

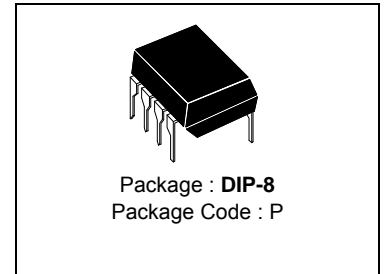


H960

High Efficiency Current Mode PWM Controller

Description

H960 is a high performance PWM controller IC specially designed for low power AC/DC application. Implemented with Avantics patented proprietary technology, H960 can provide a “No Y-Cap” AC/DC solution with distinguished advantages in low standby power, high efficiency and better OVP performance



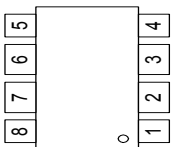
Features

- Over-load and saturation protection with patent design technology, which can prevent over-load, switching transformer saturation, output short circuit and other faults in time.
- Built-in bipolar power transistor for switching, achieves start-up uses its magnification function as well, which can reduce the power of the start-up resistance to less than 1/10.
- Built-in slope compensation circuit; over temperature protection circuit; slope current driving circuit.
- 5.5W of wide voltage output; 8W of 220Vac output; less than 0.25W when there is no load.

Application

- Adaptor, Charger
- LCD standby power
- Home appliance Power
- Low Power AC/DC switch mode power supply(up to 8W)

Pin Descriptions



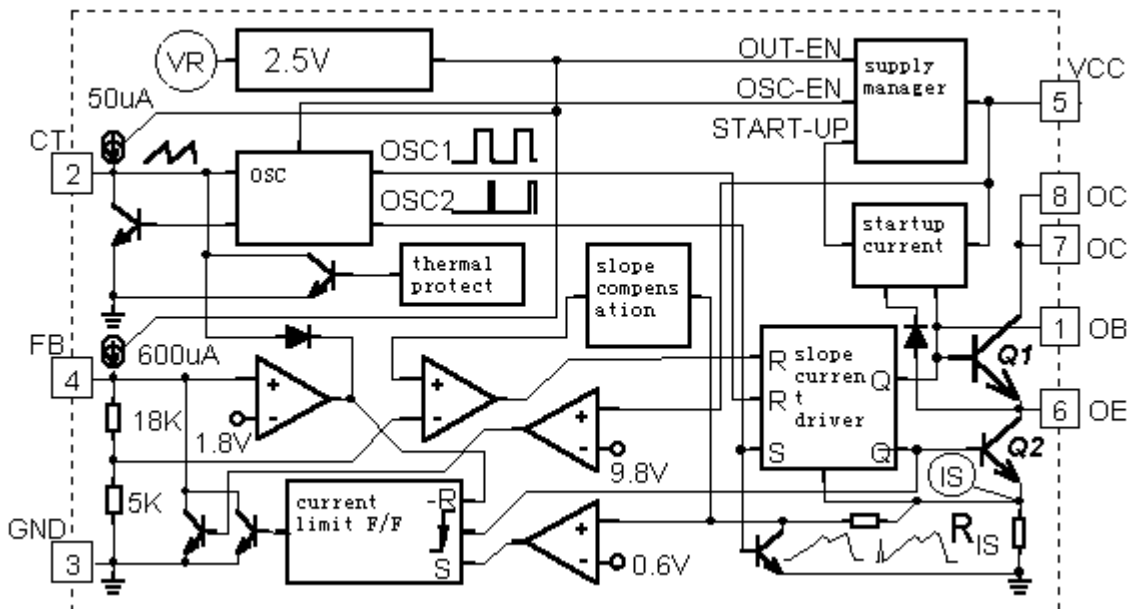
Pin No.	Symbol	Description
1	OB	Base of power transistor; Start-up current control
2	CT	Oscillator Input C
3	GND	Ground
4	FB	Feedback input
5	VCC	Power supply
6	OE	Emitter of power transistor; Start-up current input
7	OC	Collector of power transistor
8	OC	Collector of power transistor
Built-in test pin	VR	2.5V reference voltage
Built-in test pin	IS	Current of power transistor



Absolute Maximum Ratings

Parameter	Value	Unit
Supply Voltage Vcc	16	V
Input Voltage	16	V
Switch Current	300	mA
Power Dissipation	1000	mW
Operating Junction Temperature	0~+125	°C
Storage Temperature	-55~+150	°C

Block Diagram



Recommend Operation Condition

PARAMETER	MIN	TYP	MAX	UNIT
Supply Voltage Vcc	4.8	5.5	9.0	V
Pin input Voltage	-0.3	-	Vcc	V
Peak reverse Voltage	-	-	500	V
Peak Switch Current	-	-	250	mA
Timing capacitance	270	330	680	PF
Frequency	32	61	81	KHz
Operation temperature	0		70	°C

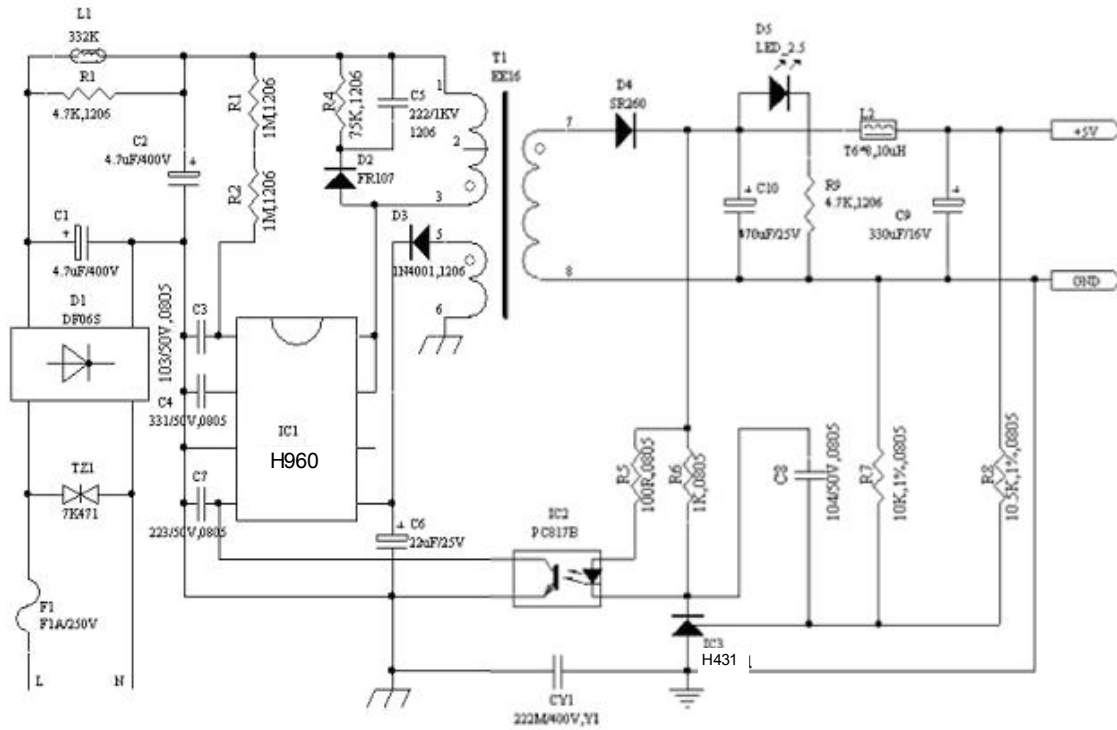


Electrical Characteristics (T_a=25°C, V_{cc}=5.5-7.5V, C_t=330PF)

PARAMETER		TEST CONDITION	MIN	TYP	MAX	UNIT
Output						
Breakdown voltage of switch TR		I _{oc} =10mA	700	-	-	V
V _{sat} of switch TR		I _{oc} =250mA	-	-	1	V
Rise time of output		CL=1nF	-	-	75	ns
Fall time of output		CL=1nF	-	-	75	ns
Output Limited current		—	250	270	290	mA
OE clamp voltage		OE=0.001-0.29A	-	1.5	-	V
Vref						
Vref		I _o =1.0mA	2.4	2.5	2.6	V
Line regulation		V _{cc} =5.5-9V	-	2	20	mV
Load regulation		I _o =0.1-1.2mA	-	-	3	%
temperature stability			-	0.2	-	mV/°C
Output noise voltage		F=10Hz-10KHz	-	-	50	μV
Long term stability		T=85°C, 1000hour Operation	-	5	-	mV
OSC						
Oscillator frequency		C _t =330PF	59	66	73	KHz
Frequency variation with VCC		V _{cc} =5.5-9V	-	-	1	%
Frequency variation with TEM.		T _a =0-85°C	-	-	1	%
V _{p-p} of Oscillator output			-	2.2	-	V
Fall time of Oscillator output		C _t =330PF	-	800	-	ns
FB						
Input Impedance	Pull up current		-	0.50	0.60	mA
	Pull down resistor		-	30	-	KΩ
PSRR		V _{cc} =5.5-9V	-	60	70	dB
CURRENT SAMPLE (IS)						
IS threshold			0.55	0.60	0.65	V
Limited current			0.25	0.27	0.29	A
PSRR			-	60	70	dB
delay			-	150	250	ns
PWM						
Maximum duty cycle			53	57	61	%
Minimum duty cycle			-	-	3.5	%
SUPPLY CURRENT						
Startup OC current			1.6	2.4	3.2	mA
Startup supply current			-	55	80	μA
supply current		V _{cc} =8V	-	2.8	-	mA
Startup voltage			8.6	8.8	9.0	V
Under voltage threshold			4.0	4.2	4.5	V
Re-startup voltage			-	3.6	-	V
Over voltage threshold			9.5	10	10.5	V



Typical Application (input :85-265V, output:5V 1A)





DIP- 8 package dimension

8-Lead DIP-8
Plastic Package
HSMC Package Code: P

Marking:

Pb Free Mark
 Pb-Free: " " "
 Normal: None

Date Code Control Code

Pin Style: 1.OB 2.CT 3.GND 4.FB
 5.VCC 6.OE 7.OC 8.OC

Material:
 • Lead solder plating: Pure-Tin (Pb-free)
 • Mold Compound: Epoxy resin family,
 flammability solid burning class: UL94V-0

DIM	Min.	Max.
A	6.29	6.40
B	9.22	9.32
C	-	*1.52
D	-	*1.27
E	-	*0.99
F	3.25	3.35
G	3.17	3.55
H	0.38	0.53
I	2.28	2.79
J	7.49	7.74
K	-	*3.00
L	8.56	8.81
M	0.229	0.381
$\alpha 1$	94°	97°

*: Typical, Unit: mm

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