

# San Ace 60 GV type

## Features

### Large air flow and high static pressure

- Maximum airflow : increased by approx. 28%
- Maximum static pressure : increased by approx. 72% compared with our conventional product\*.

### Energy-Saving Design

- Power consumption : reduced by approx. 18% with airflow performance that is identical to our conventional product\*.

\* Our conventional product is the DC cooling fan :  
60 mm square x 38 mm thick fan "San Ace 60" G type (9G0612G102)



DC Fan 60mm

**60mm square** × **38mm thick**

## Specifications

Model No.	Rated Voltage (V)	Operating Voltage Range (V)	PWM duty cycle*(%)	Rated Current (A)	Rated Input (W)	Rated Speed (min <sup>-1</sup> )	Air Flow (m <sup>3</sup> /min) (CFM)		Static Pressure (Pa) (inchH <sub>2</sub> O)		SPL (dB[A])	Operating Temperature Range (°C)	Life Expectancy (h)
9GV0612P1G03 (031)	12	8.0 to 13.8	100	2.8	33.6	16,000	2.37	84	751	3.02	66	-10 to +70	40,000
			0	0.12	1.5	3,100	0.44	15	26	0.10	25		
9GV0612P1H03 (031)			100	2.0	24.0	14,500	2.15	76	617	2.48	63		
			0	0.1	1.2	2,700	0.40	14	21	0.09	22		
9GV0612P1M03 (031)			100	1.5	18.0	13,000	1.93	68	496	1.99	60		
			0	0.08	1.0	2,500	0.38	13	18	0.07	19		

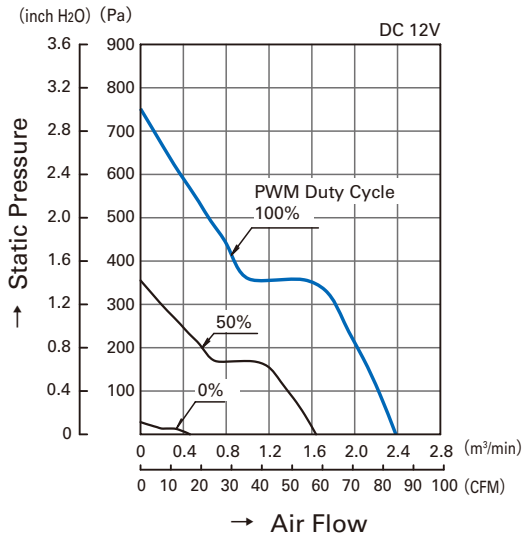
The numbers in ( ) represent ribless models.

※PWM Frequency:25kHz

60mm

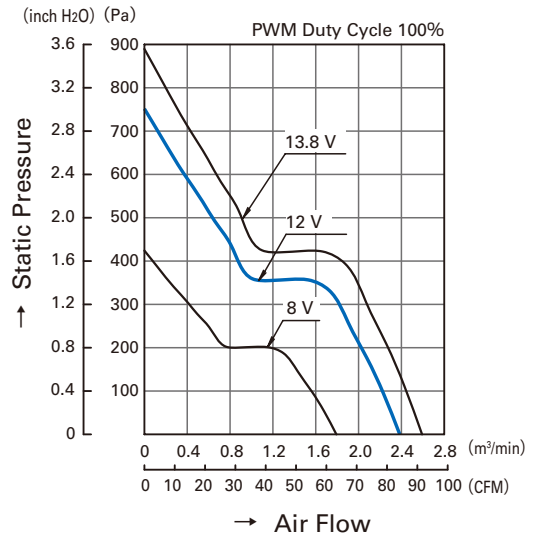
## Air Flow and Static Pressure Characteristics

- PWM Duty Cycle

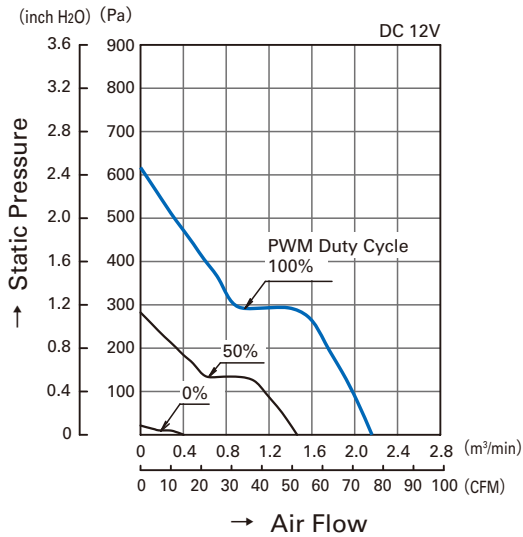


**9GV0612P1G03 (031)**

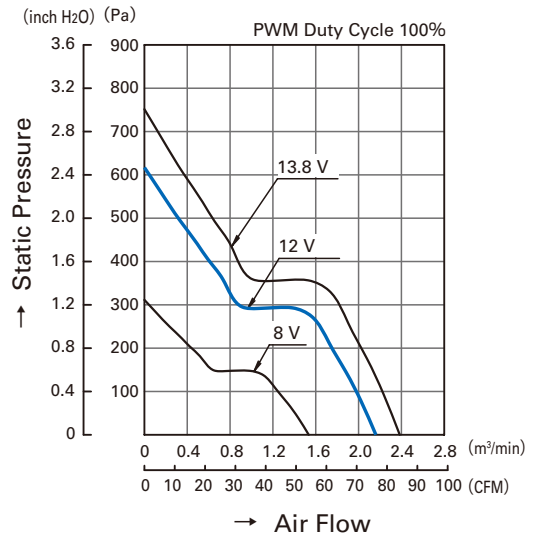
- Operating Voltage Range



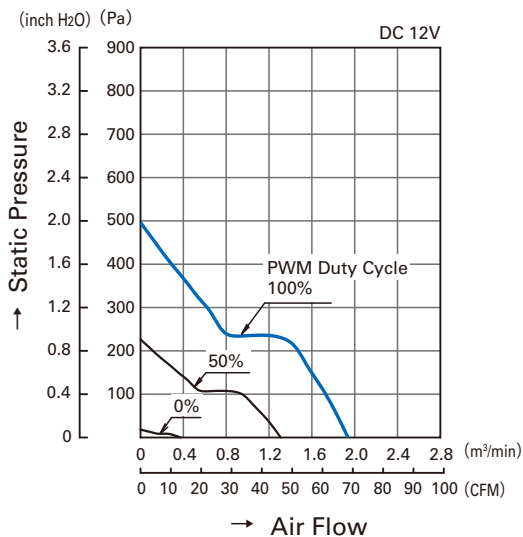
**9GV0612P1G03 (031)**



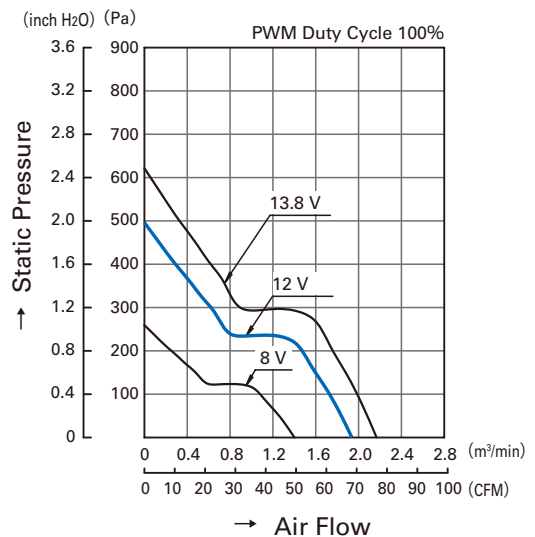
**9GV0612P1H03 (031)**



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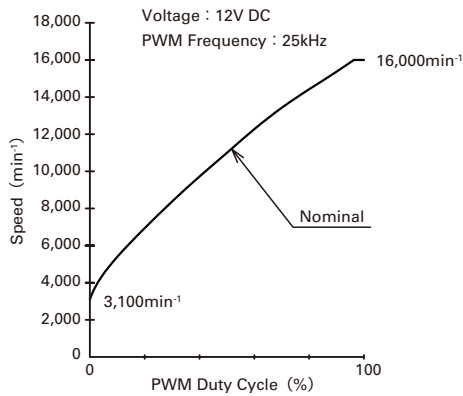


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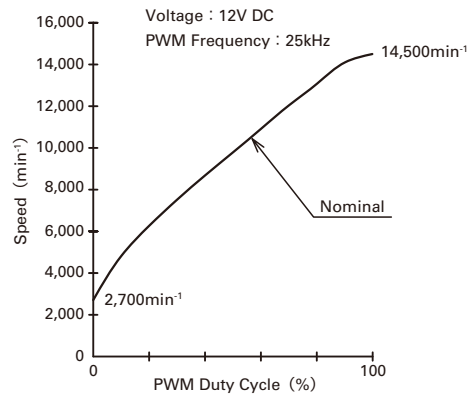


**9GV0612P1M03 (031)**

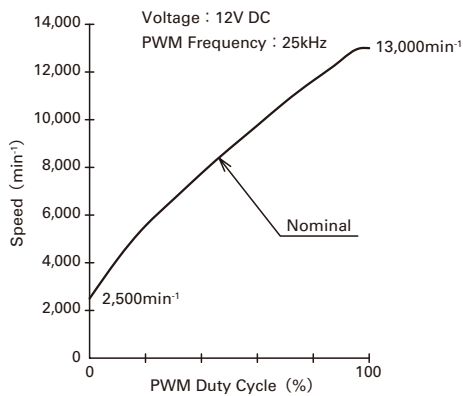
**PWM Duty - Speed Characteristics Example**



**9GV0612P1G03 (031)**



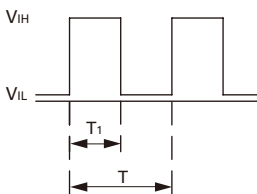
**9GV0612P1H03 (031)**



**9GV0612P1M03 (031)**

**PWM Input Signal Example**

Input Signal Wave Form



$V_{IH}=4.75V$  to  $5.25V$

$V_{IL}=0V$  to  $0.4V$

$$\text{PWM Duty Cycle (\%)} = \frac{T_1}{T} \times 100$$

$$\text{PWM Frequency } 25 \text{ (kHz)} = \frac{1}{T}$$

Source Current ( $I_{source}$ ) :  $1mA$  Max. at control voltage  $0V$

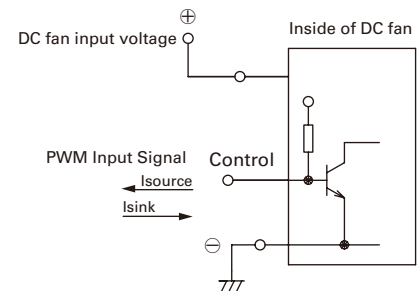
Sink Current ( $I_{sink}$ ) :  $1mA$  Max. at control voltage  $5.25V$

Control Terminal Voltage :  $5.25V$  Max. (Open Circuit)

When the control lead wire is no connecting, the speed is the same speed as at 100% of PWM cycle.

This fan speed should be controlled by PWM input signal of either TTL input or open collector, drain input.

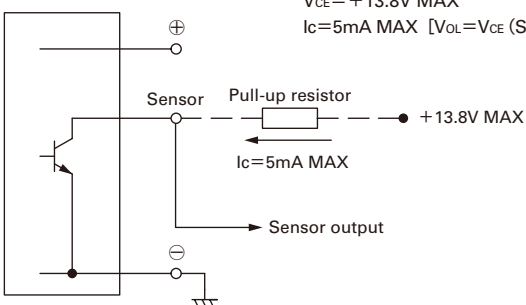
**Connection Schematic**



**Specifications for Pulse Sensors**

Output circuit : Open collector

Inside of DC fan



$V_{CE} = +13.8V$  MAX

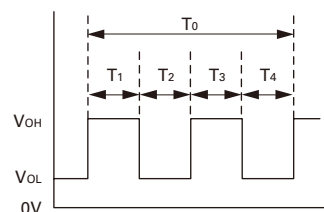
$I_C = 5mA$  MAX [ $V_{OL} = V_{CE}(\text{SAT}) = 0.6V$  MAX]

Pull-up resistor  
+13.8V MAX  
 $I_C = 5mA$  MAX

Output waveform (Need pull-up resistor)

In case of steady running

(One revolution)

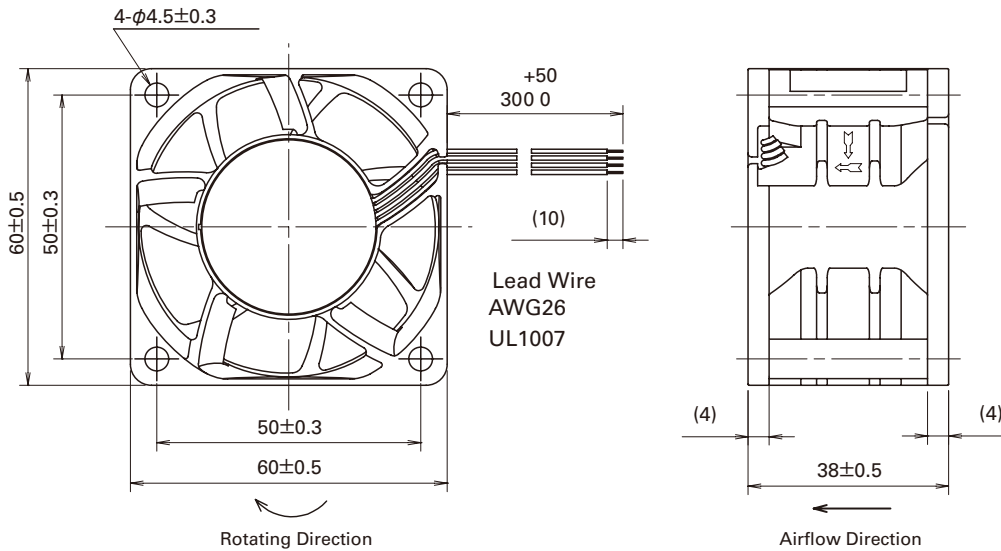


$$T_{1\sim 4} \doteq (1/4) T_0$$

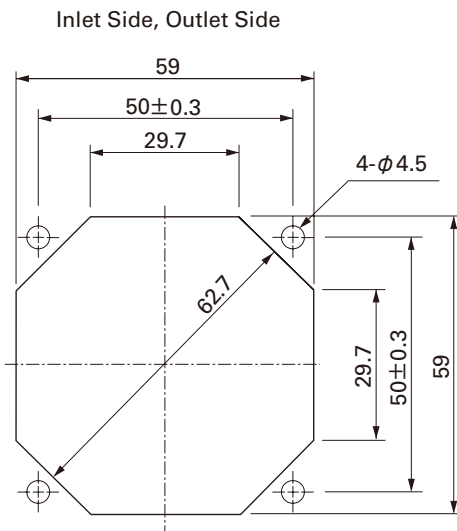
$$T_{1\sim 4} \doteq (1/4) T_0 = 60/4N \text{ (sec)}$$

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

## Dimensions (unit : mm)



## Reference dimension of mounting holes and vent opening (unit : mm)



## Common Specifications

- Material ..... Frame: Plastics (Flammability: UL94V-0) , Impeller: Plastics (Flammability: UL94V-1)
- Life Expectancy ..... Varies for each model  
(L10: Survival rate: 90% at 60°C, rated voltage, and continuously run in a free air state)
- Motor Protection System ..... Current blocking function and Reverse polarity protection
- Dielectric Strength ..... 50/60 Hz, 500VAC, 1 minute (between lead conductor and frame)
- Sound Pressure Level (SPL) ..... Expressed as the value at 1m from air inlet side
- Operating Temperature Range ..... Varies for each model (Non-condensing)
- Lead Wire ..... ⊕red ⊖black Sensor: yellow Control: brown
- Mass ..... 130g