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S10040180P1

40-1000MHz GaAs PUSH PULL HYBRID

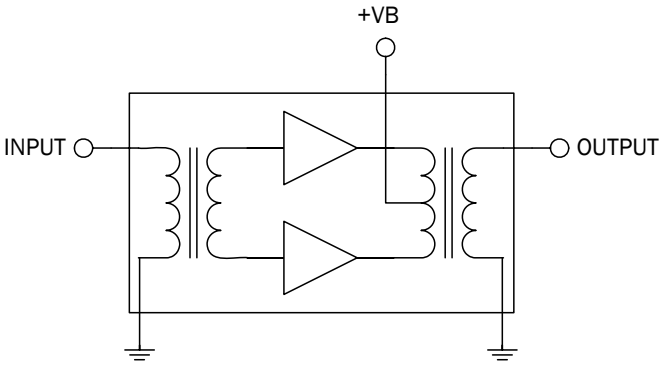
Package: SOT-115J

Product Description

The S10040180P1 is a Hybrid Push Pull amplifier module. The part employs GaAs 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
- ☑ GaAs MESFET
- ☐ InGaP HBT
- ☐ SiGe BiCMOS
- ☐ Si BiCMOS
- ☐ SiGe HBT
- ☑ GaAs pHEMT
- ☐ Si CMOS
- ☐ Si BJT
- ☐ GaN HEMT
- ☐ RF MEMS



Features

- Excellent Linearity
- Superior Return Loss Performance
- Extremely Low Distortion
- Optimal Reliability
- Extremely Low Noise
- Unconditionally Stable Under All Terminations
- 18.0dB Min. Gain at 1000MHz
- 260mA Max. at 24VDC

Applications

- 40MHz to 1000MHz CATV Amplifier Systems

Parameter	Specification			Unit	Condition
	Min.	Typ.	Max.		
Overall					V_B= 24V; T_{MB}=30°C; Z_S=Z_L=75Ω
Power Gain		18.0		dB	f=50MHz
	18.0		19.5	dB	f=1000MHz
Slope [1]	0.5		1.5	dB	f=40MHz to 1000MHz
Flatness of Frequency Response			0.8	dB	f=40MHz to 1000MHz (Peak to Valley)
Input Return Loss	20.0			dB	f=40MHz to 160MHz
	18.0			dB	f=160MHz to 870MHz
	15.0			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		3.0	4.0	dB	f=50MHz to 1000MHz
Total Current Consumption (DC)		250.0	260.0	mA	

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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Absolute Maximum Ratings

Parameter	Rating	Unit
RF Input Voltage (single tone)	65	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.		
Distortion data 40MHz to 870MHz					V_B=24V, T_{MB}=30°C, Z_S=Z_L=75Ω
CTB		-68	-66	dBc	132 ch flat; V_O=40dBmV[2]
XMOD		-59	-57	dBc	132 ch flat; V_O=40dBmV[2]
CSO		-68	-66	dBc	132 ch flat; V_O=40dBmV;[2]

2. 132 channels, NTSC frequency raster: 55.25MHz to 853.25MHz, +40dBmV 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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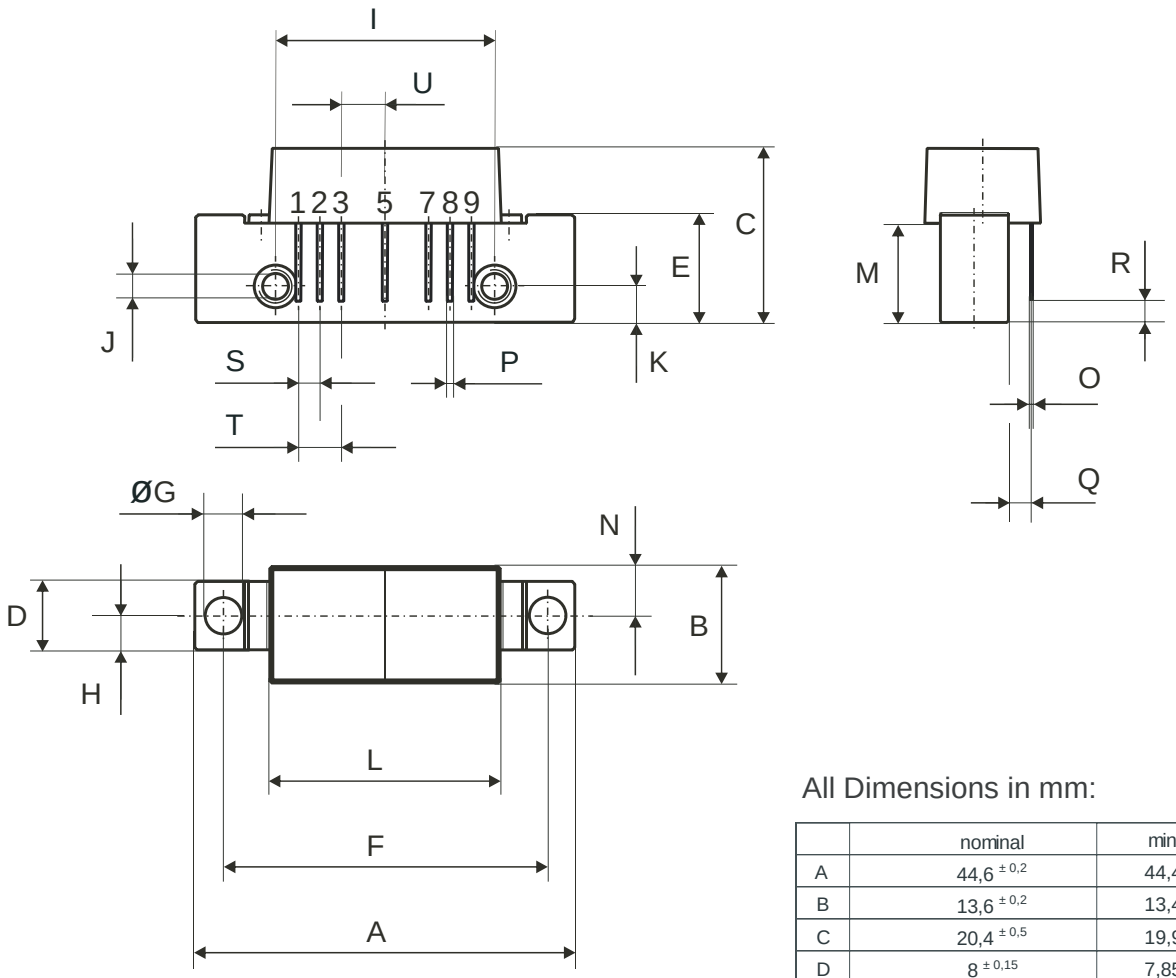


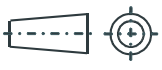
0 5 10mm
scale

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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