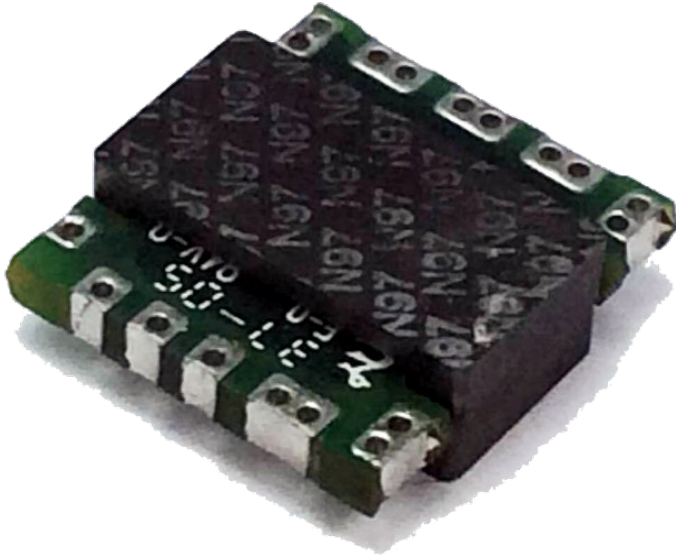


## Champs 168F1 Series BCM Flyback Solutions DC2014A & DC2393A



- Footprint: 16 x 16 mm x Low Profile 7.6mm Height
- Proven in actual DC-DC converter designs using LT8302 & LT8304 ICs.
- Optimized for No-Opto Isolated Flyback Converter BCM Mode Operation.
- Typical Efficiency 88-90%
- Aggressive Interleave planar construction -- lowest achievable Leakage Inductance.
- Multilayer PCB optimization for lowest AC resistance & Proximity Loss Effect.
- Wide variety of PNs, Designs and Turns Ratios in stock. If not listed, Contact Us.
- Integer Turns 1 thru 16 Available [Contact Us if Not Shown in Table].
- Surface Mount, Thru-Hole, Pad-to-Pad, Embedded Planar Windings as Options

## General Notes:

1. This subset of Champs' 168F1 series is earmarked to function in No-Opto Isolated Flyback circuits as described by the LT8302 and LT8304 ICs from Analog Devices.
2. Input Voltage and Output Power Ratings are a function of the IC's on-board FET and not a limitation of the transformer. In other applications the 168F1 part can operate over a wider  $V_{in}$  range or greater output power. Increased height allows increased power output due to higher current capability.
3. Integer Turns available from 1T to 16T. Can be used as Primary or Secondary. Mechanical configuration and outline allow for a "flex" arrangement. Contact factory for information on any flyback topology design.
4. All designs can be supplied with planar windings as embedded in the pcb of the Main Module of the converter. Heat Sink and installed power components SM assembly and installation are also available.
5. All transformers installed with associated power components are available from Champs as Main Modules to be installed as a functioning DC-DC converter application. Accompanying Base-Boards ease the task of evaluation. Aspects of this construction are patent pending concepts of Champs and are made available as "open source".

## 1. Input Voltage Range 36-72. BCM Flyback.

Champs PN	Vin (Min)	Vin (Max)	Vout	Iout (A/c)	Pout (Watts)	Freq (KHz)	Ipk [Rated]	Ipk [Max]	Mode
168F1-1402-42R	36	72	3.3	3.60	12.0	150-265	2.1	3.4	BCM
168F1-1402-42R	36	72	5.0	3.0	15	190-305	2.1	3.4	BCM
168F1-1206-30R	36	72	12.0	1.25	15.0	172-300	2.6	4.1	BCM
168F1-1210-36R	36	60	24	0.62	15.0	172-320	2.4	3.4	BCM

Note: At Vin < 36V the above PNs will operate with a de-rated Power Rating

LT8304 Product Page & DC2393A Ref Design:

<http://www.analog.com/en/products/power-management/switching-regulators/flyback-forward-isolated-controllers/lt8304.html#product-overview>

<http://www.analog.com/en/design-center/evaluation-hardware-and-software/evaluation-boards-kits/dc2393a.html> -- LT8304 Based Reference Design

## 2. Input Voltage Range 17-36. BCM Flyback.

Champs PN	Vin (Min)	Vin (Max)	Vout	Iout (A/c)	Pout (Watts)	Freq (KHz)	Ipk [Rated]	Ipk [Max]	Mode
168F1-0702-15R	17	36	3.3	2.4	8.0	145-250	3.0	4.85	BCM
168F1-0703-15R	17	36	5.0	1.6	8.0	145-250	3.0	4.85	BCM
168F1-1205-15R	17	36	5.0	2.0	10.0	118-220	3.8	8.4	BCM
168F1-1006-17R	17	36	12.0	1.0	12.0	125-220	3.5	5.1	BCM
168F1-1012-20R	17	36	24.0	0.50	12.0	125-220	3.5	5.1	BCM

Note: At Vin < 18V the Power Rating decreases to that shown in Table 3 below

### 3. Input Voltage Range 8-32. BCM Flyback.

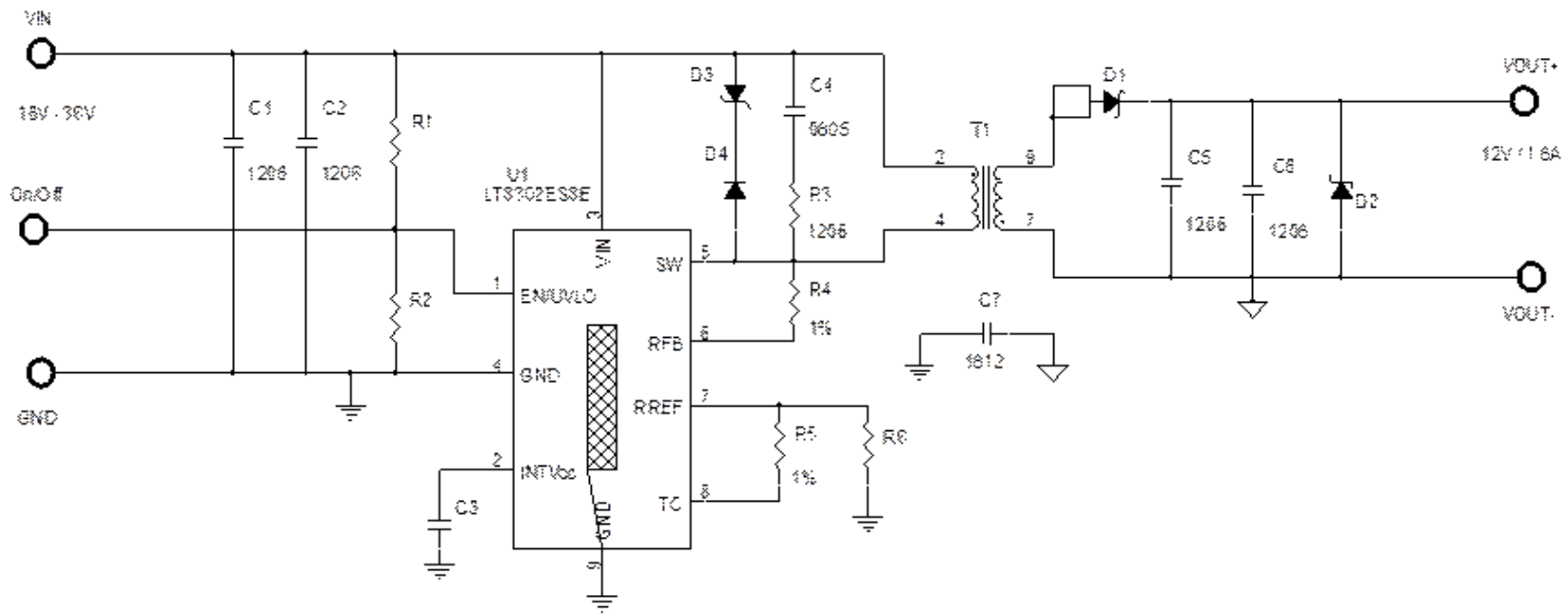
<b>Champs PN</b>	<b>Vin (Min)</b>	<b>Vin (Max)</b>	<b>Vout</b>	<b>Iout (Avc)</b>	<b>Pout (Watts)</b>	<b>Freq (KHz)</b>	<b>Ipk [Rated]</b>	<b>Ipk [Max]</b>	<b>Mode (BCM/CCM)</b>
168F1-0702-9R	8	32	3.3	2.40	8.0	105-350	4.7	8.1	BCM
168F1-0703-9R	8	32	5.0	1.6	8.0	110-350	4.6	8.1	BCM
168F1-1006-16R	8	32	12.0	0.67	8.0	85-350	4.0	6.4	BCM
168F1-0610-9R	8	32	24.0	0.33	8.0	125-350	4.4	6.8	BCM

Note: At Vin > 8V the Power Rating increases to that shown in Table 2 above

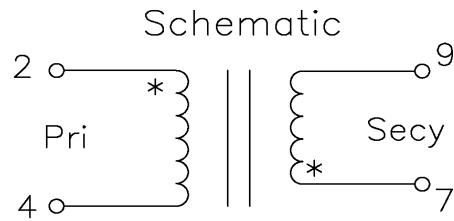
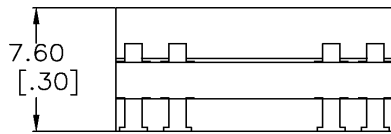
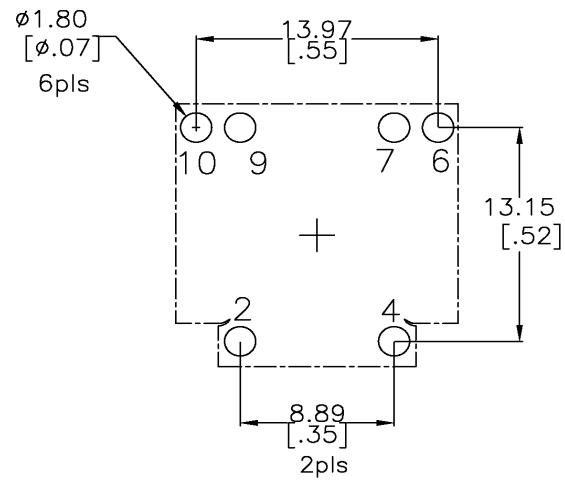
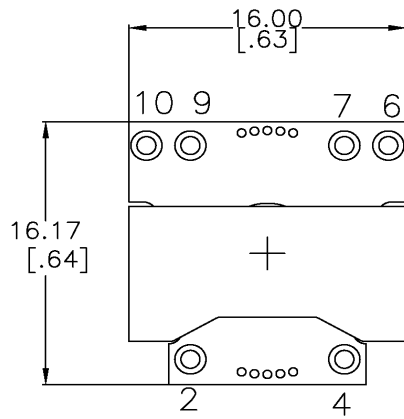
LT8302 Product Page & DC2014A Ref Design:

<http://www.analog.com/en/products/power-management/switching-regulators/flyback-forward-isolated-controllers/lt8302.html#product-overview>

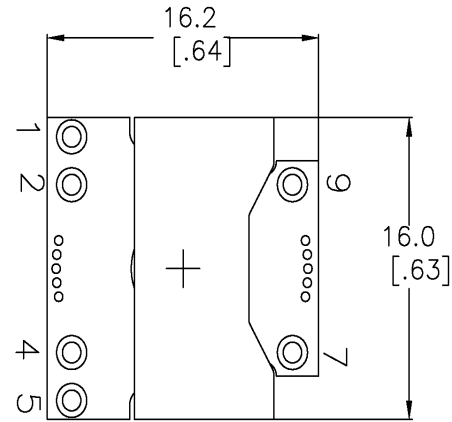
<http://www.analog.com/en/design-center/evaluation-hardware-and-software/evaluation-boards-kits/dc2014a.html#eb-overview>



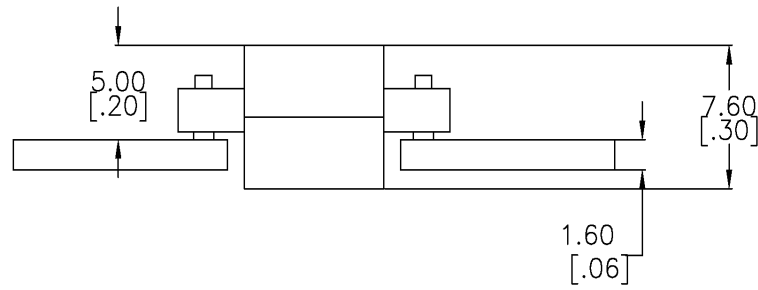
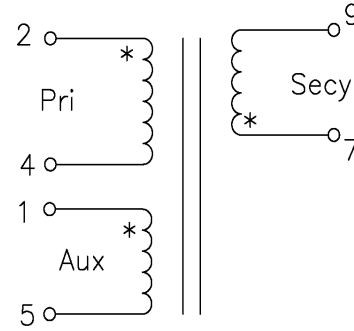
**Reference Design: 168F1 Series LT8302 Schematic**



## Mechanical Design Drawing 168F1 Surface Mount



Schematic



## Mechanical Design Drawing 168F1 Pad-to-Pad