HFC0300

Variable Off Time Controller

The Future of Analog IC Technology

DESCRIPTION

HFC0300 is a variable off-time controller that uses a fixed-peak–current technique to decrease its frequency as the load lightens. As a result, it offers excellent efficiency at light-load while optimizing the efficiency under other load conditions.

When the frequency decreases to threshold, the peak current decreases with the decreasing load to prevent mechanical resonance in the transformer. The controller enters burst mode when the output power falls below a given level.

The HFC0300 features various protections such as thermal shutdown, V_{CC} under-voltage lockout, overload protection, short-circuit protection, and over-voltage protection.

The HFC0300 is available in SOIC-7 package.

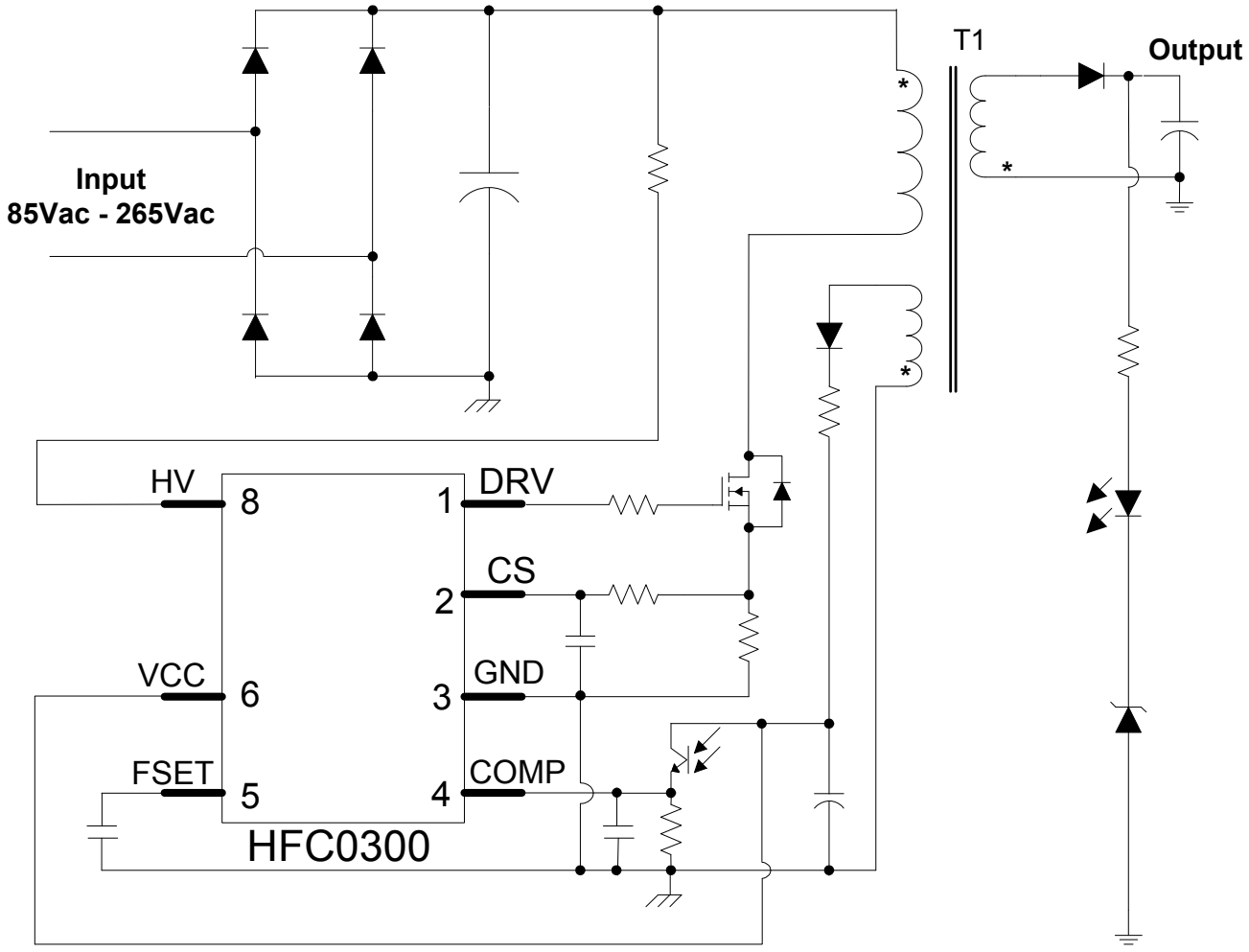
FEATURES

- Variable Off-Time, Current Mode Control
- Universal Main Supply Operation (85VAC to 265VAC)
- Frequency Foldback as Load Lightens
- Peak-Current Compression to Reduce Transformer Noise
- Active-Burst Mode for Low Standby Power Consumption
- Internal High-Voltage Current Source
- Internal 200ns Leading Edge Blanking
- Thermal Shutdown (Auto Restart with Hysteresis)
- VCC Under-Voltage Lockout with Hysteresis
- Over-Voltage Protection on VCC Pin
- Timer-Based Overload Protection
- Short-Circuit Protection
- Natural Spectrum Shaping for Improved EMI Performance

APPLICATIONS

- Battery Charger for Portable Electronics
- Standby Power Supply
- Switched-Mode Power Supplies

TYPICAL APPLICAION

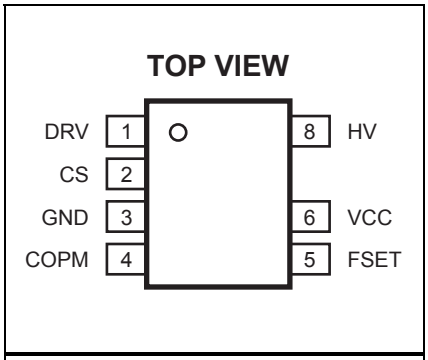


ORDERING INFORMATION

Part Number*	Package	Top Marking	Free Air Temperature (T_A)
HFC0300HS	SOIC-7	HFC0300	-40°C to +125°C

For Tape & Reel, add suffix –Z (e.g. HFC0300HS–Z);
For RoHS compliant packaging, add suffix –LF (e.g. HFC0300HS–LF–Z)

PACKAGE REFERENCE



SOIC-7

ABSOLUTE MAXIMUM RATINGS (1)

HV Breakdown Voltage..... -0.7V to +700V
VCC, DRV to GND.....-0.3V to +30V
DRV to GND .....-0.3V to +18V
FSET, COMP, CS to GND.....-0.3V to +7V
Continuous Power Dissipation (T_A = +25°C) (2)
SOIC-7.....1.3W
Junction Temperature.....150°C
Thermal Shut Down .....150°C
Thermal Shut Down Hysteresis .....25°C
Lead Temperature .....260°C
Storage Temperature ..... -60°C to +150°C
ESD Capability Human Body Model (All Pins except Drain) 2.0kV
ESD Capability Machine Model 200V

Recommended Operation Conditions (3)

Maximum Junction Temp. (T_J)..... +125°C
Operating Vcc range.....8.2V to 20V

Thermal Resistance (4)

	θ_{JA}	θ_{JC}	
SOIC-7	96	45	°C/W

Notes:

1) Exceeding these ratings may damage the device.
2) The maximum allowable power dissipation is a function of the maximum junction temperature T_J (MAX), the junction-to-ambient thermal resistance θ_{JA}, and the ambient temperature T_A. The maximum allowable continuous power dissipation at any ambient temperature is calculated by P_D (MAX) = (T_J (MAX)-T_A)/θ_{JA}. Exceeding the maximum allowable power dissipation will cause excessive die temperature, and the regulator will go into thermal shutdown. Internal thermal shutdown circuitry protects the device from permanent damage.
3) The device is not guaranteed to function outside of its operating conditions.
4) Measured on JESD51-7, 4-layer PCB.