

# Ten Output QR Flyback and Buck Converter Reference Design



(ACTIVE) PMP10822.7

- Description & Features

Technical Documents

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## Key Document

[PMP10822 Test Results](#) (PDF 2148 KB)  
16 Jul 2015 5 views

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## Description

The PMP10822 reference design utilizes two QR flyback, and four buck converters. The efficiency for the 12V and 24V flyback approaches 87%, while the 16V buck converter has efficiency greater than 89%.

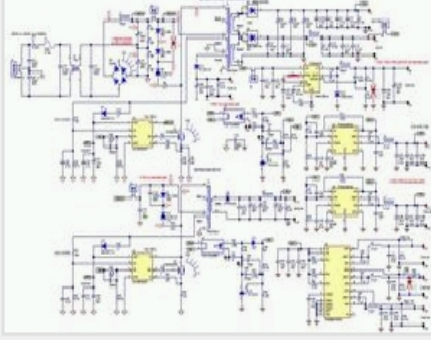
## Features

- The 12V and 24V flyback converter's efficiency approaches 87% at full load, with an input of 120VAC
- The 16V buck converter's efficiency is greater than 89% at full load, with a 24V input
- Board length is approximately 3.45" x 4.95"
- Test report is available

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## Schematic/Block Diagram

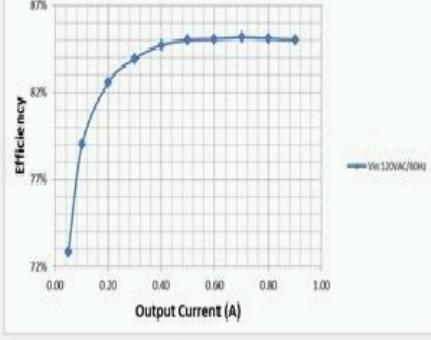
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## Design Guide

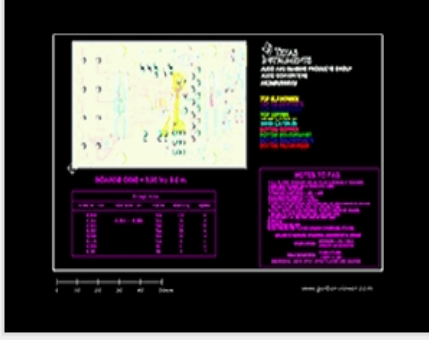
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## Design Files

Download ready-to-use system files to speed your design process. [Get Viewer](#).



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## Bill of Materials (BOM)

Find the complete list of components in this reference design.

Download BOM

## Parametrics

|                       | PMP10822.7        |
|-----------------------|-------------------|
| Vin (Min) (V)         | 10                |
| Vin (Max) (V)         | 14                |
| Vout (Nom) (V)        | 5                 |
| Iout (Max) (A)        | .2                |
| Output Power          | 1                 |
| Isolated/Non-Isolated | Non-Isolated      |
| Input Type            | DC                |
| Topology              | Buck- Synchronous |

## TI Devices (5)

Order samples, get tools and find more information on the TI products in this reference design.

| Part Number              | Name                                                                                                | Product Family                        | Sample & Buy                     | Design Kits & Evaluation Modules                          |
|--------------------------|-----------------------------------------------------------------------------------------------------|---------------------------------------|----------------------------------|-----------------------------------------------------------|
| <a href="#">ATL431</a>   | 2.5V Low Iq Adjustable Precision Shunt Regulator                                                    | Voltage Reference                     | <a href="#">Sample &amp; Buy</a> | <a href="#">View Design Kits &amp; Evaluation Modules</a> |
| <a href="#">TPS5402</a>  | 3.5V to 28V Input, 1.7A Output, Non-Synchronous Step-Down Regulator with Integrated MOSFET          | Converter (Integrated Switch)         | <a href="#">Sample &amp; Buy</a> | <a href="#">View Design Kits &amp; Evaluation Modules</a> |
| <a href="#">TPS54239</a> | 4.5V to 23V Input, 2A Synchronous Step-Down Converter with D-CAP2 Mode                              | Converter (Integrated Switch)         | <a href="#">Sample &amp; Buy</a> | <a href="#">View Design Kits &amp; Evaluation Modules</a> |
| <a href="#">TPS65581</a> | 4.5 to 18V Input, 2.5A/1.5A/1.5A Triple Sync. Step-Down Converter w/ Advanced D-CAP2™ and Eco-mode™ | Power Management                      | <a href="#">Sample &amp; Buy</a> | <a href="#">View Design Kits &amp; Evaluation Modules</a> |
| <a href="#">UCC28740</a> | Constant-Voltage, Constant-Current Flyback Controller Using Opto-Coupler Feedback                   | AC/DC and Isolated DC/DC Power Supply | <a href="#">Sample &amp; Buy</a> | <a href="#">View Design Kits &amp; Evaluation Modules</a> |

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## CAD/CAE symbols

| Part #                  | Package   Pins                | CAD File (.bxl)          | STEP Model (.stp)        |
|-------------------------|-------------------------------|--------------------------|--------------------------|
| <a href="#">ATL431</a>  | <a href="#">SOT (DBZ)   3</a> | <a href="#">Download</a> | <a href="#">Download</a> |
| <a href="#">TPS5402</a> | <a href="#">SOIC (D)   8</a>  | <a href="#">Download</a> | <a href="#">Download</a> |

Texas Instruments and Accelerated Designs Inc. have collaborated together to provide TI customers with schematic symbols and PCB layout footprints for TI products.

Step 1: Download and install the Ultra Librarian software [ZIP: 62MB](#)

Step 2: Download the Symbol and Footprint .bxl file.

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## Technical Documents

## User guides (1)

| Title                                 | Abstract | Type | Size (KB) | Date        | Views | TI Recommends     |
|---------------------------------------|----------|------|-----------|-------------|-------|-------------------|
| <a href="#">PMP10822 Test Results</a> |          | PDF  | 2148      | 16 Jul 2015 | 5     | <a href="#">✓</a> |

## Design files (4)

| Title                                     | Abstract | Type | Size (KB) | Date        | Views |
|-------------------------------------------|----------|------|-----------|-------------|-------|
| <a href="#">PMP10822 Gerber</a>           |          | ZIP  | 617       | 16 Jul 2015 | 2     |
| <a href="#">PMP10822 Assembly Drawing</a> |          | PDF  | 89        | 16 Jul 2015 | 6     |
| <a href="#">PMP10822 BOM</a>              |          | PDF  | 174       | 16 Jul 2015 | 14    |
| <a href="#">PMP10822 Schematic</a>        |          | PDF  | 244       | 16 Jul 2015 | 39    |

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