

# HIGH PERFORMANCE AMPLIFIERS



## High Performance Amplifiers

Fairchild's High Performance (FHP) amplifiers offer optimal features and performance combinations for multi-market applications. This functionality allows designers the flexibility to choose high performance, low power or the perfect combination of both to optimize their systems: "Less Power, More Performance, More Possibilities."

## High Performance Amplifiers

| Part Number | Number of Amps | Power Down | RRIO   | G=1 BW (MHz) | G=2 BW (MHz) | SR (V/ $\mu$ s) | DG/DP (%/°) | I <sub>s</sub> <sup>1</sup> (mA) | I <sub>out</sub> (mA) | e <sub>n</sub> (nV/ $\sqrt$ Hz) | V <sub>io</sub> (mV) | I <sub>b</sub> ( $\mu$ A) | AOL (dB) | Min V <sub>s</sub> (V) | Max V <sub>s</sub> (V) | Packages          |
|-------------|----------------|------------|--------|--------------|--------------|-----------------|-------------|----------------------------------|-----------------------|---------------------------------|----------------------|---------------------------|----------|------------------------|------------------------|-------------------|
| FHP3140*    | 1              | Yes        | No     | 800          | 700          | 5,500           | 0.01/0.01   | 13.5                             | $\pm$ 100             | 1.5                             | 1                    | 6                         | N/A      | 4.5                    | 12                     | SOT23-6, SOIC-8   |
| FHP3135*    | 1              | Yes        | Output | 500          | 350          | 1,800           | 0.01/0.01   | 4                                | $\pm$ 100             | 5                               | 1                    | 5                         | 60       | 4.5                    | 18                     | SOT23-6           |
| FHP3235*    | 2              | No         | Output | 500          | 350          | 1,800           | 0.01/0.01   | 4                                | $\pm$ 100             | 5                               | 1                    | 5                         | 60       | 4.5                    | 18                     | SOIC-8            |
| FHP3335*    | 3              | Yes        | Output | 500          | 350          | 1,800           | 0.01/0.01   | 4                                | $\pm$ 100             | 5                               | 1                    | 5                         | 60       | 4.5                    | 18                     | TSSOP-14          |
| FHP3350     | 3              | Yes        | No     | N/A          | 210          | 1,100           | 0.07/0.03   | 3.6                              | $\pm$ 55              | 8.5                             | 1                    | 0.05                      | 55       | 3                      | 12                     | TSSOP-14, SOIC-14 |
| FHP3450     | 4              | Yes        | No     | N/A          | 210          | 1,100           | 0.07/0.03   | 3.6                              | $\pm$ 55              | 8.5                             | 1                    | 0.05                      | 55       | 3                      | 12                     | TSSOP-14, SOIC-14 |
| FHP3132     | 1              | No         | Output | N/A          | 85**         | 400             | 0.008/0.01  | 2.5                              | $\pm$ 100             | 17                              | 1                    | -1.8                      | 100      | 2.7                    | 12                     | SOT23-5           |
| FHP3232     | 2              | No         | Output | N/A          | 85**         | 400             | 0.008/0.01  | 2.5                              | $\pm$ 100             | 17                              | 1                    | -1.8                      | 100      | 2.7                    | 12                     | SOIC-8            |
| FHP3130     | 1              | No         | Output | 170          | 50           | 110             | 0.008/0.01  | 2.5                              | $\pm$ 100             | 17                              | 1                    | -1.8                      | 100      | 2.7                    | 12                     | SOT23-5, SOIC-8   |
| FHP3230     | 2              | No         | Output | 170          | 50           | 110             | 0.008/0.01  | 2.5                              | $\pm$ 100             | 17                              | 1                    | -1.8                      | 100      | 2.7                    | 12                     | MSOP-8, SOIC-8    |
| FHP3430     | 4              | No         | Output | 170          | 50           | 110             | 0.008/0.01  | 2.5                              | $\pm$ 100             | 17                              | 1                    | -1.8                      | 100      | 2.7                    | 12                     | TSSOP-14, SOIC-14 |
| FHP3131     | 1              | Yes        | Output | 70           | 28           | 50              | 0.04/0.13   | 0.4                              | +30, -18              | 12                              | 1                    | 1.4                       | 95       | 2.5                    | 12                     | SOT23-6, uPAK-6   |
| FAN4174     | 1              | No         | Both   | 3.7          | 2.3          | 3               | N/A         | 0.2                              | +34, -12              | 25                              | 0                    | 5pA                       | 102      | 2.5                    | 5.5                    | SC70-5, SOT23-5   |
| FAN4274     | 2              | No         | Both   | 3.7          | 2.3          | 3               | N/A         | 0.2                              | +34, -12              | 25                              | 0                    | 5pA                       | 102      | 2.5                    | 5.5                    |                   |
| FHP3173*    | 1              | No         | No     | 2.4          | 0.85         | 1.5             | N/A         | 3.3                              | $\pm$ 100             | 26                              | 0.5                  | 0.9                       | 95       | 4.5                    | 18                     | SOT23-5           |
| FHP3273*    | 2              | No         | No     | 2.4          | 0.85         | 1.5             | N/A         | 3.3                              | $\pm$ 100             | 26                              | 0.5                  | 0.9                       | 95       | 4.5                    | 18                     | SOIC-8            |
| FHP3175*    | 1              | Yes        | Both   | 30           | 15           | 15              | N/A         | 0.5                              | $\pm$ 250             | 10                              | 0.6                  | 0.5                       | 100      | 4.5                    | 18                     | SC70-6            |
| FHP3275*    | 2              | No         | Both   | 30           | 15           | 15              | N/A         | 0.5                              | $\pm$ 250             | 10                              | 0.6                  | 0.5                       | 100      | 4.5                    | 18                     | SOIC-8            |
| FHP3475*    | 4              | No         | Both   | 30           | 15           | 15              | N/A         | 0.5                              | $\pm$ 250             | 10                              | 0.6                  | 0.5                       | 100      | 4.5                    | 18                     | TSSOP-14          |

\*\*G=5BW

## High Performance Multiplexers

| Part Number | Number of Channels | Type | Power Down | G=1 (MHz) | G=2 (MHz) | SR (V/ $\mu$ s) | DG/DP (%/°) | I <sub>s</sub> <sup>1</sup> (mA) | I <sub>out</sub> (mA) | Switching Time (ns) | CH-to-CH Isolation (dB) | Min V <sub>s</sub> (V) | Max V <sub>s</sub> (V) | Packages          |
|-------------|--------------------|------|------------|-----------|-----------|-----------------|-------------|----------------------------------|-----------------------|---------------------|-------------------------|------------------------|------------------------|-------------------|
| FHP3194     | 1                  | 4:1  | Yes        | 1200      | 800       | 2200            | 0.02/0.05   | 13                               | $\pm$ 75              | 25                  | -70                     | 5                      | 12                     | SOIC-14, TSSOP-14 |
| FHP3391*    | 3                  | 2:1  | Yes        | 380       | N/A       | 1600            | 0.02/0.03   | 25                               | $\pm$ 60              | 9                   | -70                     | $\pm$ 2.5              | $\pm$ 6                | TSSOP-24          |
| FHP3392*    | 3                  | 2:1  | Yes        | N/A       | 380       | 1600            | 0.02/0.03   | 25                               | $\pm$ 60              | 9                   | -70                     | $\pm$ 2.5              | $\pm$ 6                | TSSOP-24          |
| FHP3393*    | 3                  | 2:1  | Yes        | 380       | N/A       | 1600            | 0.02/0.03   | 25                               | $\pm$ 60              | 9                   | -70                     | 4.5                    | 12                     | TSSOP-24          |
| FHP3394*    | 3                  | 2:1  | Yes        | N/A       | 380       | 1600            | 0.02/0.03   | 25                               | $\pm$ 60              | 9                   | -70                     | 4.5                    | 12                     | TSSOP-24          |

## Programmable/Fixed Gain High Performance Amplifiers

| Part Number | Description                                  | No. of Amps | Power Down | Gain (dB) | Typical     |                 |             |                                  | Min V <sub>s</sub> (V) | Max V <sub>s</sub> (V) | Packages            |
|-------------|--|-------------|------------|-----------|-------------|-----------------|-------------|----------------------------------|------------------------|------------------------|---------------------|
|             |  |             |            |           | G=2BW (MHz) | SR (V/ $\mu$ s) | DG/DP (%/°) | I <sub>s</sub> <sup>1</sup> (mA) |                        |                        |                     |
| FHP3182*    | 6dB video buffer with sync-tip clamp and SAG | 1           | Yes        | 6         | 16          | 50              | 0.5/0.5     | 1                                | 2.5                    | 12                     | SOT23-6, MicroPak-6 |

## Current Sense Amplifiers

| Part Number | Description                                   | V <sub>IN</sub> | Accuracy @ V <sub>sense</sub> | I <sub>s</sub> | Gain I <sub>OUT</sub> / V <sub>sense</sub> | BW   |
|-------------|---|-----------------|-------------------------------|----------------|--|------|
| FAN4010*    | Low cost, accurate, high-side current sensing | 2 to 6V         | 0.2% @ 200mV                  | 3.5mA          | 10mA/V                                     | 2MHz |

\* In development

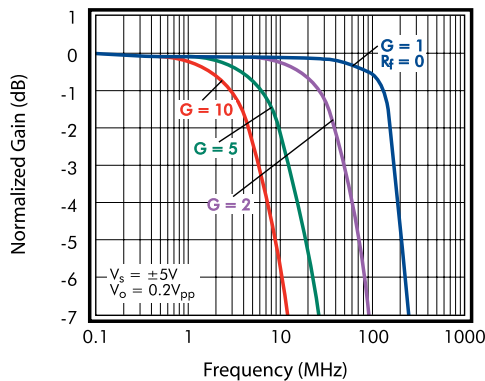
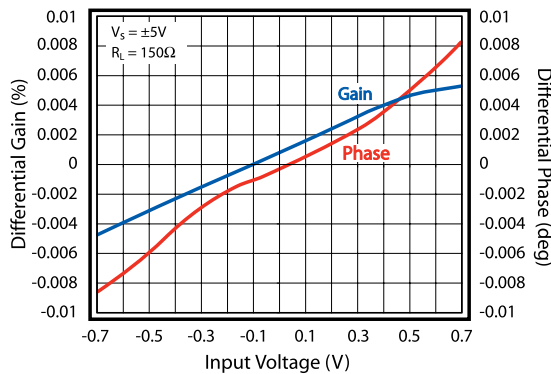
## FHP3230—Dual High Speed, 2.7V to 12V, Rail-to-Rail Amplifier

### Features & Benefits:

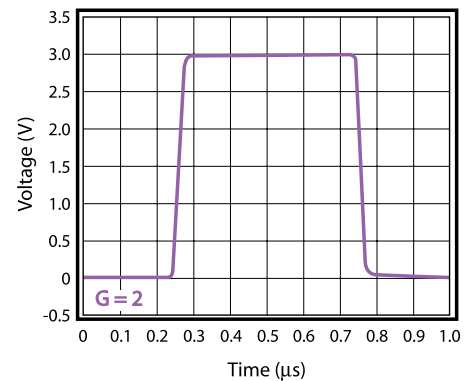
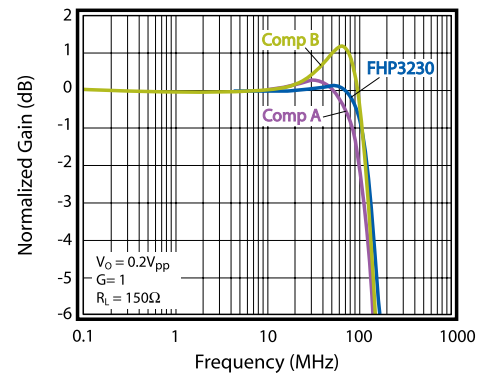
- 2.5mA supply current per amplifier
- 110V/ $\mu$ s slew rate
- $\pm 100$ mA output current
- Input includes negative rail
- 0.008%/0.01° differential gain/phase
- 30MHz full power bandwidth
- 16MHz 0.1dB bandwidth
- >100dB PSRR, CMRR, & Open Loop Gain



### Excellent AC Performance



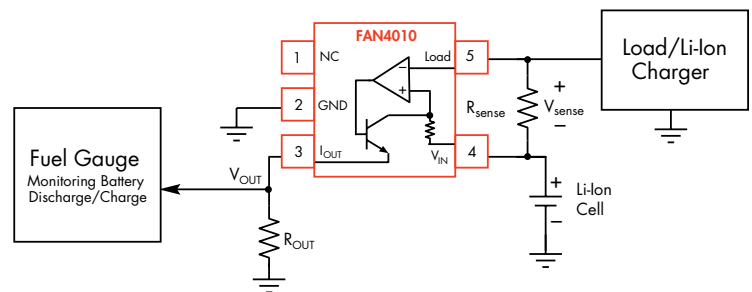
### Maximum Flatness with Superior Competitive Performance



## FAN4010—High-Side Current Sensor

### Features & Benefits:

- Up to 2.5V sense voltage
- 2V to 6V supply range
- 2 $\mu$ A typical offset current
- 3.5 $\mu$ A quiescent current
- -0.2% accuracy



## FHP3194—4:1 High Speed Multiplexer

### Features & Benefits:

- 0.1dB gain flatness to 90MHz at 2Vpp
- 500MHz large signal -3dB bandwidth at  $G = 2$
- 2200V/ $\mu$ s slew rate
- Shutdown and disable modes to minimize power consumption

