50 dBmV flat output level.

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

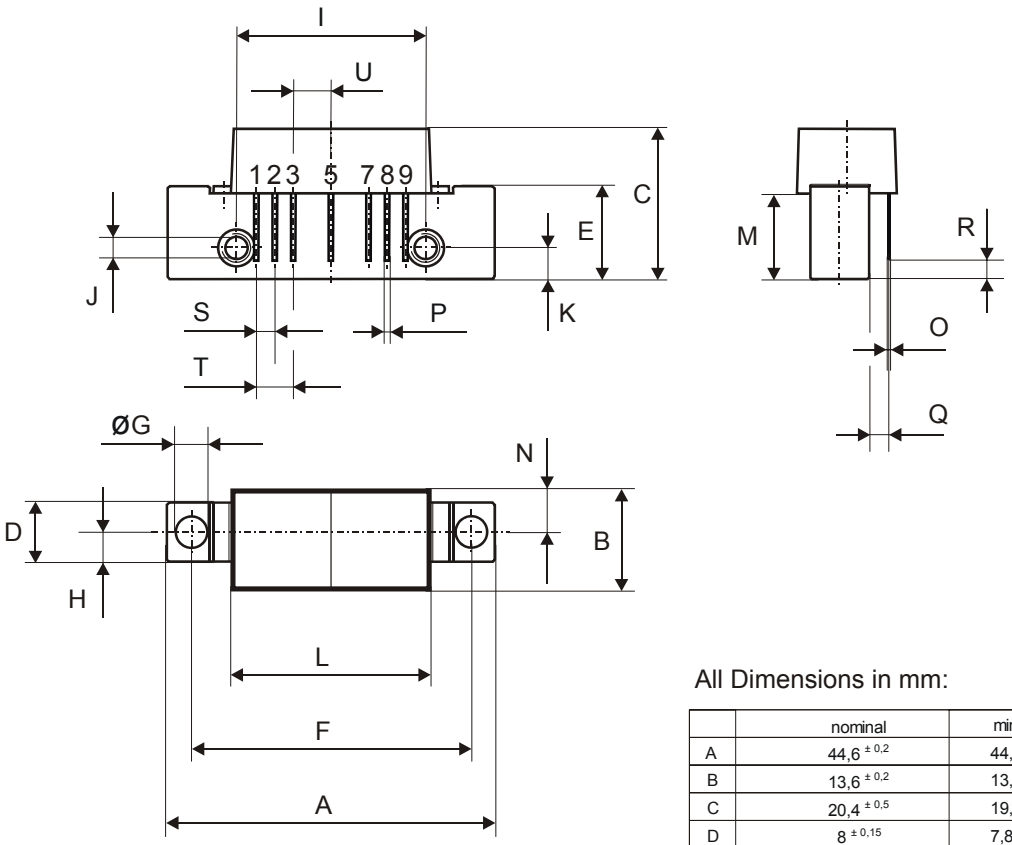
Composite Triple Beat (CTB)
The CTB parameter is defined by the NCTA.

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

Product Specification

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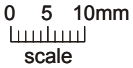
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All Dimensions in mm:

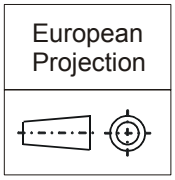
	nominal	min	max
A	44,6 ± 0,2	44,4	44,8
B	13,6 ± 0,2	13,4	13,8
C	20,4 ± 0,5	19,9	20,9
D	8 ± 0,15	7,85	8,15
E	12,6 ± 0,15	12,45	12,75
F	38,1 ± 0,2	37,9	38,3
G	4 +0,2 / -0,05	3,95	4,2
H	4 ± 0,2	3,8	4,2
I	25,4 ± 0,2	25,2	25,6
J	UNC 6-32	-	-
K	4,2 ± 0,2	4,0	4,4
L	27,2 ± 0,2	27,0	27,4
M	11,6 ± 0,5	11,1	12,1
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

Pinning:



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

Notes:



DEFINITIONS

Data Sheet Status	
Objective Product Specification	This data sheet contains target or goal specifications for product development.
Preliminary Product Specification	This data sheet contains preliminary data; supplementary data may be published later.
Product Specification	This data sheet contains final product specifications.
Limiting values	
Limiting values given are in accordance with the Absolute Maximum Rating System (IEC 60134). Stress above one or more of the limiting values may cause permanent damage to the device. These are stress ratings only and operation of the device at these or at any other conditions above those given in the Characteristics sections of the specification is not implied. Exposure to limiting values for extended periods may affect device reliability.	
Application information	
Where application information is given, it is advisory and does not form part of the specification.	

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How to contact us:

Premier Devices Germany GmbH

Loeffelholzstrasse 20, D-90441 Nuernberg, Germany
Phone: +49 (0) 911 9411 233, FAX: +49 (0) 911 9411 198,
Email: sales.germany@premierdevices.com, Internet: http://www.premierdevices.de/