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S10040220P12

40MHz to 1000MHz GaAs PUSH PULL HYBRID

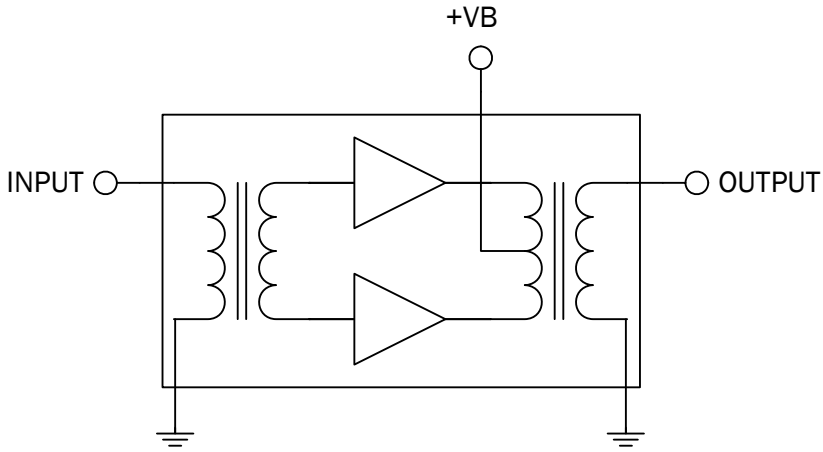
Package: SOT-115J

Features

- Excellent Linearity
- Superior Return Loss Performance
- Extremely Low Distortion
- Optimal Reliability
- Extremely Low Noise
- Unconditionally Stable Under all Terminations
- 22dB Min. Gain at 1000MHz
- 450mA Max. at 12VDC

Applications

- 40MHz to 1000MHz CATV Amplifier Systems



Functional Block Diagram

Product Description

The S10040220P12 is a hybrid push pull amplifier module. The part employs GaAs pHEMT die and GaAs MESFET die, and is operated from 40MHz to 1000MHz. It provides excellent linearity and superior return loss performance with low noise and optimal reliability.

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) (V_I)	75	dBmV
DC supply over-voltage (5 minutes) (V_{OV})	15	V
Storage Temperature (T_{STG})	-40 to +100	°C
Operating Mounting Base Temperature (T_{MB})	-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).

Parameter	Specification			Unit	Condition
	Min.	Typ.	Max.		
Overall					V_B= 12V; T_{MB}=30 °C; Z_S=Z_L=75Ω
Power Gain	21.0	21.5	22.0	dB	f=50MHz
	22.0		23.5	dB	f=1000MHz
Slope[1]	0.5		2.0	dB	f=40MHz to 1000MHz
Flatness of Frequency Response			±0.4	dB	f=40MHz to 1000MHz
Input Return Loss	20.0			dB	f=40MHz to 160MHz
	18.0			dB	f=160MHz to 870MHz
	16.0			dB	f=870MHz to 1000MHz
Output Return Loss	20.0			dB	f=40MHz to 160MHz
	18.0			dB	f=160MHz to 870MHz
	15.0			dB	f=870MHz to 1000MHz
Noise Figure		2.5	3.5	dB	f=50MHz to 1000MHz
Total Current Consumption (DC)		430.0	450.0	mA	
Distortion data 40MHz to 750MHz					V_B= 12V; T_{MB}=30 °C; Z_S=Z_L=75Ω
CTB		-73	-71	dBc	V_O=42.5dBmV; 112 channel flat[2]
XMOD		-67	-65	dBc	V_O=42.5dBmV; 112 channel flat[2]
CSO		-70	-68	dBc	V_O=42.5dBmV; 112 channel flat[2]

[1] The slope is defined as the difference between the gain at the start frequency and the gain at the stop frequency.
[2] 112 channels, NTSC frequency raster: 55.25MHz to 745.25MHz, +42.5dBmV 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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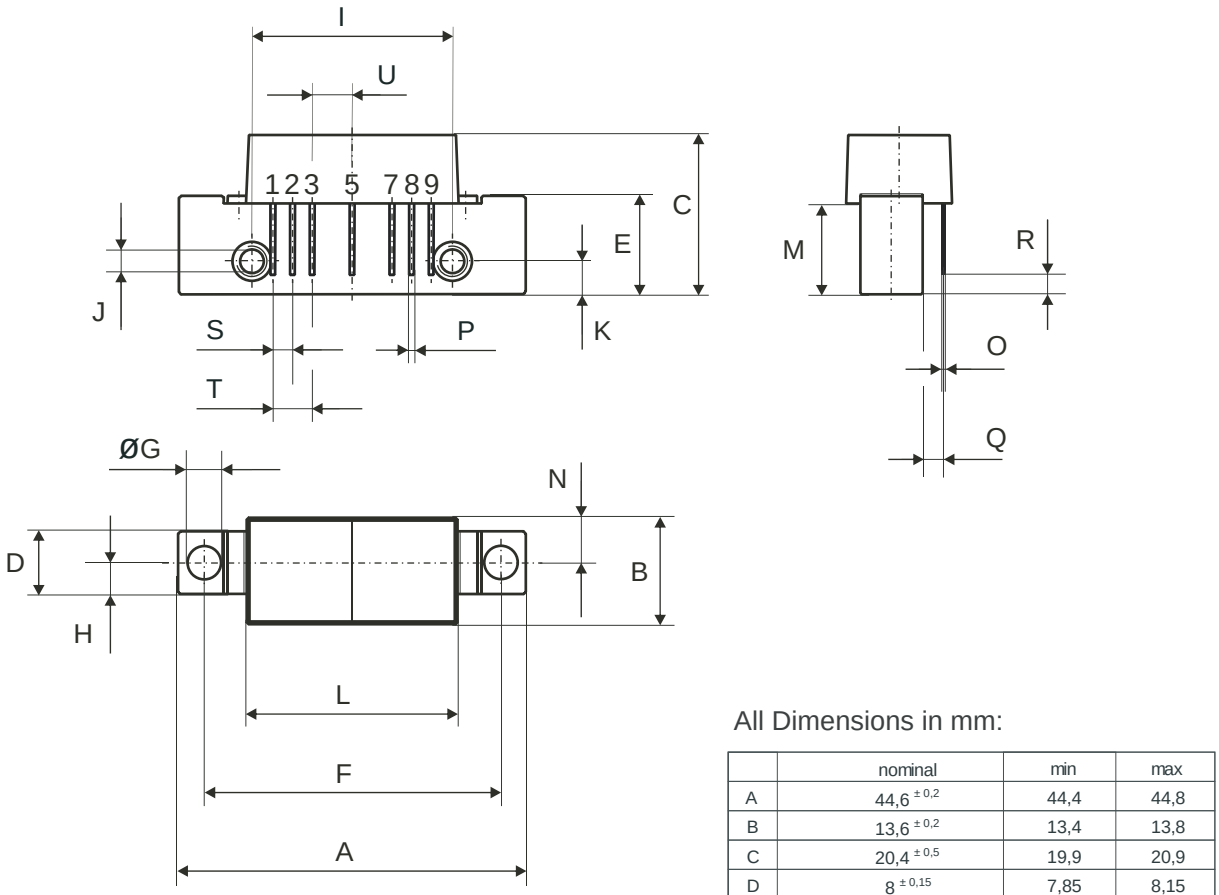
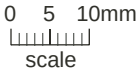


All Dimensions in mm:

	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: