



[Maxim](#) > [Design Support](#) > [Technical Documents](#) > [Application Notes](#) > [Battery Management](#) > APP 674  
[Maxim](#) > [Design Support](#) > [Technical Documents](#) > [Application Notes](#) > [Power-Supply Circuits](#) > APP 674

Keywords: H-bridge driver, push-pull transformer driver, isolated output, silicon rectifier

#### APPLICATION NOTE 674

# Push-Pull Driver Provides Isolated 5V at 1A

Jun 19, 2000

*Abstract: In this design idea a simple circuit converts a regulated 5V input to an isolated 5V output at 1A. The efficiency of a transformer H-bridge, push-pull driver, the MAX253, depends directly on the forward drops of the output rectifiers.*

The circuit in **Figure 1** converts a regulated 5V input to an isolated 5V output with 1A current-output capability. IC<sub>1</sub>, a push-pull transformer driver, powers a pair of cross-coupled power MOSFETs in a flip-flop-like configuration. In turn, the MOSFETs toggle the primary winding of a forward transformer. The transformer's secondary output, after rectification and filtering, provides the isolated 5V supply. Because the output voltage is unregulated, its voltage tolerance depends on the input-voltage range and the range of load current. With Schottky rectifiers, such as the MBRS130 for D<sub>1</sub> and D<sub>2</sub>, the circuit delivers 5V ±10% at 700 to 1000mA from a 5V ±5% input with 80% efficiency (**Figure 2**). Using ultrafast-recovery silicon rectifiers, such as the MURS120, the circuit delivers 5V ±10% at 200 to 500 mA from a 5V ±5% input, with 77% efficiency. (DI #2502)

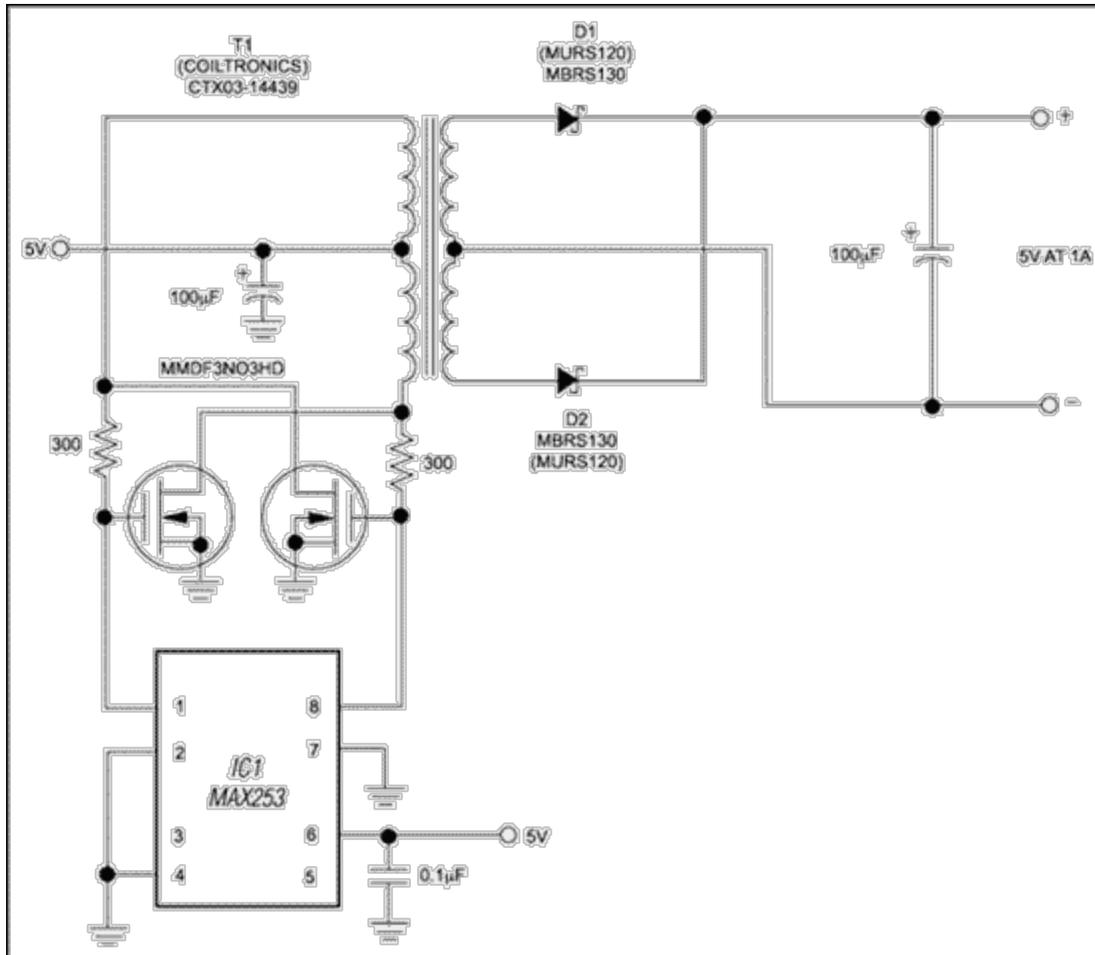


Figure 1. A simple circuit produces a 5V, 1A isolated output from a 5V regulated input.

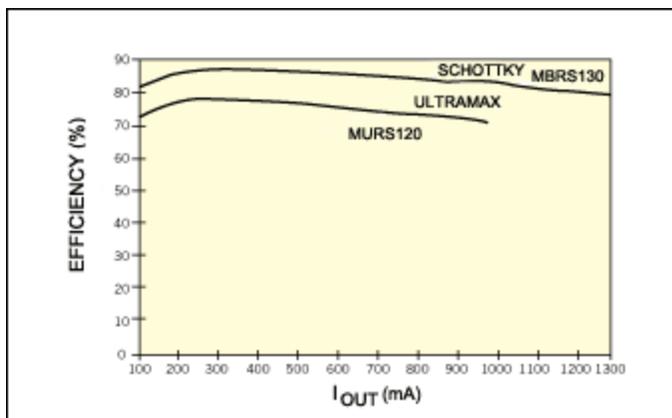


Figure 2. The efficiency of the circuit in Figure 1 depends directly on the forward drops of the output rectifiers.

Reprinted from EDN Magazine March 30, 2000  
 Copyright Cahners Business Information 2000  
 A Division of Reed Elsevier Inc.

## Related Parts

MAX253

1W Primary-Side Transformer H-Bridge Driver for Isolated Supplies

[Free Samples](#)

---

## More Information

For Technical Support: <http://www.maximintegrated.com/support>

For Samples: <http://www.maximintegrated.com/samples>

Other Questions and Comments: <http://www.maximintegrated.com/contact>

---

Application Note 674: <http://www.maximintegrated.com/an674>

APPLICATION NOTE 674, AN674, AN 674, APP674, Appnote674, Appnote 674

Copyright © by Maxim Integrated Products

Additional Legal Notices: <http://www.maximintegrated.com/legal>