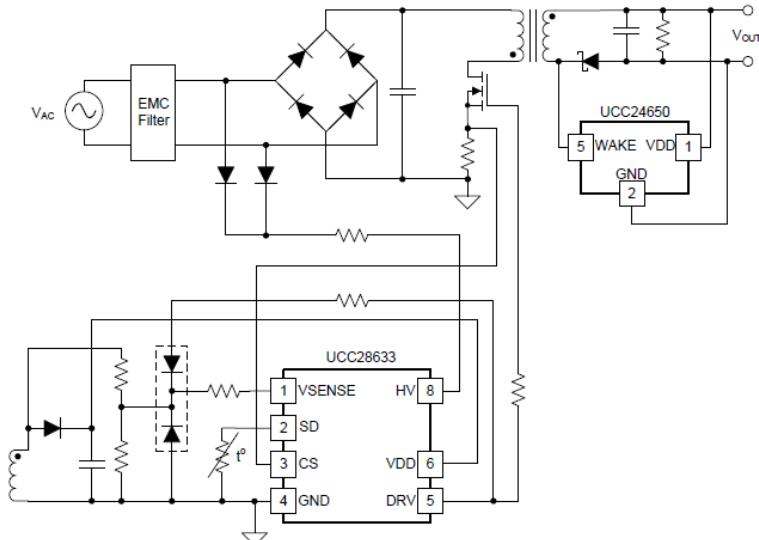
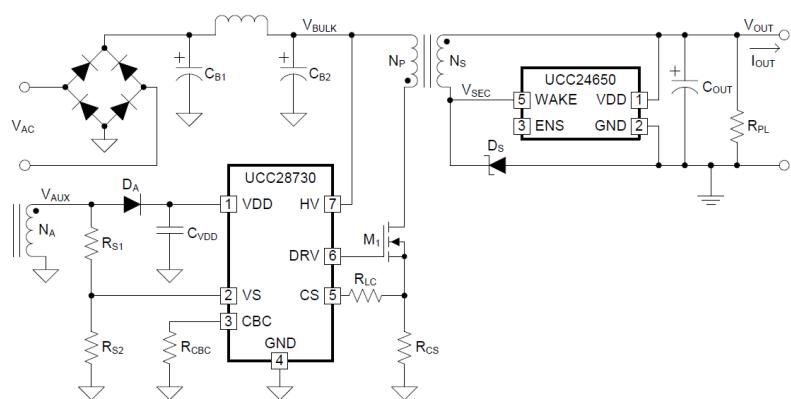


UCC24650 Compatibility

UCC24650 is compatible with the following primary side regulated controllers

- UCC28730
- UCC28633



UCC24650 is **NOT** automotive qualified

UCC28730+UCC24650 | Zero Standby Power Primary Side Regulated Flyback Chipset with Rapid Load Transient Response

Features

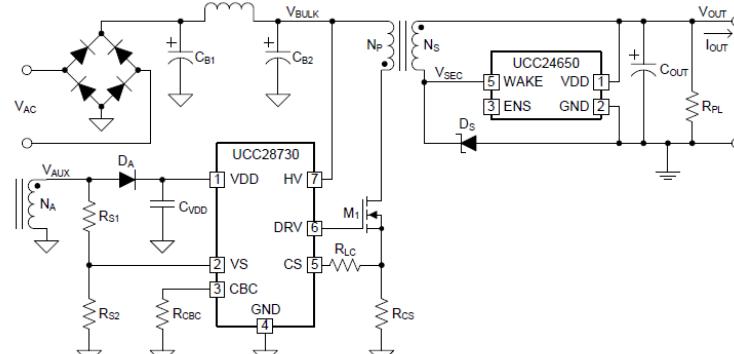
- Chipset: UCC28730 PSR Flyback + UCC24650 secondary side wake-up device
- **Industry leading low standby power consumption**
 - Minimum switching frequency of 30 Hz
 - <52 μ A IC current consumption in standby mode with internal 700-V startup switch
- UCC24650 V_{DD} pin monitors V_{OUT} droop, wake-up flag activated by turning-on 200V Intl. MOSFET
- Based on AM-FM modulation scheme, Operates at low frequency at light loads (no burst mode)
- 100-kHz Max, 30-Hz Min switching frequency
- DCM valley switching operation
- Wide V_{DD} range operational up to 35V
- Const. Voltage (CV), Const. Current (CC) regulation
- Protections: Over Voltage, Low Line & Over Current
- Package: UCC28730 SOIC-7, UCC24650 SOT-23-5

Applications

- For ultra-low Stand-by power in Appliances, White-goods, DTVs & Desktops
- Industrial power supplies

Benefits

- **Solution delivers Zero* No Load Power**
- Chipset solves major limitation in PSR Flyback - Rapid load transient response from light loads
- Supports AC/DC adaptor output voltage up to 20V
- Eliminates optocoupler, TL431 & compensation while achieving $\pm 5\%$ Voltage/Current regulation
- High efficiency
- Smaller V_{DD} bypass capacitor due to wide range
- Short circuit protection, eliminates need for current limiting power switches



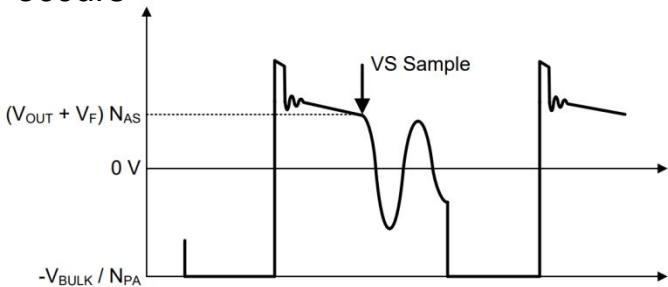
* IEC 62301 "Household Electrical Appliances – Measurement of Standby Power" Clause 4.5 rounds standby power use below 5mW to Zero

UCC24650 Wake Up Advantage

To achieve zero standby power the switching frequency of UCC28730 is reduced to **30 Hz**

Primary side regulation can only detect the output voltage once every switching cycle

- During load transient this could lead to a delay of **33.3 ms** before the controller is able to react
- **UCC24650 solves this** by alerting the primary side controller when the transient occurs



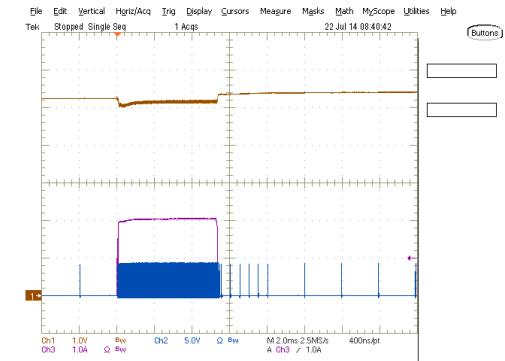
Response to 2 A load step



UCC24650 Disabled

Output voltage drops below 1 V before control-loop can respond to restore regulation

Input: Universal AC
Output: 5V/2A
Output Capacitance: $540\mu\text{F}$



UCC24650 Enabled

Output voltage drops only 0.20 V from 5.2 V before control-loop responds to restore regulation within 2 ms

Brown: Output Voltage
Purple: VS Pin
Blue: VS Pin

UCC28630/1/2/3/4 | High Power PSR Flyback Controller with Peak Power

Features

- 1A/2A Source/Sink gate drive for high power flyback
- 120 kHz max switching frequency, with dithering for lower EMI noise (except UCC28632)
- **DCM mode operation, transitions to CCM for supporting Overload/Peak-power**
- Overload timer (only UCC28630)
- CV/CC regulation, adjustable CC (UCC28631/2/3)
- Integrated 700V JFET for fast startup
- Fast Wake up function for rapid transient response
 UCC28633 + UCC24650 Wake Up (No opto)
 UCC28630/1/2 - digital input signal
- Shutdown pin interface for external NTC
- Protections: Over Voltage, Over Current, Over Temperature, AC UV/Brownout, Pin Faults
- Package: SOIC-7

Applications

- Industrial (DIN Rail), Audio & Printer Power Supplies
- High-power Battery Charger for Power Tools
- LED & LCD TVs & Monitors

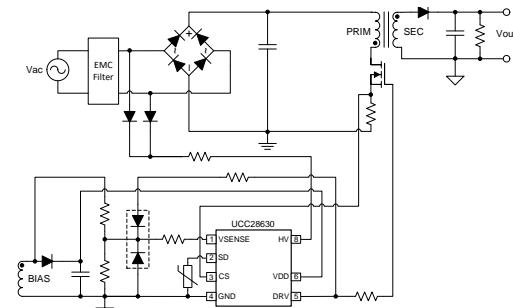
Benefits

- CCM mode enables 200% power with only 25% bigger DCM transformer, enabling high power density
- No need for Opto-coupler, TL431 & compensation RCs
- Optional wake-up function for fast transient response
- No need for bleed, start-up resistors & trickle charge circuit
- Enables compliance with EC CoC V5 Tier 2 & DoE standards
- High light-load efficiency & Low Stand-by power

ORDER NUMBER	FEATURES				
	ACTIVE-X CAPACITOR DISCHARGE	OVERLOAD TIMER	ADJUSTABLE CC LIMIT	FREQUENCY DITHER	SECONDARY-SIDE WAKE UP
UCC28630D	Yes	Yes	No	Yes	SD Pin
UCC28631D	No	No	Yes	Yes	SD Pin
UCC28632D	No	No	Yes	No	SD Pin
UCC28633D	Yes	No	Yes	Yes	VSENSE Pin
UCC28634D	No	No	Yes	Yes	SD Pin



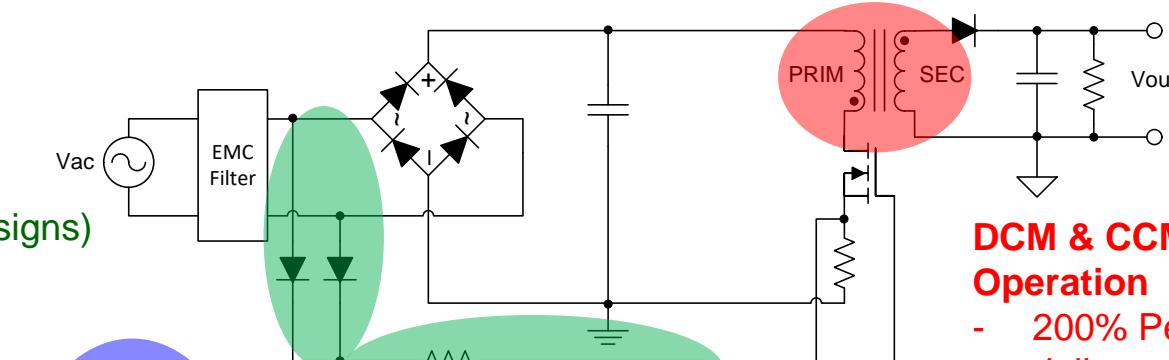
SOIC-7



UCC2863x Advantage

Integrated 700V Active Start-up circuitry

- Allows fast start-up
- Low Stand-by power (<30mW for 30W designs)
- Supports X-Cap Discharge

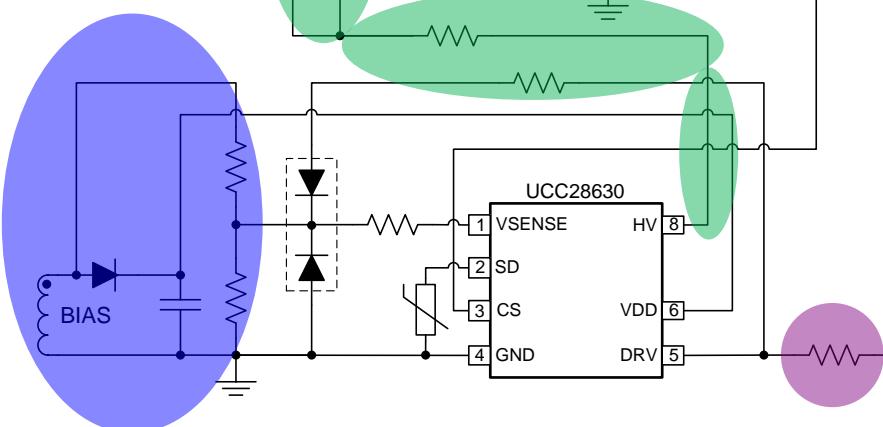


DCM & CCM Mode Operation

- 200% Peak Power delivery under transient overload
- Reduced magnetics size

Primary Side Regulation Eliminates:

- Opto-coupler
- TL431 Reference
- Compensation components



1A Gate Drive

- Supports high power designs (up to 65W)