60 W wide input range flyback converter using HVLED001A controller in FOT mode

Description
The STEVAL-ILL074V2 provides a stable, insulated 52 V voltage bus suitable for secondary side circuitry (e.g., LED current generators), for a total output power of 60 W given a wide range of input voltage range. An auxiliary 15 V output is also present to supply small circuitries absorbing a maximum current of 50 mA.

A very high power factor is obtained thanks to the features of the HVLED001A device. Input voltage variations, excessive input voltage (overvoltages like surges or bursts) and very low input voltages are managed by the HVLED001A protections, improving the reliability of the application.

Output short circuit and overload protections are available with auto-restart for safe operation in lighting environments.

Features
- Input voltage: $V_{\text{in}} = 90 - 277 \, \text{V}_{\text{rms}}$, $f = 45-66$ Hz
- Output voltage: 52 V / 1.2 A
- High power factor, low THD
- Full load efficiency: above 90%
- Short circuit protection
- Safety: compliant with EN60065
- PCB board: 165 mm x 50 mm double-sided PCB
- RoHS compliant
1 Board circuit

Figure 1: Board connections

- VAC 90 - 277 Vrms
- +52
- GND
- HL1
- J1
- HL2
- J2
- +15V
STF13N65M2 can be used with input voltage up to 265 Vac.
For wide input range up to 277 Vac, the STF14N80K5 is suggested.
Table 1: Document revision history

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<tr>
<th>Date</th>
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<tr>
<td>18-Jan-2016</td>
<td>1</td>
<td>Initial release.</td>
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<tr>
<td>19-Feb-2016</td>
<td>2</td>
<td>Updated: title on the cover page and figure 2 STEVAL-ILL074V2 circuit schematic.</td>
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<tr>
<td>10-Mar-2016</td>
<td>3</td>
<td>Updated: Figure 2 STEVAL-ILL074V2 circuit schematic.</td>
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<tr>
<td>23-Jun-2016</td>
<td>4</td>
<td>Updated: Figure 2 STEVAL-ILL074V2 circuit schematic.</td>
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<td>20-Feb-2017</td>
<td>5</td>
<td>Updated: Figure 2: &quot;STEVAL-ILL074V2 circuit schematic&quot;.</td>
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