

High Performance Off-line PWM Switching Power Controller

PRODUCT DESCRIPTION

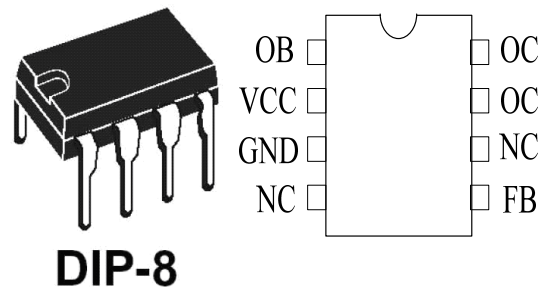
The WT5503L is a high performance current mode Pulse Width Modulated (PWM) switching power converter, which meets the Green Environmental standards. It is widely used in economical switching power supply, such as Set-top Box, DVD, printer and LCD display, etc.

FEATURES

- Built-in 700V High Power BJT
- Full Input Voltage Range: 85VAC ~ 265VAC
- Current Mode PWM Control
- Pulse-by-Pulse Current Limit Detected
- Built-in Ramp Drive Circuit
- Built-in Current Limit Resistor with Temperature Compensation
- Built-in Over Temperature, Over Current, Over Voltage and Over Load Protection
- Built-in Self-Powered Without Auxiliary Winding
- Internal Integrated Start-up Resistance, Few Peripheral Devices

- No-load Power Consumption < 0.3W and When VIN = 220VAC, Power Consumption < 0.2W

PIN CONFIGURATION



APPLICATIONS

- Intelligent mobile phone and small size table computer power supplies
- DVD and Set-top boxes power supplies
- Power adapters

PIN FUNCTION DESCRIPTION

PIN#	Name	Function Description	PIN#	Name	Function Description
1	NC	NC	5	FB	Feedback
2	VCC	Power Supply	6	NC	NC
3	GND	Ground	7	OC	The collector of internal power BJT
4	NC	NC	8		

FUNCTIONAL BLOCK DIAGRAM

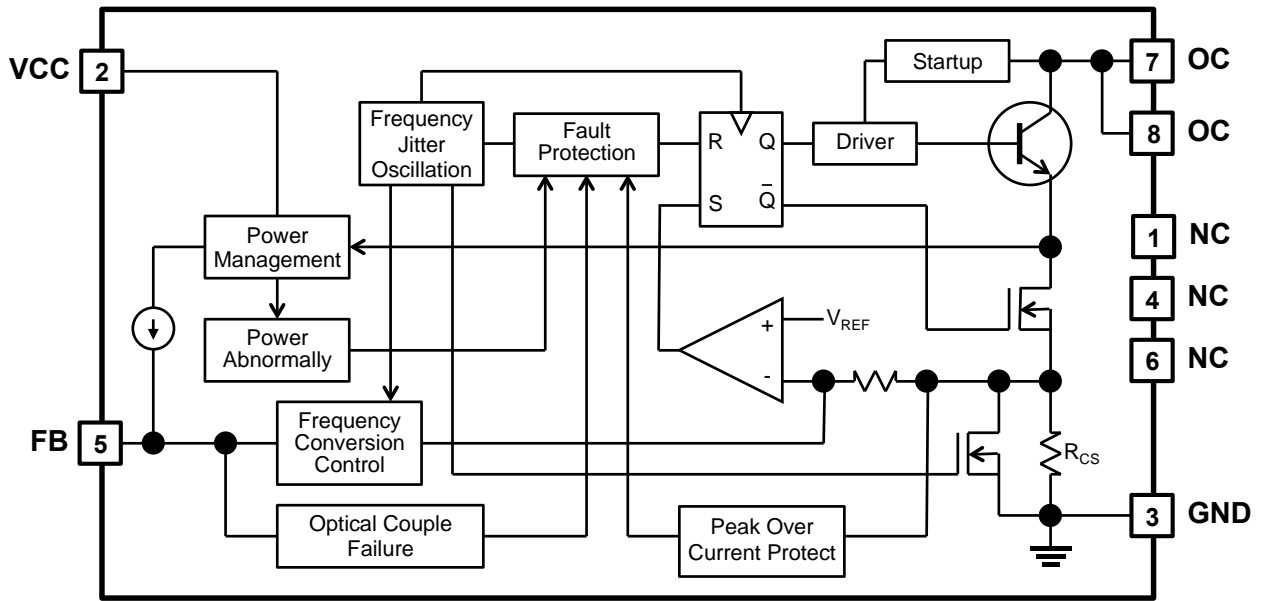


Figure.1 Functional block diagram of WT5503L

ABSOLUTE MAXIMUM RATINGS

Name	Symbol	Range	Unit
VCC Supply Voltage	VCC	8	V
Terminal Input Voltage	VPIN	VCC + 0.3	V
OC Pin Collector Voltage	VOC	-0.3 ~ +700	V
Peak Switching Transistor Current	IC(pk)	0.8	A
Allowable Power Dissipation	P _D	1000	mW
Junction Operating Ambient Temperature	TJ	0 ~ +125	°C
Storage Temperature Range	Tstg	-55 ~ +150	°C
Soldering Temperature (10 Seconds)	Tsolder	+260	°C
ESD(Human Body Model)		2	KV

Notes: (1)Instant maximum ratings specified will not cause permanent damage to the product,while long maximum ratings specified applied will do and may affect product reliability.

(2)Without special descriptions, all voltages referred to IC GND(T_A=25°C)。

RECOMMENDED OPERATING CONDITIONS (T_A = 25 °C, unless otherwise specified.)

Symbol	Parameter	Min	Typ	Max	Unit
V _{CC}	Supply Voltage	4	5	6	V
V _{SIN}	Start-up Input Voltage	4.8	5	5.2	V
V _{PIN}	Input Pin Voltage	-0.3		V _{CC}	V
Topr	Operating Ambient Temperature Range	0		70	°C

ELECTRICAL CHARACTERISTICS (Without special descriptions ,V_{CC}=5V,T_A=25°C)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Output Section (BJT)						
V _{OC}	Breakdown Collector Voltage	I _{OC} = 10mA	700			V
V _{SAT}	Switching Saturation Voltage	I _{OC} = 600mA			1	V
I _S	Maximum Output Current		600	660	720	mA
t _r	Output Rising Time	C _L = 1nF			75	ns
t _f	Output Falling Time	C _L = 1nF			75	ns
Reference Voltage Section						
V _{REF}	Reference Voltage	I _O = 1mA	2.4	2.5	2.6	V

ΔV_{LOAD}	Load Regulation	$I_O = 0.1mA \sim 1.2mA$			3	%
$\Delta V_{REF}/\Delta T_A$	Temperature Stability Factor	$T_A = 0\text{ }^\circ\text{C} \sim 70\text{ }^\circ\text{C}$		0.2		mV/ $^\circ\text{C}$
V_N	Output Noise	$f = 10\text{Hz} \sim 10\text{kHz}$			50	μV
ΔV_{stab}	Long-Term Stability	$T_A = 85\text{ }^\circ\text{C}$, 1000 hours		5		mV
Oscillator						
f_{OSC}	Oscillator Frequency	$V_{FB} = 1.6\text{V} \sim 2.8\text{V}$	50	65	70	kHz
PWM Section						
D_{MAX}	Maximum Duty Cycle				75	%
D_{MIN}	Minimum Duty Cycle		5			%
VCC Power Section						
I_{CC}	Supply Current	$V_{CC} = 5\text{V}$, $V_{FB} = 2.2\text{V}$	10	20	30	mA
V_{start}	Start-up Voltage		4.8	5	5.2	V
V_{shut}	Oscillator Shutdown Voltage		4.0	4.2	4.4	V
V_{LIM}	Over-voltage Limit Threshold		5.6	5.8	6.0	V

TYPICAL APPLICATION CIRCUIT

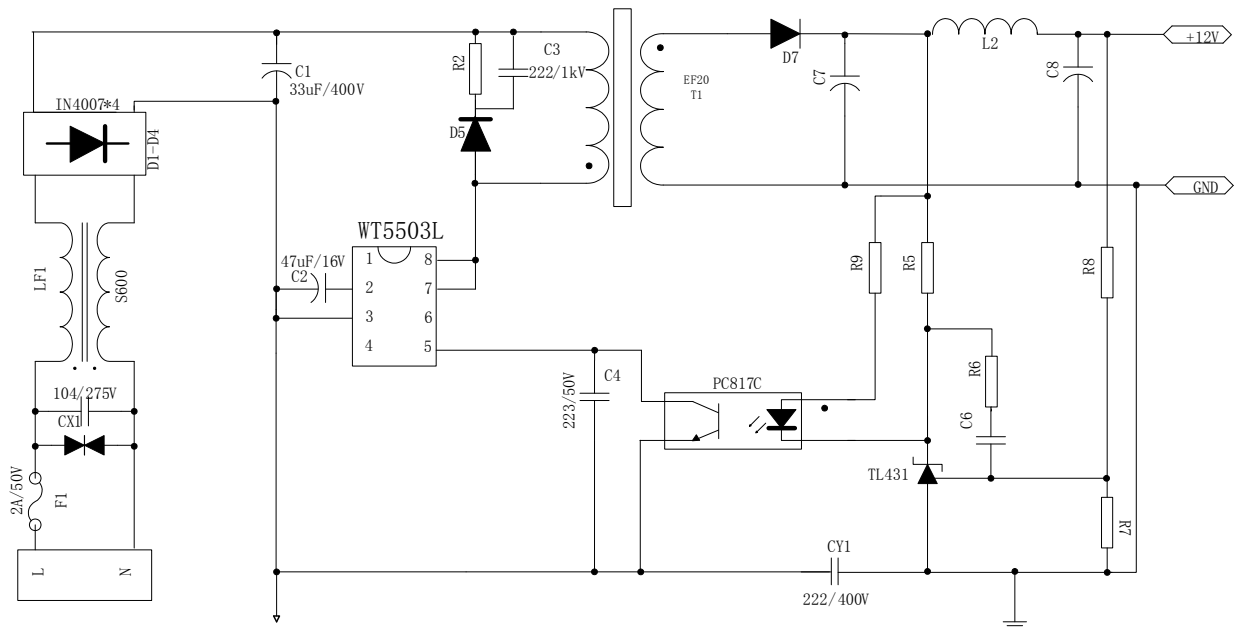
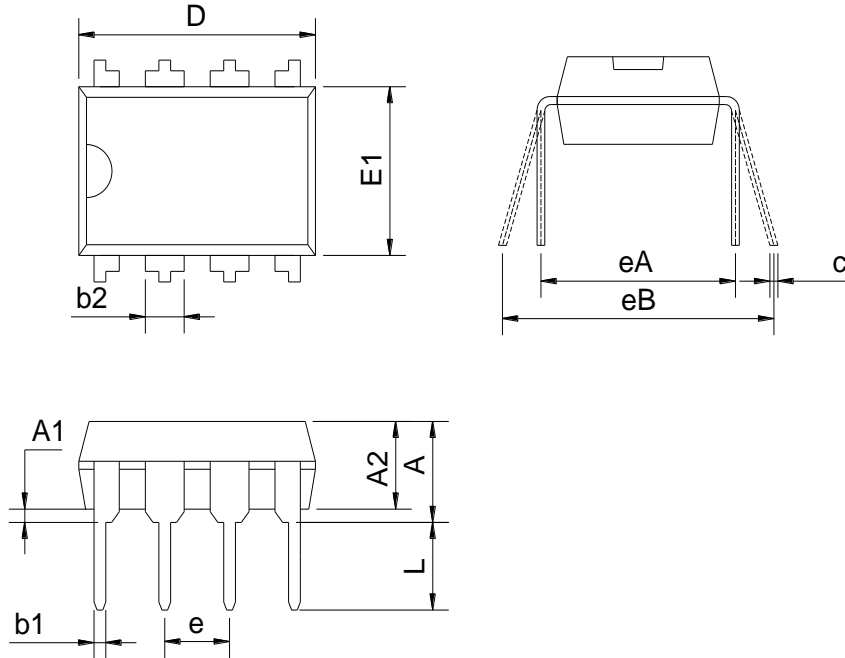


Figure.2 typical application diagram

PACKAGE INFORMATION

DIP8



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	3.600	4.000	0.142	0.157
A1	0.380		0.015	
A2	3.000	3.600	0.118	0.142
b1	0.390	0.530	0.015	0.021
b2	1.52BSC		0.060BSC	
c	0.200	0.350	0.008	0.014
D	9.050	9.450	0.356	0.372
E1	6.200	6.600	0.244	0.260
e	2.54BSC		0.100BSC	
eA	7.320	7.920	0.288	0.312
eB	8.000	9.000	0.315	0.354
L	3.000		0.118	