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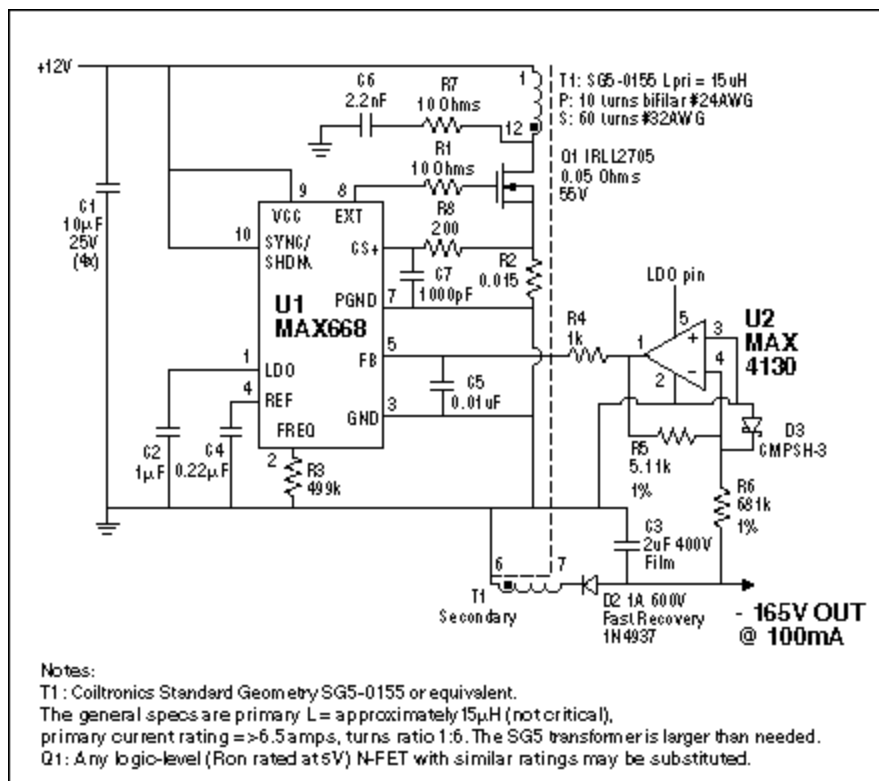
**APPLICATION NOTE 435**

# +12V Input Converter Generates -165V at 100mA

Nov 01, 2000

Additional Information:

- [Quick View Data Sheet for the MAX668](#)
- [Quick View Data Sheet for the MAX4130](#)
- [Technical Support: Power](#)



This circuit uses the MAX668 and a transformer (which will need about a one-to-six turns ratio) to make a flyback converter. The op amp inverts the feedback from the negative output voltage.

The above circuit generates -165V at 100mA from a +12V input. Based on a MAX668 transformer flyback application, the circuit employs a custom transformer to generate -165V through a combination of turns ratio and duty cycle. The transformer is designed on an SG5-size bobbin to facilitate the winding and to decrease the leakage inductance.

D2 is chosen as a fast-recovery diode to moderate the cost for a high-breakdown voltage part. Because the diode will see  $165V + (6 \times V_{in}) + \text{flyback}$  due to leakage inductance, a 600V rating is necessary. C3 is selected as a film capacitor to get high voltage rating and high ripple-current capacity.

#### Related Parts

<a href="#">MAX4130</a>	Single/Dual/Quad, Wide-Bandwidth, Low-Power, Single-Supply Rail-to-Rail I/O Op Amps	<a href="#">Free Samples</a>
<a href="#">MAX668</a>	1.8V to 28V Input, PWM Step-Up Controllers in $\mu$ MAX	<a href="#">Free Samples</a>

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#### More Information

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

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Application Note 435: <http://www.maximintegrated.com/an435>

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