



# S10040180P1

## CATV Push Pull Hybrid 1000MHz 18dB

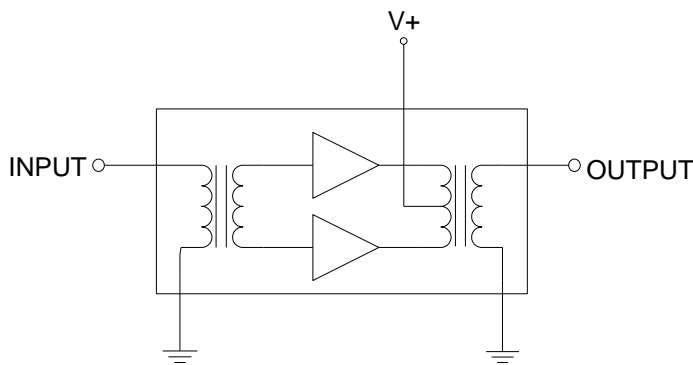
### Product Description

The S10040180P1 is a Hybrid Push Pull amplifier module. The part employs GaAs/GaN die and is operated from 40 MHz to 1000 MHz. It provides excellent linearity and superior return loss performance with low noise and optimal reliability.



Package: SOT-115J

### Functional Block Diagram



### Product Features

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

### Applications

- 40 – 1000 MHz CATV Amplifier Systems

### Ordering Information

| Part No.    | Description     |
|-------------|-----------------|
| S10040180P1 | Box with 50 pcs |
|             |                 |
|             |                 |
|             |                 |
|             |                 |
|             |                 |

## S10040180P1 Absolute Maximum

| Parameter                           | Value / Range |
|-------------------------------------|---------------|
| 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 |

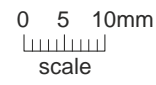
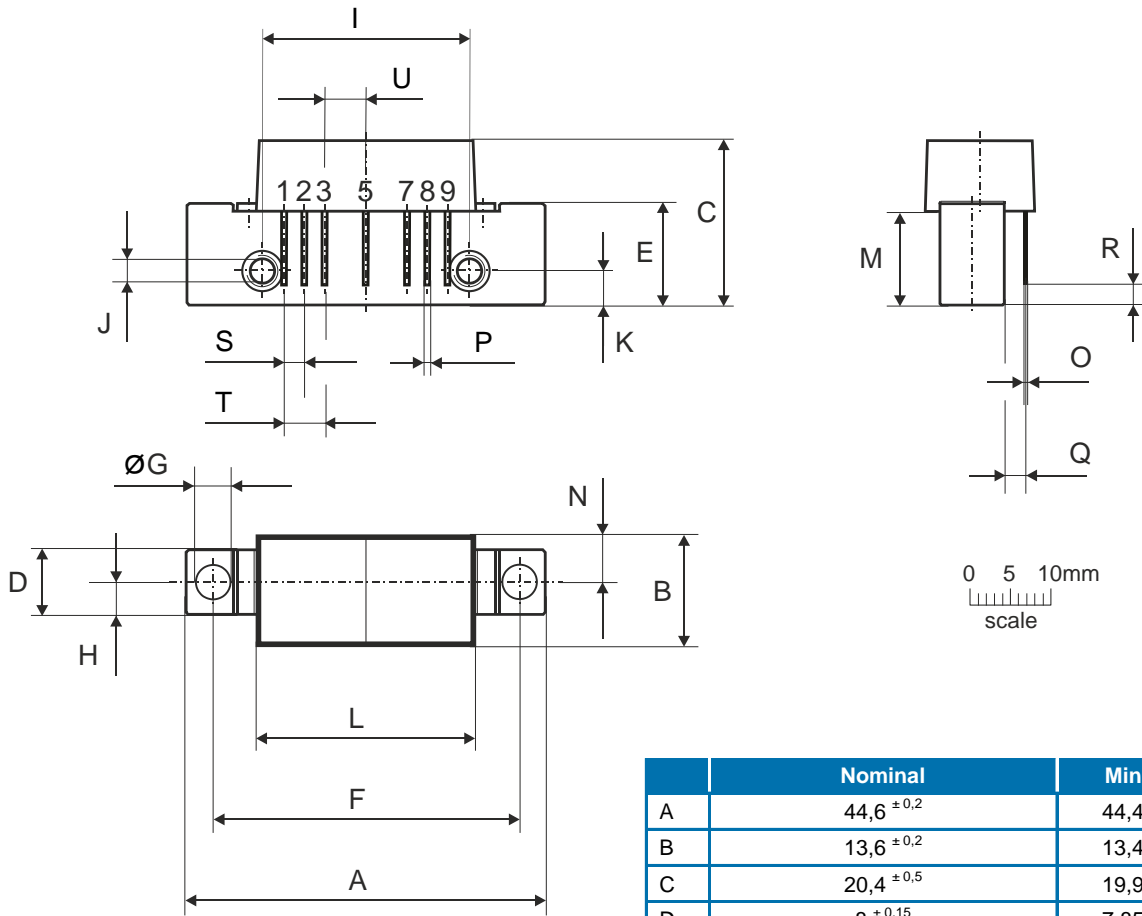
Operation of this device outside the parameter ranges given above may cause permanent damage.

## Electrical Specifications

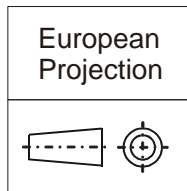
| Parameter                   | Test Conditions: $V_+ = 24V$ , $T_{MB} = 30^\circ C$ , $Z_S = Z_L = 75\Omega$                                     | Min  | Typ  | Max  | Unit |
|-----------------------------|-------------------------------------------------------------------------------------------------------------------|------|------|------|------|
| Operational Frequency Range | –                                                                                                                 | 40   | –    | 1000 | MHz  |
| Gain                        | $f_o = 50$ MHz                                                                                                    |      | 18.0 |      | dB   |
| Gain                        | $f_o = 1000$ MHz                                                                                                  | 18.0 |      | 19.5 |      |
| Gain Slope                  | 40 to 1000 MHz <sup>[1]</sup>                                                                                     | 0.5  |      | 1.5  |      |
| Gain Flatness               | 40 to 1000 MHz (Peak to Valley)                                                                                   |      |      | 0.8  |      |
| Input Return Loss           | $f_o = 40$ to 160 MHz                                                                                             | 20.0 |      | –    | dB   |
|                             | $f_o = 160$ to 1000 MHz                                                                                           | 18.0 |      | –    |      |
| Output Return Loss          | $f_o = 40$ to 160 MHz                                                                                             | 20.0 |      | –    | dB   |
|                             | $f_o = 160$ to 870 MHz                                                                                            | 18.0 |      | –    |      |
|                             | $f_o = 870$ to 1000 MHz                                                                                           | 15.0 |      |      |      |
| Noise Figure                | $f_o = 50$ to 1000 MHz                                                                                            | –    | 2.5  | 3.5  | dB   |
| IDC                         |                                                                                                                   |      | 250  | 260  | mA   |
| CTB                         |                                                                                                                   |      | -68  | -66  | dBc  |
| XMOD                        | 132 analog channels, NTSC frequency raster:<br>55.25 MHz to 865.25 MHz, +40dBmV flat output level. <sup>[2]</sup> |      | -59  | -57  | dBc  |
| CSO                         |                                                                                                                   |      | -68  | -66  | dBc  |

1. The slope is defined as the difference between the gain at the start frequency and the gain at the stop frequency.
2. Composite Triple Beat (CTB) - The CTB parameter is defined by ANSI/SCTE 6.  
Composite Second Order (CSO) - The CSO parameter (both sum and difference products) is defined by ANSI/SCTE 6.  
Cross Modulation (XMOD) - Cross modulation (XMOD) is defined by ANSI/SCTE 58, measured at baseband (selective voltmeter method), referenced to 100% modulation of the carrier being tested.

Package Drawing (Dimensions in millimeters)



Notes:



Pinning:

| Pin | Name   |
|-----|--------|
| 1   | Input  |
| 2-3 | GND    |
| 4   |        |
| 5   | V+     |
| 6   |        |
| 7-8 | GND    |
| 9   | Output |

|   | 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  |

## Handling Precautions

| Parameter                        | Rating | Standard     |
|----------------------------------|--------|--------------|
| ESD – Human Body Model (HBM)     | 2      | JEDEC JS-001 |
| ESD – Charged Device Model (CDM) | C3     | JEDEC JS-002 |



Caution!  
ESD-Sensitive Device

## RoHS Compliance

This part is compliant with 2011/65/EU RoHS directive (Restrictions on the Use of Certain Hazardous Substances in Electrical and Electronic Equipment) as amended by Directive 2015/863/EU.

## Contact Information

For the latest specifications, additional product information, worldwide sales and distribution locations:

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