



## MIC38300 Evaluation Board

### 3A HELDO™ High Efficiency Low Dropout Regulator

## General Description

The MIC38300 is a 3A peak, 2.2A continuous current step down converter and the first device in a new generation of HELDO™ (High Efficiency Low Dropout) regulators providing the benefits of LDOs in respect to ease of use, fast transient performance, high PSRR and low noise while offering the efficiency of a switching regulator.

### Requirements

The MIC38300 Evaluation board requires an input power supply able to provide greater than 3A at 3V.

### Precautions

The evaluation board does not have reverse polarity protection. Applying a negative voltage to the  $V_{IN}$  (J1) terminal may damage the device.

The MIC38300 evaluation board is tailored for a low voltage input supply range. It should not exceed 5.5V on the input.

## Getting Started

Connect an external supply to  $V_{IN}$ . Apply desired input voltage to the  $V_{IN}$  (J1) and ground (J2 and J6) terminals of the evaluation board, paying careful attention to polarity and supply voltage ( $3.0V \leq V_{IN} \leq 5.5V$ ). An ammeter may be placed between the input supply and the  $V_{IN}$  terminal to the evaluation board. Ensure that the supply voltage is monitored at the  $V_{IN}$  terminal. The ammeter and/or power lead resistance can reduce the voltage supplied to the input.

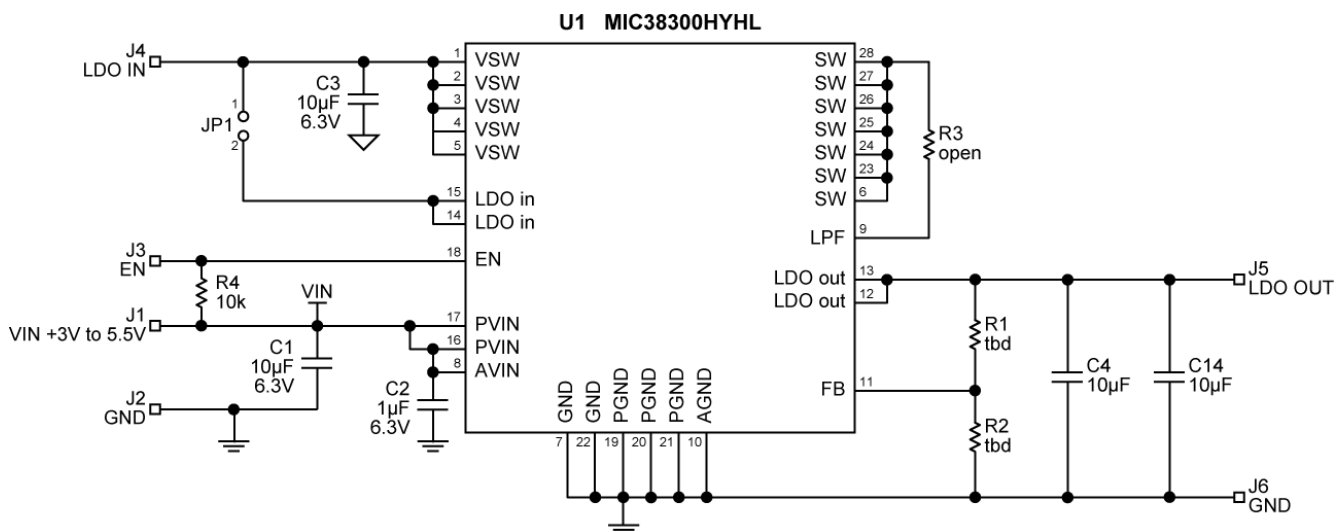
## Revisions

There are two revisions of the MIC38300 Evaluation Board. The new, second revision, of the MIC38300 evaluation board has the label "BD#070507" on the lower left hand corner of the back side. The first revision has the label "040507 MAJ" located at the same corner.

## Ordering Information

| Part Number     | Description                                           |
|-----------------|-------------------------------------------------------|
| MIC38300HYHL EV | Evaluation board with MIC38300HYHL adjustable device. |

## Evaluation Board Schematic Revision 2 (BD#070507)



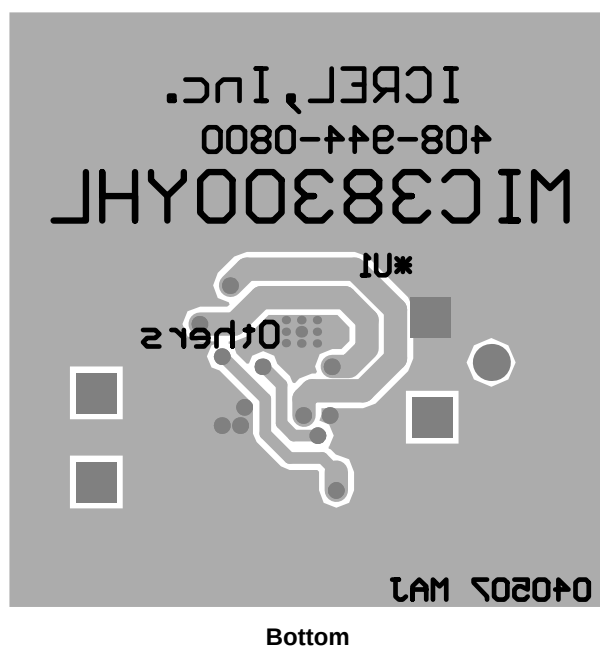
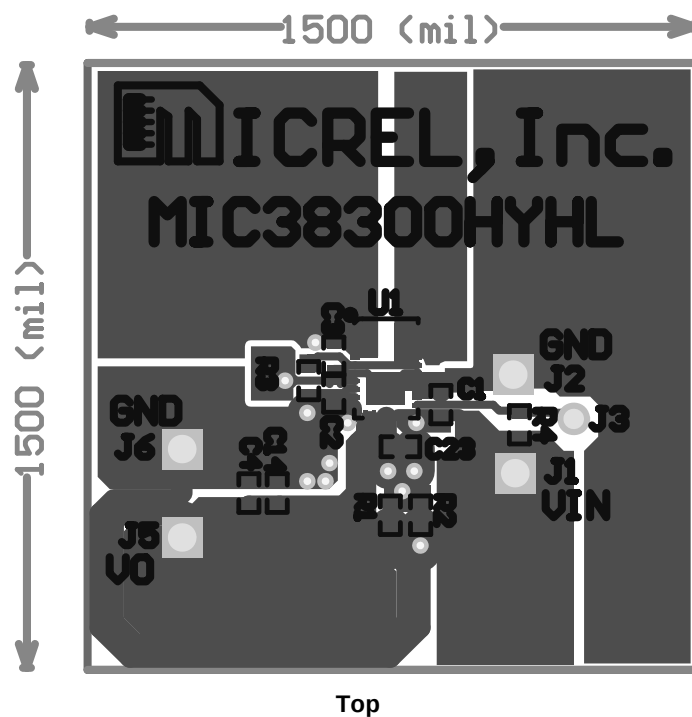
**Bill of Materials Revision 2 (BD#070507)**

| Item                    | Part Number          | Manufacturer                      | Description                             | Qty.     |
|-------------------------|----------------------|-----------------------------------|-----------------------------------------|----------|
| C1, C3, C4,<br>C14, C23 | 06036D106KMAT2A      | AVX <sup>(1)</sup>                | 10uF, 6.3V X5R Ceramic Capacitor        | 1        |
|                         | JMK107BJ106MA-T      | Taiyo Yuden <sup>(5)</sup>        |                                         |          |
|                         | C1608X5R0J106K       | TDK <sup>(3)</sup>                |                                         |          |
|                         | GRM188R60J106M       | Murata <sup>(2)</sup>             |                                         |          |
| C2                      | C1608X5R0J105K       | TDK <sup>(3)</sup>                | 10uF, 6.3V X5R Ceramic Capacitor        | 1        |
|                         | 06036D105KAT2A       | AVX <sup>(1)</sup>                |                                         |          |
|                         | GRM188R60J105KE19D   | Murata <sup>(2)</sup>             |                                         |          |
|                         | VJ0603G105KXYAT      | Vishay <sup>(4)</sup>             |                                         |          |
| R1                      | CRCW06038061FRT1     | Vishay <sup>(4)</sup>             | 8k, 1%, 1/10W, 0603                     | 1        |
| R2, R4                  | CRCW06031002KEYE3    | Vishay <sup>(4)</sup>             | 10k, 1%, 1/10W, 0603                    | 2        |
| R3                      | CRCW06032492FRT1     | Vishay <sup>(4)</sup>             | 24.9k, 1%, 1/10W, 0603                  | 1        |
| <b>U1</b>               | <b>MIC38300-HYHL</b> | <b>Micrel, Inc.<sup>(6)</sup></b> | <b>28-Pin 4mm x 6mm MLF<sup>®</sup></b> | <b>1</b> |

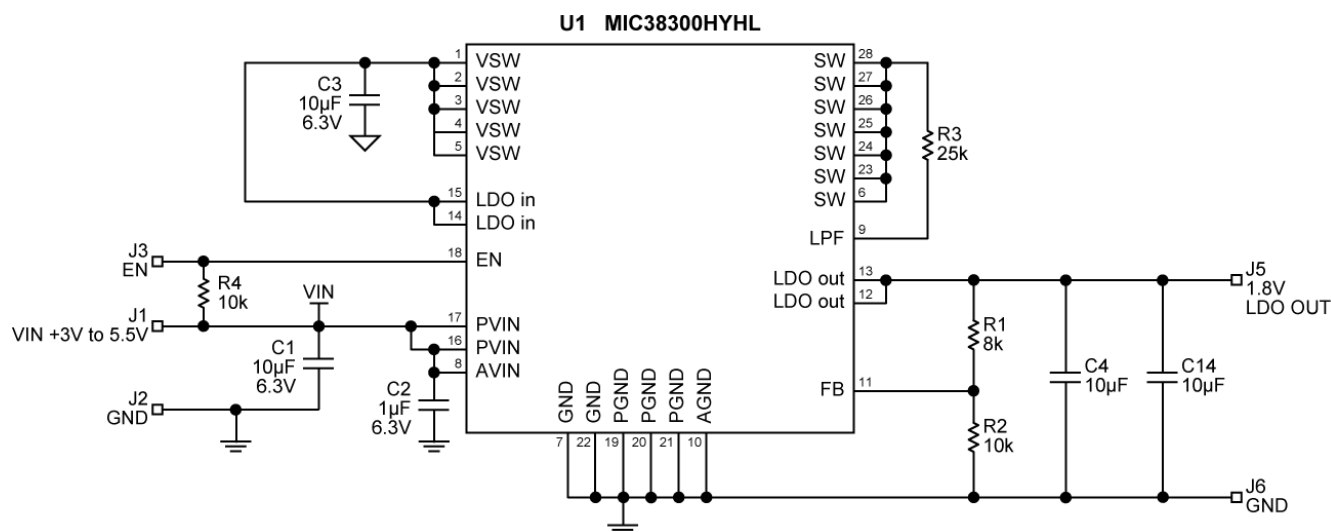
**Notes:**

1. AVX: [www.avx.com](http://www.avx.com)
2. Murata: [www.murata.com](http://www.murata.com)
3. TDK: [www.tdk.com](http://www.tdk.com)
4. Vishay: [www.vishay.com](http://www.vishay.com)
5. Taiyo Yuden: [www.t-yuden.com](http://www.t-yuden.com)
6. Micrel, Inc.: [www.micrel.com](http://www.micrel.com)

## PCB Layout Revision 2 (BD#070507)



## Evaluation Board Revision 1 (040507 MAJ) Schematic

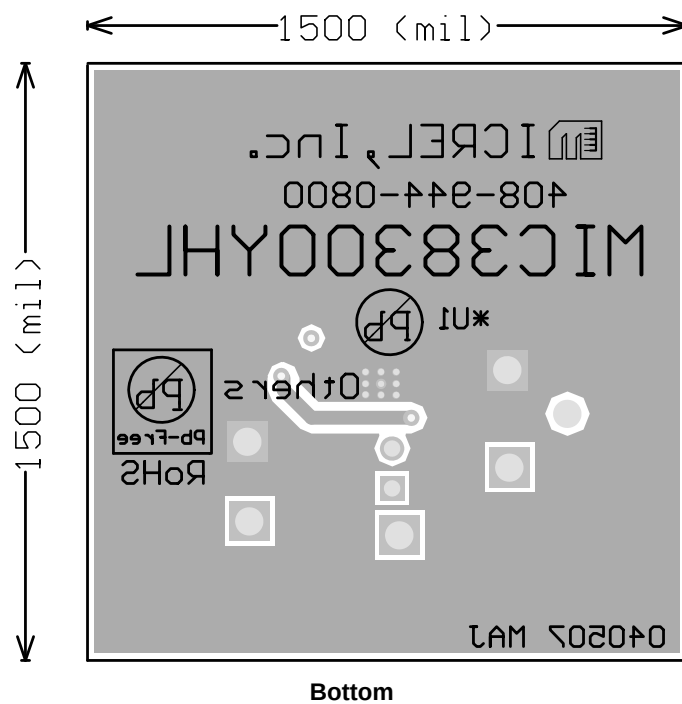
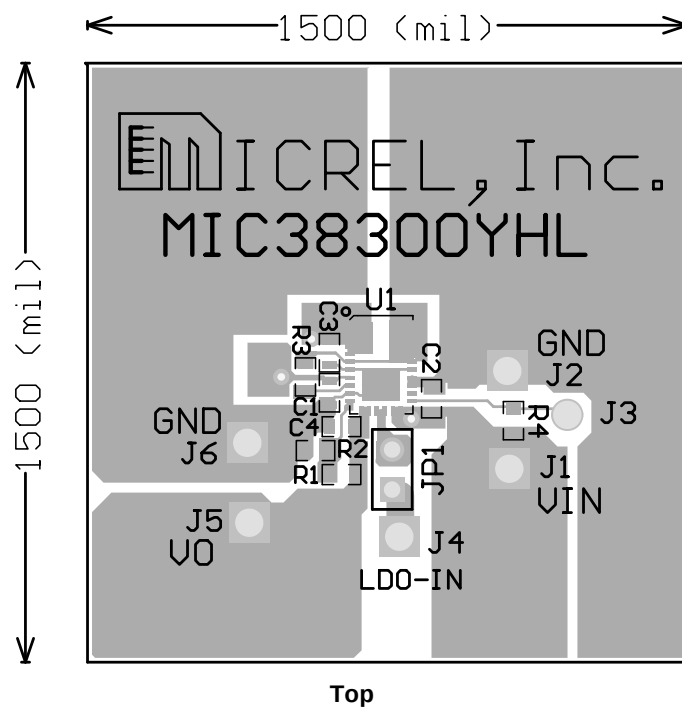


## Bill of Materials Revision 1 (040507 MAJ)

| Item       | Part Number        | Manufacturer                | Description                       | Qty. |
|------------|--------------------|-----------------------------|-----------------------------------|------|
| C1, C3, C4 | 06036D106KMAT2A    | AVX <sup>(1)</sup>          | 10uF, 6.3V X5R Ceramic Capacitor  | 1    |
|            | JMK107BJ106MA-T    | Taiyo Yuden <sup>(5)</sup>  |                                   |      |
|            | C1608X5R0J106K     | TDK <sup>(3)</sup>          |                                   |      |
|            | GRM188R60J106M     | Murata <sup>(2)</sup>       |                                   |      |
| C2         | C1608X5R0J105K     | TDK <sup>(3)</sup>          | 10uF, 6.3V X5R Ceramic Capacitor  | 1    |
|            | 06036D105KAT2A     | AVX <sup>(1)</sup>          |                                   |      |
|            | GRM188R60J105KE19D | Murata <sup>(2)</sup>       |                                   |      |
|            | VJ0603G105KXYAT    | Vishay <sup>(4)</sup>       |                                   |      |
| R1         | CRCW06038061FRT1   | Vishay <sup>(4)</sup>       | 8k, 1%, 1/10W, 0603               | 1    |
| R2, R4     | CRCW06031002KEYE3  | Vishay <sup>(4)</sup>       | 10k, 1%, 1/10W, 0603              | 2    |
| R3         | CRCW06032492FRT1   | Vishay <sup>(4)</sup>       | 24.9k, 1%, 1/10W, 0603            | 1    |
| U1         | MIC38300-HYHL      | Micrel, Inc. <sup>(6)</sup> | 28-Pin 4mm x 6mm MLF <sup>®</sup> | 1    |

### Notes:

1. AVX: [www.avx.com](http://www.avx.com)
2. Murata: [www.murata.com](http://www.murata.com)
3. TDK: [www.tdk.com](http://www.tdk.com)
4. Vishay: [www.vishay.com](http://www.vishay.com)
5. Taiyo Yuden: [www.t-yuden.com](http://www.t-yuden.com)
6. Micrel, Inc.: [www.micrel.com](http://www.micrel.com)

**PCB Layout Revision 1 (040507 MAJ)**

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