



偉詮電子股份有限公司
Weltrend Semiconductor, Inc.

WT7033

FAN SPEED CONTROLLER

DATASHEET

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GENERAL DESCRIPTION

WT7033 is a fan speed controller. It could detect the voltage change from the external temperature sensor, like thermistor-resistor divider and perform the fan speed by the internal circuits. The WT7033 produces a pulse frequency modulated output signal to drive an external driver transistor.

The Off-time width could be determined by the external resistors and capacitor through the WT7033 internal circuits. When power on the WT7033, a full speed control output signal is asserted to drive the fan in the start. If the ambient temperature is low, like low power consumption state, the WT7033 could set the fan in a slower speed. When the ambient temperature is rising, the fan speed would be speed up in order to cool down the temperature.

An over temperature fault (OTF) output is asserted by the open-drain output if the voltage from the temperature sensor is above the normal control temperature range even after the fan is in the full speed mode.

The FG input could detect the clock signal from the fan to check if the external fan failed or locked. The OTF pin output a high level warning signal .

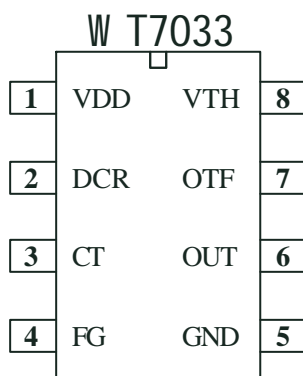
FEATURE

- Ambient temperature proportional ratio fan speed control
- More efficient , low cost fan speed controller
- Slowest fan speed could be set by the external parts
- Support low cost NTC or PTC thermistors
- Over Temperature Fault detection output (OTF)
- Package types: 8-pin SOP and DIP

APPLICATION

- Personal computer and servers
- NLX and ATX power supplies
- Temperature monitor management system

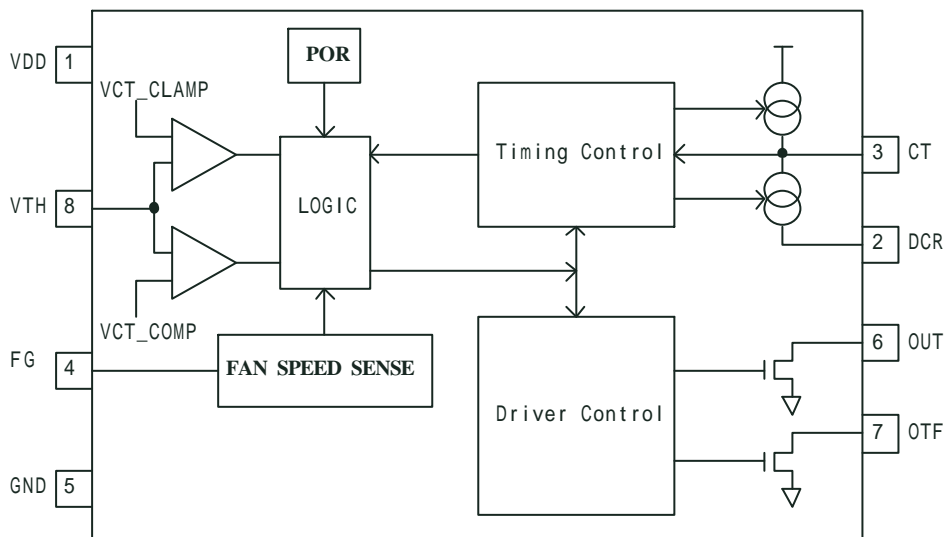
PIN CONFIGURATION



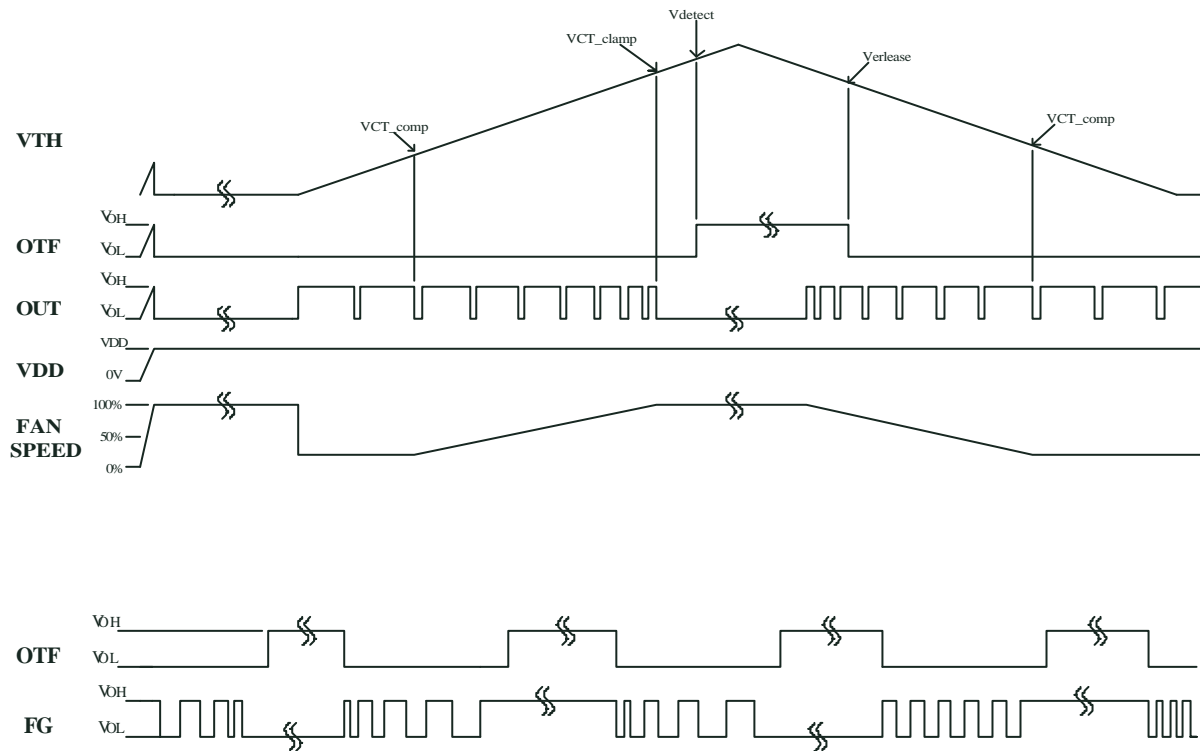
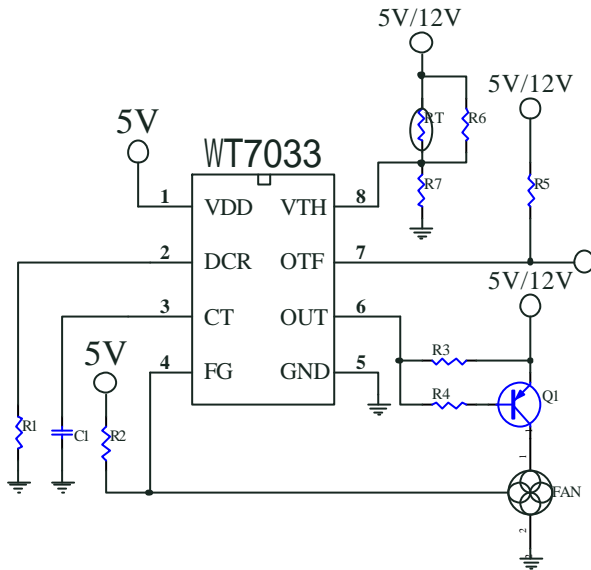
PIN DESCRIPTION

Pin No.	Pin Name	Type	Function
1	VDD	P	Supply power voltage
2	DCR	I	The maximum PFM off-time parameter; discharge current connected to the external resistor
3	CT	I	The PFM parameter connected to the external capacitor.
4	FG	I	Fan clock
5	GND	P	Ground
6	OUT	O	PFM output open-drain driver;
7	OTF	O	Over temperature fault warning signal open-drain output.
8	VTH	I	Fan speed control signal input, connected to the external thermistor resistors to sense the ambient temperature

BLOCK DIAGRAM



REFERENCE APPLICATION INFORMATION



ELECTRICAL CHARACTERISTICS

Absolute Maximum Ratings (Ta=25°C)

Parameter	Min.	Max.	Units
Supply Voltage (VDD)	-0.3	7.0	V
Input pin (VTH)	-0.3	VDD+0.3	V
Output pin (OTF,OUT at add pull high resistor)	-0.3	12	V
Operating temperature	-30	100	°C
Storage temperature	-55	150	°C

RECOMMENDED OPERATING CONDITION

Symbol	Parameter	Condition	Min.	Typ.	Max.	Unit
V _{DD}	Supply voltage			5	6.5	V

D.C Characteristics (VDD=5V, Ta=25°C)

Symbol	Parameter	Condition	Min.	Typ.	Max.	Unit
I _{DD}	Operating current	V _{TH} =1V,CT=0.1uF DCR=51K,CCR=5.1K output no-load		330		uA
I _{IL}	Input leakage current	V _{TH}		±0.1	±1	uA
I _{CHG}	CCR charge current	V _{CCR} =5V,CT=0V			10	mA
I _{DIS-CHG}	DCR discharge current	V _{DCR} =0V,CT=5V			15	mA
V _{TH-CLAMP}	FAN full speed of V _{TH} Voltage	VDD = 5V		3.2		V
V _{TH-COMP}	PFM control start/stop	VDD = 5V		0.8		V
V _{TH_H}	PFM control rang of V _{TH} Voltage	VDD = 5V		2.4		V
V _{CT-CLAMP}	CT clamp voltage	VDD = 5V		3.2		V
V _{CT-COMP}	CT comparator voltage	VDD = 5V		0.8		V
VOH	Output High Voltage	OUT,OTF		5	12	V
I _{OL-OUT}	Sink current	at low level at V _{OUT} =0.8V		25		mA
I _{OL-OTF}	Sink current	at low level at V _{OTF} =0.8V		4.5		mA
V _{detect}	OTF Detect Voltage	VDD = 5V		4.0		V
V _{release}	OTF Release Voltage	VDD = 5V		3.2		V
V _{BD}	Breakdown voltage		10			V

PACKAGE INFORMATION

