

LT3758EMSE  
 FLYBACK CONVERTER

## DESCRIPTION


Demonstration circuit 1412A features LT3758EMSE in a 300kHz Flyback converter circuit, designed for 3.3V output from a 18V to 75V input.

The LT3758EMSE operates over an input range of 5.5V to 100V, suitable for automotive, telecom and industrial applications. It also exhibits low shutdown quiescent current of 1 $\mu$ A, making them an ideal fit for battery-operated systems. Thanks to a novel FBX pin architecture, the LT3758EMSE can be connected directly to a divider from either the positive output or the negative output to ground. It also packs many popular features such as soft-start, input under-

voltage lockout, adjustable frequency and synchronization in a small 10-lead MSOP package or a 3mm  $\times$  3mm QFN package.

The LT3758EMSE datasheet gives a complete description of the part, operation and application information. The datasheet must be read in conjunction with this quick start guide for demo circuit 1412A.

**Design files for this circuit board are available. Call the LTC factory.**

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**Table 1. Performance Summary for 300kHz Flyback Regulator ( TA = 25°C )**

| PARAMETER                       | CONDITION | VALUE      |
|---------------------------------|-----------|------------|
| Minimum Input Voltage           |           | 18V        |
| Maximum Input Voltage           |           | 75V        |
| Output Voltage V <sub>OUT</sub> |           | 3.3V +/-3% |
| Maximum Output Current          |           | 3A         |
| Typical Switching Frequency     |           | 300kHz     |

## QUICK START PROCEDURE

Demonstration circuit 1412A is easy to set up to evaluate the performance of the LT3758EMSE. Refer to Figure 1 for proper measurement equipment setup and follow the procedure below:

**NOTE.** When measuring the input or output voltage ripple, care must be taken to avoid a long ground lead on the oscilloscope probe. Measure the input or output voltage ripple by touching the probe tip directly across the Vin or Vout and GND terminals. See Figure 2 for proper scope probe technique.

1. Place JP1 on the ON position.
2. With power off, connect the input power supply to Vin and GND.

3. Turn on the power at the input.

**NOTE.** Make sure that the input voltage does not exceed the maximum input voltage.

4. Check for the proper output voltages.

**NOTE.** If there is no output, temporarily disconnect the load to make sure that the load is not set too high.

Once the proper output voltages are established, adjust the loads within the operating range and observe the output voltage regulation, ripple voltage, efficiency and other parameters.

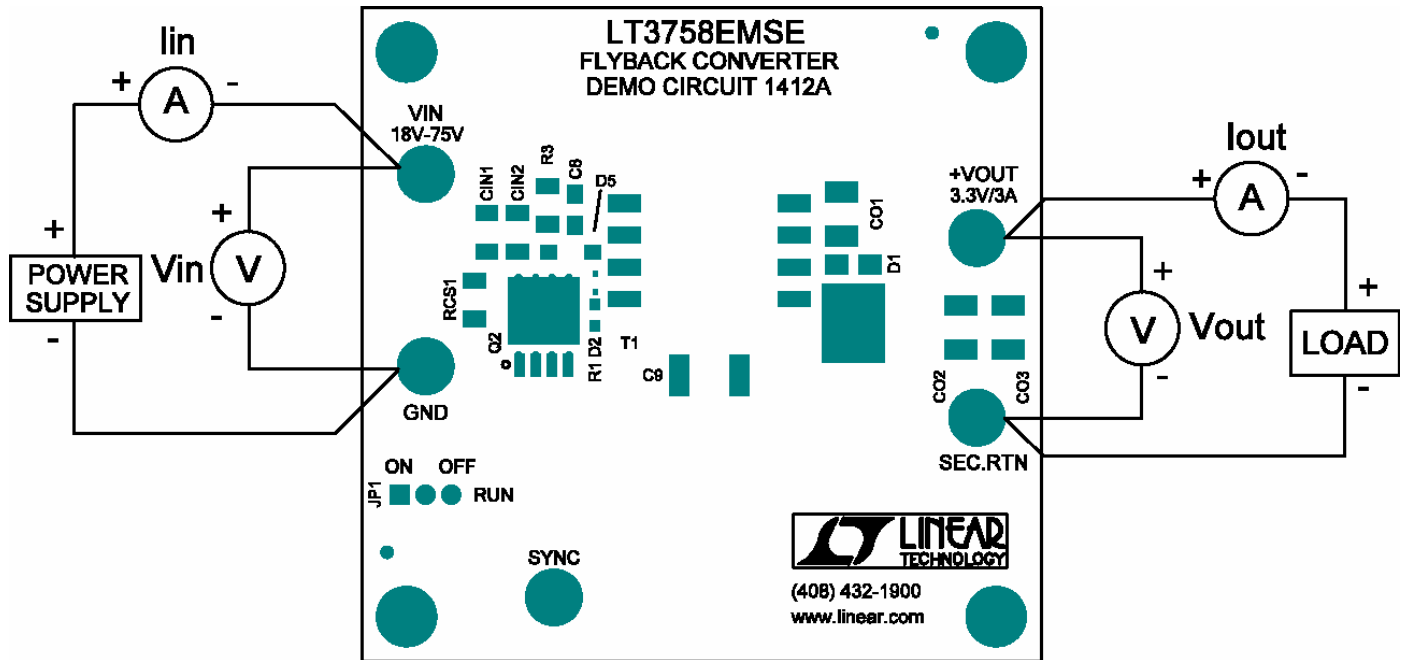


Figure 1. Proper Measurement Equipment Setup

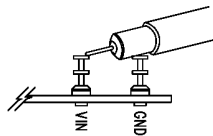


Figure 2. Measuring Input or Output Ripple

