

 **This product is RoHS compliant.**  
**INGENIUS® BALANCED LINE RECEIVERS**

The 1200-series balanced line receivers overcome a serious limitation of conventional balanced input stages: poor common mode rejection. While conventional input stages measure well in the lab and perform well on paper, they fail to live up to their CMRR specs when fed from even slightly unbalanced source impedances — a common situation in pro sound environments. This is because conventional stages have low common-mode input impedance, which interacts with imbalances in source impedance to unbalance common-mode signals, making them indistinguishable from desired, balanced signals.

**For quantities of 250 and up, call for quote.**

| MOUSER STOCK NO. | THAT Part No. | Package | No. of Channels | Supply Voltage (Max.) | Common Mode Rejection Ratio (Mn) | Available Set Gain | Bandwidth (MHz) | Slew Rate (Min.) | THD+ Noise | Fully Differential | Price Each |      |      |
|------------------|---------------|---------|-----------------|-----------------------|----------------------------------|--------------------|-----------------|------------------|------------|--------------------|------------|------|------|
|                  |               |         |                 |                       |                                  |                    |                 |                  |            |                    | 1          | 25   | 100  |
| 887-1200P08-U    | 1200P08-U     | DIP 8   | 1               | ±18V                  | 70dB                             | 0dB                | 22              | 7 V/us           | 0.0005%    | Yes                | 5.55       | 4.66 | 4.22 |
| 887-1203P08-U    | 1203P08-U     | DIP 8   | 1               | ±18V                  | 70dB                             | -3dB               | 27              | 7 V/us           | 0.0005%    | Yes                | 5.55       | 4.66 | 4.22 |
| 887-1206P08-U    | 1206P08-U     | DIP 8   | 1               | ±18V                  | 70dB                             | -6dB               | 34              | 7 V/us           | 0.0005%    | Yes                | 5.55       | 4.66 | 4.22 |
| 887-1200S08-U    | 1200S08-U     | SOIC 8  | 1               | ±18V                  | 70dB                             | 0dB                | 22              | 7 V/us           | 0.0005%    | Yes                | 5.65       | -    | 4.29 |
| 887-1203S08-U    | 1203S08-U     | SOIC 8  | 1               | ±18V                  | 70dB                             | -3dB               | 27              | 7 V/us           | 0.0005%    | Yes                | 5.65       | -    | 4.29 |
| 887-1206S08-U    | 1206S08-U     | SOIC 8  | 1               | ±18V                  | 70dB                             | -6dB               | 34              | 7 V/us           | 0.0005%    | Yes                | 5.65       | -    | 4.29 |

## BALANCED LINE RECEIVERS

THAT Corporation offers a family of self-contained differential amplifiers preconfigured for gains of 0, ±3, and ±6dB, intended primarily for use as audio balanced line receivers. These parts offer great audio performance with decent common-mode rejection, at a price that makes them an attractive, space-saving alternative to conventional op-amps.

**For quantities of 250 and up, call for quote.**

| MOUSER STOCK NO. | THAT Part No. | Package | No. of Channels | Supply Voltage (Max.) | Input Bias Current (Max.) | Available Set Gain | Bandwidth (MHz) | Slew Rate (Min.) | THD+ Noise (dB gain) | Fully Differential | Price Each |      |      |
|------------------|---------------|---------|-----------------|-----------------------|---------------------------|--------------------|-----------------|------------------|----------------------|--------------------|------------|------|------|
|                  |               |         |                 |                       |                           |                    |                 |                  |                      |                    | 1          | 25   | 100  |
| 887-1240P08-U    | 1240P08-U     | DIP 8   | 1               | ±18V                  | 70dB                      | 0dB                | 8               | 7 V/us           | 0.0006%              | Yes                | 3.15       | 2.84 | 2.39 |
| 887-1243P08-U    | 1243P08-U     | DIP 8   | 1               | ±18V                  | 70dB                      | ±3dB               | 12.2            | 7 V/us           | 0.0006%              | Yes                | 3.47       | 2.84 | 2.39 |
| 887-1246P08-U    | 1246P08-U     | DIP 8   | 1               | ±18V                  | 70dB                      | ±6dB               | 18              | 7 V/us           | 0.0006%              | Yes                | 3.47       | 2.84 | 2.39 |
| 887-1240S08-U    | 1240S08-U     | SOIC 8  | 1               | ±18V                  | 70dB                      | 0dB                | 8               | 7 V/us           | 0.0006%              | Yes                | 2.88       | -    | 2.37 |
| 887-1243S08-U    | 1243S08-U     | SOIC 8  | 1               | ±18V                  | 70dB                      | ±3dB               | 12.2            | 7 V/us           | 0.0006%              | Yes                | 3.52       | -    | 2.43 |
| 887-1246S08-U    | 1246S08-U     | SOIC 8  | 1               | ±18V                  | 70dB                      | ±6dB               | 18              | 7 V/us           | 0.0006%              | Yes                | 3.52       | -    | 2.43 |
| 887-1250P08-U    | 1250P08-U     | DIP 8   | 1               | ±18V                  | 40dB                      | 0dB                | 22              | 7 V/us           | 0.0006%              | Yes                | 1.05       | .86  | .80  |
| 887-1253P08-U    | 1253P08-U     | DIP 8   | 1               | ±18V                  | 40dB                      | ±3dB               | 22              | 7 V/us           | 0.0006%              | Yes                | 1.05       | .86  | .80  |
| 887-1256P08-U    | 1256P08-U     | DIP 8   | 1               | ±18V                  | 40dB                      | ±6dB               | 22              | 7 V/us           | 0.0006%              | Yes                | 1.05       | .86  | .80  |
| 887-1250S08-U    | 1250S08-U     | SOIC 8  | 1               | ±18V                  | 40dB                      | 0dB                | 22              | 7 V/us           | 0.0006%              | Yes                | 1.09       | .89  | .83  |
| 887-1253S08-U    | 1253S08-U     | SOIC 8  | 1               | ±18V                  | 40dB                      | ±3dB               | 22              | 7 V/us           | 0.0006%              | Yes                | 1.09       | .89  | .83  |
| 887-1256S08-U    | 1256S08-U     | SOIC 8  | 1               | ±18V                  | 40dB                      | ±6dB               | 22              | 7 V/us           | 0.0006%              | Yes                | 1.09       | .89  | .83  |
| 887-1280S14-U    | 1280S14-U     | SOIC 14 | 2               | ±18V                  | 85dB                      | -                  | 7.6             | 15 V/us          | 0.0006%              | Yes                | 3.90       | 3.12 | 2.81 |
| 887-1283S14-U    | 1283S14-U     | SOIC 14 | 2               | ±18V                  | 85dB                      | -                  | 7.6             | 15 V/us          | 0.0006%              | Yes                | 3.90       | 3.12 | 2.81 |
| 887-1286S14-U    | 1286S14-U     | SOIC 14 | 2               | ±18V                  | 85dB                      | -                  | 7.6             | 15 V/us          | 0.0006%              | Yes                | 3.90       | 3.12 | 2.81 |
| 887-1290Q16-U    | 1290Q16-U     | QSOP 16 | 2               | ±18V                  | 40dB                      | 0dB                | 7.6             | 14 V/us          | 0.0006%              | Yes                | 1.98       | -    | 1.42 |
| 887-1293Q16-U    | 1293Q16-U     | QSOP 16 | 2               | ±18V                  | 40dB                      | ±3dB               | 9.6             | 14 V/us          | 0.0006%              | Yes                | 1.98       | -    | 1.42 |
| 887-1296Q16-U    | 1296Q16-U     | QSOP 16 | 2               | ±18V                  | 40dB                      | ±6dB               | 11.6            | 14 V/us          | 0.0006%              | Yes                | 1.98       | -    | 1.42 |

## AUDIO AMPLIFIERS

The THAT 1510 and 1512 are high performance audio preamplifiers suitable for microphone preamp and bus summing applications. Gain is adjustable via one external resistor, making it possible to control gain over a wide range with a single-gang potentiometer.

**For quantities of 250 and up, call for quote.**

| MOUSER STOCK NO. | THAT Part No. | Package | No. of Channels | Supply Voltage (Max.) | Input Bias Current (Max.) | Available Set Gain | Bandwidth (MHz) | Slew Rate (Min.) | THD+ Noise (dB gain) | Fully Differential | Price Each |      |      |
|------------------|---------------|---------|-----------------|-----------------------|---------------------------|--------------------|-----------------|------------------|----------------------|--------------------|------------|------|------|
|                  |               |         |                 |                       |                           |                    |                 |                  |                      |                    | 1          | 25   | 100  |
| 887-1510P08-U    | 1510P08-U     | DIP 8   | 1               | ±20V                  | 14uA                      | 0-70dB             | >3              | 13 V/us          | 0.0005%              | Yes                | 4.03       | 3.38 | 3.06 |
| 887-1510S08-U    | 1510S08-U     | SOIC 8  | 1               | ±20V                  | 14uA                      | 0-70dB             | >3              | 13 V/us          | 0.0005%              | Yes                | 4.03       | -    | 3.06 |
| 887-1510S14-U    | 1510S14-U     | SOIC 14 | 1               | ±20V                  | 14uA                      | 0-70dB             | >3              | 13 V/us          | 0.0005%              | Yes                | 4.28       | -    | 3.25 |
| 887-1512P08-U    | 1512P08-U     | DIP 8   | 1               | ±20V                  | 14uA                      | 0-70dB             | >1.6            | 13 V/us          | 0.0010%              | Yes                | 5.31       | 4.34 | 3.86 |
| 887-1512S08-U    | 1512S08-U     | SOIC 8  | 1               | ±20V                  | 14uA                      | 0-70dB             | >1.6            | 13 V/us          | 0.0010%              | Yes                | 5.31       | 4.34 | 3.86 |
| 887-1512S14-U    | 1512S14-U     | SOIC 14 | 1               | ±20V                  | 14uA                      | 0-70dB             | >1.6            | 13 V/us          | 0.0010%              | Yes                | 5.47       | 4.48 | 3.98 |

## BLACKMER® VOLTAGE CONTROLLED AMPLIFIERS

THAT Corporation Blackmer VCAs are characterized by an exponential control characteristic (gain varies directly in decibels -- dBs -- with control voltage), extremely wide dynamic range, and low signal distortion. Our latest designs are particularly neutral in sound, imparting little or no coloration to audio signals in and of themselves.

**For quantities of 250 and up, call for quote.**

| MOUSER STOCK NO. | THAT Part No. | Package | No. of Channels | Supply Voltage (Max.) | Supply Current Total (Max) | Input Bias Current | Available Set Gain | Slew Rate (Min.) | THD+ Noise | Price Each |      |      |
|------------------|---------------|---------|-----------------|-----------------------|----------------------------|--------------------|--------------------|------------------|------------|------------|------|------|
|                  |               |         |                 |                       |                            |                    |                    |                  |            | 1          | 25   | 100  |
| 887-2180AL08-U   | 2180AL08-U    | SIP 8   | 1               | ±18V                  | 4mA                        | 10mA               | -100-30dB          | 12 V/us          | 0.005      | 8.48       | 7.12 | 6.44 |
| 887-2180BL08-U   | 2180BL08-U    | SIP 8   | 1               | ±18V                  | 4mA                        | 12mA               | -100-30dB          | 12 V/us          | 0.008      | 5.55       | 4.66 | 4.22 |
| 887-2180CL08-U   | 2180CL08-U    | SIP 8   | 1               | ±18V                  | 4mA                        | 15mA               | -100-30dB          | 12 V/us          | 0.2        | 4.55       | 3.82 | 3.46 |
| 887-2181AL08-U   | 2181AL08-U    | SIP 8   | 1               | ±18V                  | 4mA                        | 10mA               | -100-30dB          | 12 V/us          | -          | 8.23       | 6.91 | 6.25 |
| 887-2181BL08-U   | 2181BL08-U    | SIP 8   | 1               | ±18V                  | 4mA                        | 12mA               | -100-30dB          | 12 V/us          | -          | 5.18       | 4.35 | 3.93 |
| 887-2181CL08-U   | 2181CL08-U    | SIP 8   | 1               | ±18V                  | 4mA                        | 15mA               | -100-30dB          | 12 V/us          | -          | 4.28       | 3.59 | 3.25 |
| 887-2181AS08-U   | 2181AS08-U    | SOIC 8  | 1               | ±18V                  | 4mA                        | 10mA               | -100-30dB          | 12 V/us          | 0.005      | 9.53       | 8.00 | 7.24 |
| 887-2181BS08-U   | 2181BS08-U    | SOIC 8  | 1               | ±18V                  | 4mA                        | 12mA               | -100-30dB          | 12 V/us          | 0.008      | 6.05       | 5.08 | 4.60 |
| 887-2181CS08-U   | 2181CS08-U    | SOIC 8  | 1               | ±18V                  | 4mA                        | 15mA               | -100-30dB          | 12 V/us          | 0.2        | 5.18       | 4.35 | 3.93 |
| 887-2162Q16-U    | 2162Q16-U     | QSOP 16 | 2               | ±16V                  | 7mA                        | -                  | -70-60dB           | 6.5 V/us         | 0.04       | 5.85       | -    | 4.12 |

## MATCHED TRANSISTOR ARRAYS

The THAT 300 series are large-geometry, 4-transistor, monolithic NPN and/or PNP arrays exhibiting both high speed and low noise, with excellent parameter matching between transistors of the same gender. With typical base-spreading resistances of 250ohms for the PNP devices (30 ohms for the NPNs), their low voltage noise of under 1 nV/Hz<sup>1/2</sup>, the 300 series are ideally suited for low-noise amplifier input stages.

**For quantities of 250 and up, call for quote.**

| MOUSER STOCK NO. | THAT Part No. | Package | No. of Channels | Supply Voltage (Max.) | Offset Voltage (Max) | Output Current (Typ) | Bandwidth  | Supply Current Total | Price Each |      |      |
|------------------|---------------|---------|-----------------|-----------------------|----------------------|----------------------|------------|----------------------|------------|------|------|
|                  |               |         |                 |                       |                      |                      |            |                      | 1          | 25   | 100  |
| 887-300P14-U     | 300P14-U      | DIP 14  | 1               | 0-36V                 | ±3mV                 | 10mA                 | >300MHz ft | 10mA                 | 6.40       | 5.38 | 4.86 |
| 887-320P14-U     | 320P14-U      | DIP 14  | 1               | 0-36V                 | ±3mV                 | 10mA                 | >300MHz ft | 10mA                 | 6.40       | 5.38 | 4.86 |
| 887-340P14-U     | 340P14-U      | DIP 14  | 1               | 0-36V                 | ±3mV                 | 10mA                 | >300MHz ft | 10mA                 | 6.40       | 5.38 | 4.86 |
| 887-300S14-U     | 300S14-U      | SOIC 14 | 1               | 0-36V                 | ±3mV                 | 10mA                 | >300MHz ft | 10mA                 | 6.28       | 5.27 | 4.77 |
| 887-320S14-U     | 320S14-U      | SOIC 14 | 1               | 0-36V                 | ±3mV                 | 10mA                 | >300MHz ft | 10mA                 | 6.28       | 5.27 | 4.77 |
| 887-340S14-U     | 340S14-U      | SOIC 14 | 1               | 0-36V                 | ±3mV                 | 10mA                 | >300MHz ft | 10mA                 | 6.28       | 5.27 | 4.77 |

## OUTSMARTS™ BALANCED LINE DRIVERS

The THAT 1606 and 1646 are a new generation of monolithic audio differential line drivers offering improved performance over conventional cross-coupled designs. Based on a high-performance, fully differential opamp and laser-trimmed thin-film resistors, both families exhibit low noise and distortion, high slew rate, and wide output swing. The parts are stable when driving difficult loads, and have short-circuit protected outputs.

**For quantities of 250 and up, call for quote.**

| MOUSER STOCK NO. | THAT Part No. | Package | No. of Channels | Supply Voltage (Max.) | Output Common Mode Rejection | Available Set Gain | Bandwidth | Slew Rate (Mn) | THD+ Noise | Fully Differential Input | Price Each |      |      |
|------------------|---------------|---------|-----------------|-----------------------|------------------------------|--------------------|-----------|----------------|------------|--------------------------|------------|------|------|
|                  |               |         |                 |                       |                              |                    |           |                |            |                          | 1          | 25   | 100  |
| 887-1646P08-U    | 1646P08-U     | DIP 8   | 1               | ±18V                  | 46db                         | 5.80-6.20 db       | 10MHz typ | 15 V/us typ    | 0.0007%    | No                       | 4.43       | 3.72 | 3.19 |
| 887-1646S08-U    | 1646S08-U     | SOIC 8  | 1               | ±18V                  | 46db                         | 5.80-6.20 db       | 10MHz typ | 15 V/us typ    | 0.0007%    | No                       | 4.43       | 3.72 | 3.19 |
| 887-1606Q16-U    | 1606Q16-U     | QSOP 16 | 1               | ±18V                  | 46db                         | 5.80-6.20 db       | 10MHz typ | 15 V/us typ    | 0.0007%    | Yes                      | 4.65       | 3.91 | 3.35 |

## ANALOG ENGINE® DYNAMICS PROCESSORS

These single-chip audio dynamics processors combine all the active circuitry needed to construct a wide range of dynamics processors. The 43xx series includes a high-performance, exponentially-controlled Blackmer® VCA and a log-responding rms-level sensor. The 4301 and 4320 include three general-purpose opamps allowing more complex signal processing.

**For quantities of 250 and up, call for quote.**

| MOUSER STOCK NO. | THAT Part No. | Package | Supply Voltage (Max.) | Supply Type | Supply Current | OPamps Included | VCA THD | Adjust Symmetry | VCA Control Pods | VCA Gain Range | Price Each |      |      |
|------------------|---------------|---------|-----------------------|-------------|----------------|-----------------|---------|-----------------|------------------|----------------|------------|------|------|
|                  |               |         |                       |             |                |                 |         |                 |                  |                | 1          | 25   | 100  |
| 887-4301AP20-I   | 4301AP20-I    | DIP 20  | ±7 ~ ±15              | Dual        | ~12mA          | Yes             | <0.03%  | Yes             | 2 (±)            | -100 ~ +40     | 10.98      | 9.22 | 8.34 |
| 887-4301M30-I    | 4301M30-I     | DMP 30  | ±7 ~ ±15              | Dual        | ~12mA          | Yes             | <0.03%  | Yes             | 2 (±)            | -100 ~ +40     | 9.28       | 7.79 | 7.05 |
| 887-4301P20-I    | 4301P20-I     | DIP 20  | ±7 ~ ±15              | Dual        | ~12mA          | Yes             | <0.03%  | Yes             | 2 (±)            | -100 ~ +40     | 8.48       | 7.12 | 6.44 |
| 887-4305Q16-U    | 4305Q16-U     | QSOP 16 | 4.5 ~ 16              | Dual        | 3.5mA          | No              | ~0.07%  | No              | 2 (±)            | ±60            | 4.90       | 4.12 | 3.72 |
| 887-4315Q16-U    | 4315Q16-U     | QSOP 16 | 4.5 ~ 16              | Single      | 1.6mA          | No              | ~0.07%  | No              | 2 (±)            | ±60            | 4.20       | 3.53 | 3.19 |
| 887-4320Q28-U    | 4320Q28-U     | QSOP 28 | 4.5 ~ 16              | Single      | 3.7mA          | Yes             | ~0.05%  | No              | 1 (+)            | -100 ~ +40     | 10.63      | 8.93 | 8.08 |