

# Product Specification S10040220GT

GaAs Push Pull, 40 – 1000MHz, 23.0dB min. Gain @ 1GHz, 240mA max. @ 24VDC



## FEATURES

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

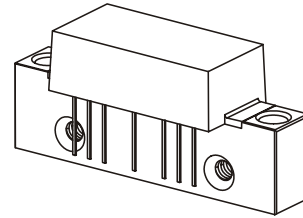
## APPLICATION

- 40 to 1000 MHz CATV amplifier systems

## DESCRIPTION

- Hybrid Push Pull amplifier module employing GaAs dice

## S10040220GT



**GaAs Push Pull Hybrid**  
40 – 1000MHz  
23.0dB min. Gain @ 1GHz  
240mA 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)	-	75	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;  $V_B = 24V$ ;  $T_{mb} = 30°C$ ;  $Z_S = Z_L = 75 \Omega$

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$G_p$	power gain	$f = 50 \text{ MHz}$	21.7	22.0	22.3	dB
		$f = 1000 \text{ MHz}$	23	23.5	24.0	dB
SL	slope <sup>1)</sup>	$f = 40 \text{ to } 1000 \text{ MHz}$	1.0	1.5	2.0	dB
FL	flatness of frequency response	$f = 40 \text{ to } 1000 \text{ MHz}$ (Peak to Valley)	-		1.0	dB
$S_{11}$	input return loss	$f = 40 \text{ to } 160 \text{ MHz}$	20.0		-	dB
		$f = 160 \text{ to } 1000 \text{ MHz}$	18.0		-	dB
$S_{22}$	output return loss	$f = 40 \text{ to } 320 \text{ MHz}$	18.0		-	dB
		$f = 320 \text{ to } 1000 \text{ MHz}$	16.0		-	dB
F	noise figure	$f = 50 \text{ to } 1000 \text{ MHz}$	-	4.6	6.2	dB
$I_{tot}$	total current consumption (DC)			230.0	240.0	mA

Notes:

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

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**CHARACTERISTICS**

Table 2: Distortion data 40 – 870 MHz;  $V_B = 24V$ ;  $T_{mb} = 30^\circ C$ ;  $Z_S = Z_L = 75 \Omega$

SYMBOL	CONDITIONS	MIN.	TYP.	MAX.	UNIT
CTB	132 ch. flat; $V_o = 40 \text{ dBmV}^{1)}$	-		- 63	dBc
XMOD	132 ch. flat; $V_o = 40 \text{ dBmV}^{1)}$	-		- 58	dBc
CSO	132 ch. flat; $V_o = 40 \text{ dBmV}^{1)}$	-		- 59	dBc

Notes:

1) 132 channels, NTSC frequency raster: 55.25 MHz to 865.25 MHz, +40 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.

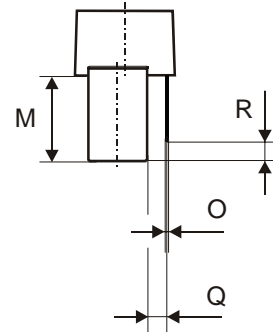
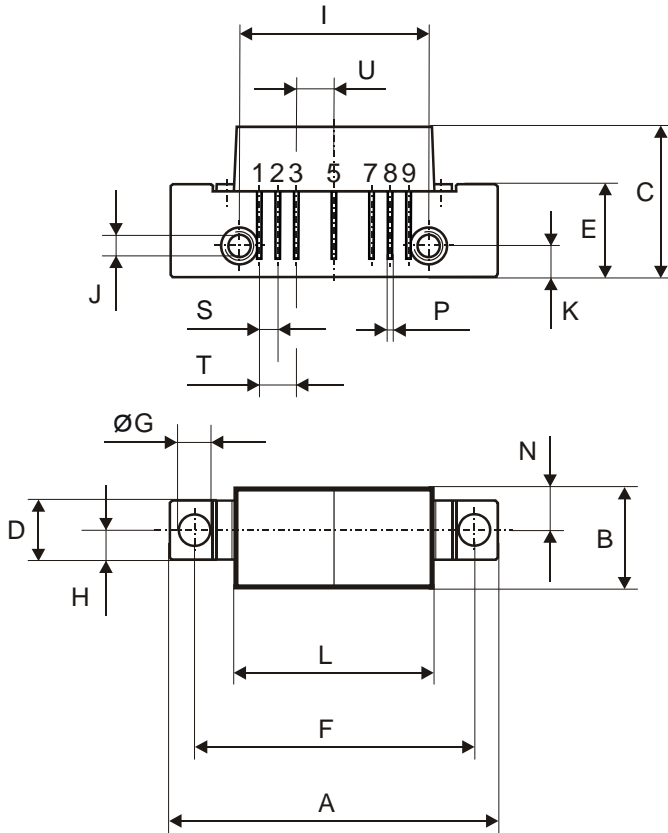
**Cross Modulation (XMOD)**

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

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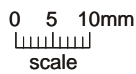


All Dimensions in mm:

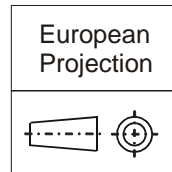
	nominal	min	max
A	44,6 ± 0,2	44,4	44,8
B	13,6 ± 0,2	13,4	13,8
C	20,4 ± 0,5	19,9	20,9
D	8 ± 0,15	7,85	8,15
E	12,6 ± 0,15	12,45	12,75
F	38,1 ± 0,2	37,9	38,3
G	4 +0,2 / -0,05	3,95	4,2
H	4 ± 0,2	3,8	4,2
I	25,4 ± 0,2	25,2	25,6
J	UNC 6-32	-	-
K	4,2 ± 0,2	4,0	4,4
L	27,2 ± 0,2	27,0	27,4
M	11,6 ± 0,5	11,1	12,1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



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**DEFINITIONS**

<b>Data Sheet Status</b>	
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.
<b>Limiting values</b>	
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.	
<b>Application information</b>	
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](mailto:sales.germany@premierdevices.com), Internet: <http://www.premierdevices.de/>