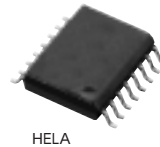


# MONOLITHIC AMPLIFIERS 50 & 75Ω Surface Mount

## High IP3 5 to 1000 MHz



HELA

All specifications at 25°C

| KIT<br>NO. | APPLICATION<br>CIRCUIT | FREQ. (MHz)<br>$f_L - f_U$ | OHMS | GAIN <sup>1</sup> (dB) |      |      |                  | MAXIMUM<br>POWER (dBm)            |                                 |      | DYNAMIC<br>RANGE   |                      | VSWR <sup>2</sup> (:1)<br>Typ. |      | DC<br>POWER  |                 | THERMAL<br>RESIS-<br>TANCE <sup>3</sup><br>θjc<br>°C/W | CASE<br>STYLE<br>Note B | CON-<br>NECT-<br>ION | PRICE<br>\$<br>Qty.<br>(1-9) |
|------------|------------------------|----------------------------|------|------------------------|------|------|------------------|-----------------------------------|---------------------------------|------|--------------------|----------------------|--------------------------------|------|--------------|-----------------|--------------------------------------------------------|-------------------------|----------------------|------------------------------|
|            |                        |                            |      | Min.                   | Typ. | Max. | Typ.<br>Flatness | Output<br>(1 dB<br>Comp.)<br>Typ. | Input<br>(no<br>damage)<br>Min. | Typ. | NF<br>(dB)<br>Typ. | IP3<br>(dBm)<br>Typ. | In                             | Out  | Volt<br>Typ. | Current<br>(mA) |                                                        |                         |                      |                              |
| HELA-10A   | A                      | 50 - 1000                  | 75   | 10                     | 12   | 13   | ±0.4             | 30                                | 26                              | 20   | 3.5                | 47                   | 1.22                           | 1.22 | 12           | 525             | 6                                                      | CM624                   | kl                   | 19.95                        |
| HELA-10B   | B                      | 50 - 1000                  | 50   | 10★                    | 12   | 13   | ±0.4             | 30                                | 26                              | 20   | 3.5                | 47                   | 1.22                           | 1.22 | 12           | 525             | 6                                                      | CM624                   | kl                   | 19.95                        |
| HELA-10C   | C                      | 5 - 450                    | 75   | 9.3                    | 11.4 | 12.5 | ±0.4             | 30                                | 26                              | 20   | 3.5                | 48                   | 1.3                            | 1.22 | 12           | 525             | 6                                                      | CM624                   | kl                   | 19.95                        |
| HELA-10D   | D                      | 8 - 300                    | 50   | 9.3                    | 11.0 | 12.5 | ±0.4             | 30                                | 26                              | 20   | 3.5                | 48                   | 1.2                            | 1.2  | 12           | 525             | 6                                                      | CM624                   | kl                   | 19.95                        |

♦ Kit consists of HELA-10 plus transformers, see table below.

### features

- very high IP3, 49 dBm typ at 150 MHz & 45 dBm typ at 800 MHz
- excellent flatness, ±0.4 dB typ.
- very high IP2, 88 dBm typ.
- low noise figure, 3.5 dB typ.

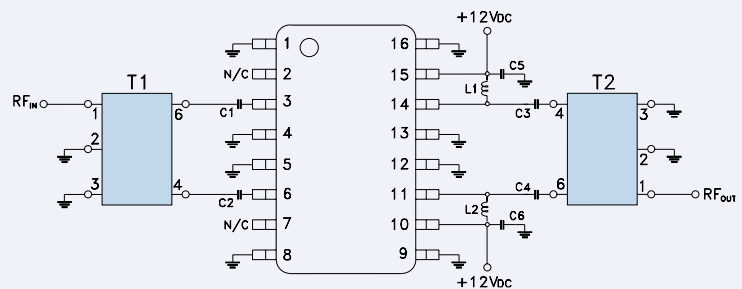
### applications

- cellular
- instrumentation
- CATV

### absolute maximum ratings

heat slug temperature: 110°C max.  
storage temperature: -40°C to 150°  
dc voltage: 13V  
dc power: 7.15W

### Application Schematic Diagram (see table below for values C1 to C6, L1&L2)



| APPLICATION<br>CIRCUIT | T1          | T2          | C1 TO C6 | L1,L2  | PCB<br>LAYOUT | EVALUATION<br>BOARD |
|------------------------|-------------|-------------|----------|--------|---------------|---------------------|
| A                      | ADTL1-18-75 | ADTL1-18-75 | 0.01µF   | 0.75µH | B14-TB-30     | TB-16               |
| B                      | ADTL1-12    | ADTL1-12    | 0.01µF   | 0.75µH | B14-TB-17     | TB-17               |
| C                      | ADT1-1WT    | ADTL1-4-75  | 0.039µF  | 3.3µH  | B14-TB-16     | TB-30               |
| D                      | ADT1.5-1    | ADT1.5-1    | 0.039µF  | 3.3µH  | B14-TB-17     | TB-45               |

### Assembly Guideline

Reflow solder the slug to the ground plane; PC board layouts for 75 ohm (B14-TB-16), (B14-TB-30) and for 50 ohm (B14-TB-17) are available upon request. Please contact Applications Department or consult our website.

### NOTES:

- ♦ Aqueous washable
- † Open load is not recommended, potentially can cause damage. With no load, derate max input power by 20 dB.
- ★ 9.5 dB min., 800-1000 MHz.
- ⊛ Tested with recommended application schematic diagram.
- A. Environmental specifications and re-flow soldering information available in General Information Section.
- B. Units are non-hermetic unless otherwise noted. For details on case dimensions & finishes see "Case Styles & Outline Drawings".
- C. Prices and Specifications subject to change without notice.
- D. For Quality Control Procedures see Table of Contents, Section 0, "Mini-Circuits Guarantees Quality" article. For Environmental Specifications see Amplifier Selection Guide.
- 1. Includes transformer losses at input & output.
- 2. For 75 ohm. For 50 ohm, VSWR increases from 1.2:1 at 1 GHz to 2.0:1 at 500 MHz.
- 3. Thermal resistance is from junction to heat slug.

### pin connections

| PORT     | kl                 |
|----------|--------------------|
| RF IN    | 3,6                |
| RF OUT   | 11,14              |
| DC       | 10,15              |
| GND EXT. | 1,4,5,8,9,12,13,16 |
| NOT USED | 2,7                |

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