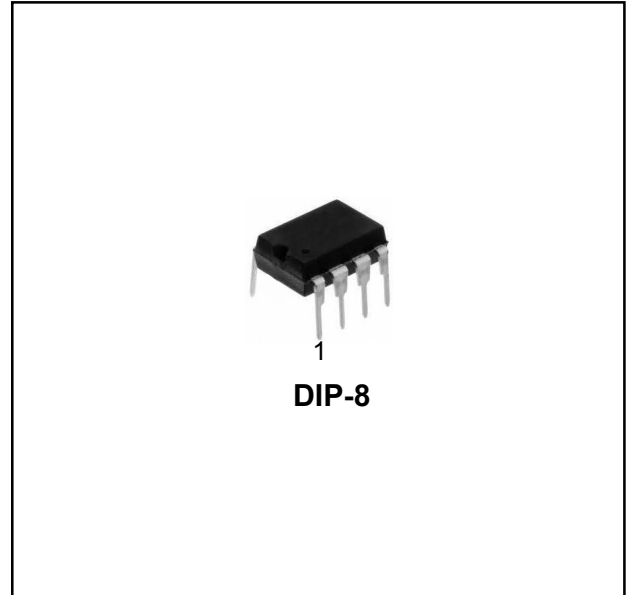


**12W HIGH PERFORMANCE OFF-LINE
PWM SWITCHING POWER CONVERTER**

FEATURES

- Built-in 700V High Power BJT
- Full Input Voltage Range: 85V_{AC} ~ 265V_{AC}
- 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 V_{IN} = 220V_{AC}, Power Consumption < 0.2W



DESCRIPTION

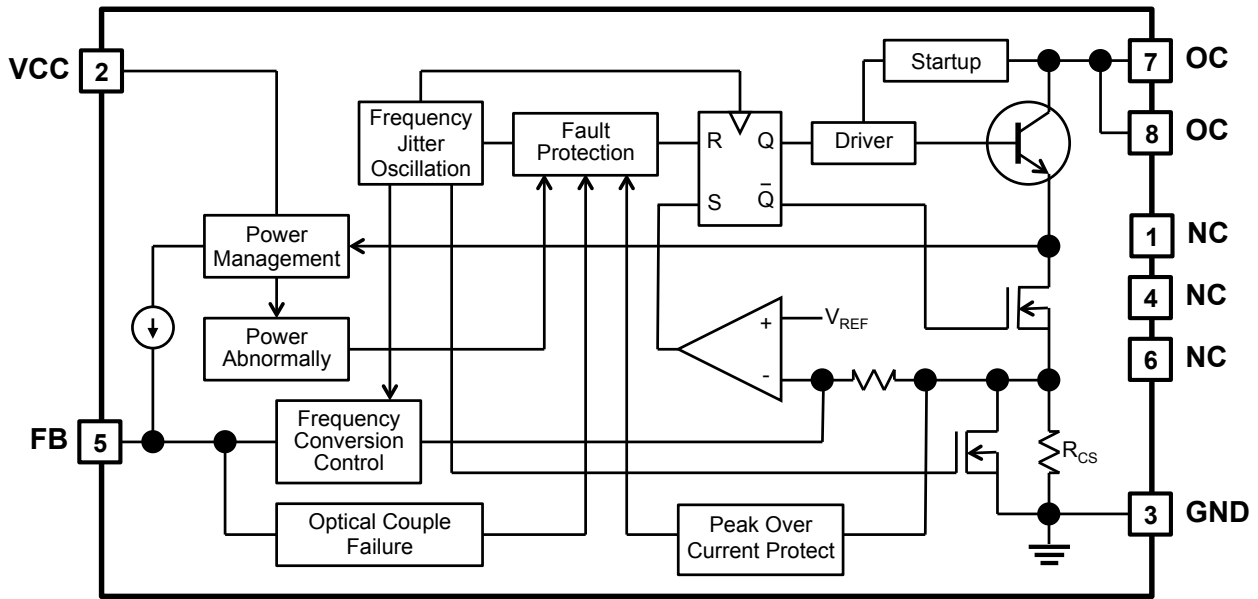
The **STComponent** ST7203 is a high performance current mode Pulse Width Modulated (PWM) switching power converter, which meets the Green Environmental standards. It is widely used in economical switching power supply, such as Set-top Box, DVD, printer and LCD display, etc.

DEVICE SUMMARY

Ordering Code	Package Type	Output Power	Marking ⁽¹⁾	Shipping
ST7203A	DIP-8	12W	<div style="border: 1px solid black; padding: 5px; display: inline-block;"> 7203 STCYM </div>	Tube

Note 1: **Y**: Year code;
M: Month code.

INTERNAL SCHEMATIC DIAGRAM



PIN DESCRIPTION

DIP-8	PIN NAME	FUNCTION DESCRIPTION
1	NC	Not Connect.
2	VCC	Power Supply Input Terminal.
3	GND	Ground Terminal.
4	NC	Not Connect.
5	FB	Feedback Terminal.
6	NC	Not Connect.
7	OC	Collector Terminal of Power BJT. It is output pad, connected to transformer.
8	OC	

ABSOLUTE MAXIMUM RATINGS ⁽²⁾

T_A = 25°C, unless otherwise specified.

PARAMETER	SYMBOL	RATINGS	UNIT
VCC Supply Voltage	V _{CC}	8	V
Start-up Input Voltage	V _{start}	8	V
Terminal Input Voltage	V _{PIN}	V _{CC} + 0.3	V
OC Pin Collector Voltage	V _{OC}	-0.3 ~ +700	V
Peak Output Current (Internally Limited)	I _{OP}	800	mA
Total Power Dissipation	P _D	1000	mW
Junction Operating Ambient Temperature	T _J	0 ~ +125	°C
Storage Temperature Range	T _{stg}	-55 ~ +150	°C
Soldering Temperature (10 Seconds)	T _{solder}	+260	°C

Note 2: Absolute Maximum Ratings are those values beyond which the device could be permanently damaged. Exposure to absolute-maximum-rated conditions for extended periods may affect device reliability.

RECOMMENDED OPERATING CONDITIONS ⁽³⁾

T_A = 25°C, unless otherwise specified.

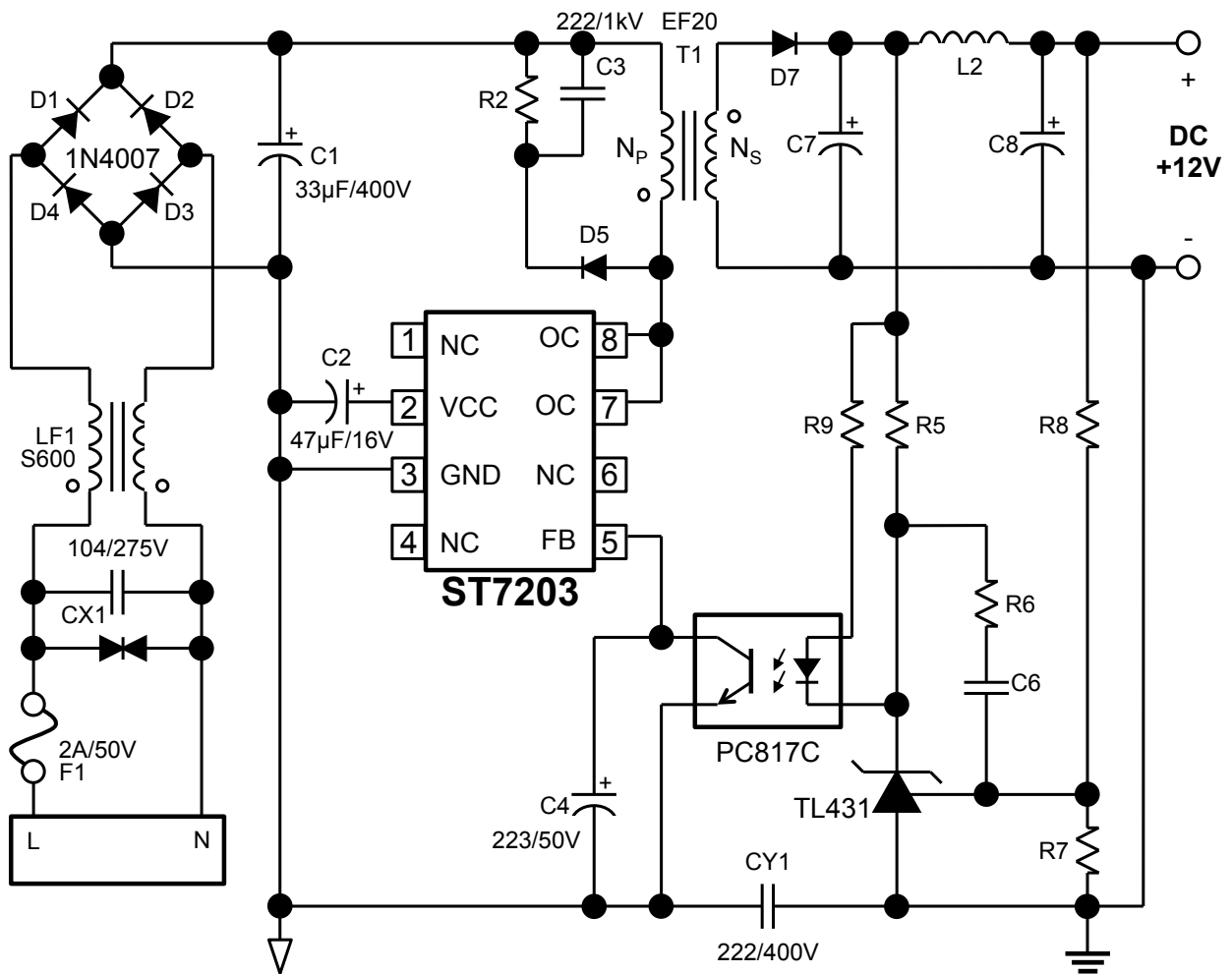
PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT
Supply Voltage	V _{CC}	4	5	6	V
Start-up Input Voltage	V _{SIN}	4.8	5	5.2	V
Input Pin Voltage	V _{PIN}	-0.3		V _{CC}	V
Operating Ambient Temperature Range	T _{opr}	0		70	°C

Note 3: Absolute Maximum Ratings indicate limits beyond which damage to the device may occur. Recommended Operating Conditions indicate conditions for which the device is intended to be functional, but specific performance is not ensured.

ELECTRICAL CHARACTERISTICS
 $T_A = 25^\circ\text{C}$, $V_{CC} = 5\text{V}$, unless otherwise noted.

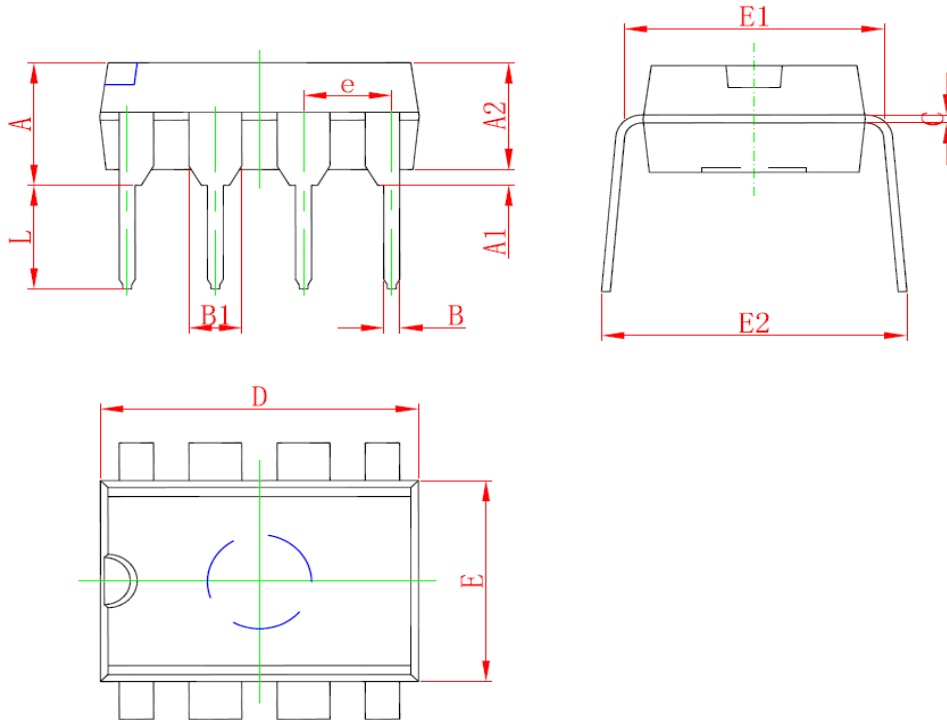
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Output Section (BJT)						
Breakdown Collector Voltage	V_{OC}	$I_{OC} = 10\text{mA}$	700			V
Switching Saturation Voltage	V_{SAT}	$I_{OC} = 600\text{mA}$			1	V
Maximum Output Current	I_S		600	660	720	mA
Output Rising Time	t_r	$C_L = 1\text{nF}$			75	ns
Output Falling Time	t_f	$C_L = 1\text{nF}$			75	ns
Reference Voltage Section						
Reference Voltage	V_{REF}	$I_O = 1\text{mA}$	2.4	2.5	2.6	V
Load Regulation	ΔV_{LOAD}	$I_O = 0.1\text{mA} \sim 1.2\text{mA}$			3	%
Temperature Stability Factor	$\Delta V_{REF}/\Delta T_A$	$T_A = 0^\circ\text{C} \sim 70^\circ\text{C}$		0.2		mV/ $^\circ\text{C}$
Output Noise	V_N	$f = 10\text{Hz} \sim 10\text{kHz}$			50	μV
Long-Term Stability	ΔV_{stab}	$T_A = 85^\circ\text{C}$, 1000 hours		5		mV
Oscillator						
Oscillator Frequency	f_{OSC}	$V_{FB} = 1.6\text{V} \sim 2.8\text{V}$	50	65	70	kHz
Frequency Shuttling	f_{shut}	$V_{FB} = 2.8\text{V} \sim 3.6\text{V}$	0.05		65	kHz
PWM Section						
Maximum Duty Cycle	D_{MAX}				75	%
Minimum Duty Cycle	D_{MIN}		5			%
VCC Power Section						
Supply Current	I_{CC}	$V_{CC} = 5\text{V}$, $V_{FB} = 2.2\text{V}$	10	20	30	mA
Start-up Voltage	V_{start}		4.8	5	5.2	V
Oscillator Shutdown Voltage	V_{shut}		4.0	4.2	4.4	V
Over-voltage Limit Threshold	V_{LIM}		5.6	5.8	6.0	V

TYPICAL APPLICATION CIRCUIT



PACKAGE DIMENSION

DIP-8



SYMBOL	Dimensions in Millimeters		Dimensions in Inches	
	MIN	MAX	MIN	MAX
A	3.600	4.310	0.142	0.170
A1	0.380		0.015	
A2	3.000	3.600	0.118	0.142
B	0.380	0.570	0.015	0.022
B1	1.520 (BSC)		0.060 (BSC)	
C	0.200	0.360	0.008	0.014
D	9.000	9.450	0.354	0.372
E	6.200	6.600	0.244	0.260
E1	7.320	7.920	0.288	0.312
e	2.540 (BSC)		0.100 (BSC)	
L	3.000		0.118	
E2	7.620	9.000	0.300	0.354

NOTICE

Information furnished by **STComponent** is believed to be accurate and reliable. However, no responsibility is assumed for its use. Customers are responsible for their products and applications using **STComponent** components. To minimize the risks associated with customer products and applications, customers should provide adequate design and operating safeguards. **STComponent** reserves the right to make changes to their products or specification without notice. Customers are advised to obtain the latest version of relevant information to verify, before placing orders, that information being relied on is current and complete.