

San Ace C70 9TD type Centrifugal Fan

Features

Compact, Thin Profile

This is the industry's first* centrifugal fan with an outer diameter of 70 mm and a thickness of 20 mm.

It is suitable for mounting on small and thin equipment and integration in board modules.

High Airflow and High Static Pressure

This fan delivers a maximum airflow of 1.13 m³/min and a maximum static pressure of 560 Pa.

Compared with the current model,** the maximum airflow has increased approximately 3.9 times and maximum static pressure has increased approximately 1.9 times.

High Energy Efficiency and Low Noise

The PWM control function enables the control of fan speed, contributing to lowering noise and improving energy efficiency of devices.

* Based on our own research as of October 29, 2019, among equally-sized industrial centrifugal fans on the market.

** Current model: *San Ace B76* 9BD type 76 × 20 mm Blower (9BD12SC6-1).



∅70×20 mm

Specifications When the optional inlet nozzle (109-1106) is mounted.

The models listed below **have pulse sensors with PWM control function.**

Model no.	Rated voltage [V]	Operating voltage range [V]	PWM duty cycle* [%]	Rated current [A]	Rated input [W]	Rated speed [min ⁻¹]	Max. airflow [m ³ /min] [CFM]	Max. static pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating temperature [°C]	Expected life [h]
9TD12P6G001	12	10.8 to 13.2	100	1.0	12	9200	1.13 39.9	560 2.24	61	-20 to +70	40000/60°C (70000/40°C)
			20	0.1	1.2	2000	0.23 8.1	25 0.10	30		

* PWM frequency: 25 kHz. Fan does not rotate when PWM duty cycle is 0%.

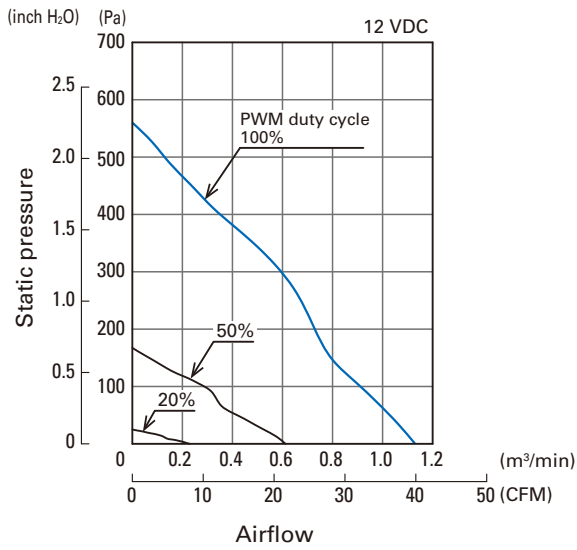
Max input is 12.6 W at rated voltage.

Common Specifications

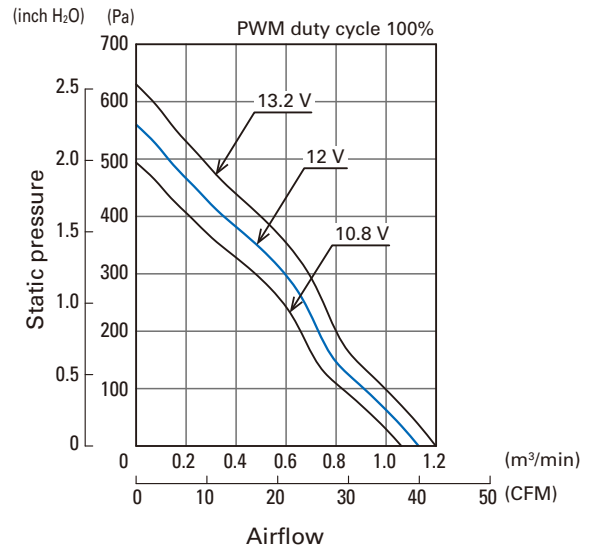
- Material Motor case: Aluminum (Black coating), Impeller: Plastic (Flammability: UL 94V-0)
- Expected life Refer to specifications
(L10 life: 90% survival rate for continuous operation in free air at 60°C, rated voltage)
Expected life at 40°C is for reference only.
- Motor protection system Current blocking function and reverse polarity protection
- Dielectric strength 50/60 Hz, 500 VAC, for 1 minute (between lead wire conductors and motor case)
- Insulation resistance 10 MΩ or more with a 500 VDC megger (between lead wire conductors and motor case)
- Sound pressure level (SPL) At 1 m away from the air inlet
- Operating temperature Refer to specifications (Non-condensing)
- Storage temperature -30 to +70°C (Non-condensing)
- Lead wire ⊕ Red ⊖ Black (Sensor) Yellow (Control) Brown
- Mass Approx. 90 g

Airflow - Static Pressure Characteristics

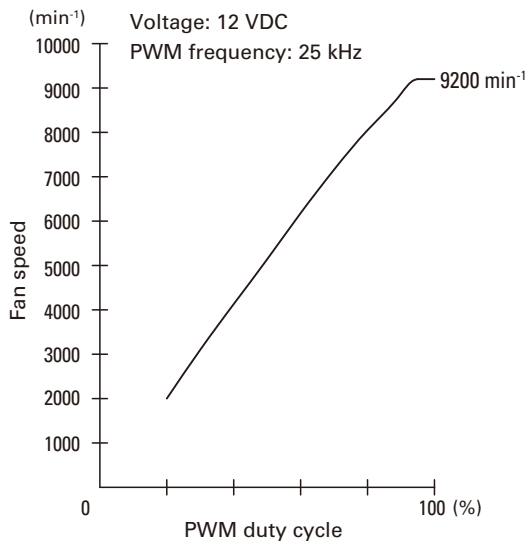
• PWM duty cycle



• Operating voltage range

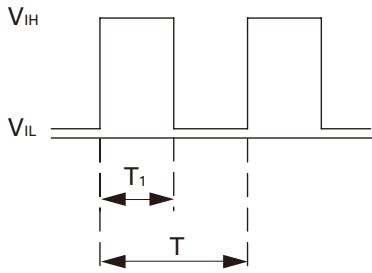


PWM Duty - Speed Characteristics Example



PWM Input Signal Example

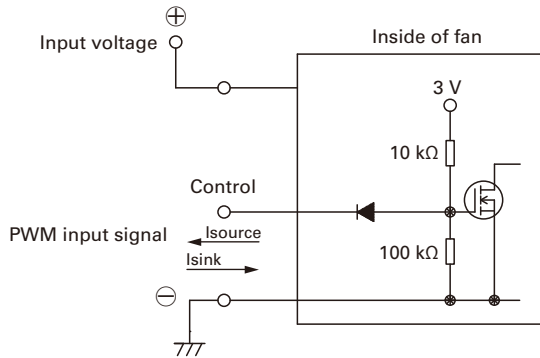
Input signal waveform



$V_{IH} = 4.75 \text{ to } 5.25 \text{ V}$ $V_{IL} = 0 \text{ to } 0.4 \text{ V}$
 $\text{PWM duty cycle (\%)} = \frac{T_1}{T} \times 100$ $\text{PWM frequency } 25 \text{ (kHz)} = \frac{1}{T}$
 $\text{Current source (I}_{source}\text{)} = 2 \text{ mA max. (when control voltage is } 0 \text{ V)}$
 $\text{Current sink (I}_{sink}\text{)} = 1 \text{ mA max. (when control voltage is } 5.25 \text{ V)}$
 $\text{Control terminal voltage} = 5.25 \text{ V max. (when control terminal is open)}$

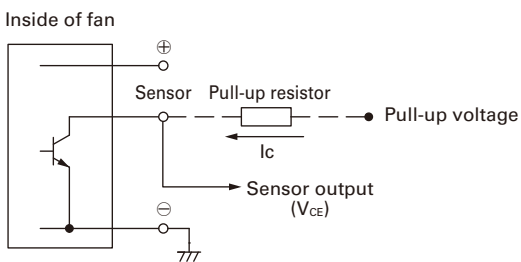
When the control terminal is open,
 fan speed is the same as when PWM duty cycle is 100%.
 Either TTL input, open collector or open drain can be used for
 PWM control input signal.

Example of Connection Schematic



Specifications for Pulse Sensors

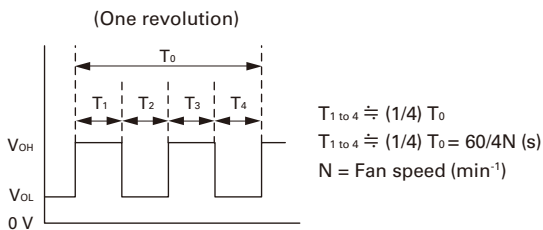
Output circuit: Open collector



$V_{CE} = +13.2 \text{ V max.}$
 $I_c = 5 \text{ mA max. [V}_{OL} = V_{CE} \text{ (SAT)} = 0.6 \text{ V max.}]$

Output waveform (Need pull-up resistor)

In case of steady running



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