Description

This is the EY1601SA-ADJ User Guide. The EY1601SI is a Low-Dropout-Voltage linear regulator featuring high input voltage range, low quiescent current, temperature shutdown, and current limit protection. The EY1601SI has a dropout voltage of 120mV at 50mA. It features an EN pin that can be used to put the device into a low current shutdown mode at 18μA, as well as thermal shutdown and current limit protection. The evaluation board is optimized for engineering ease of testing through programming options, clip leads, test points and other supporting external components.

Evaluation Board Overview

Figure 1. EY1601SA-ADJ Evaluation Board Illustration (Follow instructions)
Instructions

The numbers in the instructions below correspond to the numbers in Figure 1. By following the number sequence below the device can work normally.

1) **PVIN (CON1)** - Connect the positive terminal of a 6V to 40V power supply to CON1. Do not turn on until everything is connected correctly.

2) **VOUT (CON2)** - Connect the load to CON2.

3) **Ground (CON3 and CON4)** - Connect the input ground to CON3 and the load ground to CON4.

4) **Output Voltage Settings (R1, R2)** – Vout can be set in a wide range from 2.5V to 12V as shown in Figure 1, output can be programmed by a simple voltage divider resistors (R1 and R2). The output voltage setting follows the next equation.

\[
V_{OUT} = 1.223 \times \frac{R_1}{R_2} + 1
\]

5) **ENABLE (JP1)** - The EY1601SA-ADJ features an Enable pin, which when pulled low, puts the IC into shutdown mode. Figure 2 shows the enable-jumper configurations. In case (1) EN is connected to VIN enabling the device, and in case (2) EN is connected to ground, disabling the device.

![Enable jumper configurations](image)

Figure 2. EY1601SI Enable jumper conditions

Remove this jumper to apply an external signal as shown in case (3) to toggle the enable on (>1.48V) and off (<0.93V). The device may now be turned on or off.

Evaluation Board Schematic

![Evaluation Board schematic](image)

Figure 3. EY1601SA-ADJ Evaluation Board schematic
Bill of Materials

<table>
<thead>
<tr>
<th>Designator</th>
<th>Qty</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CON1, CON2, CON3, CON4</td>
<td>4</td>
<td>CONN-TURRET, TERMINAL POST, TH, ROHS</td>
</tr>
<tr>
<td>C1</td>
<td>1</td>
<td>CAP, SMD, 0603, 0.1uF, 50V, 5%, X7R, ROHS</td>
</tr>
<tr>
<td>C2</td>
<td>1</td>
<td>CAP, SMD, 0805, 10uF, 16V, 10%, X5R, ROHS</td>
</tr>
<tr>
<td>JP1</td>
<td>1</td>
<td>CONN-HEADER, 1x3, BREAKAWAY 1X36, 2.54mm, ROHS</td>
</tr>
<tr>
<td>R1, R2</td>
<td>2</td>
<td>DO NOT POPULATE OR PURCHASE</td>
</tr>
<tr>
<td>U1</td>
<td>1</td>
<td>IC-LINEAR REGULATOR, 5V, 8P, EPSOIC, ROHS</td>
</tr>
</tbody>
</table>

Test Recommendations

To guarantee measurement accuracy, the following precautions should be observed:

1. Make all input and output voltage measurements at the board using the test points provided (CON1 to CON2). This will eliminate voltage drop across line and load cables that can produce false readings.
2. Measure input and output current with series ammeters or accurate shunt resistors. This is especially important when measuring efficiency.
3. This product has built-in current limiting. If protection against an overvoltage condition is required, an appropriate external solution must be used. Please refer to the Enpirion application note for further details on this subject.
4. Do not leave the enable pin floating as external noise may cause improper operation.

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