



### Product Description

The D10040200P1 is a Hybrid Power Doubler amplifier module. The part employs GaAs die, has high output capability, and is operated from 45MHz to 1000MHz. It provides excellent linearity and superior return loss performance with low noise and optimal reliability.

### Features

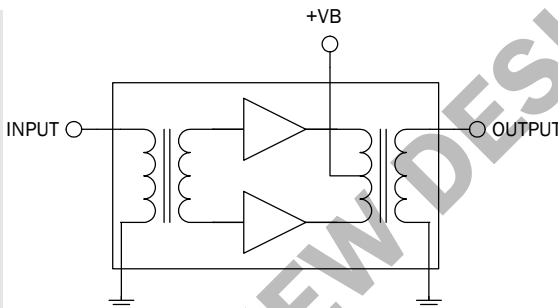
- Excellent Linearity
- Superior Return Loss Performance
- Extremely Low Distortion
- Optimal Reliability
- Low Noise
- Unconditionally Stable Under All Terminations
- Extremely High Output Capability
- 20.0dB Min. Gain at 1GHz
- 450mA Max. at 24VDC

### Applications

- 45 MHz to 1000 MHz CATV Amplifier 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
- RF MEMS



Parameter	Specification			Unit	Condition
	Min.	Typ.	Max.		
<b>Overall</b>					$V_B = 24V; T_{MB} = 30^\circ C; Z_S = Z_L = 75\Omega$
Power Gain	18.5	19.0	19.5	dB	f = 45 MHz
	20.0	20.5	21.5	dB	f = 1000 MHz
Slope <sup>[1]</sup>	1.0	1.5	2.5	dB	f = 45 MHz to 1000 MHz
Flatness of Frequency Response			±0.5	dB	f = 45 MHz to 1000 MHz
Input Return Loss	20.0			dB	f = 45 MHz to 160 MHz
	18.0				f = 160 MHz to 870 MHz
	14.0			dB	f = 870 MHz to 1000 MHz
Output Return Loss	20.0			dB	f = 45 MHz to 160 MHz
	18.0				f = 160 MHz to 870 MHz
	14.0			dB	f = 870 MHz to 1000 MHz
Noise Figure		3.5	4.5	dB	f = 50 MHz to 1000 MHz
Total Current Consumption (DC)		430.0	450.0	mA	

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

## Absolute Maximum Ratings

Parameter	Rating	Unit
RF Input Voltage (single tone)	75	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 status based on EUDirective2002/95/EC (at time of this document revision).

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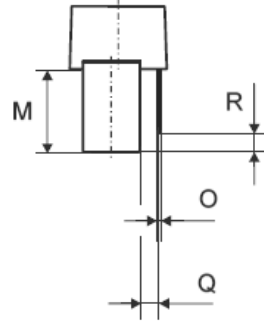
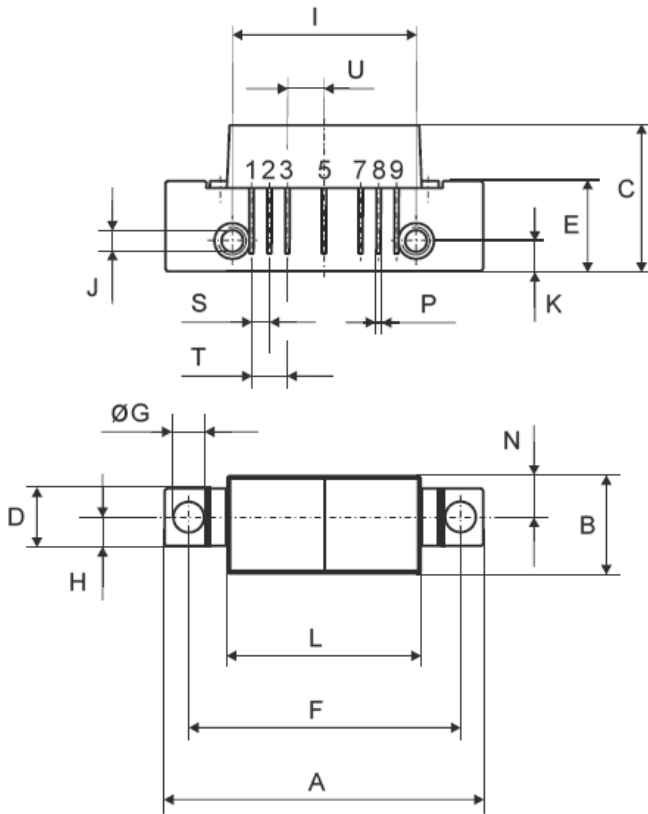
Parameter	Specification			Unit	Condition
	Min.	Typ.	Max.		
<b>Distortion data 40MHz to 550MHz</b>					$V_B = 24V$ ; $T_{MB} = 30^\circ C$ ; $Z_S = Z_L = 75\Omega$
CTB		-66	-64	dBc	79 ch 7 dB tilted; $V_O = 52dBmVat\ 550MHz^{(2)}$
XMOD		-57	-55	dBc	79 ch 7 dB tilted; $V_O = 52dBmVat\ 550MHz^{(2)}$
CSO		-67	-65	dBc	79 ch 7 dB tilted; $V_O = 52dBmVat\ 550MHz^{(2)}$

2. 79 channels, NTSC frequency raster: 55.25MHz to 547.25MHz, +45dBmV to +52dBmV tilted 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.

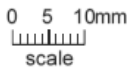


All Dimensions in mm:

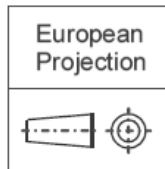
	nominal	min	max
A	44,6 ± 0,2	44,4	44,8
B	13,6 ± 0,2	13,4	13,8
C	20,4 ± 0,5	19,9	20,9
D	8 ± 0,15	7,85	8,15
E	12,6 ± 0,15	12,45	12,75
F	38,1 ± 0,2	37,9	38,3
G	4 +0,2/-0,05	3,95	4,2
H	4 ± 0,2	3,8	4,2
I	25,4 ± 0,2	25,2	25,6
J	UNC 6-32	-	-
K	4,2 ± 0,2	4,0	4,4
L	27,2 ± 0,2	27,0	27,4
M	11,6 ± 0,5	11,1	12,1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



**NOT FOR NEW DESIGNS.**