| Product Specification<br>**R0605300L2**<br><small>Si Reverse, low current, 5 – 65 MHz, 30.0dB typ. Gain @ 65MHz, 140mA max. @ 24VDC</small> | **PDI** |
|---|---|

## FEATURES

- Excellent linearity
- Superior return loss performance
- Extremely low distortion
- Optimal reliability
- Low noise
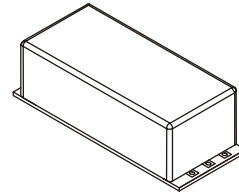- Unconditionally stable under all terminations

## APPLICATION

- 5 to 65 MHz CATV SMD amplifier
  for reverse channel systems

## DESCRIPTION

- Hybrid reverse SMD amplifier employing silicon dice

**R0605300L2**

**Si Reverse Hybrid , low current**
**5 – 65 MHz**
**30.0dB typ. Gain @ 65MHz**
**140mA max. @ 24VDC**

## LIMITING VALUES

In accordance with the Absolute Maximum Rating System (IEC 60134)

| SYMBOL | PARAMETER | MIN. | MAX. | UNIT |
|---|---|---|---|---|
| $V_i$ | RF input voltage (single tone) | - | 65 | dBmV |
| $V_{ov}$ | DC supply over-voltage (5 minutes) | - | 30 | V |
| $T_{stg}$ | storage temperature | - 40 | + 100 | °C |
| $T_{mb}$ | operating mounting base temperature | - 30 | + 100 | °C |

## CHARACTERISTICS

Table 1: S-Parameter, Noise Figure, DC Current; $V_B$ = 24V; $T_{mb}$ = 30°C; $Z_S$ = $Z_L$ = 75 $\Omega$

| SYMBOL | PARAMETER | CONDITIONS | MIN. | TYP. | MAX. | UNIT |
|---|---|---|---|---|---|---|
| $G_p$ | power gain | f = 5 MHz | 29.3 | 30.0 | 30.5 | dB |
|  |  | f = 65 MHz | 29.1 | 30.0 |  | dB |
| SL | slope [1] | f = 5 to 65 MHz | -0.2 | 0.0 | 0.5 | dB |
| FL | flatness of frequency response | f = 5 to 65 MHz | - |  | ± 0.2 | dB |
| $S_{11}$ | input return loss | f = 5 to 65 MHz | 20.0 |  | - | dB |
| $S_{22}$ | output return loss | f = 5 to 65 MHz | 20.0 |  | - | dB |
| F | noise figure | f = 65 MHz | - | 2.3 | 3.0 | dB |
| $I_{tot}$ | total current consumption (DC) |  | 120.0 | 130.0 | 140.0 | mA |

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

## CHARACTERISTICS

Table 2:  Distortion data 5 – 65 MHz; $V_B$ = 24V; $T_{mb}$ = 30°C; $Z_S = Z_L$ = 75 $\Omega$

| SYMBOL | PARAMETER | CONDITION | MIN. | TYP. | MAX. | UNIT |
|--------|-----------|-----------|------|------|------|------|
| CTB | composite triple beat | 7 ch. flat; Vo = 50 dBmV [1] | - | | - 64 | dBc |
| XMOD | cross modulation | 7 ch. flat; Vo = 50 dBmV [1] | - | | - 55 | dB |
| CSO | composite second order distortion | 7 ch. flat; Vo = 50 dBmV [1] | - | | - 68 | dBc |
| $d_2$ | second order distortion | [2] | | | - 70 | dBc |
| STB | third order distortion | [3] | - | | - 66 | dB |

Notes:
1) 7 channels, US frequency raster: T7 – T13 (7.0 to 43.0 MHz), +50 dBmV flat output level.
2) $f_1$ = 7 MHz; $V_1$ = 50 dBmV; $f_2$ = 25 MHz; $V_2$ = 50 dBmV; $f_{TEST} = f_1 + f_2$ = 32 MHz.
3) $f_1$ = 13 MHz; $V_1$ = 50 dBmV; $f_2$ = 25 MHz; $V_2 = V_1$; $f_3$ = 7 MHz; $V_3 = V_1$;
   $f_{TEST} = f1 + f2 - f3$ = 31 MHz.

**Composite Second Order (CSO)**
The CSO parameter (both sum and difference products) is defined by the NCTA.
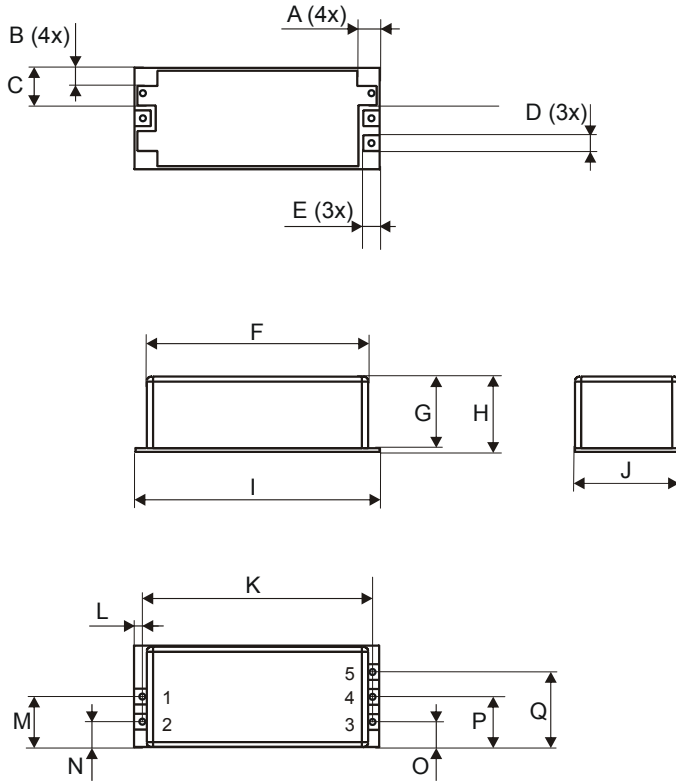
**Composite Triple Beat (CTB)**
The CTB parameter is defined by the NCTA.

**Cross Modulation (XMOD)**
Cross modulation (XMOD) is measured at baseband (selective voltmeter method), referenced to 100% modulation of the carrier being tested.
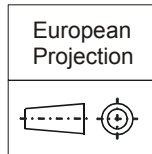
**Product Specification**

# R0605300L2

**Si Reverse, low current, 5 – 65 MHz, 30.0dB typ. Gain @ 65MHz, 140mA max. @ 24VDC**
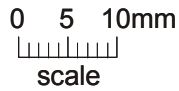
All Dimensions in mm:

|   | nominal | min | max |
|---|---------|-----|-----|
| A | 2,2 ± 0,2 | 2,0 | 2,4 |
| B | 1,9 ± 0,2 | 1,7 | 2,1 |
| C | 3,8 ± 0,2 | 3,6 | 4,0 |
| D | 1,6 ± 0,2 | 1,4 | 1,8 |
| E | 1,7 ± 0,2 | 1,5 | 1,9 |
| F | 22,8 ± 0,2 | 22,6 | 23,0 |
| G | 7,2 ±0,2 | 7,0 | 7,4 |
| H | 7,8 ± 0,2 | 7,6 | 8,0 |
| I | 25,1 ± 0,3 | 24,8 | 25,4 |
| J | 10,5 ± 0,3 | 10,2 | 10,8 |
| K | 21,8 ± 0,2 | 21,6 | 22,0 |
| L | 0,8 ± 0,2 | 0,6 | 1,0 |
| M | 5,1 ± 0,2 | 4,9 | 5,3 |
| N | 2,55 ± 0,2 | 2,35 | 2,75 |
| O | 2,55 ± 0,2 | 2,35 | 2,75 |
| P | 5,1 ± 0,2 | 4,9 | 5,3 |
| Q | 7,65 ± 0,2 | 7,45 | 7,85 |

Notes:

European Projection

Pinning:

| 1 | RF INPUT |
|---|----------|
| 2 | GND |
| 3 | GND |
| 4 | RF OUTPUT |
| 5 | +VB |

0    5    10mm

scale

## DEFINITIONS

| **Data Sheet Status** | |
|---|---|
| Objective Product Specification | This data sheet contains target or goal specifications for product development. |
| Preliminary Product Specification | This data sheet contains preliminary data; supplementary data may be published later. |
| Product Specification | This data sheet contains final product specifications. |
| **Limiting values** | |
| Limiting values given are in accordance with the Absolute Maximum Rating System (IEC 60134). Stress above one or more of the limiting values may cause permanent damage to the device. These are stress ratings only and operation of the device at these or at any other conditions above those given in the Characteristics sections of the specification is not implied. Exposure to limiting values for extended periods may affect device reliability. | |
| **Application information** | |
| Where application information is given, it is advisory and does not form part of the specification. | |

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