

DC Fan

San Ace 280

9GA type

Features

Low Power Consumption

Power consumption has been reduced by approximately 12% compared with four *San Ace 172W 9WE* type fans (Model No. 9WE5724K501) operating in parallel to provide equivalent cooling performance.⁽¹⁾

Wide Temperature Range

The fan operates over a wide temperature range of -40°C to +70°C, making it suitable for low-temperature applications such as rapid freezers and refrigerated and freezer showcases.

Environmentally Conscious Design

The fan uses lead-free brass, complies with the RoHS Directive,⁽²⁾ and is certified as Eco Product Plus⁽³⁾ for its environmentally conscious design.

(1) Applies to Model No. 9GA2824P5G001.

(2) The RoHS (Restriction of Hazardous Substances) Directive restricts the use of certain hazardous substances in electrical and electronic equipment distributed within the European Union.

(3) Eco Products are products that reduce environmental impact compared with our existing products, or comparable products on the market when no equivalent SANYO DENKI product exists. Our products are assessed over the product's life cycle against our own eco-design requirements including product size, weight, power consumption, and CO₂ emissions, and those meeting our standards and higher standards qualify as Eco Products and Eco Products Plus, respectively.



ø280 × 50 mm

Specifications

The models listed below have a pulse sensor with PWM control.

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]
9GA2824P5G001	24	21.6 to 26.4	100	4.6	110	3400	29.0 1024	350 1.40	71	-40 to +70	40000/60°C (70000/40°C)
			20	0.61	14.6	1200	10.2 360	43.6 0.175	41		
9GA2848P5G001	48	43.2 to 52.8	100	2.3	110	3400	29.0 1024	350 1.40	71		
			20	0.36	17.3	1200	10.2 360	43.6 0.175	41		

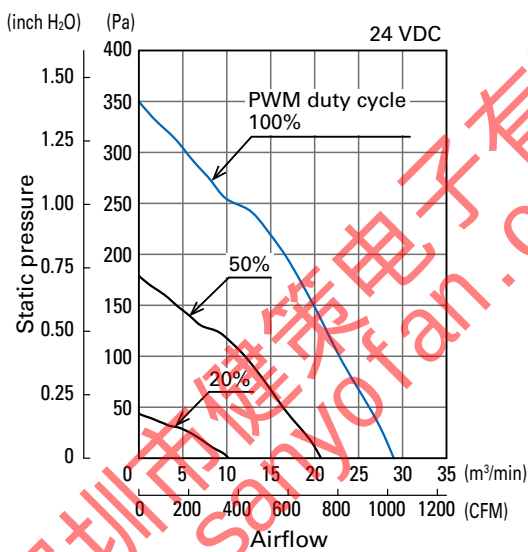
* PWM frequency is 25 kHz. Models without ratings for 0% PWM duty cycle have zero speed at 0%. When control terminal is open, speed is the same as at 100% duty cycle.

Common Specifications

- ☐ Material Frame: 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 function Locked rotor burnout protection, Reverse polarity protection
- ☐ Dielectric strength 50/60 Hz, 500 VAC, for 1 minute (between lead wire conductors and frame)
- ☐ Insulation resistance 10 MΩ min. at 500 VDC (between lead wire conductors and frame)
- ☐ Sound pressure level (SPL) A-weighted sound pressure level (SPL) at 1 m away from the air inlet.
- ☐ Storage temperature -40 to +70°C (Non-condensing)
- ☐ Lead wire ⊕ Red ⊖ Black (Sensor) Yellow (Control) Brown
- ☐ Mass 1850 g

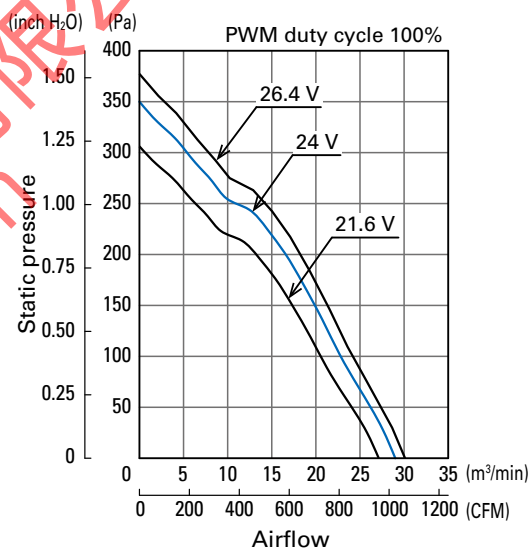
Airflow - Static Pressure Characteristics

PWM duty cycle



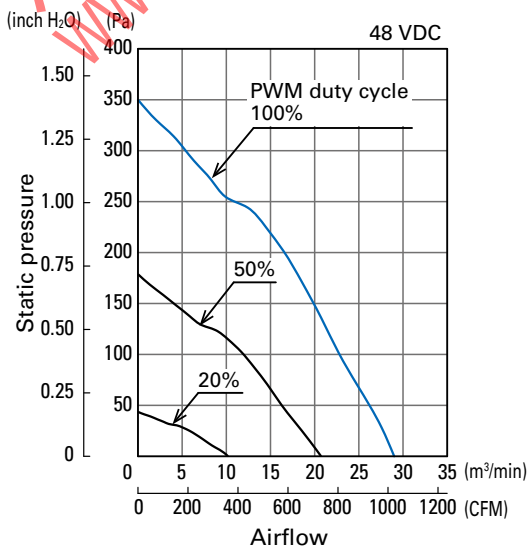
9GA2824P5G001

Operating voltage range



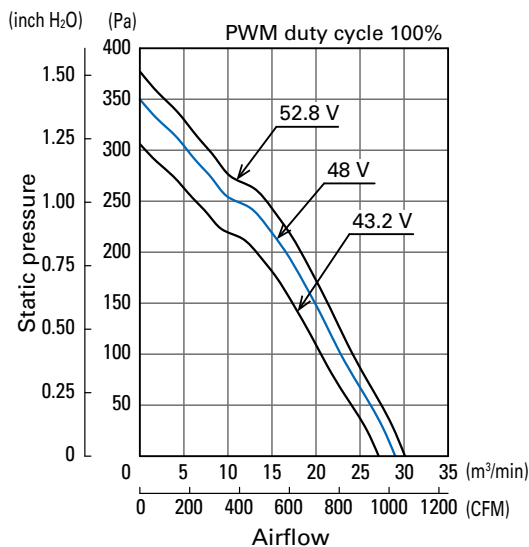
9GA2824P5G001

PWM duty cycle



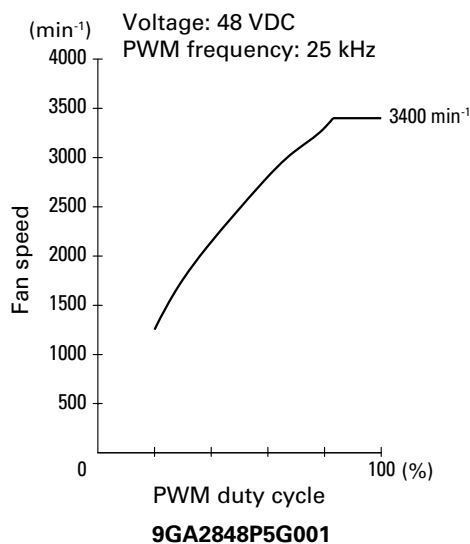
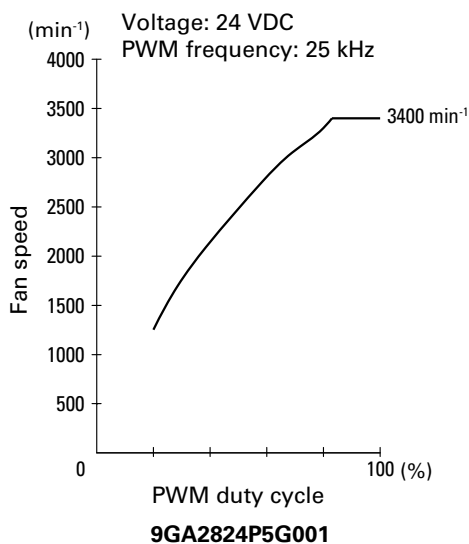
9GA2848P5G001

Operating voltage range



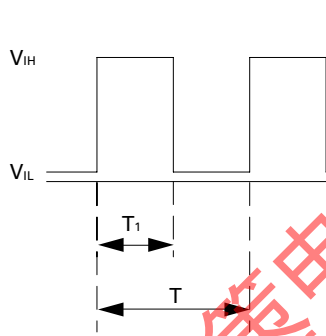
9GA2848P5G001

PWM Duty - Speed Characteristics Example



PWM Input Signal Example

Input signal waveform



$$V_{IH} = 4.75 \text{ to } 5.25 \text{ V} \quad V_{IL} = 0 \text{ to } 0.4 \text{ V}$$

$$\text{PWM duty cycle (\%)} = \frac{T_1}{T} \times 100 \quad \text{PWM frequency } 25 \text{ (kHz)} = \frac{1}{T}$$

Current source (I_{source}) = 1.0 mA max. (when control voltage is 0 V)

Current sink (I_{sink}) = 1.0 mA max. (when control voltage is 5.25 V)

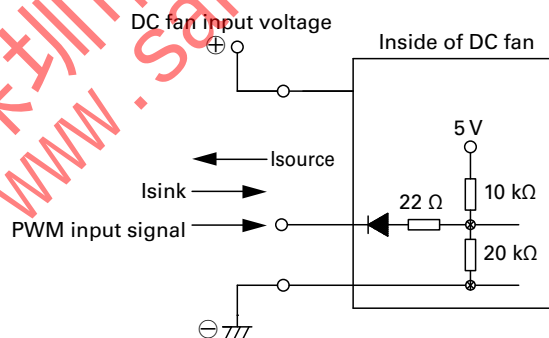
When the PWM control terminal is open, the fan speed is the same as the speed at 100% PWM duty cycle.

The PWM signal can be used with open collector or drain input.

Note that when using an open collector or drain input, or inputting a different voltage or frequency, the speed relative to the PWM duty cycle may differ from this specification.

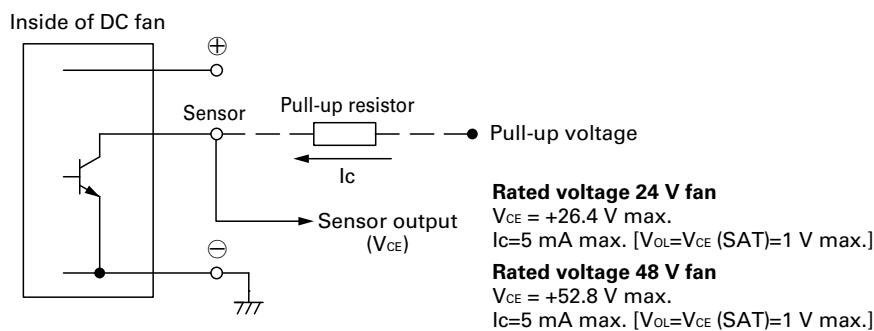
The switching inside the fan may affect the control terminal voltage.

Example of Connection Schematic



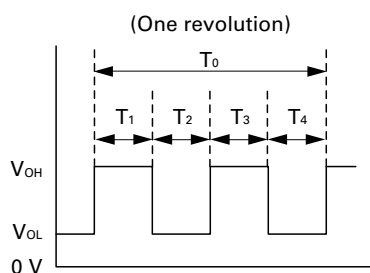
Specifications for Pulse Sensors

Output circuit: Open collector



Output waveform (Need pull-up resistor)

In case of steady running

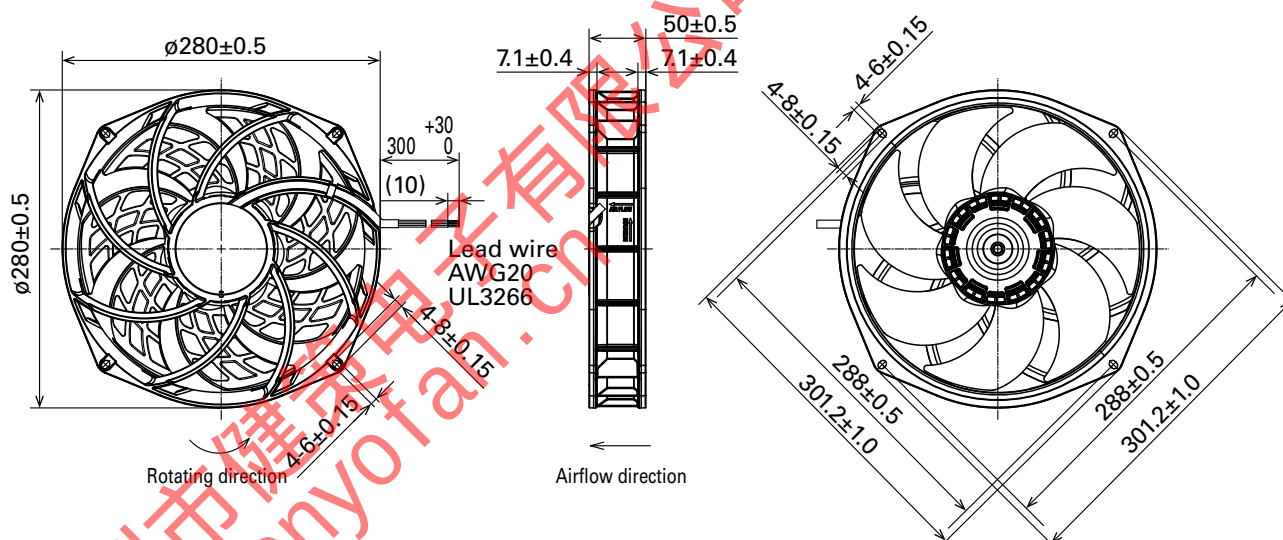


$$T_{1 \text{ to } 4} \doteq (1/4) T_0$$

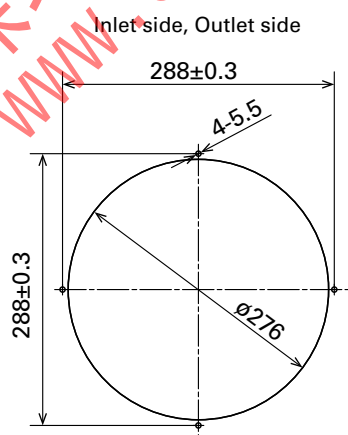
$$T_{1 \text{ to } 4} \doteq (1/4) T_0 = 60/4N \text{ (s)}$$

$$N = \text{Fan speed (min}^{-1}\text{)}$$

Dimensions (unit: mm)



Reference Dimensions of Mounting Holes and Vent Opening (unit: mm)



Options

Finger guards

Model no.	Surface treatment	Mass (g)
109-1160H	Cation electropainting (black)	130

Model no.	Surface treatment	Mass (g)
109-1161H	Cation electropainting (black)	215

