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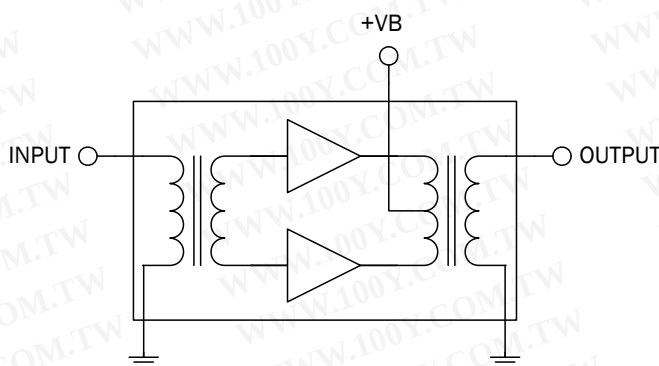
Package: SOT-115J

## Product Description

The D10040270GTH is a Hybrid Power Doubler 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

- High Output Capability
- Excellent Linearity
- Superior Return Loss Performance
- Extremely Low Distortion
- Optimal Reliability
- Low Noise
- Unconditionally Stable Under All Terminations
- 27.0dB Min. Gain at 1GHz
- 440mA Max. at 24VDC

## Applications

- 40MHz to 1000MHz CATV Amplifier Systems

| 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                     | 26.0          | 26.5  | 27.0  | dB   | $f = 50\text{MHz}$                                           |
|                                | 27.0          | 28.0  | 28.5  | dB   | $f = 1000\text{MHz}$                                         |
| Slope <sup>[1]</sup>           | 0.5           | 1.5   | 2.0   | dB   | $f = 40\text{MHz to } 1000\text{MHz}$                        |
| Flatness of Frequency Response |               |       | 0.8   | dB   | $f = 40\text{MHz to } 1000\text{MHz}$ (Peak to Valley)       |
| Input Return Loss              | 20.0          |       |       | dB   | $f = 40\text{MHz to } 320\text{MHz}$                         |
|                                | 19.0          |       |       | dB   | $f = 320\text{MHz to } 640\text{MHz}$                        |
|                                | 17.0          |       |       | dB   | $f = 640\text{MHz to } 870\text{MHz}$                        |
|                                | 16.0          |       |       | dB   | $f = 870\text{MHz to } 1000\text{MHz}$                       |
|                                | 20.0          |       |       | dB   | $f = 40\text{MHz to } 320\text{MHz}$                         |
| Output Return Loss             | 19.0          |       |       | dB   | $f = 320\text{MHz to } 640\text{MHz}$                        |
|                                | 18.0          |       |       | dB   | $f = 640\text{MHz to } 870\text{MHz}$                        |
|                                | 17.0          |       |       | dB   | $f = 870\text{MHz to } 1000\text{MHz}$                       |
|                                |               | 4.5   | 5.0   | dB   | $f = 50\text{MHz to } 1000\text{MHz}$                        |
|                                |               | 420.0 | 440.0 | mA   |                                                              |
| Noise Figure                   |               |       |       | dB   | $f = 50\text{MHz to } 1000\text{MHz}$                        |
| Total Current Consumption (DC) |               |       |       | 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 EU Directive 2002/95/EC (at time of this document revision).

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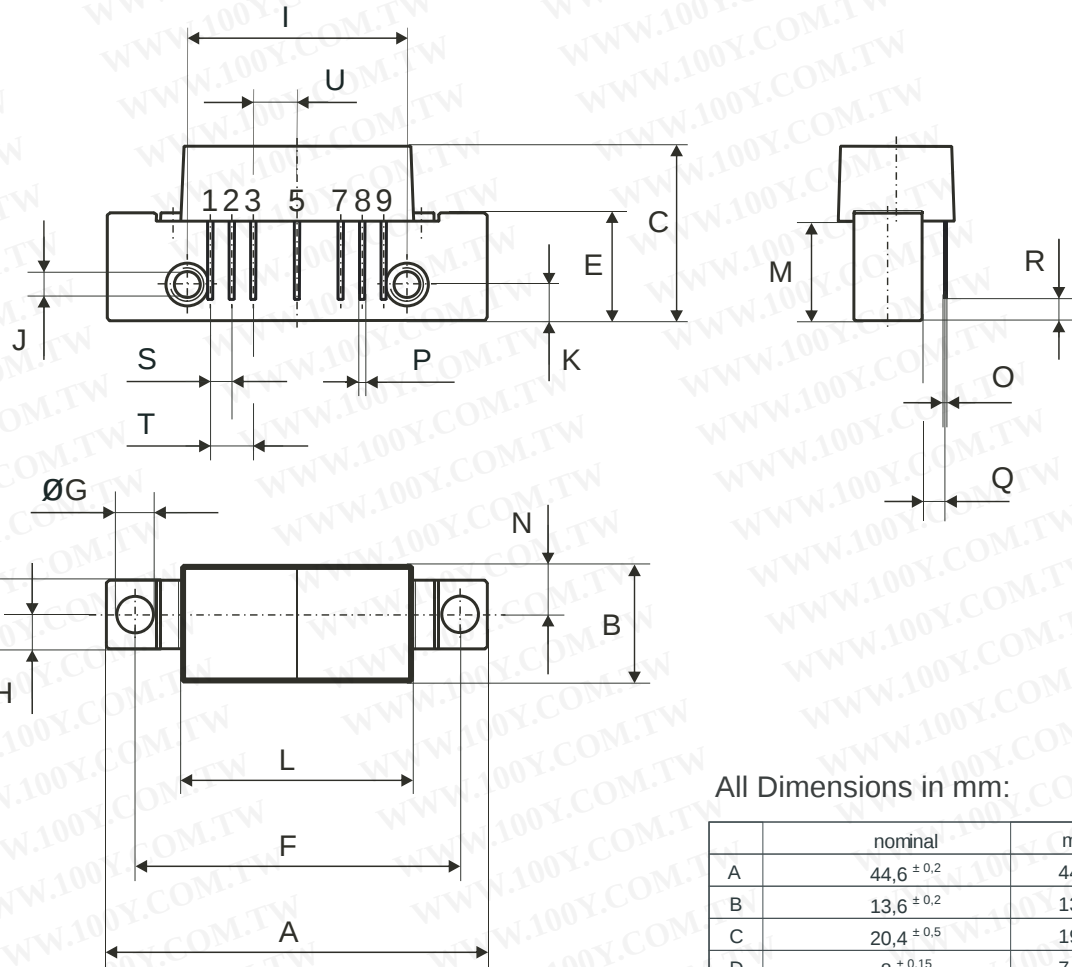
| Parameter                              | Specification |      |      | Unit | Condition                                                     |
|----------------------------------------|---------------|------|------|------|---------------------------------------------------------------|
|                                        | Min.          | Typ. | Max. |      |                                                               |
| <b>Distortion data 40MHz to 550MHz</b> |               |      |      |      |                                                               |
| CTB                                    |               | -65  | -63  | dBc  | 79 ch 7 dB tilted; $V_0=52\text{dBmVat } 550\text{MHz}^{[2]}$ |
| XMOD                                   |               | -62  | -60  | dBc  | 79 ch 7 dB tilted; $V_0=52\text{dBmVat } 550\text{MHz}^{[2]}$ |
| CSO                                    |               | -67  | -65  | dBc  | 79 ch 7 dB tilted; $V_0=52\text{dBmVat } 550\text{MHz}^{[2]}$ |

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.



## Pinning:

| 1     | 2   | 3   | 4   | 5 | 6   | 7   | 8      | 9 |
|-------|-----|-----|-----|---|-----|-----|--------|---|
| INPUT | GND | GND | +VB |   | GND | GND | OUTPUT |   |

0 5 10mm  
scale

## Notes:



## 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  |

# D10040270GTH



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