

# 40×40×28 mm

## San Ace 40L 9L type



### General Specifications

- Material ..... Frame: Aluminum, Impeller: Plastic (Flammability: UL 94V-0)
- Expected life ..... See the table below. (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  
For details, please refer to p. 599.
- Dielectric strength ..... 50/60 Hz, 500 VAC, for 1 minute (between lead wire conductors and frame)
- Insulation resistance ..... 10 MΩ or more with a 500 VDC megger (between lead wire conductors and frame)
- Sound pressure level (SPL) ..... At 1 m away from the air inlet
- Storage temperature ..... -30 to +70°C (Non-condensing)
- Lead wire ..... ⊕Red ⊖Black ☐Sensor ☐Yellow
- Mass ..... 55 g

### Specifications

The models listed below **have pulse sensors**.

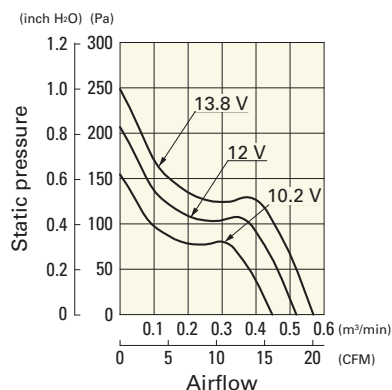
| Model no.  | Rated voltage [V] | Operating voltage range [V] | Rated current [A] | Rated input [W] | Rated speed [min <sup>-1</sup> ] | Max. airflow [m <sup>3</sup> /min] [CFM] | Max. static pressure [Pa] [inchH <sub>2</sub> O] | SPL [dB (A)] | Operating temperature [°C] | Expected life [h]            |
|------------|-------------------|-----------------------------|-------------------|-----------------|----------------------------------|------------------------------------------|--------------------------------------------------|--------------|----------------------------|------------------------------|
| 9L0412J301 | 12                | 10.2 to 13.8                | 0.31              | 3.72            | 11700                            | 0.52 18.4                                | 206 0.827                                        | 48           | -20 to +70                 | 100000/60°C<br>(135000/40°C) |
| 9L0412H301 |                   |                             | 0.15              | 1.8             | 8400                             | 0.37 13.1                                | 106 0.426                                        | 40           |                            |                              |
| 9L0412M301 |                   |                             | 0.045             | 0.54            | 4000                             | 0.16 5.65                                | 24 0.096                                         | 19           |                            |                              |

Note: Sensor and control options are available for selection. Refer to the table on p. 634.

### Airflow - Static Pressure Characteristics

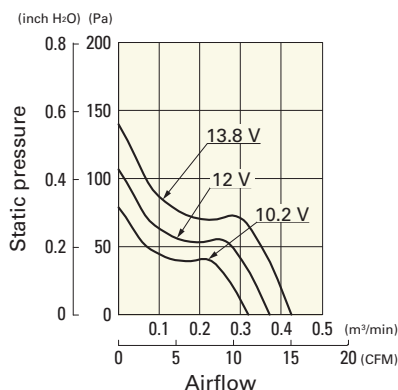
9L0412J301 With pulse sensor

Operating voltage range



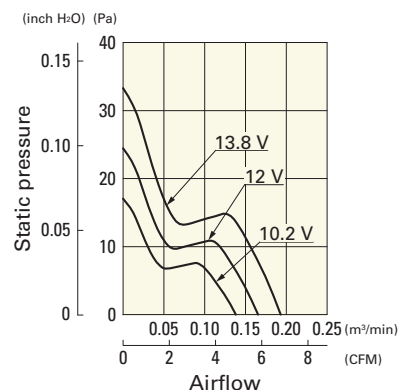
9L0412H301 With pulse sensor

Operating voltage range

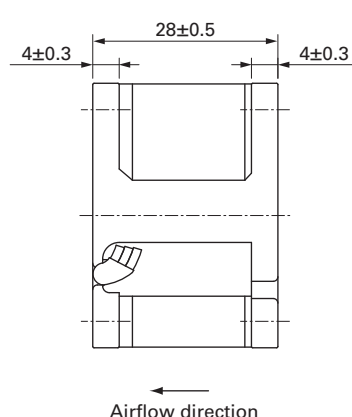
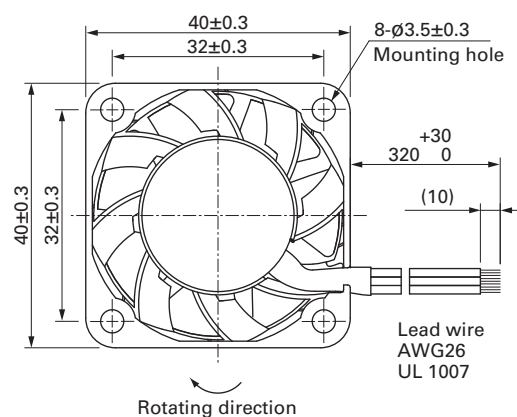


9L0412M301 With pulse sensor

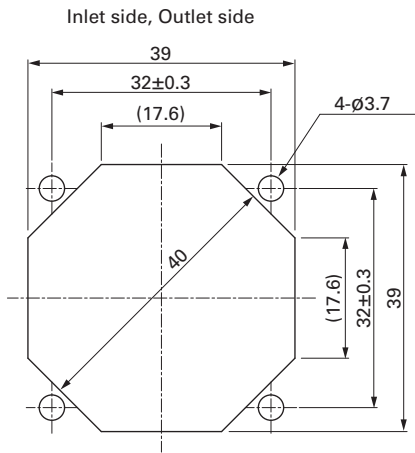
Operating voltage range



### Dimensions (unit: mm)



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



## Options

Finger guards

page: p. 584

Model no.: 109-059, 109-059H



# 60×60×25 mm

## San Ace 60L 9LG type us

### General Specifications

- Material ..... Frame: Aluminum, Impeller: Plastic (Flammability: UL 94V-1)
- Expected life ..... See the table below. (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  
For details, please refer to p. 599.
- Dielectric strength ..... 50/60 Hz, 500 VAC, for 1 minute (between lead wire conductors and frame)
- Insulation resistance ..... 10 MΩ or more with a 500 VDC megger (between lead wire conductors and frame)
- Sound pressure level (SPL) ..... At 1 m away from the air inlet
- Storage temperature ..... -30 to +70°C (Non-condensing)
- Lead wire ..... ⊕Red ⊖Black Sensor Yellow Control Brown
- Mass ..... 100 g

### Specifications

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

| Model no.       | Rated voltage<br>[V] | Operating voltage range<br>[V] | PWM duty<br>cycle* [%] | Rated current<br>[A] | Rated input<br>[W] | Rated speed<br>[min <sup>-1</sup> ] | Max. airflow          |       | Max. static pressure |                        | SPL      | Operating temperature | Expected life                |
|-----------------|----------------------|--------------------------------|------------------------|----------------------|--------------------|-------------------------------------|-----------------------|-------|----------------------|------------------------|----------|-----------------------|------------------------------|
|                 |                      |                                |                        |                      |                    |                                     | [m <sup>3</sup> /min] | [CFM] | [Pa]                 | [inchH <sub>2</sub> O] | [dB (A)] | [°C]                  | [h]                          |
| » 9LG0612P4S001 | 12                   | 10.8 to 13.2                   | 100                    | 0.67                 | 8.04               | 11000                               | 1.4                   | 49.4  | 300                  | 1.204                  | 53       | -20 to +70            | 180000/60°C<br>(215000/40°C) |
|                 |                      |                                | 20                     | 0.06                 | 0.72               | 2900                                | 0.36                  | 12.7  | 20.8                 | 0.083                  | 20       |                       |                              |
| » 9LG0612P4J001 |                      |                                | 100                    | 0.39                 | 4.68               | 8650                                | 1.1                   | 38.8  | 182                  | 0.73                   | 47       |                       |                              |
|                 |                      |                                | 20                     | 0.03                 | 0.36               | 1150                                | 0.13                  | 4.8   | 3.3                  | 0.013                  | 14       |                       |                              |
| » 9LG0612P4H001 |                      |                                | 100                    | 0.17                 | 2.04               | 6150                                | 0.78                  | 27.5  | 97                   | 0.389                  | 35       |                       |                              |
|                 |                      |                                | 20                     | 0.03                 | 0.36               | 1350                                | 0.17                  | 6.0   | 4.7                  | 0.018                  | 14       |                       |                              |
| » 9LG0612P4M001 |                      |                                | 100                    | 0.09                 | 1.08               | 4200                                | 0.53                  | 18.7  | 45                   | 0.18                   | 24       |                       |                              |
|                 |                      |                                | 20                     | 0.03                 | 0.36               | 900                                 | 0.11                  | 3.8   | 2.0                  | 0.008                  | 14       |                       |                              |
| » 9LG0624P4S001 | 24                   | 21.6 to 26.4                   | 100                    | 0.34                 | 8.16               | 11000                               | 1.4                   | 49.4  | 300                  | 1.204                  | 53       |                       |                              |
|                 |                      |                                | 20                     | 0.03                 | 0.72               | 2900                                | 0.36                  | 12.7  | 20.8                 | 0.083                  | 20       |                       |                              |
| » 9LG0624P4J001 |                      |                                | 100                    | 0.19                 | 4.56               | 8650                                | 1.1                   | 38.8  | 182                  | 0.73                   | 47       |                       |                              |
|                 |                      |                                | 20                     | 0.02                 | 0.48               | 2200                                | 0.28                  | 9.8   | 12.0                 | 0.048                  | 17       |                       |                              |
| » 9LG0624P4H001 |                      |                                | 100                    | 0.08                 | 1.92               | 6150                                | 0.78                  | 27.5  | 97                   | 0.389                  | 35       |                       |                              |
|                 |                      |                                | 20                     | 0.02                 | 0.48               | 1300                                | 0.16                  | 5.6   | 4.3                  | 0.017                  | 14       |                       |                              |
| » 9LG0624P4M001 |                      |                                | 100                    | 0.04                 | 0.96               | 4200                                | 0.53                  | 18.7  | 45                   | 0.18                   | 24       |                       |                              |
|                 |                      |                                | 20                     | 0.01                 | 0.24               | 800                                 | 0.1                   | 3.5   | 1.6                  | 0.006                  | 14       |                       |                              |
| » 9LG0648P4S001 | 48                   | 36 to 72                       | 100                    | 0.18                 | 8.64               | 11000                               | 1.4                   | 49.4  | 305                  | 1.224                  | 53       |                       |                              |
|                 |                      |                                | 20                     | 0.02                 | 0.96               | 2900                                | 0.36                  | 12.7  | 20.8                 | 0.083                  | 20       |                       |                              |
| » 9LG0648P4J001 |                      |                                | 100                    | 0.1                  | 4.8                | 8650                                | 1.1                   | 38.8  | 182                  | 0.73                   | 47       |                       |                              |
|                 |                      |                                | 20                     | 0.02                 | 0.96               | 2100                                | 0.26                  | 9.1   | 10.7                 | 0.042                  | 17       |                       |                              |
| » 9LG0648P4H001 |                      |                                | 100                    | 0.06                 | 2.88               | 6150                                | 0.78                  | 27.5  | 97                   | 0.389                  | 35       |                       |                              |
|                 |                      |                                | 20                     | 0.02                 | 0.96               | 1000                                | 0.12                  | 4.2   | 2.5                  | 0.01                   | 14       |                       |                              |
| » 9LG0648P4M001 |                      |                                | 100                    | 0.04                 | 1.92               | 4200                                | 0.53                  | 18.7  | 45                   | 0.18                   | 24       |                       |                              |
|                 |                      |                                | 20                     | 0.02                 | 0.96               | 650                                 | 0.08                  | 2.8   | 1.0                  | 0.004                  | 14       |                       |                              |

\* PWM input frequency is 25 kHz; models without specifications at 0% PWM duty cycle have zero fan speed at 0%.

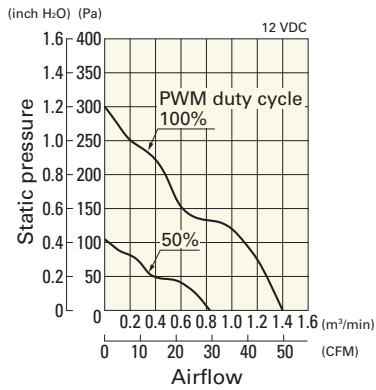
Note 1: Sensor and control options are available for selection. Refer to the table on p. 634.

Note 2: The » mark indicates Short Lead Time Service applicable models. See p. 654 for details.

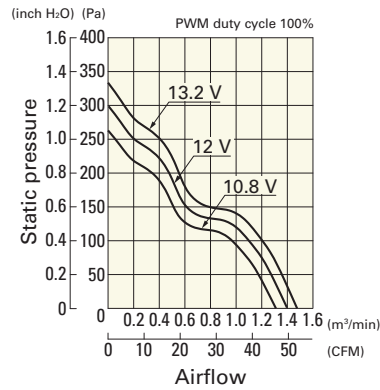
## Airflow - Static Pressure Characteristics / PWM Duty - Speed Characteristics Example

**9LG0612P4S001** With pulse sensor with PWM control function

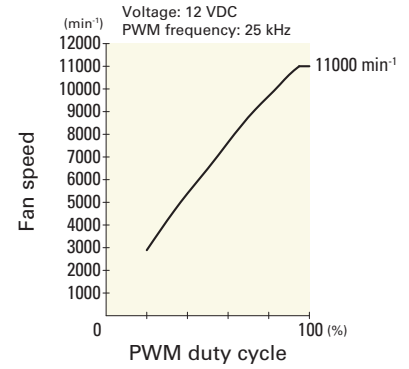
PWM duty cycle



Operating voltage range

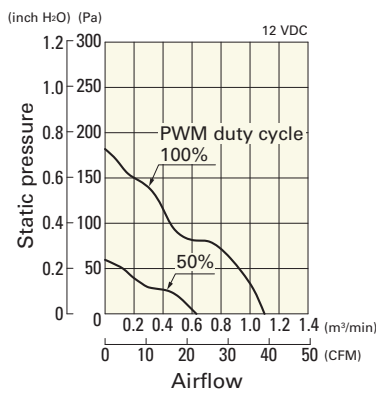


PWM duty - Speed characteristics example

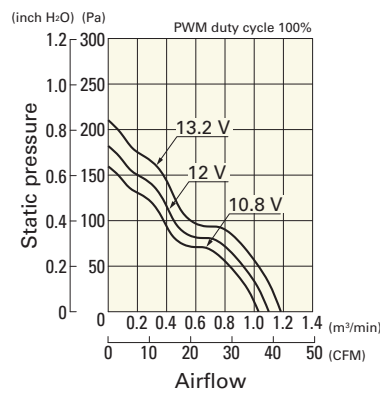


**9LG0612P4J001** With pulse sensor with PWM control function

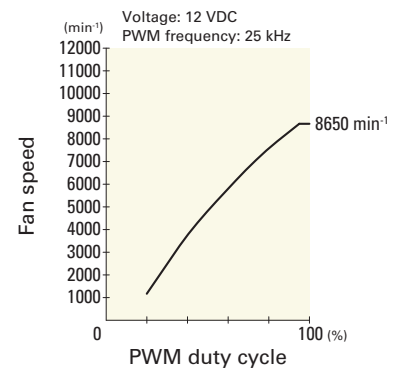
PWM duty cycle



Operating voltage range

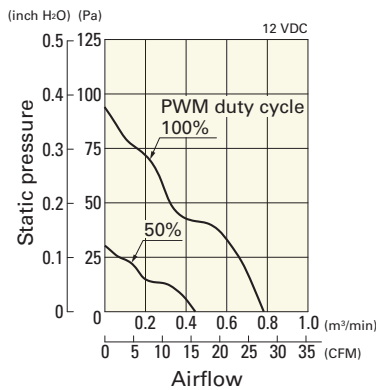


PWM duty - Speed characteristics example

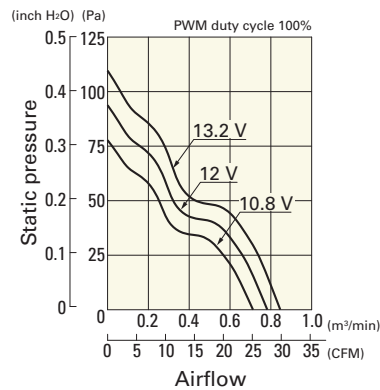


**9LG0612P4H001** With pulse sensor with PWM control function

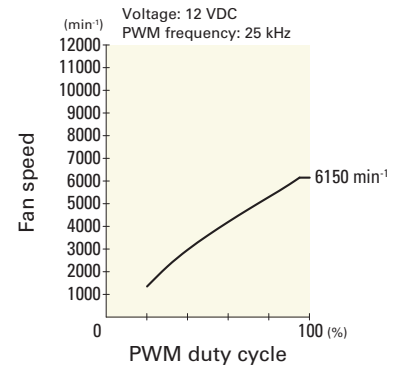
PWM duty cycle



Operating voltage range

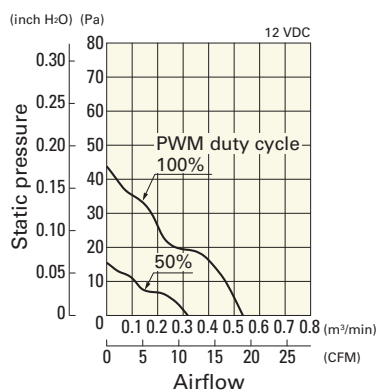


PWM duty - Speed characteristics example

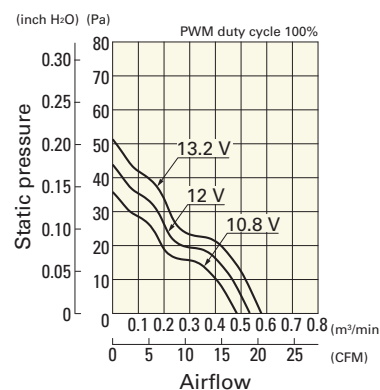


**9LG0612P4M001** With pulse sensor with PWM control function

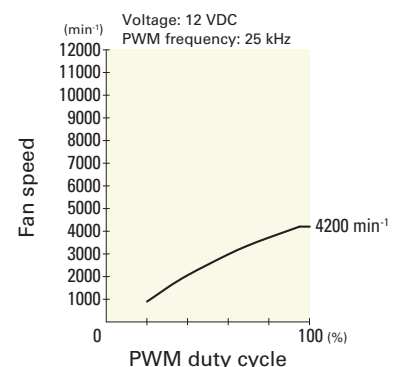
PWM duty cycle



Operating voltage range



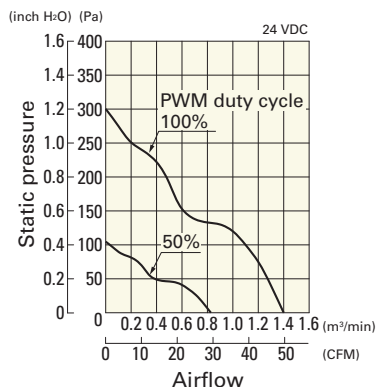
PWM duty - Speed characteristics example



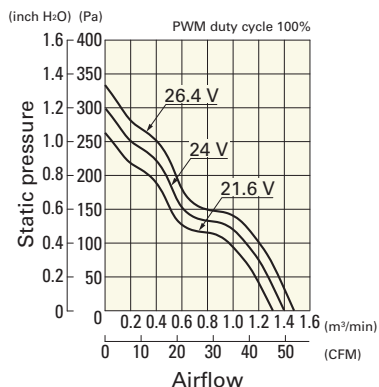
## Airflow - Static Pressure Characteristics / PWM Duty - Speed Characteristics Example

**9LG0624P4S001** With pulse sensor with PWM control function

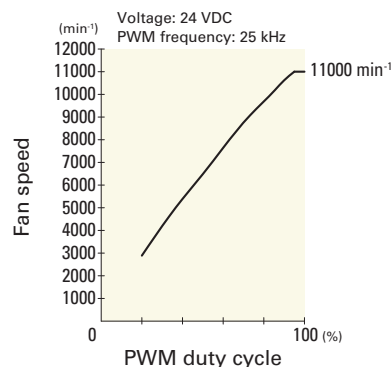
PWM duty cycle



Operating voltage range

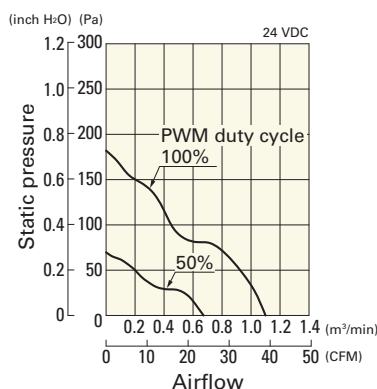


PWM duty - Speed characteristics example

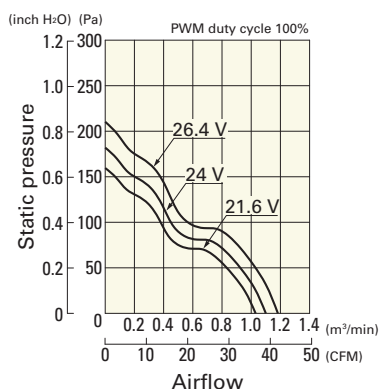


**9LG0624P4J001** With pulse sensor with PWM control function

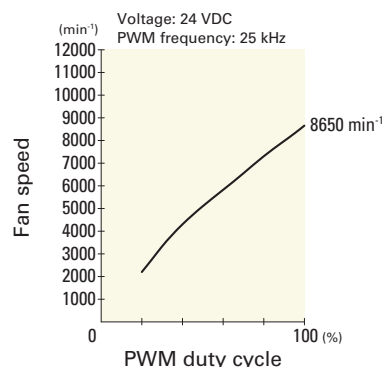
PWM duty cycle



Operating voltage range

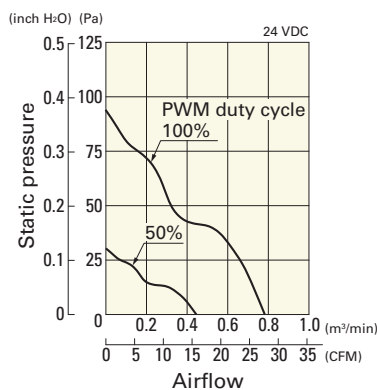


PWM duty - Speed characteristics example

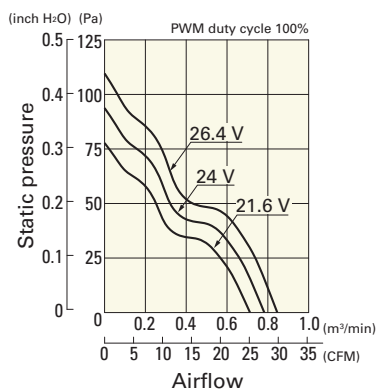


**9LG0624P4H001** With pulse sensor with PWM control function

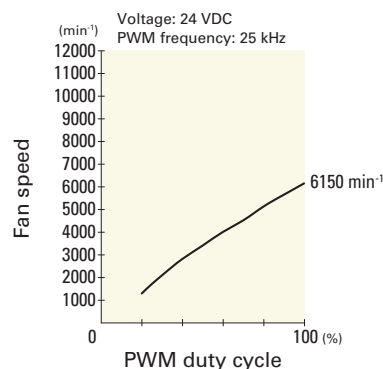
PWM duty cycle



Operating voltage range

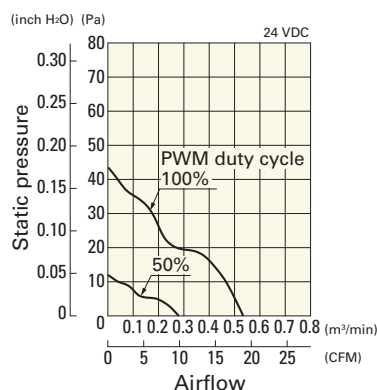


PWM duty - Speed characteristics example

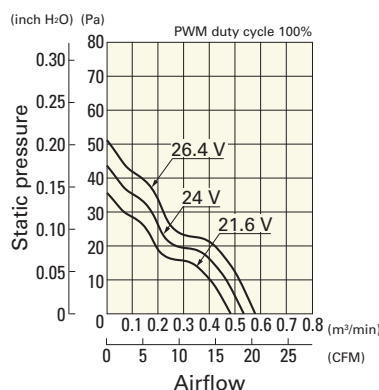


**9LG0624P4M001** With pulse sensor with PWM control function

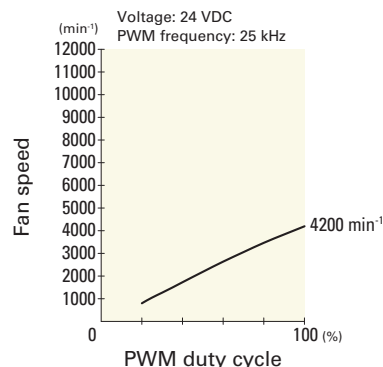
PWM duty cycle



Operating voltage range



PWM duty - Speed characteristics example

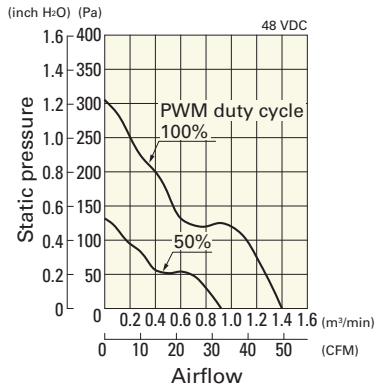


DC  
Long Life Fan 60 mm sq.

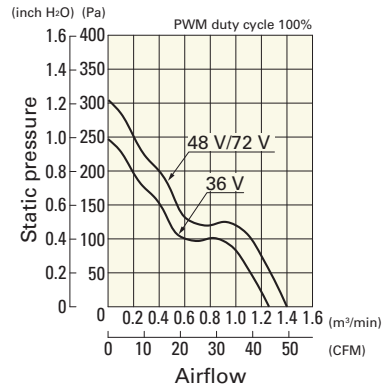
## Airflow - Static Pressure Characteristics / PWM Duty - Speed Characteristics Example

**9LG0648P4S001** With pulse sensor with PWM control function

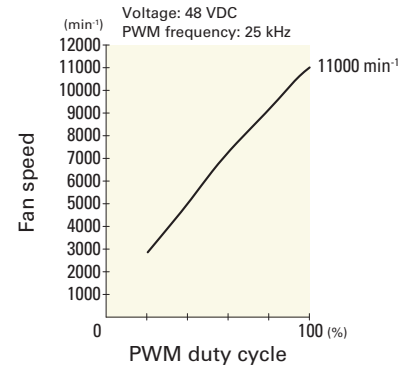
PWM duty cycle



Operating voltage range

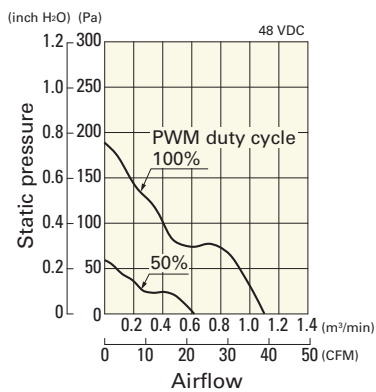


PWM duty - Speed characteristics example

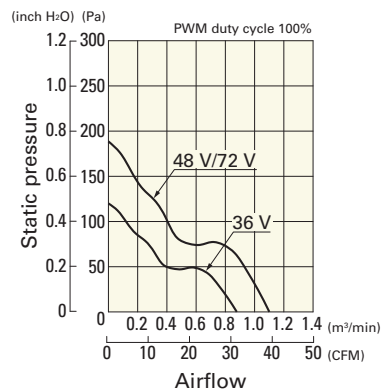


**9LG0648P4J001** With pulse sensor with PWM control function

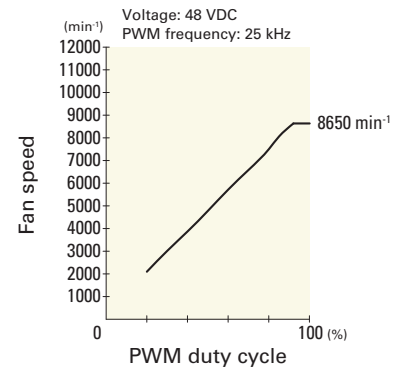
PWM duty cycle



Operating voltage range

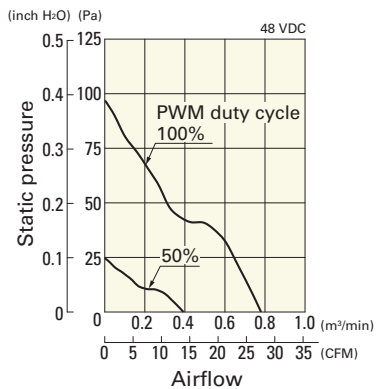


PWM duty - Speed characteristics example

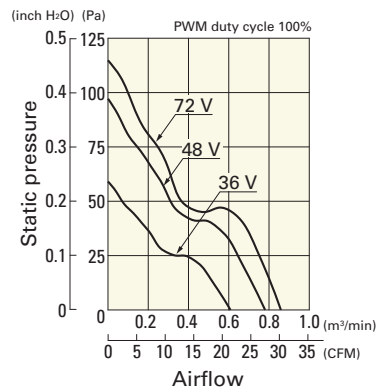


**9LG0648P4H001** With pulse sensor with PWM control function

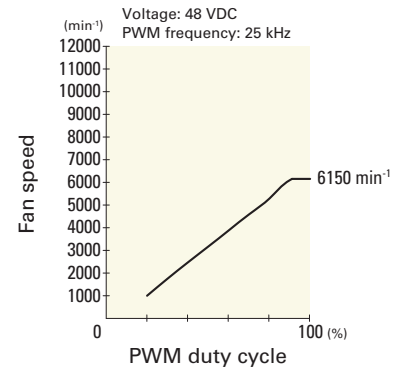
PWM duty cycle



Operating voltage range

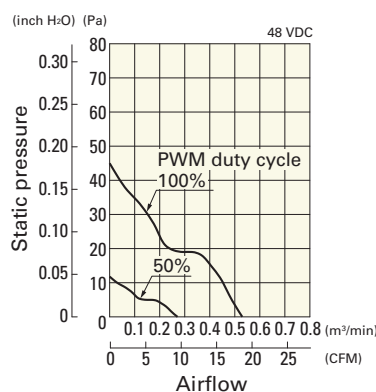


PWM duty - Speed characteristics example

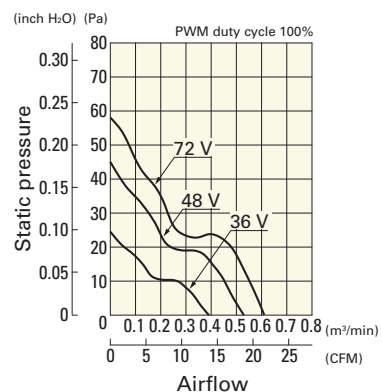


**9LG0648P4M001** With pulse sensor with PWM control function

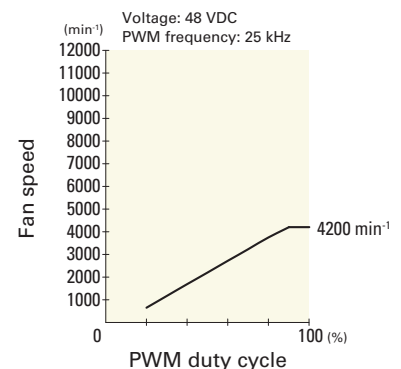
PWM duty cycle



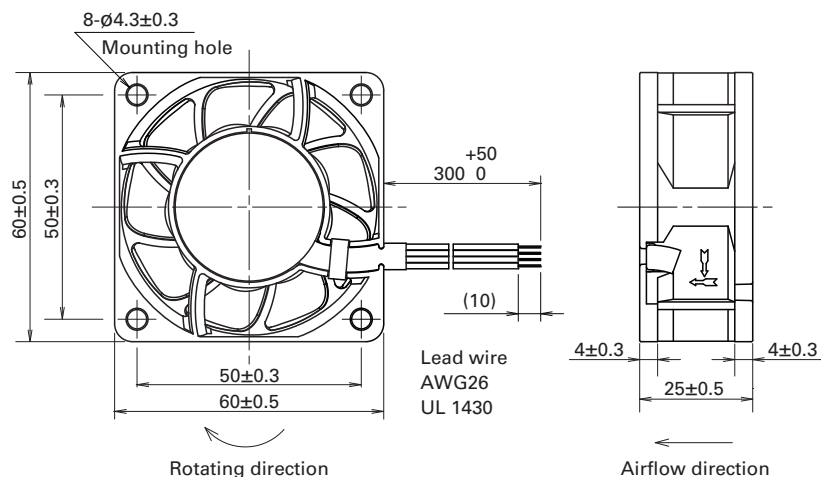
Operating voltage range



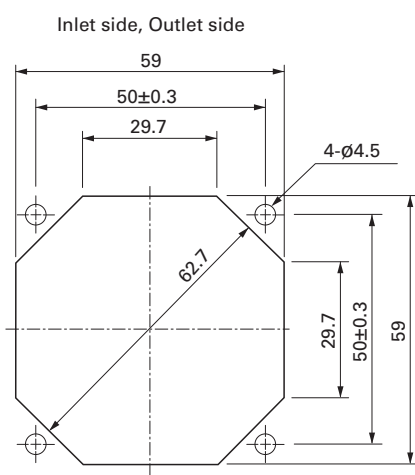
PWM duty - Speed characteristics example



## Dimensions (unit: mm)



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



## Options

### Finger guards

page: p. 584

Model no.: 109-139E, 109-139H

### Resin finger guards

page: p. 591

Model no.: 109-1003G

### Resin filter kits

page: p. 592

Model no.: 109-1003F13 (13PPI), 109-1003F20 (20PPI),  
109-1003F30 (30PPI), 109-1003F40 (40PPI)

# 60×60×76 mm

## San Ace 60L 9CRLA type



### General Specifications

- Material ..... Frame: Aluminum (Black coating), Impeller: Plastic (Flammability: UL 94V-1)
- Expected life ..... See the table below. (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  
For details, please refer to p. 599.
- Dielectric strength ..... 50/60 Hz, 500 VAC, for 1 minute (between lead wire conductors and frame)
- Insulation resistance ..... 10 MΩ or more with a 500 VDC megger (between lead wire conductors and frame)
- Sound pressure level (SPL) ..... At 1 m away from the air inlet
- Storage temperature ..... -30 to +70°C (Non-condensing)
- Lead wire ..... Inlet ⊕Red ⊖Black (Sensor) Yellow (Control) Brown  
Outlet ⊕Orange ⊖Gray (Sensor) Purple (Control) White
- Mass ..... 310 g

### Specifications

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 <sup>-1</sup> ] | Max. airflow [m <sup>3</sup> /min] [CFM] | Max. static pressure [Pa] [inchH <sub>2</sub> O] | SPL [dB (A)] | Operating temperature [°C] | Expected life [h]            |
|-----------------|-------------------|-----------------------------|---------------------|-------------------|-----------------|----------------------------------|------------------------------------------|--------------------------------------------------|--------------|----------------------------|------------------------------|
| 9CRLA0612P0G001 | 12                | 10.8 to 13.2                | 100                 | 3.0               | 36.0            | 16500 17800                      | 2.1 74.1                                 | 1400 5.62                                        | 70           | -20 to +70                 | 100000/60°C<br>(135000/40°C) |
|                 |                   |                             | 20                  | 0.4               | 4.8             | 5000 5400                        | 0.64 22.6                                | 128 0.51                                         | 43           |                            |                              |

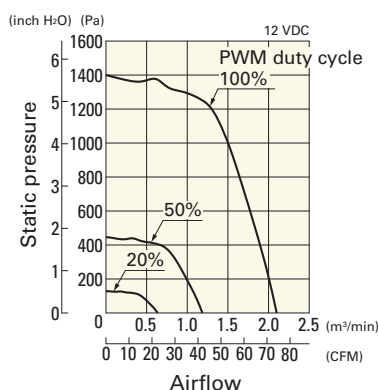
\* PWM input frequency is 25 kHz; models without specifications at 0% PWM duty cycle have zero fan speed at 0%.

Note: The  mark indicates Short Lead Time Service applicable models. See p. 654 for details.

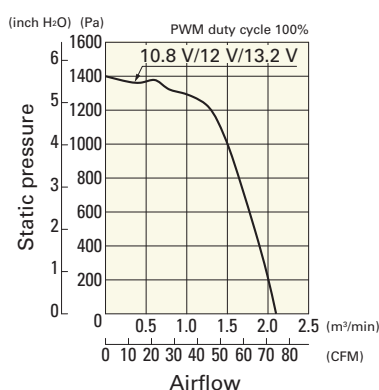
### Airflow - Static Pressure Characteristics / PWM Duty - Speed Characteristics Example

**9CRLA0612P0G001** With pulse sensor with PWM control function

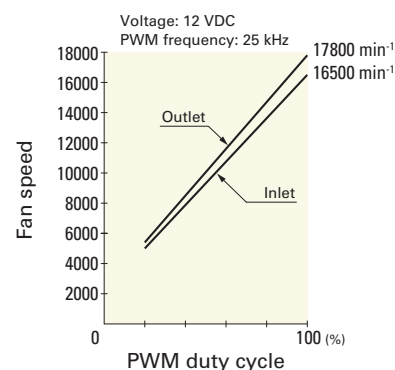
PWM duty cycle



Operating voltage range

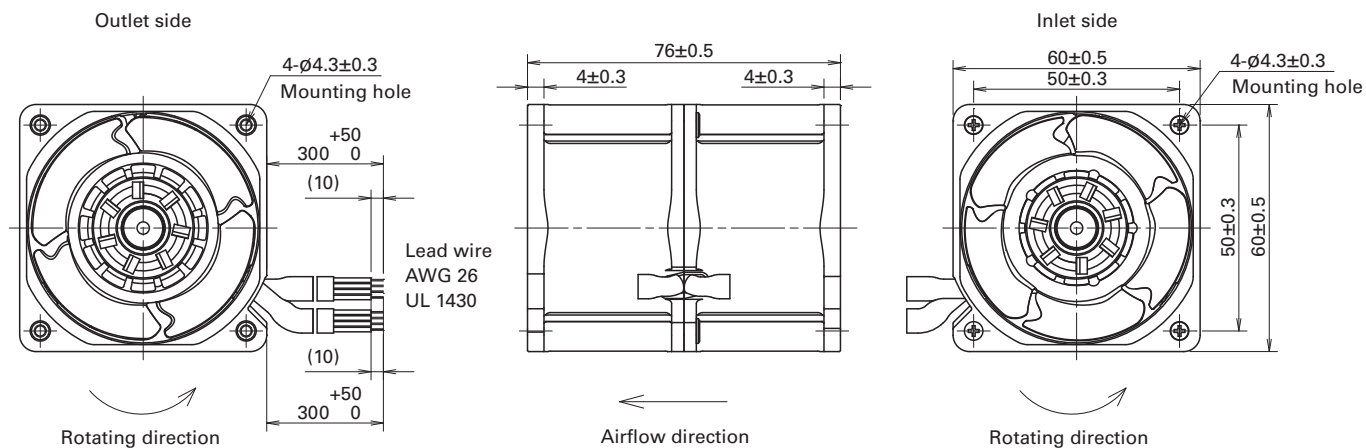


PWM duty - Speed characteristics example

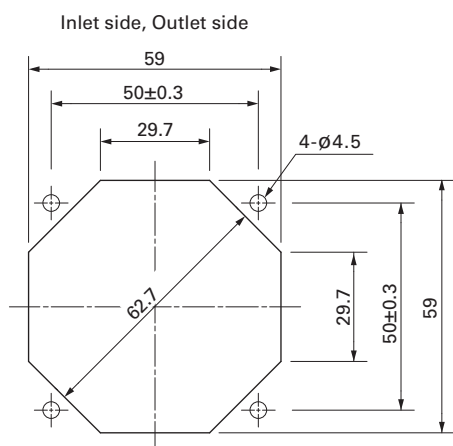




## Dimensions (unit: mm)



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



## Options

### Finger guards

page: p. 584

Model no.: 109-139E, 109-139H

### Resin finger guards

page: p. 591

Model no.: 109-1003G

### Resin filter kits

page: p. 592

Model no.: 109-1003F13 (13PPI), 109-1003F20 (20PPI),  
109-1003F30 (30PPI), 109-1003F40 (40PPI)



# 60×60×76 mm

## San Ace 60L 9CRL type

### General Specifications

- Material ..... Frame: Aluminum, Impeller: Plastic (Flammability: UL 94V-1)
- Expected life ..... See the table below. (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  
For details, please refer to p. 599.
- Dielectric strength ..... 50/60 Hz, 500 VAC, for 1 minute (between lead wire conductors and frame)
- Insulation resistance ..... 10 MΩ or more with a 500 VDC megger (between lead wire conductors and frame)
- Sound pressure level (SPL) ..... At 1 m away from the air inlet
- Storage temperature ..... -30 to +70°C (Non-condensing)
- Lead wire ..... Inlet ⊕Red ⊖Black (Sensor) Yellow (Control) Brown  
Outlet ⊕Orange ⊖Gray (Sensor) Purple (Control) White
- Mass ..... 300 g

### Specifications

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 <sup>-1</sup> ] | Max. airflow [m <sup>3</sup> /min] [CFM] | Max. static pressure [Pa] [inchH <sub>2</sub> O] | SPL [dB (A)] | Operating temperature [°C] | Expected life [h]            |
|----------------|-------------------|-----------------------------|--------------------|-------------------|-----------------|----------------------------------|------------------------------------------|--------------------------------------------------|--------------|----------------------------|------------------------------|
| 9CRL0612P0G001 | 12                | 10.8 to 13.2                | 100                | 2.3               | 27.6            | 16500 13000                      | 2.0 70.6                                 | 1000 4.0                                         | 66           | -20 to +70                 | 130000/60°C<br>(165000/40°C) |
|                |                   |                             | 0                  | 0.22              | 2.7             | 3600 2800                        | 0.43 15.1                                | 47.6 0.19                                        | 32           |                            |                              |

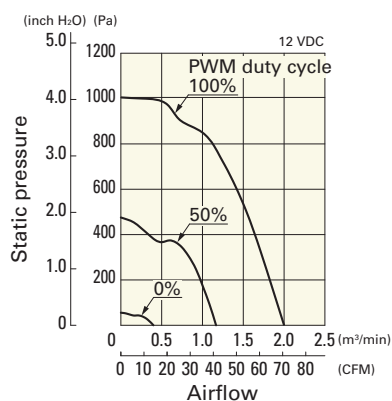
\* PWM input frequency is 25 kHz; models without specifications at 0% PWM duty cycle have zero fan speed at 0%.

Note: The  mark indicates Short Lead Time Service applicable models. See p. 654 for details.

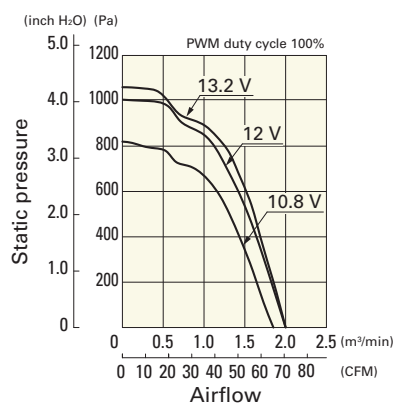
### Airflow - Static Pressure Characteristics / PWM Duty - Speed Characteristics Example

**9CRL0612P0G001** With pulse sensor with PWM control function

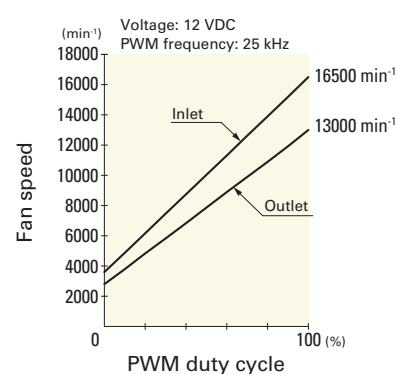
PWM duty cycle



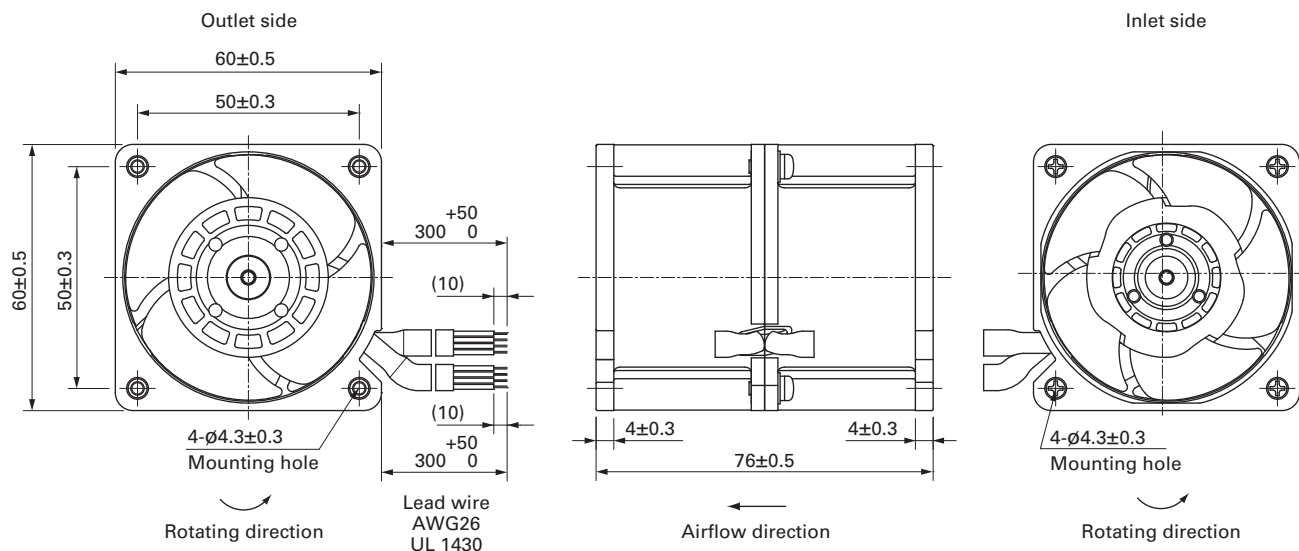
Operating voltage range



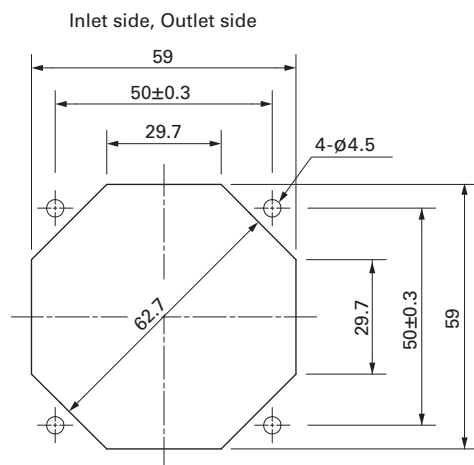
PWM duty - Speed characteristics example



## Dimensions (unit: mm)



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



## Options

### Finger guards

page: p. 584

Model no.: 109-139E, 109-139H

### Resin finger guards

page: p. 591

Model no.: 109-1003G

### Resin filter kits

page: p. 592

Model no.: 109-1003F13 (13PPI), 109-1003F20 (20PPI),  
109-1003F30 (30PPI), 109-1003F40 (40PPI)

# 80×80×25 mm

## San Ace 80L 9LG type



### General Specifications

- Material ..... Frame: Aluminum, Impeller: Plastic (Flammability: UL 94V-1)
- Expected life ..... See the table below. (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  
For details, please refer to p. 599.
- Dielectric strength ..... 50/60 Hz, 500 VAC, for 1 minute (between lead wire conductors and frame)
- Insulation resistance ..... 10 MΩ or more with a 500 VDC megger (between lead wire conductors and frame)
- Sound pressure level (SPL) ..... At 1 m away from the air inlet
- Storage temperature ..... -30 to +70°C (Non-condensing)
- Lead wire ..... ⊕Red ⊖Black (Sensor) Yellow (Control) Brown  
(For models without PWM control function, there is no speed control wiring.)
- Mass ..... 130 g

### Specifications

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

|   | Model no.     | Rated voltage<br>[V] | Operating voltage range<br>[V] | PWM duty<br>cycle* [%] | Rated current<br>[A] | Rated input<br>[W] | Rated speed<br>[min <sup>-1</sup> ] | Max. airflow<br>[m³/min] [CFM] |      | Max. static pressure<br>[Pa] [inchH <sub>2</sub> O] |      | SPL<br>[dB (A)] | Operating temperature<br>[°C] | Expected life<br>[h]         |
|---|---------------|----------------------|--------------------------------|------------------------|----------------------|--------------------|-------------------------------------|--------------------------------|------|-----------------------------------------------------|------|-----------------|-------------------------------|------------------------------|
| » | 9LG0812P4J001 | 12                   | 10.8 to 13.2                   | 100                    | 0.6                  | 7.2                | 7400                                | 2.07                           | 73.0 | 177                                                 | 0.71 | 49              | -20 to +70                    | 180000/60°C<br>(215000/40°C) |
|   |               |                      |                                | 20                     | 0.06                 | 0.72               | 1800                                | 0.5                            | 17.6 | 10.4                                                | 0.04 | 16              |                               |                              |
| » | 9LG0812P4G001 |                      |                                | 100                    | 0.3                  | 3.6                | 5500                                | 1.54                           | 54.3 | 98                                                  | 0.39 | 43              |                               |                              |
|   |               |                      |                                | 25                     | 0.05                 | 0.6                | 1400                                | 0.39                           | 13.7 | 6.3                                                 | 0.02 | 14              |                               |                              |
| » | 9LG0812P4H001 |                      |                                | 100                    | 0.12                 | 1.44               | 3700                                | 1.03                           | 36.3 | 44                                                  | 0.17 | 31              |                               |                              |
|   |               |                      |                                | 25                     | 0.04                 | 0.48               | 1100                                | 0.3                            | 10.5 | 3.9                                                 | 0.01 | 13              |                               |                              |
| » | 9LG0824P4J001 | 24                   | 21.6 to 26.4                   | 100                    | 0.28                 | 6.72               | 7400                                | 2.07                           | 73.0 | 177                                                 | 0.71 | 49              |                               |                              |
|   |               |                      |                                | 20                     | 0.05                 | 1.2                | 2400                                | 0.67                           | 23.6 | 18.6                                                | 0.07 | 22              |                               |                              |
| » | 9LG0824P4G001 |                      |                                | 100                    | 0.14                 | 3.36               | 5500                                | 1.54                           | 54.3 | 98                                                  | 0.39 | 43              |                               |                              |
|   |               |                      |                                | 20                     | 0.02                 | 0.48               | 1200                                | 0.33                           | 11.6 | 4.6                                                 | 0.01 | 13              |                               |                              |
| » | 9LG0824P4H001 |                      |                                | 100                    | 0.05                 | 1.2                | 3700                                | 1.03                           | 36.3 | 44                                                  | 0.17 | 31              |                               |                              |
|   |               |                      |                                | 30                     | 0.02                 | 0.48               | 1100                                | 0.3                            | 10.5 | 3.9                                                 | 0.01 | 13              |                               |                              |

\* PWM input frequency is 25 kHz; models without specifications at 0% PWM duty cycle have zero fan speed at 0%.

The models listed below **have pulse sensors.**

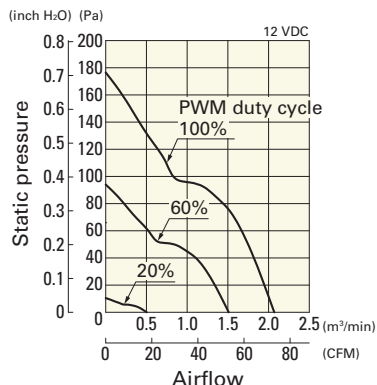
| Model no.      | Rated voltage [V] | Operating voltage range [V] | Rated current [A] | Rated input [W] | Rated speed [min <sup>-1</sup> ] | Max. airflow [m <sup>3</sup> /min] [CFM] |      | Max. static pressure [Pa] [inchH <sub>2</sub> O] |       | SPL [dB (A)] | Operating temperature [°C] | Expected life [h]            |
|----------------|-------------------|-----------------------------|-------------------|-----------------|----------------------------------|------------------------------------------|------|--------------------------------------------------|-------|--------------|----------------------------|------------------------------|
| » 9LG0812S4001 | 12                | 6 to 13.2                   | 0.17              | 2.04            | 4200                             | 1.17                                     | 41.3 | 56                                               | 0.22  | 35           | -20 to +70                 | 180000/60°C<br>(215000/40°C) |
| » 9LG0812F4001 |                   |                             | 0.1               | 1.2             | 3300                             | 0.92                                     | 32.5 | 35                                               | 0.14  | 29           |                            |                              |
| » 9LG0812M4001 |                   |                             | 0.08              | 0.96            | 2900                             | 0.8                                      | 28.3 | 27                                               | 0.11  | 25           |                            |                              |
| » 9LG0812L4001 |                   | 8 to 13.2                   | 0.06              | 0.72            | 2300                             | 0.64                                     | 22.6 | 17                                               | 0.068 | 22           |                            |                              |
| » 9LG0824S4001 | 24                | 12 to 26.4                  | 0.07              | 1.68            | 4200                             | 1.17                                     | 41.3 | 56                                               | 0.22  | 35           |                            |                              |
| » 9LG0824F4001 |                   |                             | 0.045             | 1.08            | 3300                             | 0.92                                     | 32.5 | 35                                               | 0.14  | 29           |                            |                              |
| » 9LG0824M4001 |                   |                             | 0.04              | 0.96            | 2900                             | 0.8                                      | 28.3 | 27                                               | 0.11  | 25           |                            |                              |
| » 9LG0824L4001 |                   | 14 to 26.4                  | 0.03              | 0.72            | 2300                             | 0.64                                     | 22.6 | 17                                               | 0.068 | 22           |                            |                              |

Note 1: Sensor and control options are available for selection. Refer to the table on p. 634.

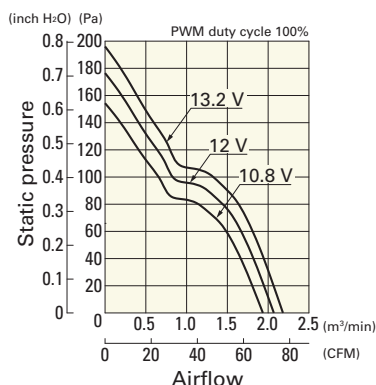
Note 2: The » mark indicates Short LeadTime Service applicable models. See p. 654 for details.

## 9LG0812P4J001 With pulse sensor with PWM control function

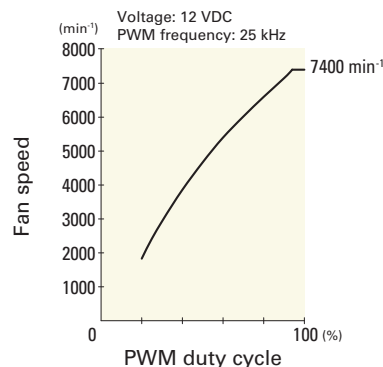
PWM duty cycle



Operating voltage range

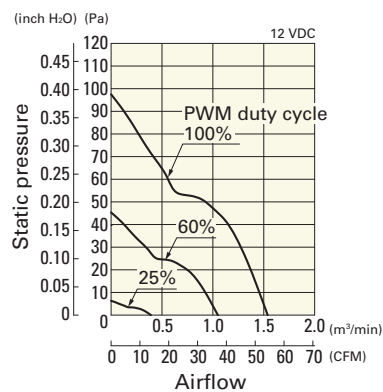


PWM duty - Speed characteristics example

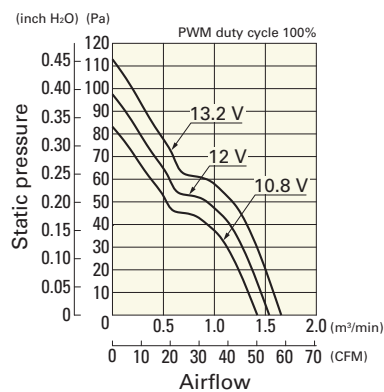


## 9LG0812P4G001 With pulse sensor with PWM control function

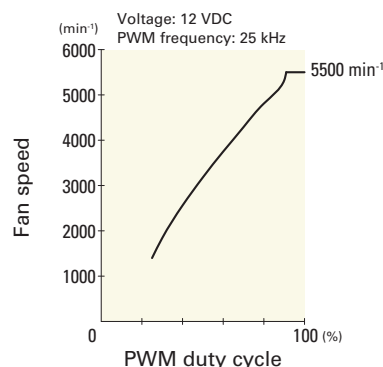
PWM duty cycle



Operating voltage range

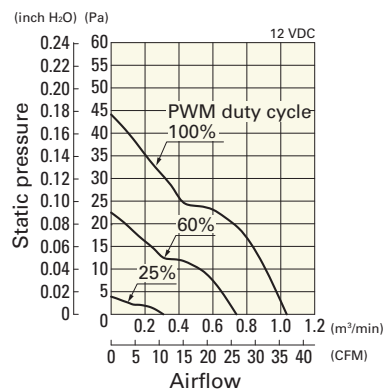


PWM duty - Speed characteristics example

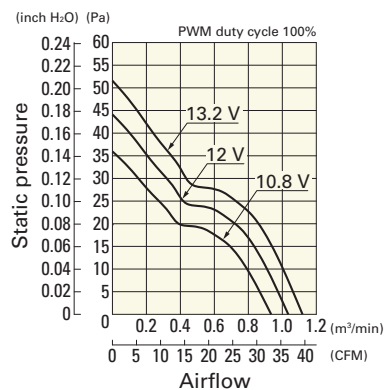


## 9LG0812P4H001 With pulse sensor with PWM control function

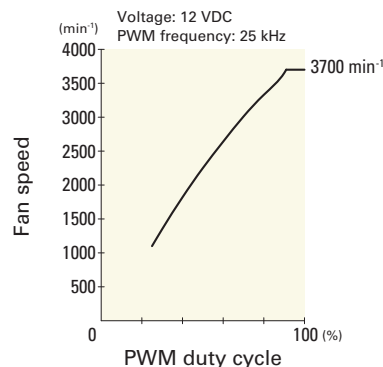
PWM duty cycle



Operating voltage range

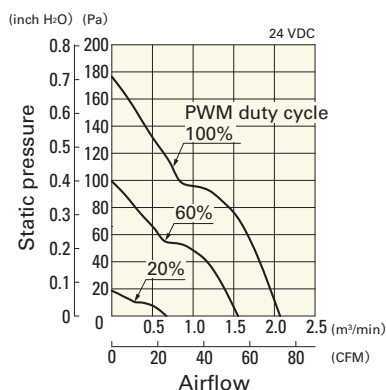


PWM duty - Speed characteristics example

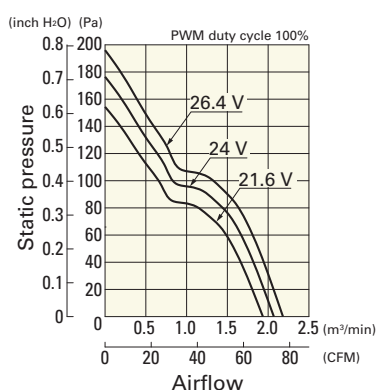


## 9LG0824P4J001 With pulse sensor with PWM control function

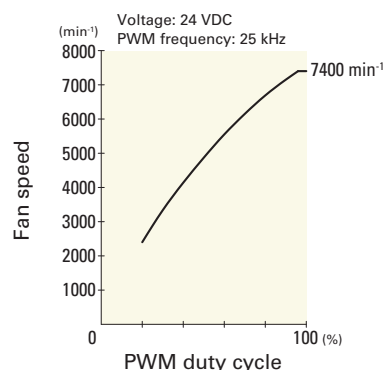
PWM duty cycle



Operating voltage range



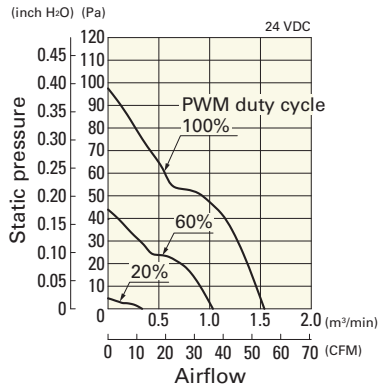
PWM duty - Speed characteristics example



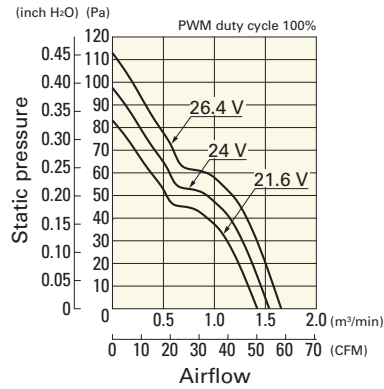
## Airflow - Static Pressure Characteristics / PWM Duty - Speed Characteristics Example

**9LG0824P4G001** With pulse sensor with PWM control function

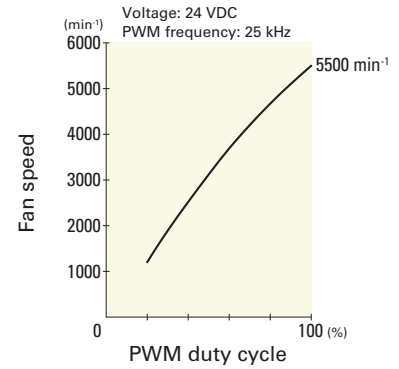
PWM duty cycle



Operating voltage range

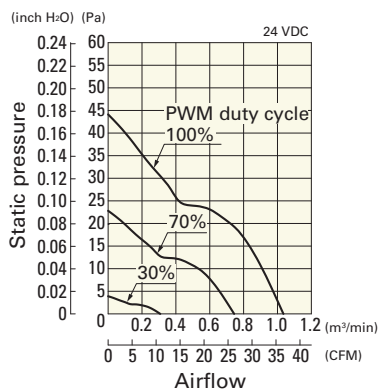


PWM duty - Speed characteristics example

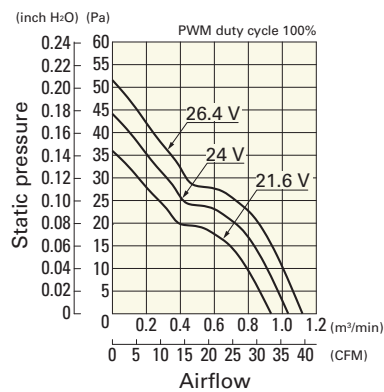


**9LG0824P4H001** With pulse sensor with PWM control function

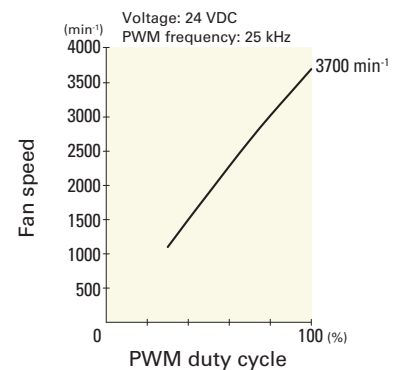
PWM duty cycle



Operating voltage range



PWM duty - Speed characteristics example



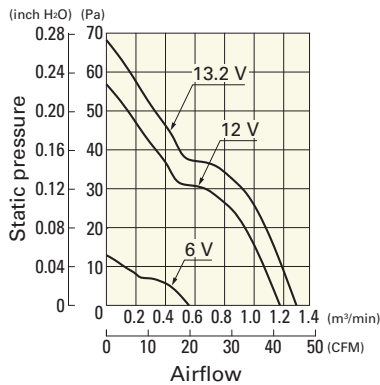
DC

Long Life Fan 80 mm sq.

## Airflow - Static Pressure Characteristics

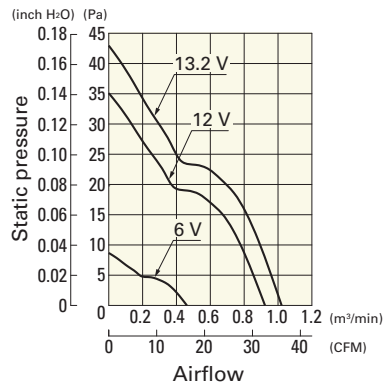
**9LG0812S4001** With pulse sensor

Operating voltage range



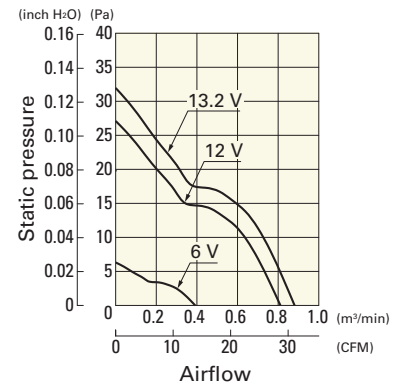
**9LG0812F4001** With pulse sensor

Operating voltage range



**9LG0812M4001** With pulse sensor

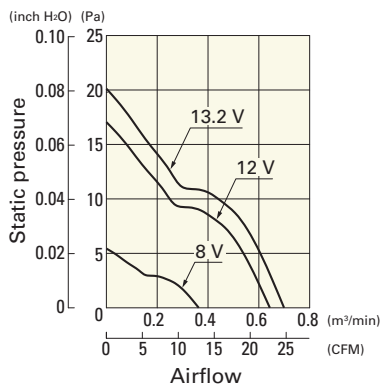
Operating voltage range



## Airflow - Static Pressure Characteristics

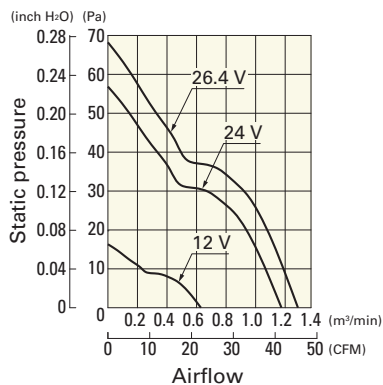
**9LG0812L4001** With pulse sensor

Operating voltage range



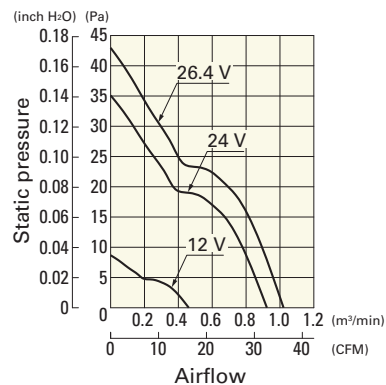
**9LG0824S4001** With pulse sensor

Operating voltage range



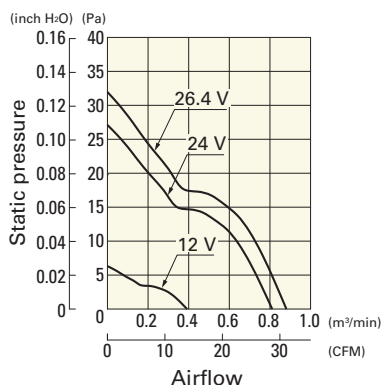
**9LG0824F4001** With pulse sensor

Operating voltage range



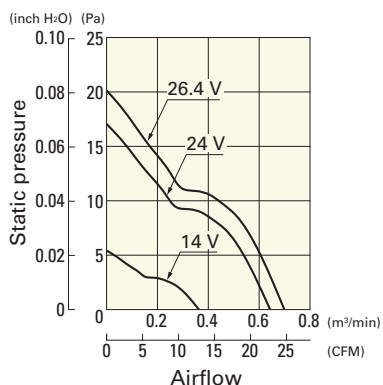
**9LG0824M4001** With pulse sensor

Operating voltage range

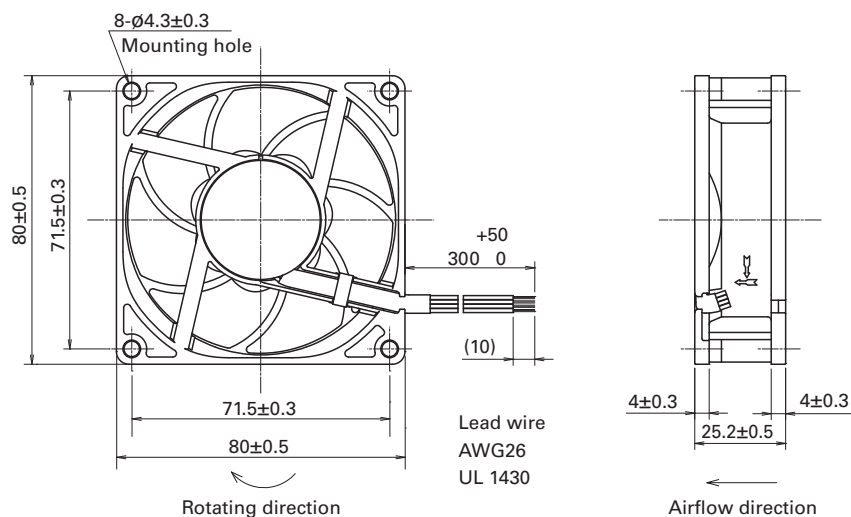


**9LG0824L4001** With pulse sensor

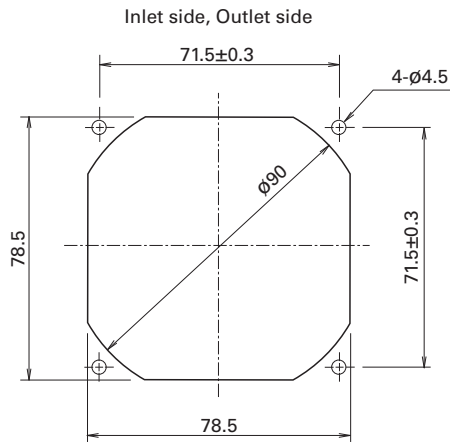
Operating voltage range



## Dimensions (unit: mm) (With pulse sensor with PWM control function)



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



## Options

### Finger guards

page: p. 584

Model no.: 109-049E, 109-049H, 109-049C

### Resin finger guards

page: p. 591

Model no.: 109-1002G

### Resin filter kits

page: p. 592

Model no.: 109-1002F13 (13PPI), 109-1002F20 (20PPI),  
109-1002F30 (30PPI), 109-1002F40 (40PPI)



# 80×80×80 mm

## San Ace 80L 9CRL type US



### General Specifications

- Material ..... Frame: Aluminum, Impeller: Plastic (Flammability: UL 94V-1)
- Expected life ..... See the table below. (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  
For details, please refer to p. 599.
- Dielectric strength ..... 50/60 Hz, 500 VAC, for 1 minute (between lead wire conductors and frame)
- Insulation resistance ..... 10 MΩ or more with a 500 VDC megger (between lead wire conductors and frame)
- Sound pressure level (SPL) ..... At 1 m away from the air inlet
- Storage temperature ..... -30 to +70°C (Non-condensing)
- Lead wire ..... Inlet ⊕Red ⊖Black (Sensor) Yellow (Control) Brown  
Outlet ⊕Orange ⊖Gray (Sensor) Purple (Control) White
- Mass ..... 490 g

### Specifications

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 <sup>-1</sup> ] | Max. airflow [m <sup>3</sup> /min] [CFM] | Max. static pressure [Pa] [inchH <sub>2</sub> O] | SPL [dB (A)] | Operating temperature [°C] | Expected life [h]            |
|----------------|-------------------|-----------------------------|---------------------|-------------------|-----------------|----------------------------------|------------------------------------------|--------------------------------------------------|--------------|----------------------------|------------------------------|
| 9CRL0812P8G001 | 12                | 10.8 to 13.2                | 100                 | 5.3               | 63.6            | 12000 11300                      | 4.5 158.9                                | 1150 4.62                                        | 76           | -20 to +70                 | 130000/60°C<br>(165000/40°C) |
|                |                   |                             | 0                   | 0.2               | 2.4             | 2000 1900                        | 0.74 26.1                                | 31.9 0.13                                        | 30           |                            |                              |

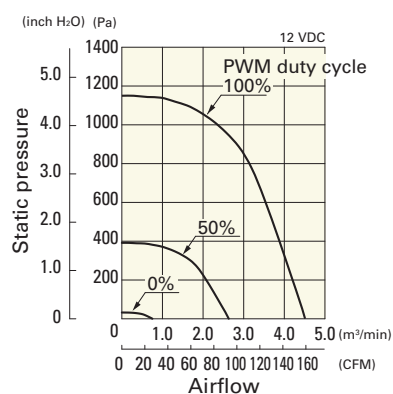
\* PWM input frequency is 25 kHz; models without specifications at 0% PWM duty cycle have zero fan speed at 0%.

Note: The  mark indicates Short Lead Time Service applicable models. See p. 654 for details.

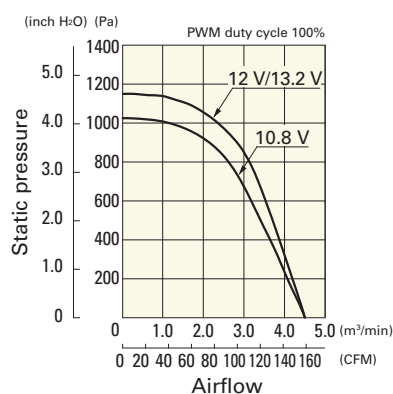
### Airflow - Static Pressure Characteristics / PWM Duty - Speed Characteristics Example

**9CRL0812P8G001** With pulse sensor with PWM control function

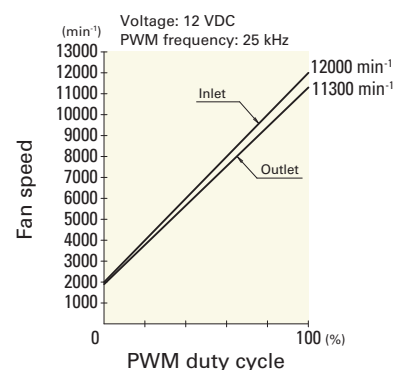
PWM duty cycle



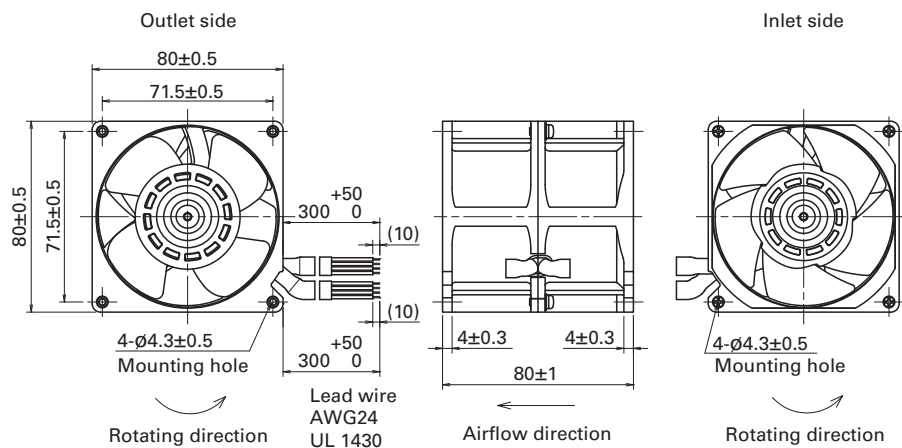
Operating voltage range



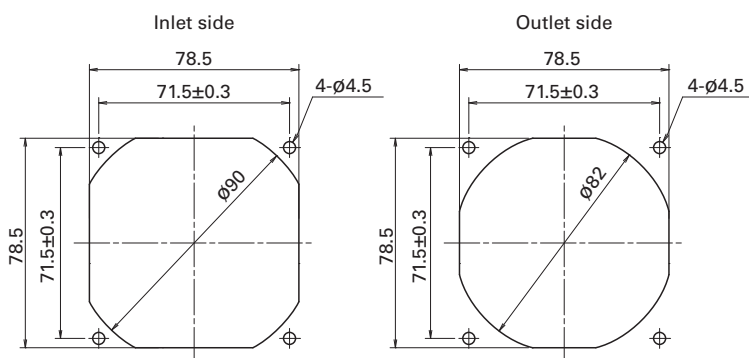
PWM duty - Speed characteristics example



## Dimensions (unit: mm)



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



## Options

### Finger guards

page: p. 584

Model no.: 109-049E, 109-049H, 109-049C

### Resin finger guards

page: p. 591

Model no.: 109-1002G

### Resin filter kits

page: p. 592

Model no.: 109-1002F13 (13PPI), 109-1002F20 (20PPI),  
109-1002F30 (30PPI), 109-1002F40 (40PPI)

# 92x92x25 mm

## San Ace 92L 9LG type



### General Specifications

- Material ..... Frame: Aluminum, Impeller: Plastic (Flammability: UL 94V-1)
- Expected life ..... See the table below. (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  
For details, please refer to p. 599.
- Dielectric strength ..... 50/60 Hz, 500 VAC, for 1 minute (between lead wire conductors and frame)
- Insulation resistance ..... 10 MΩ or more with a 500 VDC megger (between lead wire conductors and frame)
- Sound pressure level (SPL) ..... At 1 m away from the air inlet
- Storage temperature ..... -30 to +70°C (Non-condensing)
- Lead wire ..... ⊕Red ⊖Black Sensor Yellow Control Brown  
(For models without PWM control function, there is no speed control wiring.)
- Mass ..... 150 g

### Specifications

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 <sup>-1</sup> ] | Max. airflow |      | Max. static pressure |      | SPL [dB (A)] | Operating temperature [°C] | Expected life [h]            |
|-----------------|-------------------|-----------------------------|--------------------|-------------------|-----------------|----------------------------------|--------------|------|----------------------|------|--------------|----------------------------|------------------------------|
| » 9LG0912P4J001 | 12                | 10.8 to 13.2                | 100                | 0.42              | 5.04            | 5000                             | 2.2          | 77.7 | 105                  | 0.42 | 44           | -20 to +70                 | 180000/60°C<br>(215000/40°C) |
| » 9LG0912P4G001 |                   |                             | 100                | 0.3               | 3.6             | 4400                             | 1.93         | 68.2 | 81                   | 0.33 | 40           |                            |                              |
| » 9LG0912P4S001 |                   |                             | 100                | 0.22              | 2.64            | 3850                             | 1.69         | 59.7 | 62.1                 | 0.25 | 37           |                            |                              |
| » 9LG0912P4H001 |                   |                             | 100                | 0.15              | 1.8             | 3150                             | 1.38         | 48.7 | 41.6                 | 0.17 | 32           |                            |                              |
| » 9LG0924P4J001 | 24                | 21.6 to 26.4                | 100                | 0.21              | 5.04            | 5000                             | 2.2          | 77.7 | 105                  | 0.42 | 44           |                            |                              |
| » 9LG0924P4G001 |                   |                             | 100                | 0.15              | 3.6             | 4400                             | 1.93         | 68.2 | 81                   | 0.33 | 40           |                            |                              |
| » 9LG0924P4S001 |                   |                             | 100                | 0.11              | 2.64            | 3850                             | 1.69         | 59.7 | 62.1                 | 0.25 | 37           |                            |                              |
| » 9LG0924P4H001 |                   |                             | 100                | 0.07              | 1.68            | 3150                             | 1.38         | 48.7 | 41.6                 | 0.17 | 32           |                            |                              |

\* PWM input frequency is 25 kHz; models without specifications at 0% PWM duty cycle have zero fan speed at 0%.

The models listed below **have pulse sensors.**

| Model no.      | Rated voltage [V] | Operating voltage range [V] | Rated current [A] | Rated input [W] | Rated speed [min <sup>-1</sup> ] | Max. airflow |      | Max. static pressure |       | SPL [dB (A)] | Operating temperature [°C] | Expected life [h]            |
|----------------|-------------------|-----------------------------|-------------------|-----------------|----------------------------------|--------------|------|----------------------|-------|--------------|----------------------------|------------------------------|
| » 9LG0912F4001 | 12                | 10.2 to 13.8                | 0.1               | 1.2             | 2800                             | 1.22         | 43.1 | 32.8                 | 0.13  | 29           | -20 to +70                 | 180000/60°C<br>(215000/40°C) |
| » 9LG0912M4001 |                   |                             | 0.08              | 0.96            | 2400                             | 1.05         | 37.1 | 24.1                 | 0.097 | 24           |                            |                              |
| » 9LG0912L4001 |                   |                             | 0.07              | 0.84            | 2000                             | 0.87         | 30.7 | 16.7                 | 0.067 | 19           |                            |                              |
| » 9LG0924F4001 | 24                | 20.4 to 27.6                | 0.05              | 1.2             | 2800                             | 1.22         | 43.1 | 32.8                 | 0.13  | 29           |                            |                              |
| » 9LG0924M4001 |                   |                             | 0.04              | 0.96            | 2400                             | 1.05         | 37.1 | 24.1                 | 0.097 | 24           |                            |                              |
| » 9LG0924L4001 |                   |                             | 0.03              | 0.72            | 2000                             | 0.87         | 30.7 | 16.7                 | 0.067 | 19           |                            |                              |

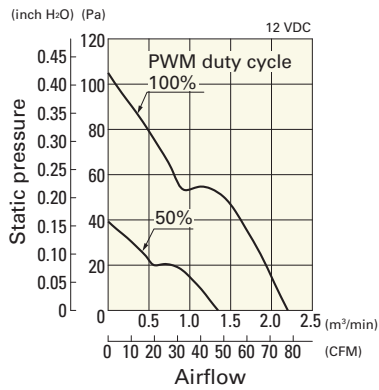
Note 1: Sensor and control options are available for selection. Refer to the table on pp. 634 to 635.

Note 2: The » mark indicates Short Lead Time Service applicable models. See p. 654 for details.

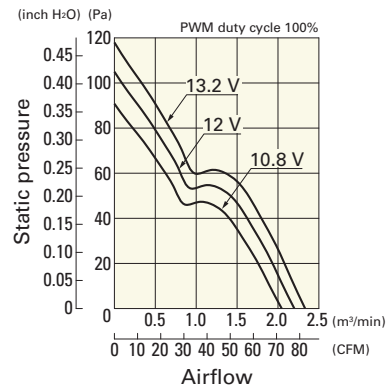
## Airflow - Static Pressure Characteristics / PWM Duty - Speed Characteristics Example

**9LG0912P4J001** With pulse sensor with PWM control function

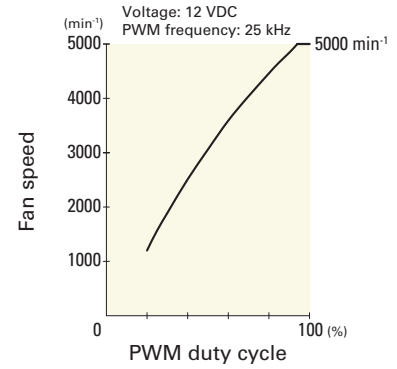
PWM duty cycle



Operating voltage range

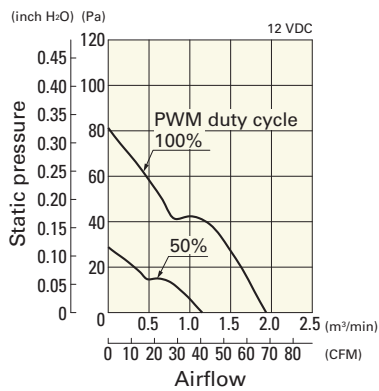


PWM duty - Speed characteristics example

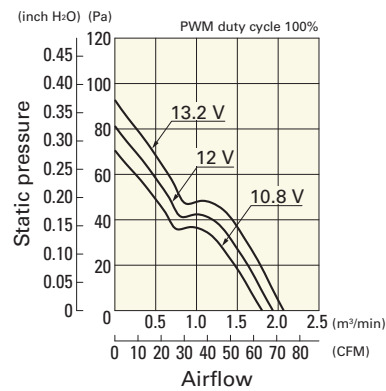


**9LG0912P4G001** With pulse sensor with PWM control function

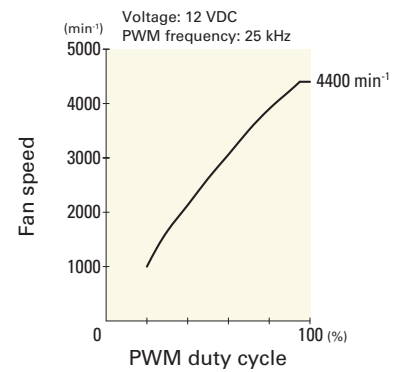
PWM duty cycle



Operating voltage range

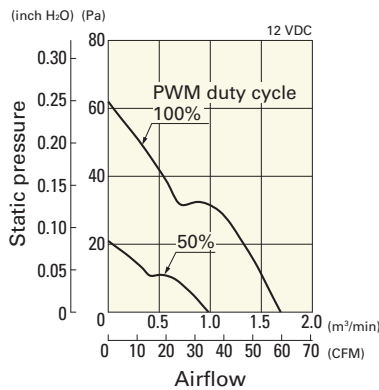


PWM duty - Speed characteristics example

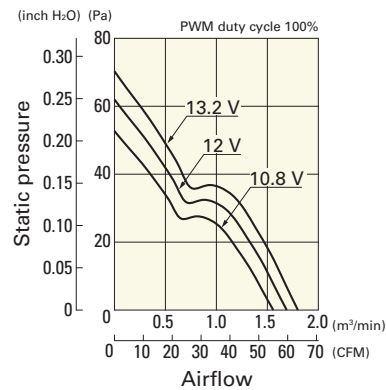


**9LG0912P4S001** With pulse sensor with PWM control function

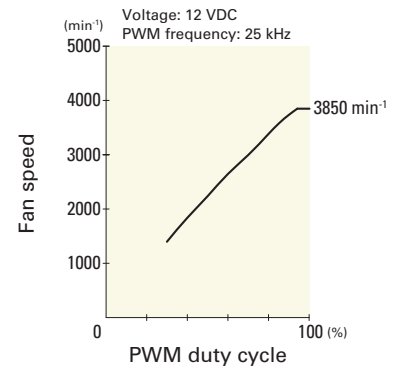
PWM duty cycle



Operating voltage range

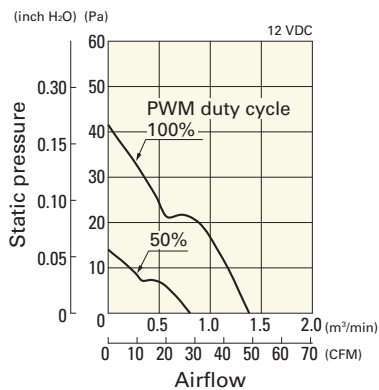


PWM duty - Speed characteristics example

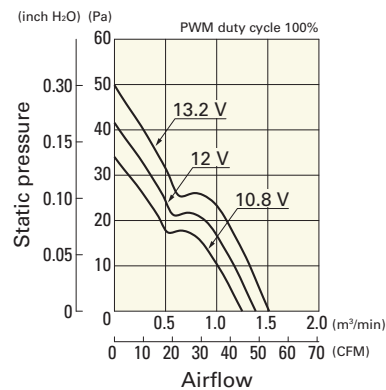


**9LG0912P4H001** With pulse sensor with PWM control function

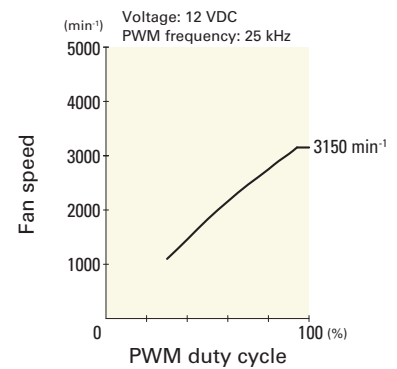
PWM duty cycle



Operating voltage range



PWM duty - Speed characteristics example



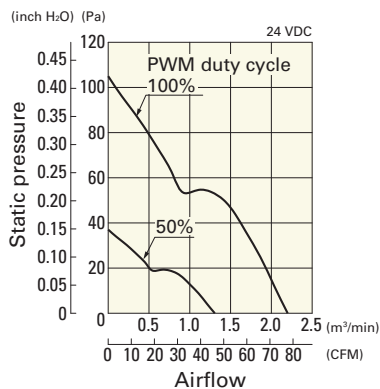
DC

Long Life Fan 92 mm sq.

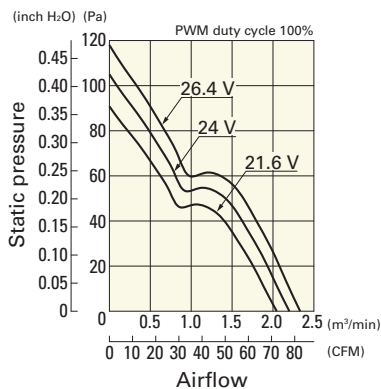
## Airflow - Static Pressure Characteristics / PWM Duty - Speed Characteristics Example

**9LG0924P4J001** With pulse sensor with PWM control function

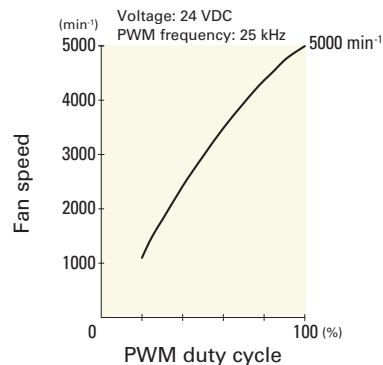
PWM duty cycle



Operating voltage range

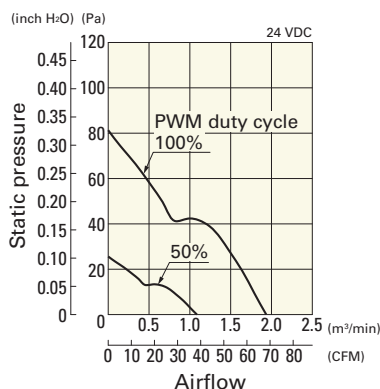


PWM duty - Speed characteristics example

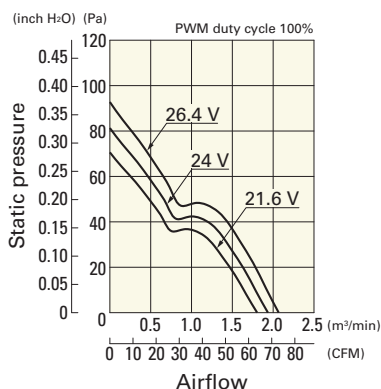


**9LG0924P4G001** With pulse sensor with PWM control function

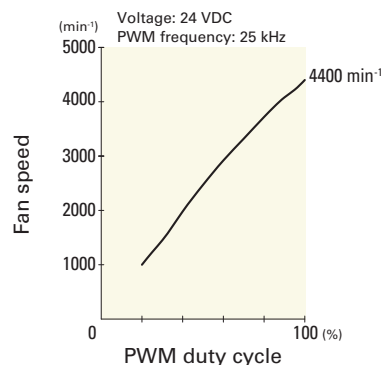
PWM duty cycle



Operating voltage range

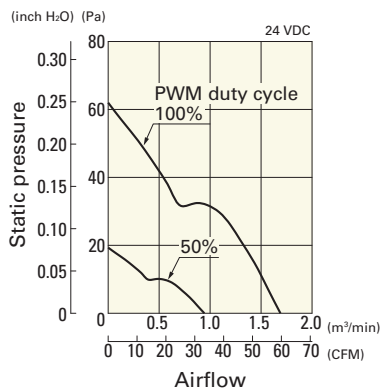


PWM duty - Speed characteristics example

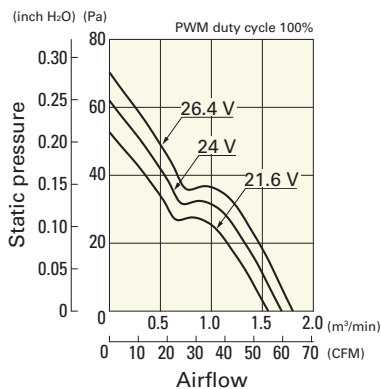


**9LG0924P4S001** With pulse sensor with PWM control function

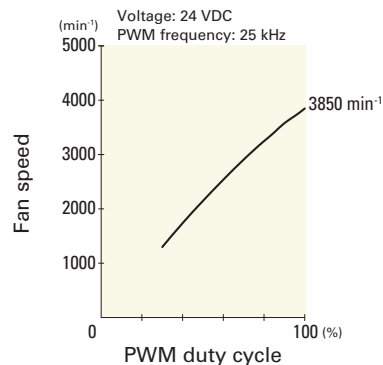
PWM duty cycle



Operating voltage range

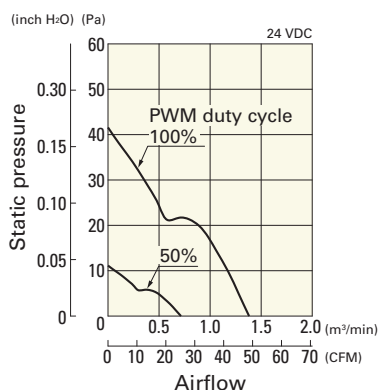


PWM duty - Speed characteristics example

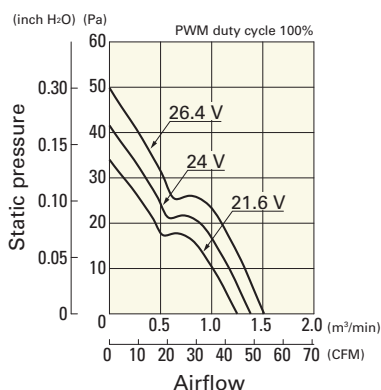


**9LG0924P4H001** With pulse sensor with PWM control function

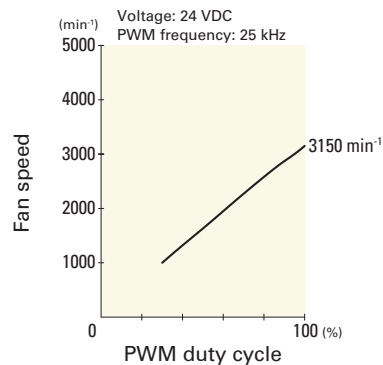
PWM duty cycle



Operating voltage range



PWM duty - Speed characteristics example

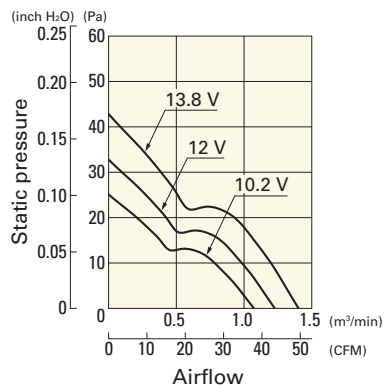


DC  
Long Life Fan 92 mm sq.

## Airflow - Static Pressure Characteristics

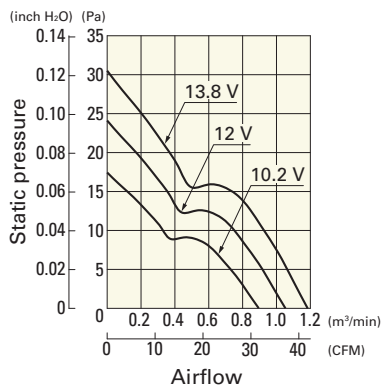
**9LG0912F4001** With pulse sensor

Operating voltage range



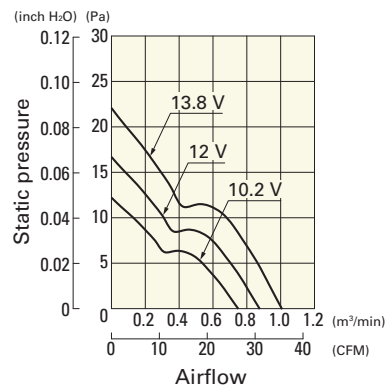
**9LG0912M4001** With pulse sensor

Operating voltage range



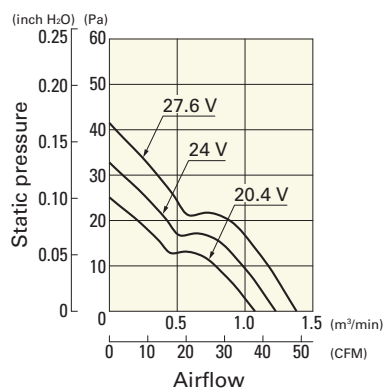
**9LG0912L4001** With pulse sensor

Operating voltage range



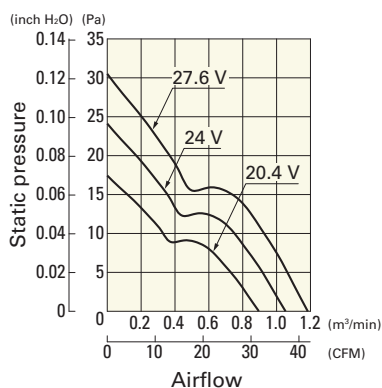
**9LG0924F4001** With pulse sensor

Operating voltage range



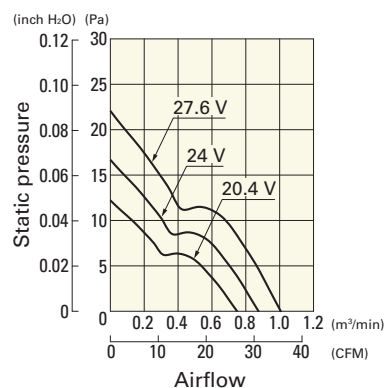
**9LG0924M4001** With pulse sensor

Operating voltage range

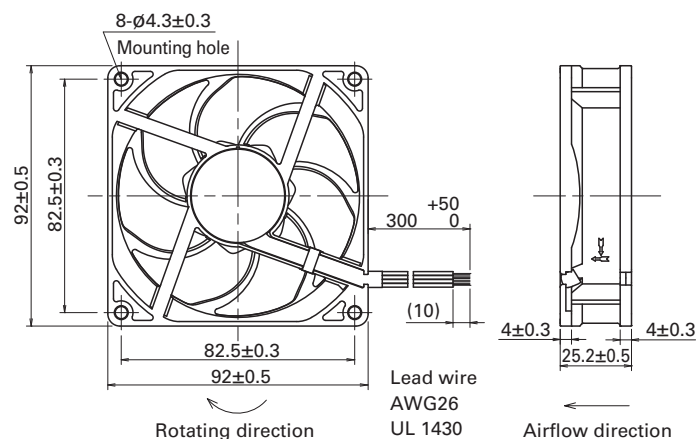


**9LG0924L4001** With pulse sensor

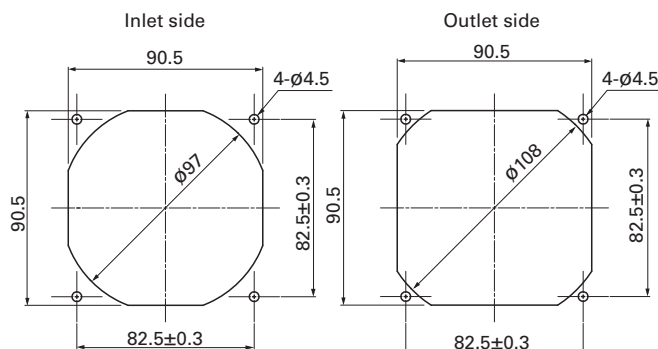
Operating voltage range



## Dimensions (unit: mm) (With pulse sensor with PWM control function)



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



DC

Long Life Fan 92 mm sq.

Options

Finger guards page: p. 584

Model no.: 109-099E, 109-099H, 109-099C

Resin finger guards page: p. 591

Model no.: 109-1001G

Resin filter kits page: p. 592

Model no.: 109-1001F13 (13PPI), 109-1001F20 (20PPI),  
109-1001F30 (30PPI), 109-1001F40 (40PPI)

# 92×92×38 mm

## San Ace 92L 9LG type



### General Specifications

- Material ..... Frame: Aluminum, Impeller: Plastic (Flammability: UL 94V-1)
- Expected life ..... See the table below. (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  
For details, please refer to p. 599.
- Dielectric strength ..... 50/60 Hz, 500 VAC, for 1 minute (between lead wire conductors and frame)
- Insulation resistance ..... 10 MΩ or more with a 500 VDC megger (between lead wire conductors and frame)
- Sound pressure level (SPL) ..... At 1 m away from the air inlet
- Storage temperature ..... -30 to +70°C (Non-condensing)
- Lead wire ..... ⊕Red ⊖Black ☐Sensor ☐Yellow ☐Control ☐Brown
- Mass ..... 270 g

### Specifications

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 <sup>-1</sup> ] | Max. airflow [m <sup>3</sup> /min] [CFM] | Max. static pressure [Pa] [inchH <sub>2</sub> O] | SPL [dB (A)] | Operating temperature [°C] | Expected life [h]            |
|------------------|-------------------|-----------------------------|--------------------|-------------------|-----------------|----------------------------------|------------------------------------------|--------------------------------------------------|--------------|----------------------------|------------------------------|
| ▶▶ 9LG0912P1H001 | 12                | 10.2 to 13.8                | 100                | 2.0               | 24.0            | 9000                             | 3.7 130.6                                | 430 1.72                                         | 61           | -20 to +70                 | 180000/60°C<br>(215000/40°C) |
|                  |                   |                             | 20                 | 0.18              | 2.16            | 2700                             | 1.11 39.1                                | 38.7 0.15                                        | 30           |                            |                              |
| ▶▶ 9LG0912P1F001 |                   |                             | 100                | 1.0               | 12.0            | 7000                             | 2.9 102.4                                | 263 1.05                                         | 55           |                            |                              |
|                  |                   |                             | 20                 | 0.11              | 1.32            | 2000                             | 0.83 29.3                                | 21.5 0.08                                        | 22           |                            |                              |
| ▶▶ 9LG0924P1H001 | 24                | 20.4 to 27.6                | 100                | 0.9               | 21.6            | 9000                             | 3.7 130.6                                | 430 1.72                                         | 61           |                            |                              |
|                  |                   |                             | 20                 | 0.08              | 1.92            | 2700                             | 1.11 39.1                                | 38.7 0.15                                        | 30           |                            |                              |
| ▶▶ 9LG0924P1F001 |                   |                             | 100                | 0.5               | 12.0            | 7000                             | 2.9 102.4                                | 263 1.05                                         | 55           |                            |                              |
|                  |                   |                             | 20                 | 0.06              | 1.44            | 2000                             | 0.83 29.3                                | 21.5 0.08                                        | 22           |                            |                              |

\* PWM input frequency is 25 kHz; models without specifications at 0% PWM duty cycle have zero fan speed at 0%.

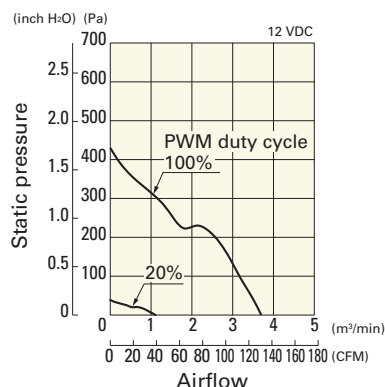
Note 1: Sensor and control options are available for selection. Refer to the table on pp. 634 to 635.

Note 2: The ▶▶ mark indicates Short Lead Time Service applicable models. See p. 654 for details.

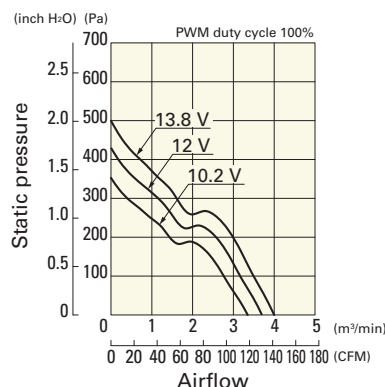
### Airflow - Static Pressure Characteristics / PWM Duty - Speed Characteristics Example

**9LG0912P1H001** With pulse sensor with PWM control function

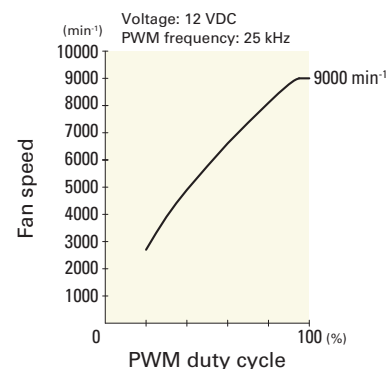
PWM duty cycle



Operating voltage range



PWM duty - Speed characteristics example

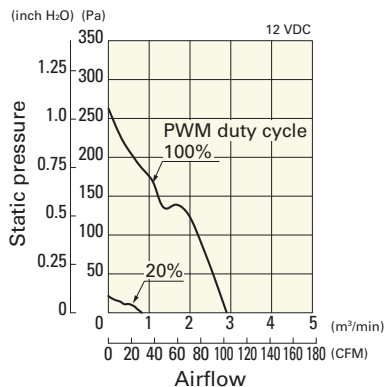




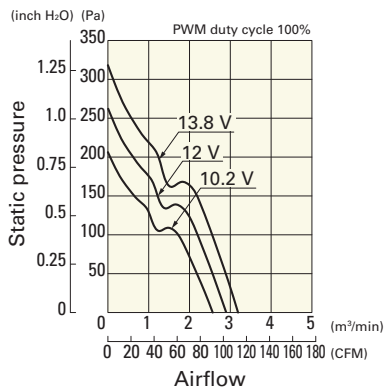
## Airflow - Static Pressure Characteristics / PWM Duty - Speed Characteristics Example

**9LG0912P1F001** With pulse sensor with PWM control function

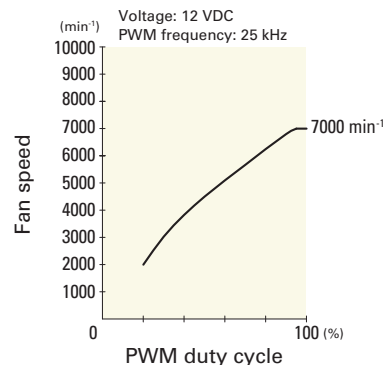
PWM duty cycle



Operating voltage range

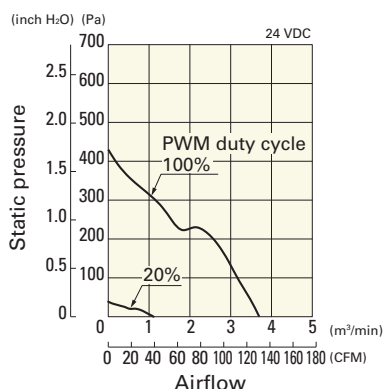


PWM duty - Speed characteristics example

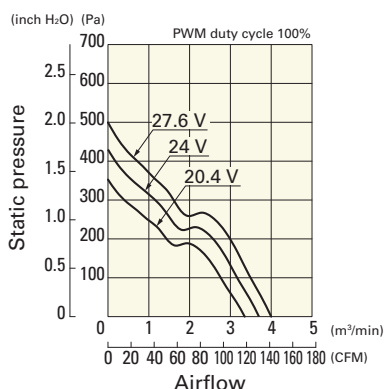


**9LG0924P1H001** With pulse sensor with PWM control function

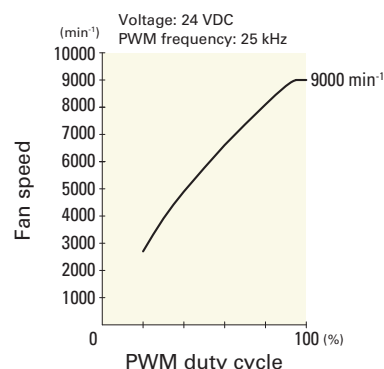
PWM duty cycle



Operating voltage range

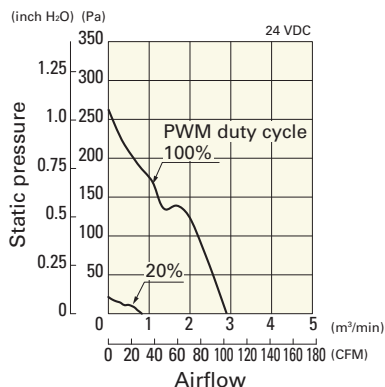


PWM duty - Speed characteristics example

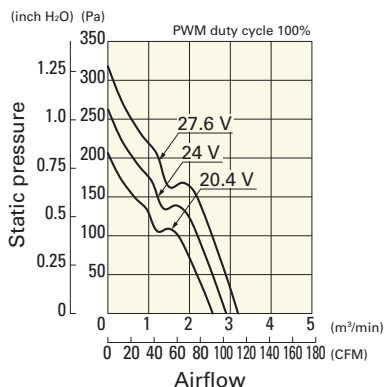


**9LG0924P1F001** With pulse sensor with PWM control function

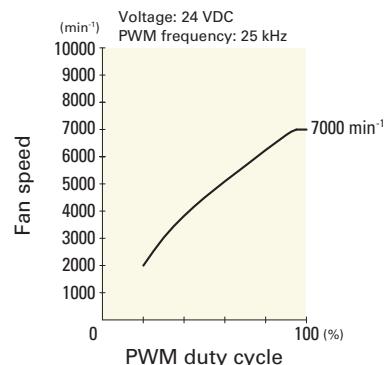
PWM duty cycle



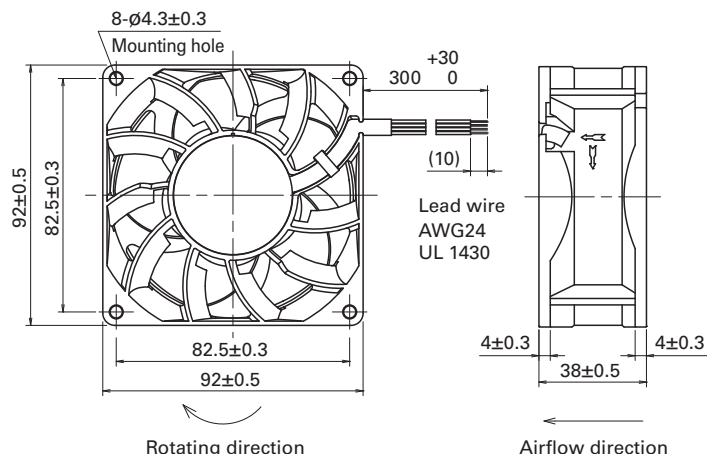
Operating voltage range



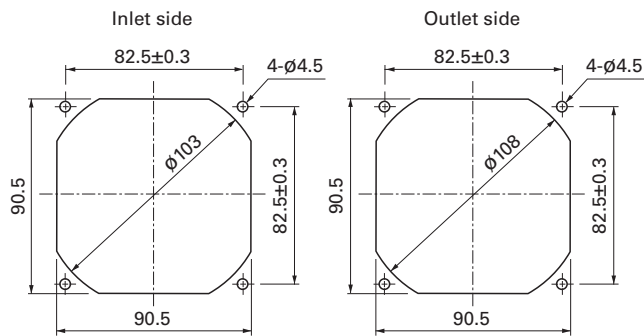
PWM duty - Speed characteristics example



## Dimensions (unit: mm)



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



## Options

### Finger guards

page: p. 584

Model no.: 109-099E, 109-099H, 109-099C

### Resin finger guards

page: p. 591

Model no.: 109-1001G

### Resin filter kits

page: p. 592

Model no.: 109-1001F13 (13PPI), 109-1001F20 (20PPI),  
109-1001F30 (30PPI), 109-1001F40 (40PPI)

DC

Long Life Fan 92 mm sq.



# 120×120×38 mm

## San Ace 120L 9LG type

### General Specifications

- Material ..... Frame: Aluminum, Impeller: Plastic (Flammability: UL 94V-1)
- Expected life ..... See the table below. (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  
For details, please refer to p. 599.
- Dielectric strength ..... 50/60 Hz, 500 VAC, for 1 minute (between lead wire conductors and frame)
- Insulation resistance ..... 10 MΩ or more with a 500 VDC megger (between lead wire conductors and frame)
- Sound pressure level (SPL) ..... At 1 m away from the air inlet
- Storage temperature ..... -30 to +70°C (Non-condensing)
- Lead wire ..... ⊕Red ⊖Black (Sensor) Yellow (Control) Brown  
(For models without PWM control function, there is no speed control wiring.)
- Mass ..... 420 g

### Specifications

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

| Model no.     | Rated voltage<br>[V] | Operating voltage range<br>[V] | PWM duty<br>cycle [%] | Rated current<br>[A] | Rated input<br>[W] | Rated speed<br>[min <sup>-1</sup> ] | Max. airflow |       | Max. static pressure |           | SPL      | Operating temperature | Expected life                |
|---------------|----------------------|--------------------------------|-----------------------|----------------------|--------------------|-------------------------------------|--------------|-------|----------------------|-----------|----------|-----------------------|------------------------------|
|               |                      |                                |                       |                      |                    |                                     | [m³/min]     | [CFM] | [Pa]                 | [inchH₂O] | [dB (A)] | [°C]                  | [h]                          |
| 9LG1212P1G001 | 12                   | 8.0 to 13.8                    | 100                   | 3.2                  | 38.4               | 6550                                | 7.0          | 247.1 | 370                  | 1.48      | 62       | -20 to +70            | 180000/60°C<br>(215000/40°C) |
|               |                      |                                | 20                    | 0.24                 | 2.88               | 2000                                | 2.13         | 75.2  | 34.4                 | 0.13      | 36       |                       |                              |
| 9LG1212P1S001 |                      |                                | 100                   | 2.2                  | 26.4               | 5600                                | 6.0          | 211.8 | 270                  | 1.08      | 58       |                       |                              |
|               |                      |                                | 20                    | 0.24                 | 2.88               | 2000                                | 2.13         | 75.2  | 34.4                 | 0.13      | 36       |                       |                              |
| 9LG1212P1H001 |                      |                                | 100                   | 1.4                  | 16.8               | 4700                                | 5.0          | 176.5 | 190                  | 0.76      | 54       |                       |                              |
|               |                      |                                | 20                    | 0.24                 | 2.88               | 2000                                | 2.13         | 75.2  | 34.4                 | 0.13      | 36       |                       |                              |
| 9LG1224P1G001 | 24                   | 15 to 30                       | 100                   | 1.6                  | 38.4               | 6550                                | 7.0          | 247.1 | 370                  | 1.48      | 62       |                       |                              |
|               |                      |                                | 20                    | 0.12                 | 2.88               | 2000                                | 2.13         | 75.2  | 34.4                 | 0.13      | 36       |                       |                              |
| 9LG1224P1S001 |                      |                                | 100                   | 1.1                  | 26.4               | 5600                                | 6.0          | 211.8 | 270                  | 1.08      | 58       |                       |                              |
|               |                      |                                | 20                    | 0.12                 | 2.88               | 2000                                | 2.13         | 75.2  | 34.4                 | 0.13      | 36       |                       |                              |
| 9LG1224P1H001 |                      |                                | 100                   | 0.7                  | 16.8               | 4700                                | 5.0          | 176.5 | 190                  | 0.76      | 54       |                       |                              |
|               |                      |                                | 20                    | 0.12                 | 2.88               | 2000                                | 2.13         | 75.2  | 34.4                 | 0.13      | 36       |                       |                              |
| 9LG1248P1G001 | 48                   | 36 to 60                       | 100                   | 0.8                  | 38.4               | 6550                                | 7.0          | 247.1 | 370                  | 1.48      | 62       |                       |                              |
|               |                      |                                | 20                    | 0.08                 | 3.84               | 2000                                | 2.13         | 75.2  | 34.4                 | 0.13      | 36       |                       |                              |
| 9LG1248P1S001 |                      |                                | 100                   | 0.55                 | 26.4               | 5600                                | 6.0          | 211.8 | 270                  | 1.08      | 58       |                       |                              |
|               |                      |                                | 20                    | 0.08                 | 3.84               | 2000                                | 2.13         | 75.2  | 34.4                 | 0.13      | 36       |                       |                              |
| 9LG1248P1H001 |                      |                                | 100                   | 0.35                 | 16.8               | 4700                                | 5.0          | 176.5 | 190                  | 0.76      | 54       |                       |                              |
|               |                      |                                | 20                    | 0.08                 | 3.84               | 2000                                | 2.13         | 75.2  | 34.4                 | 0.13      | 36       |                       |                              |

\* PWM input frequency is 25 kHz; models without specifications at 0% PWM duty cycle have zero fan speed at 0%.

The models listed below **have pulse sensors.**

| Model no.    | Rated voltage<br>[V] | Operating voltage range<br>[V] | Rated current<br>[A] | Rated input<br>[W] | Rated speed<br>[min <sup>-1</sup> ] | Max. airflow |       | Max. static pressure |           | SPL      | Operating temperature | Expected life                |
|--------------|----------------------|--------------------------------|----------------------|--------------------|-------------------------------------|--------------|-------|----------------------|-----------|----------|-----------------------|------------------------------|
|              |                      |                                |                      |                    |                                     | [m³/min]     | [CFM] | [Pa]                 | [inchH₂O] | [dB (A)] | [°C]                  | [h]                          |
| 9LG1212F1001 | 12                   | 8 to 13.8                      | 0.39                 | 4.68               | 2800                                | 3            | 106   | 67.6                 | 0.27      | 39       | -20 to +70            | 180000/60°C<br>(215000/40°C) |
| 9LG1212M1001 |                      |                                | 0.22                 | 2.64               | 2100                                | 2.2          | 77.7  | 37.9                 | 0.15      | 33       |                       |                              |
| 9LG1224A1001 |                      |                                | 0.37                 | 8.88               | 3700                                | 3.9          | 137.8 | 117.8                | 0.47      | 48       |                       |                              |
| 9LG1224F1001 | 24                   | 15 to 30                       | 0.19                 | 4.56               | 2800                                | 3            | 106   | 67.6                 | 0.27      | 39       |                       |                              |
| 9LG1224M1001 |                      |                                | 0.11                 | 2.64               | 2100                                | 2.2          | 77.7  | 37.9                 | 0.15      | 33       |                       |                              |
| 9LG1248F1001 |                      |                                | 0.11                 | 5.28               | 2800                                | 3            | 106   | 67.6                 | 0.27      | 39       |                       |                              |
| 9LG1248M1001 | 48                   | 36 to 60                       | 0.07                 | 3.36               | 2100                                | 2.2          | 77.7  | 37.9                 | 0.15      | 33       |                       |                              |

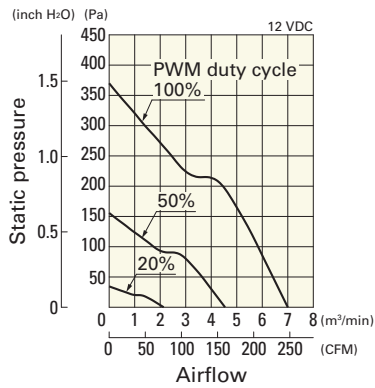
Note 1: Sensor and control options are available for selection. Refer to the table on p. 635.

Note 2: The  mark indicates Short LeadTime Service applicable models. See p. 654 for details.

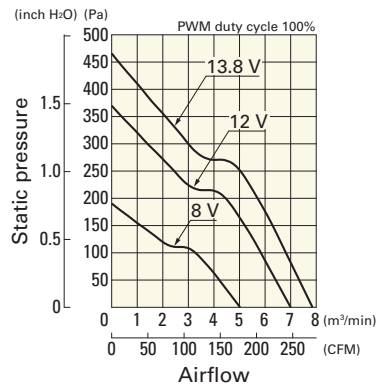
## Airflow - Static Pressure Characteristics / PWM Duty - Speed Characteristics Example

**9LG1212P1G001** With pulse sensor with PWM control function

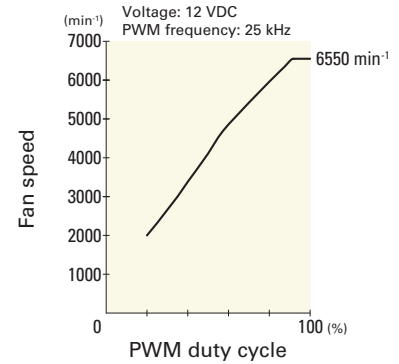
PWM duty cycle



Operating voltage range

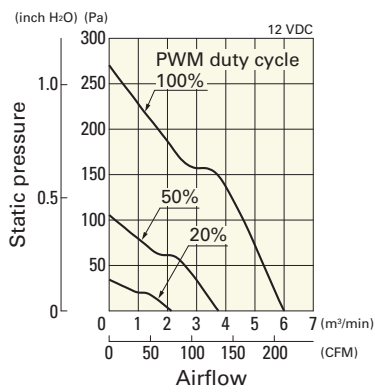


PWM duty - Speed characteristics example

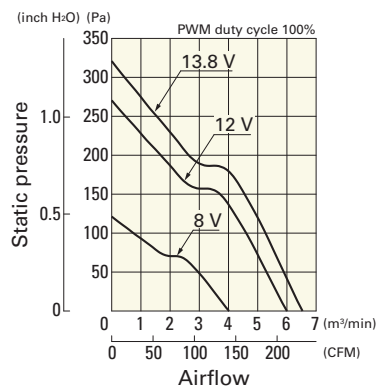


**9LG1212P1S001** With pulse sensor with PWM control function

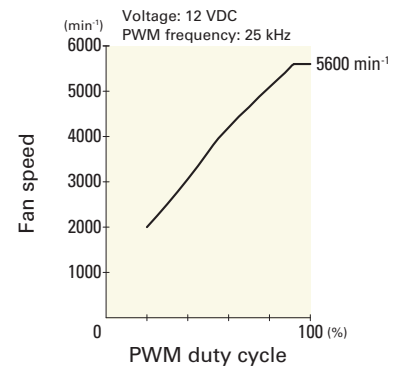
PWM duty cycle



Operating voltage range

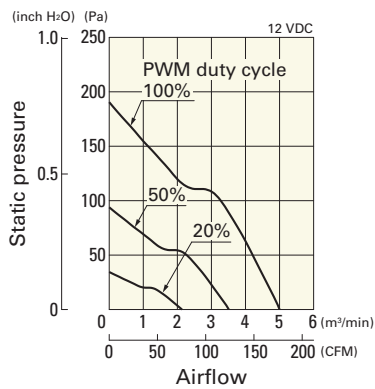


PWM duty - Speed characteristics example

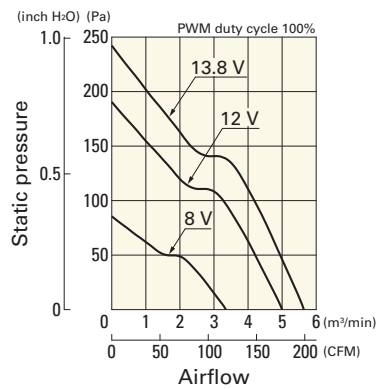


**9LG1212P1H001** With pulse sensor with PWM control function

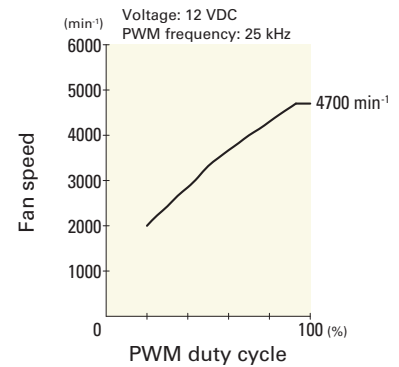
PWM duty cycle



Operating voltage range

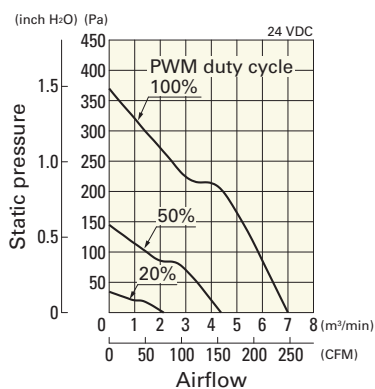


PWM duty - Speed characteristics example

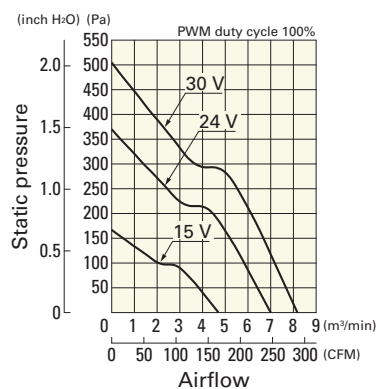


**9LG1224P1G001** With pulse sensor with PWM control function

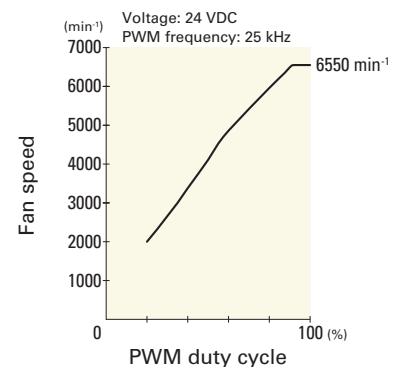
PWM duty cycle



Operating voltage range



PWM duty - Speed characteristics example

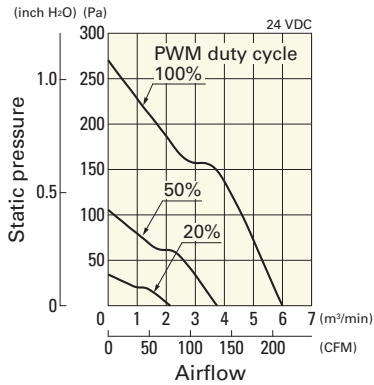


DC  
Long Life Fan 120 mm sq.

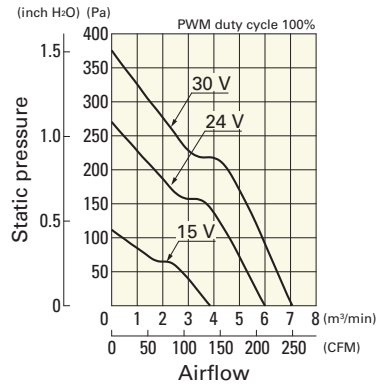
## Airflow - Static Pressure Characteristics / PWM Duty - Speed Characteristics Example

**9LG1224P1S001** With pulse sensor with PWM control function

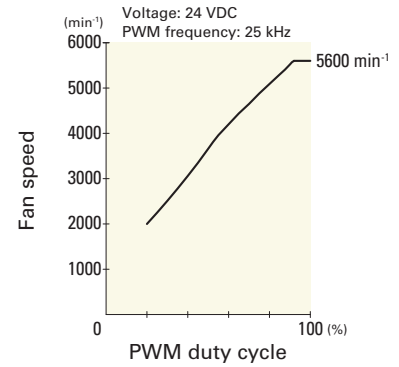
PWM duty cycle



Operating voltage range

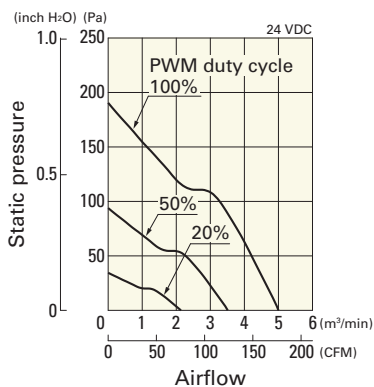


PWM duty - Speed characteristics example

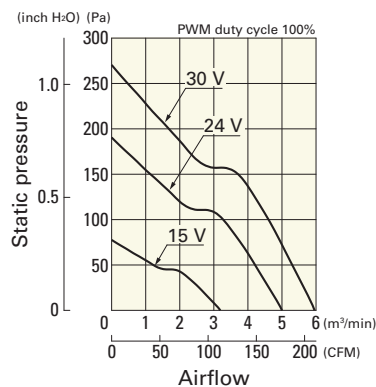


**9LG1224P1H001** With pulse sensor with PWM control function

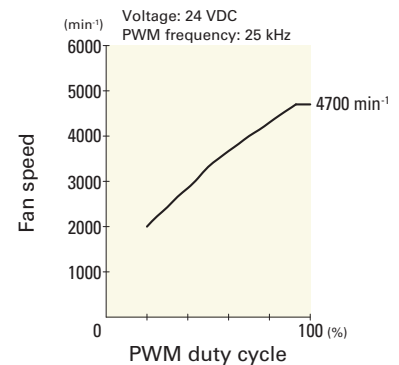
PWM duty cycle



Operating voltage range

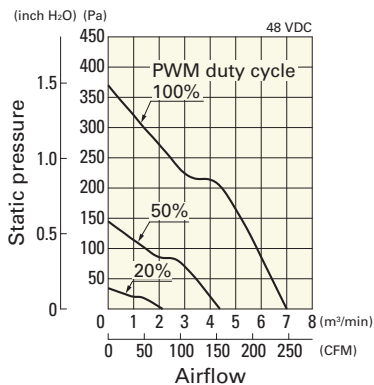


PWM duty - Speed characteristics example

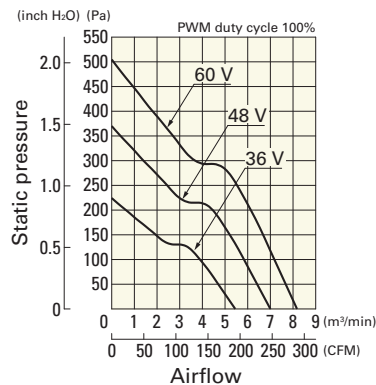


**9LG1248P1G001** With pulse sensor with PWM control function

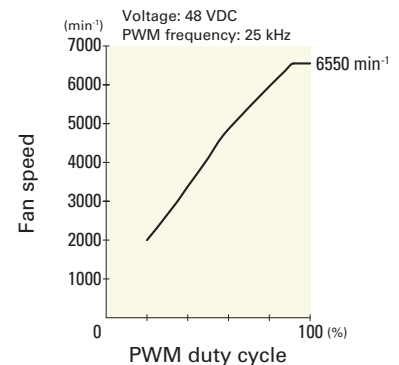
PWM duty cycle



Operating voltage range

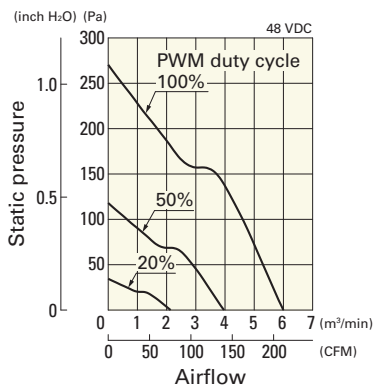


PWM duty - Speed characteristics example

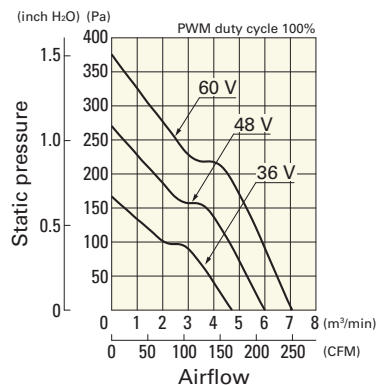


**9LG1248P1S001** With pulse sensor with PWM control function

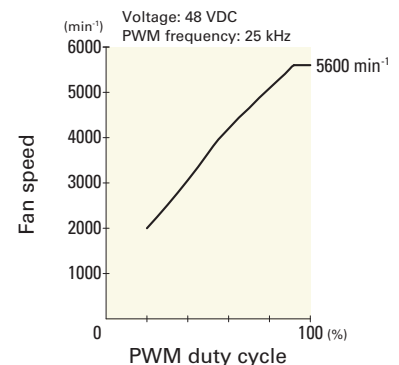
PWM duty cycle



Operating voltage range



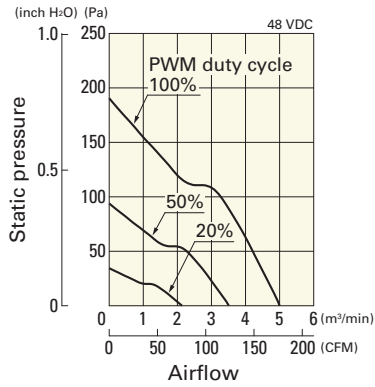
PWM duty - Speed characteristics example



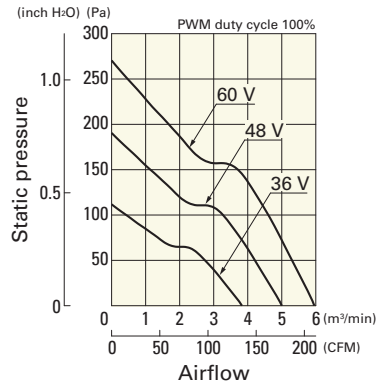
## Airflow - Static Pressure Characteristics / PWM Duty - Speed Characteristics Example

**9LG1248P1H001** With pulse sensor with PWM control function

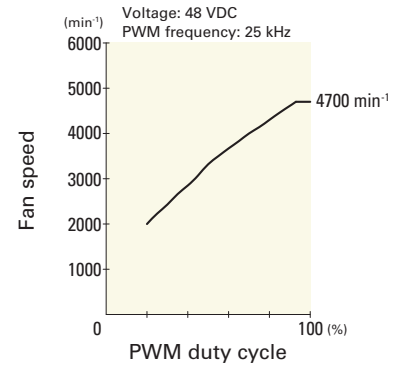
PWM duty cycle



Operating voltage range



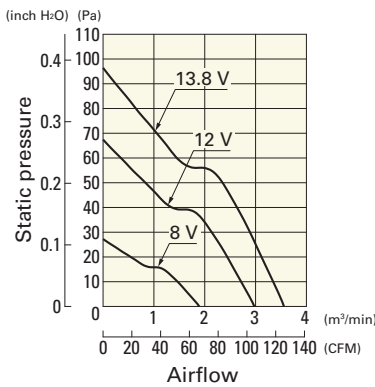
PWM duty - Speed characteristics example



## Airflow - Static Pressure Characteristics

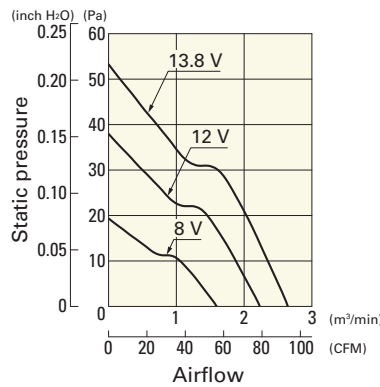
**9LG1212F1001** With pulse sensor

Operating voltage range



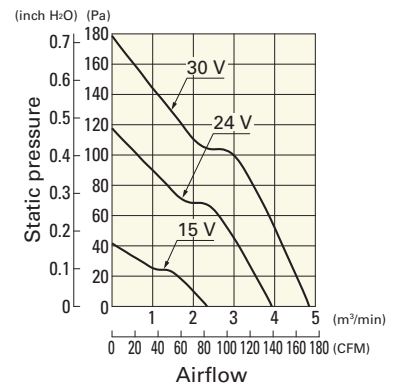
**9LG1212M1001** With pulse sensor

Operating voltage range



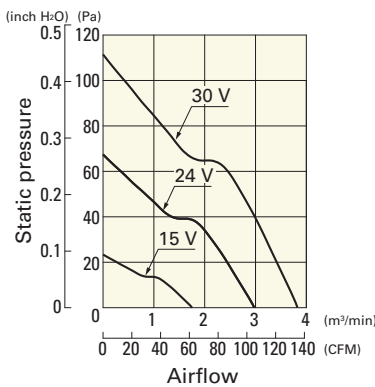
**9LG1224A1001** With pulse sensor

Operating voltage range



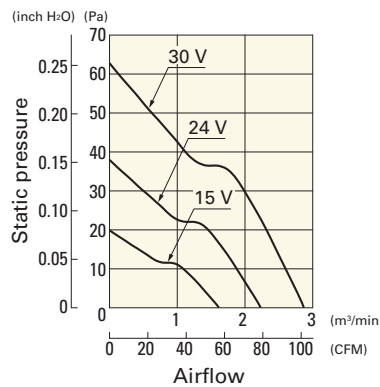
**9LG1224F1001** With pulse sensor

Operating voltage range



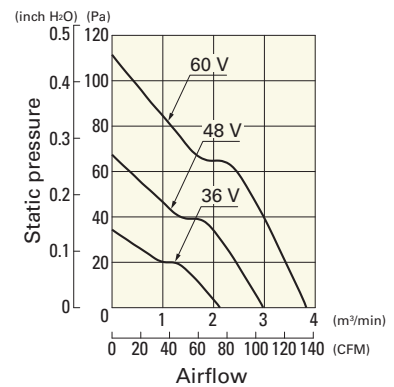
**9LG1224M1001** With pulse sensor

Operating voltage range



**9LG1248F1001** With pulse sensor

Operating voltage range

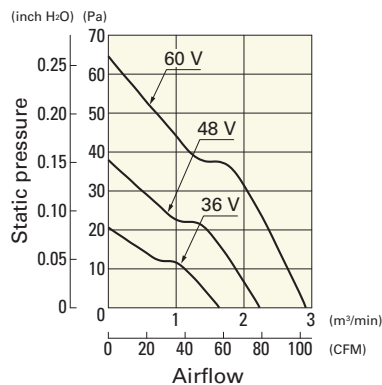


DC  
Long Life Fan 120 mm sq.

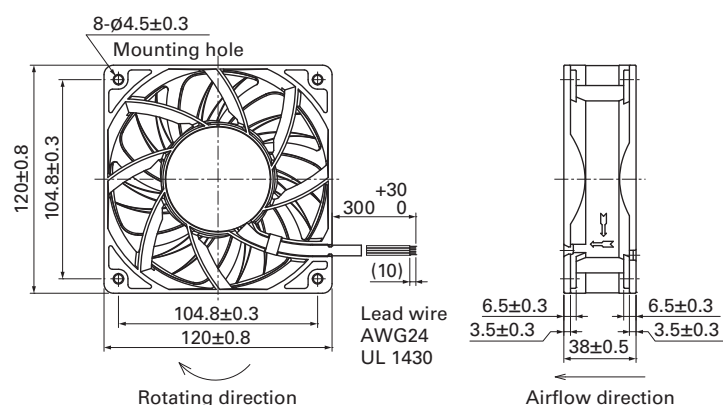
## Airflow - Static Pressure Characteristics

**9LG1248M1001** With pulse sensor

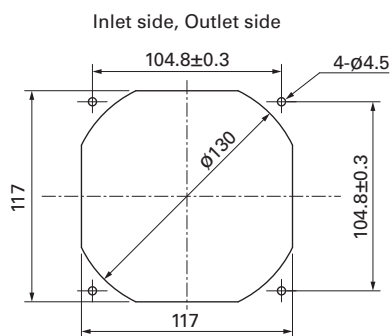
Operating voltage range



## Dimensions (unit: mm) (With pulse sensor with PWM control function)



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



## Options

Finger guards

page: p. 585

Model no.: 109-019E, 109-019K, 109-019C, 109-019H

Resin finger guards

page: p. 591

Model no.: 109-1000G

Resin filter kits

page: p. 592

Model no.: 109-1000F13 (13PPI), 109-1000F20 (20PPI),  
109-1000F30 (30PPI), 109-1000F40 (40PPI)

# 120×120×38 mm

**San Ace 120L 9GL type**


## General Specifications

- Material ..... Frame: Aluminum, Impeller: Plastic (Flammability: UL 94V-1)
- Expected life ..... See the table below. (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  
For details, please refer to p. 599.
- Dielectric strength ..... 50/60 Hz, 500 VAC, for 1 minute (between lead wire conductors and frame)
- Insulation resistance ..... 10 MΩ or more with a 500 VDC megger (between lead wire conductors and frame)
- Sound pressure level (SPL) ..... At 1 m away from the air inlet
- Storage temperature ..... -30 to +70°C (Non-condensing)
- Lead wire ..... ⊕Red ⊖Black or Blue ☐ Sensor Yellow
- Mass ..... 370 g

## Specifications

The models listed below **have pulse sensors**.

| Model no.   | Rated voltage [V] | Operating voltage range [V] | Rated current [A] | Rated input [W] | Rated speed [min <sup>-1</sup> ] | Max. airflow [m <sup>3</sup> /min] [CFM] | Max. static pressure [Pa] [inchH <sub>2</sub> O] | SPL [dB (A)] | Operating temperature [°C] | Expected life [h]            |
|-------------|-------------------|-----------------------------|-------------------|-----------------|----------------------------------|------------------------------------------|--------------------------------------------------|--------------|----------------------------|------------------------------|
| 9GL1212G101 | 12                | 10.2 to 13.8                | 0.98              | 11.8            | 3600                             | 3.88 137                                 | 135 0.542                                        | 49           | -20 to +70                 | 80000/60°C<br>(115000/40°C)  |
| 9GL1212E101 |                   |                             | 0.61              | 7.32            | 3100                             | 3.34 118                                 | 100 0.402                                        | 46           |                            |                              |
| 9GL1212H101 |                   | 7 to 13.8                   | 0.38              | 4.56            | 2600                             | 2.8 99                                   | 70.4 0.283                                       | 39           |                            | 100000/60°C<br>(135000/40°C) |
| 9GL1212F101 |                   |                             | 0.28              | 3.36            | 2280                             | 2.45 87                                  | 54.2 0.218                                       | 36           |                            |                              |
| 9GL1212M101 |                   |                             | 0.21              | 2.52            | 1950                             | 2.1 74                                   | 39.6 0.159                                       | 32           |                            |                              |
| 9GL1224G101 | 24                | 20.4 to 27.6                | 0.5               | 12.0            | 3600                             | 3.88 137                                 | 135 0.542                                        | 49           |                            | 80000/60°C<br>(115000/40°C)  |
| 9GL1224E101 |                   |                             | 0.34              | 8.16            | 3100                             | 3.34 118                                 | 100 0.402                                        | 46           |                            |                              |
| 9GL1224H101 |                   | 14 to 27.6                  | 0.22              | 5.28            | 2600                             | 2.8 99                                   | 70.4 0.283                                       | 39           |                            | 100000/60°C<br>(135000/40°C) |
| 9GL1224F101 |                   |                             | 0.16              | 3.84            | 2280                             | 2.45 87                                  | 54.2 0.218                                       | 36           |                            |                              |
| 9GL1224M101 |                   |                             | 0.11              | 2.64            | 1950                             | 2.1 74                                   | 39.6 0.159                                       | 32           |                            |                              |
| 9GL1248G101 | 48                | 40.8 to 55.2                | 0.25              | 12.0            | 3600                             | 3.88 137                                 | 135 0.542                                        | 49           |                            | 80000/60°C<br>(115000/40°C)  |
| 9GL1248E101 |                   |                             | 0.17              | 8.16            | 3100                             | 3.34 118                                 | 100 0.402                                        | 46           |                            |                              |
| 9GL1248H101 |                   |                             | 0.11              | 5.28            | 2600                             | 2.8 99                                   | 70.4 0.283                                       | 39           |                            | 100000/60°C<br>(135000/40°C) |
| 9GL1248F101 |                   |                             | 0.09              | 4.32            | 2280                             | 2.45 87                                  | 54.2 0.218                                       | 36           |                            |                              |
| 9GL1248M101 |                   |                             | 0.07              | 3.36            | 1950                             | 2.1 74                                   | 39.6 0.159                                       | 32           |                            |                              |

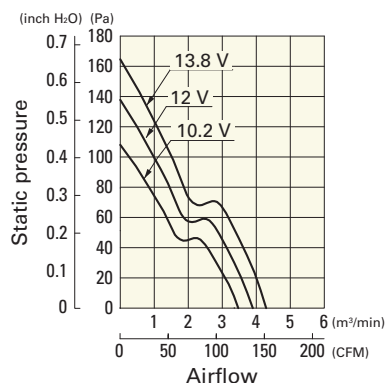
Note 1: Sensor and control options are available for selection. Refer to the table on p. pp. 631 to 632.

Note 2: The ⚡ mark indicates Short Lead Time Service applicable models. See p. 654 for details.

## Airflow - Static Pressure Characteristics

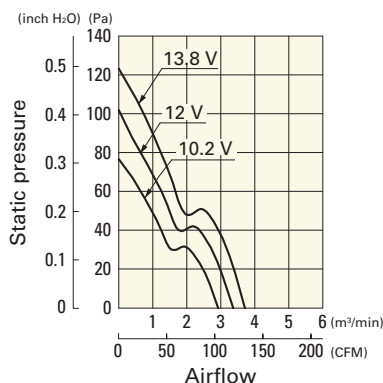
### 9GL1212G101 With pulse sensor

Operating voltage range



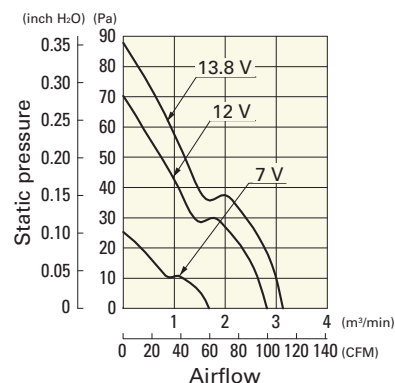
### 9GL1212E101 With pulse sensor

Operating voltage range



### 9GL1212H101 With pulse sensor

Operating voltage range

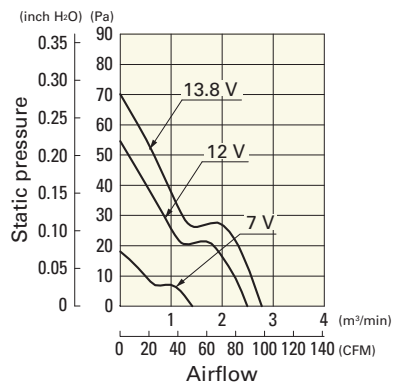




## Airflow - Static Pressure Characteristics

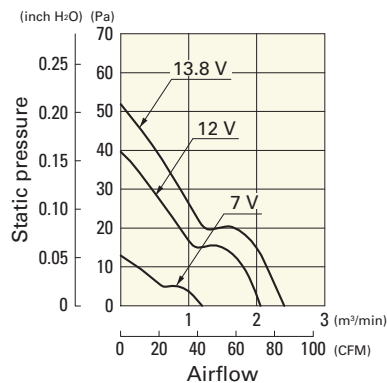
**9GL1212F101** With pulse sensor

Operating voltage range



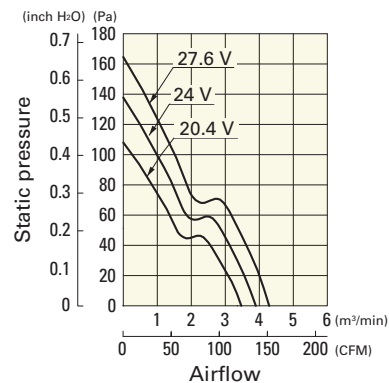
**9GL1212M101** With pulse sensor

Operating voltage range



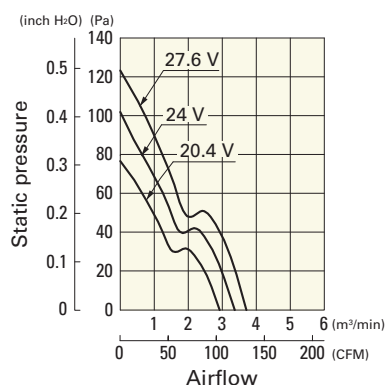
**9GL1224G101** With pulse sensor

Operating voltage range



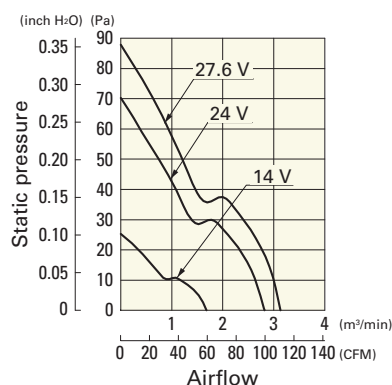
**9GL1224E101** With pulse sensor

Operating voltage range



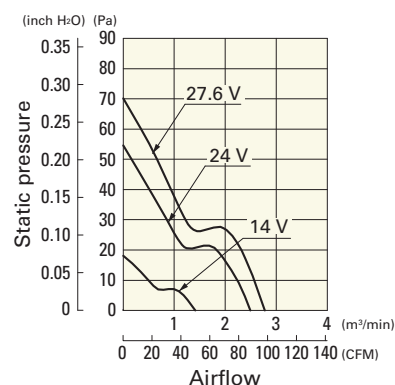
**9GL1224H101** With pulse sensor

Operating voltage range



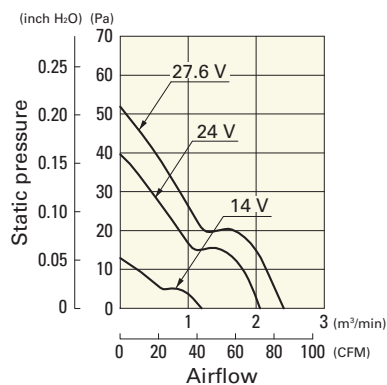
**9GL1224F101** With pulse sensor

Operating voltage range



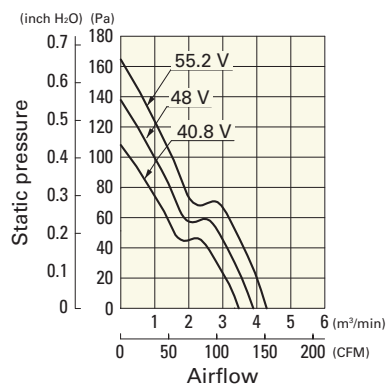
**9GL1224M101** With pulse sensor

Operating voltage range



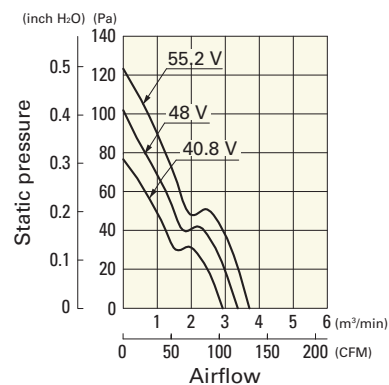
**9GL1248G101** With pulse sensor

Operating voltage range



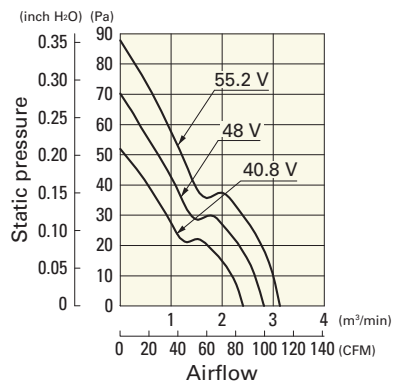
**9GL1248E101** With pulse sensor

Operating voltage range



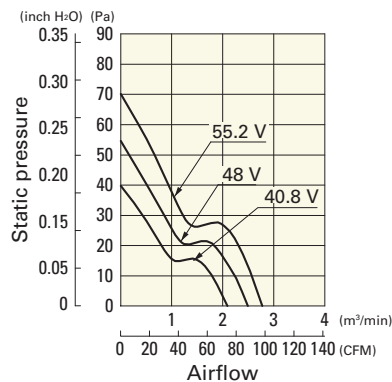
**9GL1248H101** With pulse sensor

Operating voltage range



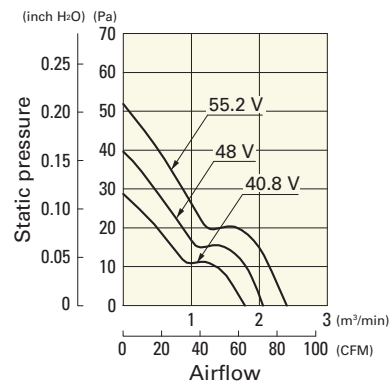
**9GL1248F101** With pulse sensor

Operating voltage range

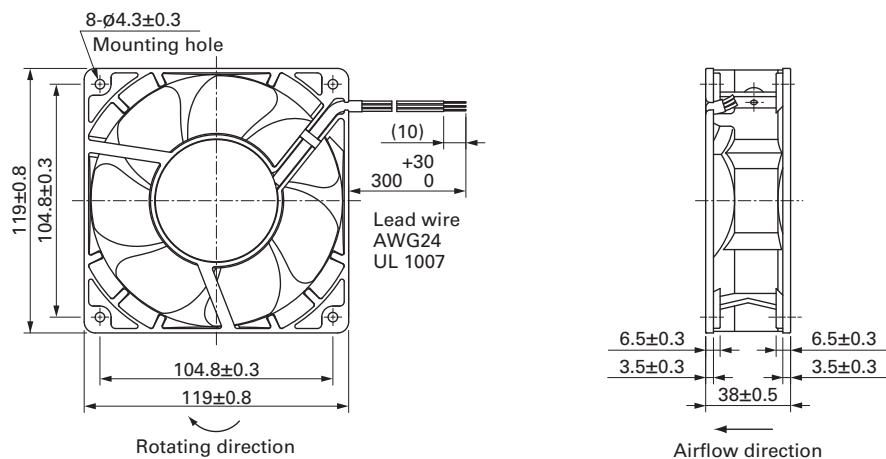


**9GL1248M101** With pulse sensor

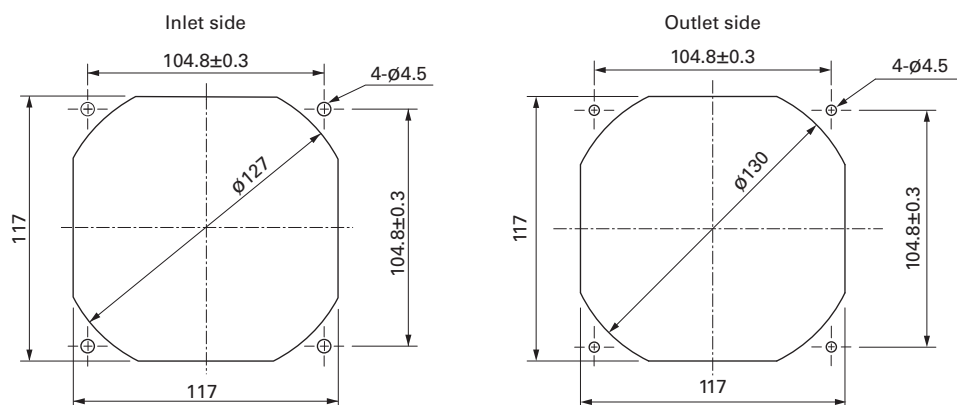
Operating voltage range



## Dimensions (unit: mm)



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



## Options

### Finger guards

page: p. 585

Model no.: 109-019E, 109-019K, 109-019C, 109-019H

### Resin finger guards

page: p. 591

Model no.: 109-1000G

### Resin filter kits

page: p. 592

Model no.: 109-1000F13 (13PPI), 109-1000F20 (20PPI),  
109-1000F30 (30PPI), 109-1000F40 (40PPI)

DC

Long Life Fan 120 mm sq.

# 140×140×38 mm

## San Ace 140L 9LG type



### General Specifications

- Material ..... Frame: Aluminum (Black coating), Impeller: Plastic (Flammability: UL 94V-1)
- Expected life ..... See the table below. (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  
For details, please refer to p. 599.
- Dielectric strength ..... 50/60 Hz, 500 VAC, for 1 minute (between lead wire conductors and frame)
- Insulation resistance ..... 10 MΩ or more with a 500 VDC megger (between lead wire conductors and frame)
- Sound pressure level (SPL) ..... At 1 m away from the air inlet
- Storage temperature ..... -30 to +70°C (Non-condensing)
- Lead wire ..... ⊕Red ⊖Black (Sensor) Yellow (Control) Brown  
(For models without PWM control function, there is no speed control wiring.)
- Mass ..... 640 g

### Specifications

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

| Model no.     | Rated voltage<br>[V] | Operating voltage range<br>[V] | PWM duty<br>cycle [%] | Rated current<br>[A] | Rated input<br>[W] | Rated speed<br>[min <sup>-1</sup> ] | Max. airflow |       | Max. static pressure |           | SPL      | Operating temperature | Expected life                |
|---------------|----------------------|--------------------------------|-----------------------|----------------------|--------------------|-------------------------------------|--------------|-------|----------------------|-----------|----------|-----------------------|------------------------------|
|               |                      |                                |                       |                      |                    |                                     | [m³/min]     | [CFM] | [Pa]                 | [inchH₂O] | [dB (A)] | [°C]                  | [h]                          |
| 9LG1412P1A001 | 12                   | 10.2 to 13.8                   | 100                   | 3.72                 | 44.64              | 6900                                | 8.0          | 282   | 516                  | 2.07      | 68       | -20 to +70            | 180000/60°C<br>(215000/40°C) |
|               |                      |                                | 20                    | 0.27                 | 3.24               | 2300                                | 2.66         | 93    | 80                   | 0.32      | 39       |                       |                              |
| 9LG1412P1H001 |                      |                                | 100                   | 1.7                  | 20.4               | 5200                                | 6.0          | 212   | 300                  | 1.2       | 62       |                       |                              |
|               |                      |                                | 20                    | 0.27                 | 3.24               | 2300                                | 2.66         | 93    | 80                   | 0.32      | 39       |                       |                              |
| 9LG1412P1M001 | 12                   | 10.2 to 13.8                   | 100                   | 0.6                  | 7.2                | 3300                                | 3.7          | 130   | 170                  | 0.68      | 46       |                       |                              |
|               |                      |                                | 20                    | 0.16                 | 1.92               | 1300                                | 1.45         | 51    | 26                   | 0.1       | 29       |                       |                              |
| 9LG1424P1A001 | 24                   | 20.4 to 27.6                   | 100                   | 1.86                 | 44.64              | 6900                                | 8.0          | 282   | 516                  | 2.07      | 68       |                       |                              |
|               |                      |                                | 20                    | 0.17                 | 4.08               | 2300                                | 2.66         | 93    | 80                   | 0.32      | 39       |                       |                              |
| 9LG1424P1H001 |                      |                                | 100                   | 0.85                 | 20.4               | 5200                                | 6.0          | 212   | 300                  | 1.2       | 62       |                       |                              |
|               |                      |                                | 20                    | 0.16                 | 3.84               | 2300                                | 2.66         | 93    | 80                   | 0.32      | 39       |                       |                              |
| 9LG1424P1M001 | 24                   | 20.4 to 27.6                   | 100                   | 0.3                  | 7.2                | 3300                                | 3.7          | 130   | 170                  | 0.68      | 46       |                       |                              |
|               |                      |                                | 20                    | 0.11                 | 2.64               | 1300                                | 1.45         | 51    | 26                   | 0.1       | 29       |                       |                              |
| 9LG1448P1A001 | 48                   | 40.8 to 55.2                   | 100                   | 0.92                 | 44.16              | 6900                                | 8.0          | 282   | 516                  | 2.07      | 68       |                       |                              |
|               |                      |                                | 20                    | 0.11                 | 5.28               | 2300                                | 2.66         | 93    | 80                   | 0.32      | 39       |                       |                              |
| 9LG1448P1H001 |                      |                                | 100                   | 0.42                 | 20.16              | 5200                                | 6.0          | 212   | 300                  | 1.2       | 62       |                       |                              |
|               |                      |                                | 20                    | 0.11                 | 5.28               | 2300                                | 2.66         | 93    | 80                   | 0.32      | 39       |                       |                              |
| 9LG1448P1M001 | 48                   | 40.8 to 55.2                   | 100                   | 0.15                 | 7.2                | 3300                                | 3.7          | 130   | 170                  | 0.68      | 46       |                       |                              |
|               |                      |                                | 20                    | 0.09                 | 4.32               | 1300                                | 1.45         | 51    | 26                   | 0.1       | 29       |                       |                              |

\* PWM input frequency is 25 kHz; models without specifications at 0% PWM duty cycle have zero fan speed at 0%.

The models listed below **have pulse sensors.**

| Model no.    | Rated voltage<br>[V] | Operating voltage range<br>[V] | Rated current<br>[A] | Rated input<br>[W] | Rated speed<br>[min <sup>-1</sup> ] | Max. airflow |       | Max. static pressure |           | SPL      | Operating temperature | Expected life                |
|--------------|----------------------|--------------------------------|----------------------|--------------------|-------------------------------------|--------------|-------|----------------------|-----------|----------|-----------------------|------------------------------|
|              |                      |                                |                      |                    |                                     | [m³/min]     | [CFM] | [Pa]                 | [inchH₂O] | [dB (A)] | [°C]                  | [h]                          |
| 9LG1412L1001 | 12                   | 10.2 to 13.8                   | 0.27                 | 3.3                | 2300                                | 2.6          | 91.9  | 80                   | 0.32      | 39       | -20 to +70            | 180000/60°C<br>(215000/40°C) |
| 9LG1424L1001 | 24                   | 20.4 to 27.6                   | 0.17                 | 4.1                | 2300                                | 2.6          | 91.9  | 80                   | 0.32      | 39       |                       |                              |
| 9LG1448L1001 | 48                   | 40.8 to 55.2                   | 0.11                 | 5.3                | 2300                                | 2.6          | 91.9  | 80                   | 0.32      | 39       |                       |                              |

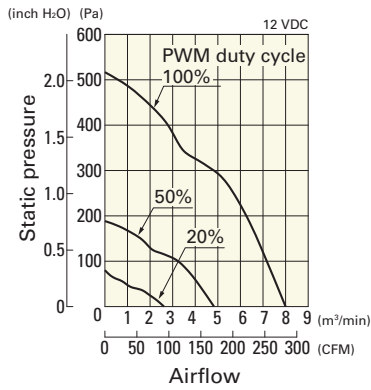
Note 1: Sensor and control options are available for selection. Refer to the table on p. 635.

Note 2: The » mark indicates Short Lead Time Service applicable models. See p. 654 for details.

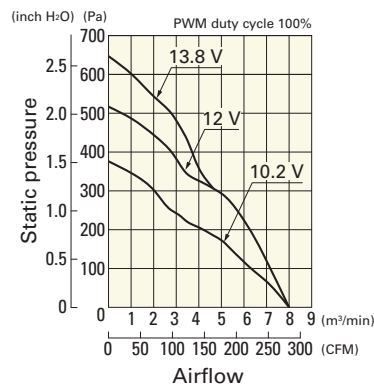
## Airflow - Static Pressure Characteristics / PWM Duty - Speed Characteristics Example

**9LG1412P1A001** With pulse sensor with PWM control function

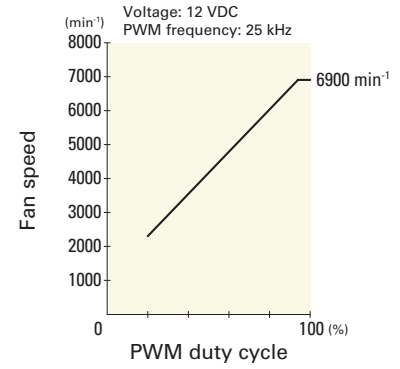
PWM duty cycle



Operating voltage range

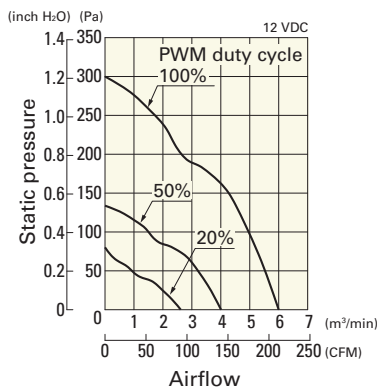


PWM duty - Speed characteristics example

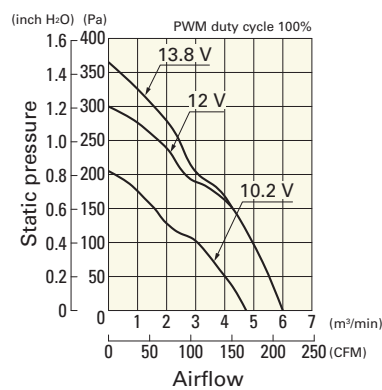


**9LG1412P1H001** With pulse sensor with PWM control function

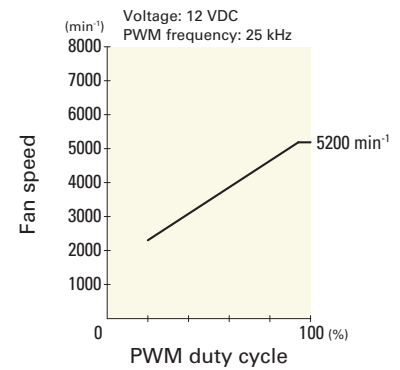
PWM duty cycle



Operating voltage range

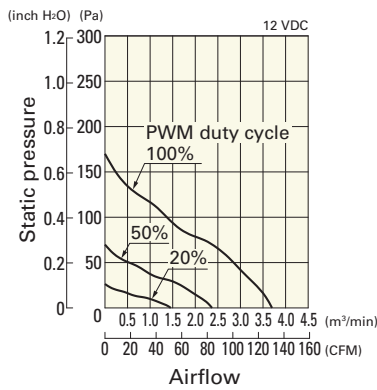


PWM duty - Speed characteristics example

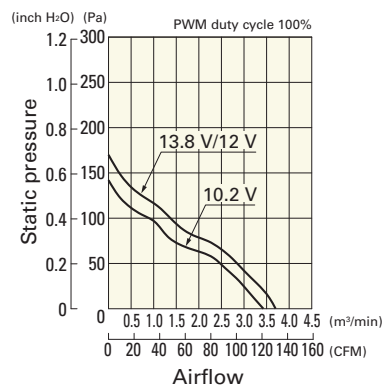


**9LG1412P1M001** With pulse sensor with PWM control function

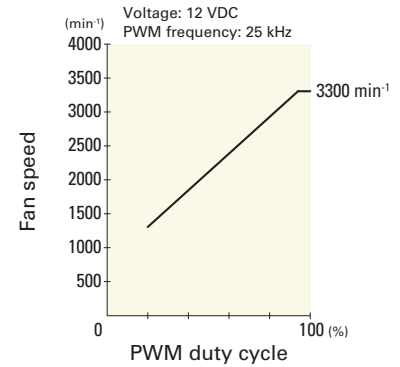
PWM duty cycle



Operating voltage range

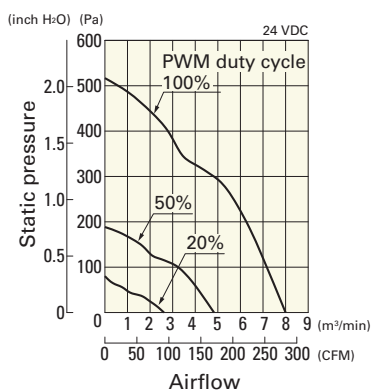


PWM duty - Speed characteristics example

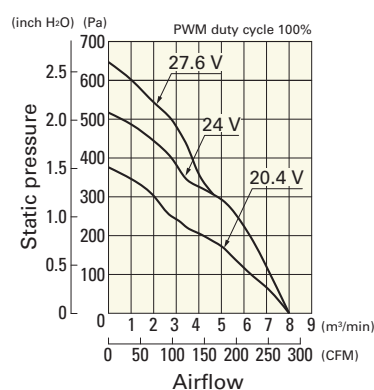


**9LG1424P1A001** With pulse sensor with PWM control function

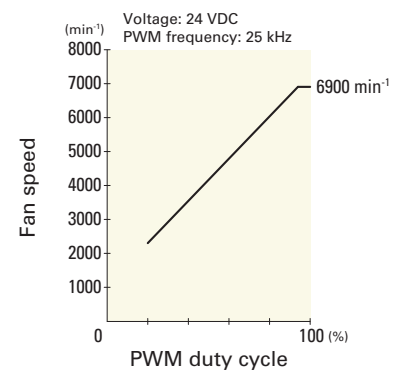
PWM duty cycle



Operating voltage range



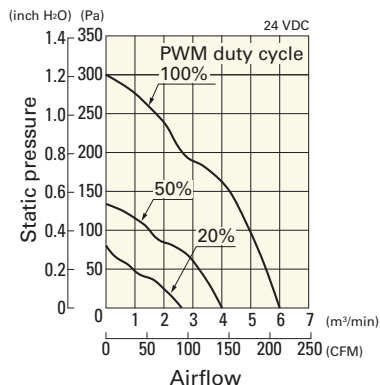
PWM duty - Speed characteristics example



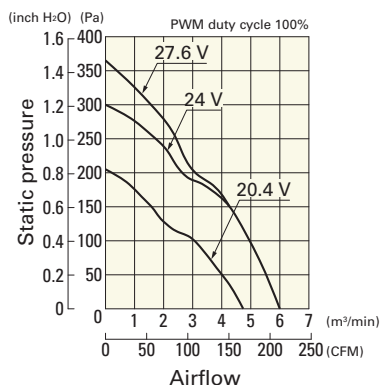
## Airflow - Static Pressure Characteristics / PWM Duty - Speed Characteristics Example

**9LG1424P1H001** With pulse sensor with PWM control function

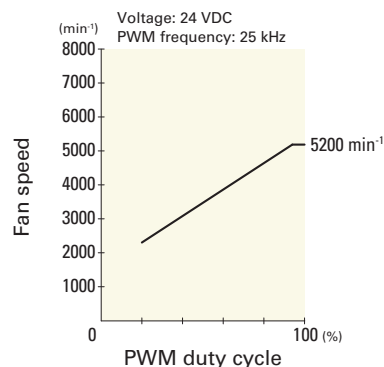
PWM duty cycle



Operating voltage range

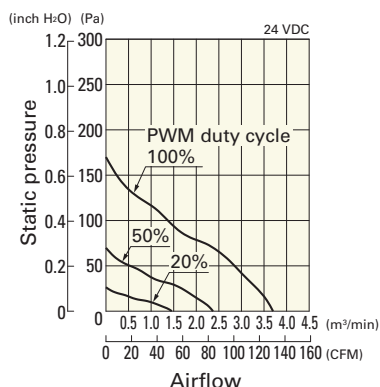


PWM duty - Speed characteristics example

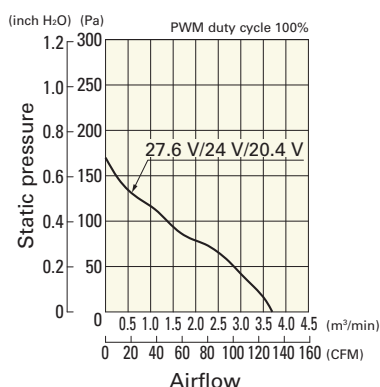


**9LG1424P1M001** With pulse sensor with PWM control function

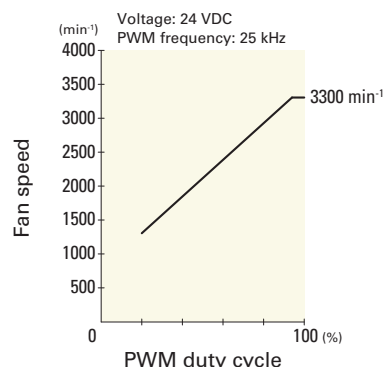
PWM duty cycle



Operating voltage range

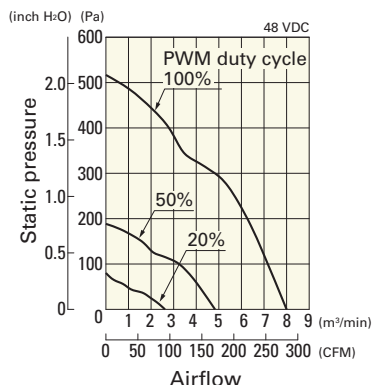


PWM duty - Speed characteristics example

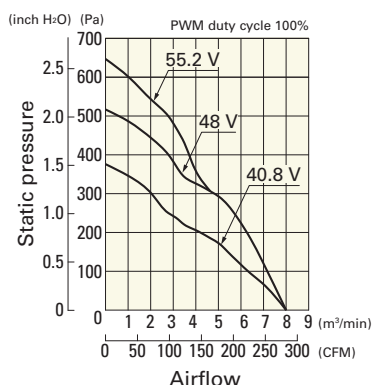


**9LG1448P1A001** With pulse sensor with PWM control function

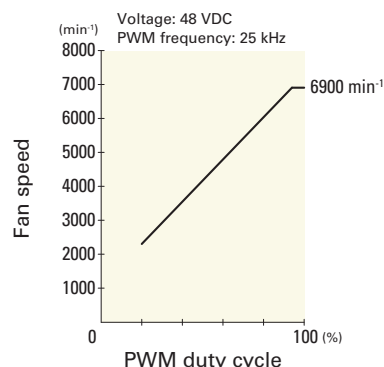
PWM duty cycle



Operating voltage range

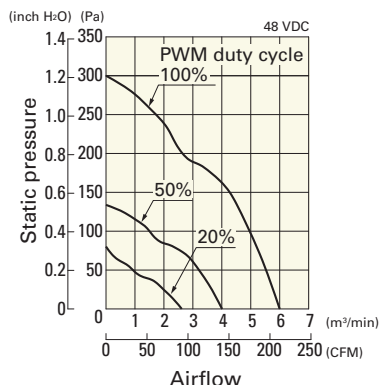


PWM duty - Speed characteristics example

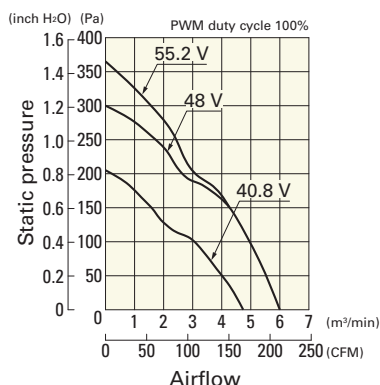


**9LG1448P1H001** With pulse sensor with PWM control function

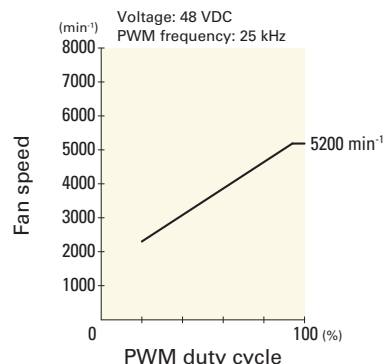
PWM duty cycle



Operating voltage range



PWM duty - Speed characteristics example

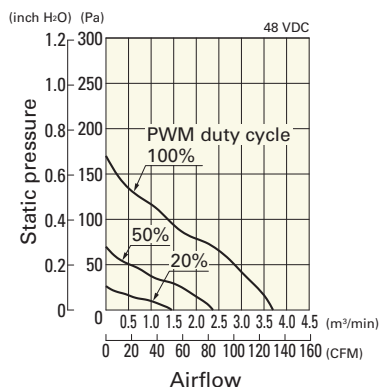


DC  
Long Life Fan 140 mm sq.

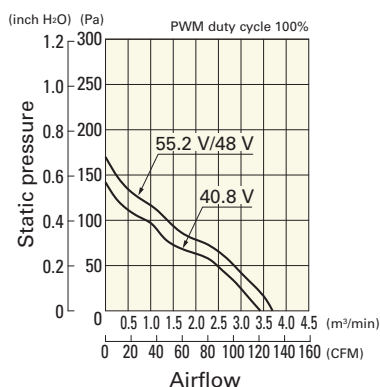
## Airflow - Static Pressure Characteristics / PWM Duty - Speed Characteristics Example

**9LG1448P1M001** With pulse sensor with PWM control function

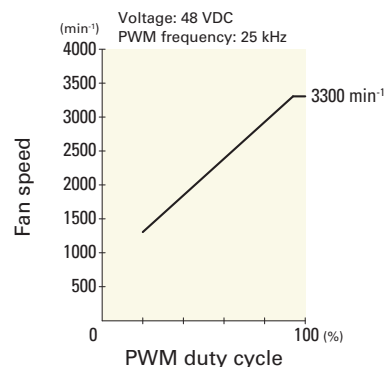
PWM duty cycle



Operating voltage range



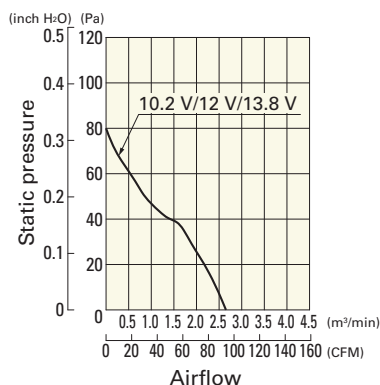
PWM duty - Speed characteristics example



## Airflow - Static Pressure Characteristics

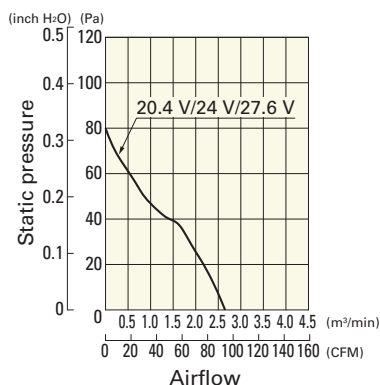
**9LG1412L1001** With pulse sensor

Operating voltage range



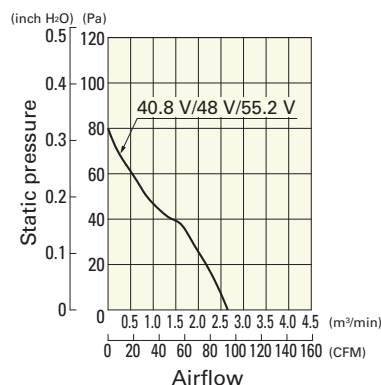
**9LG1424L1001** With pulse sensor

Operating voltage range

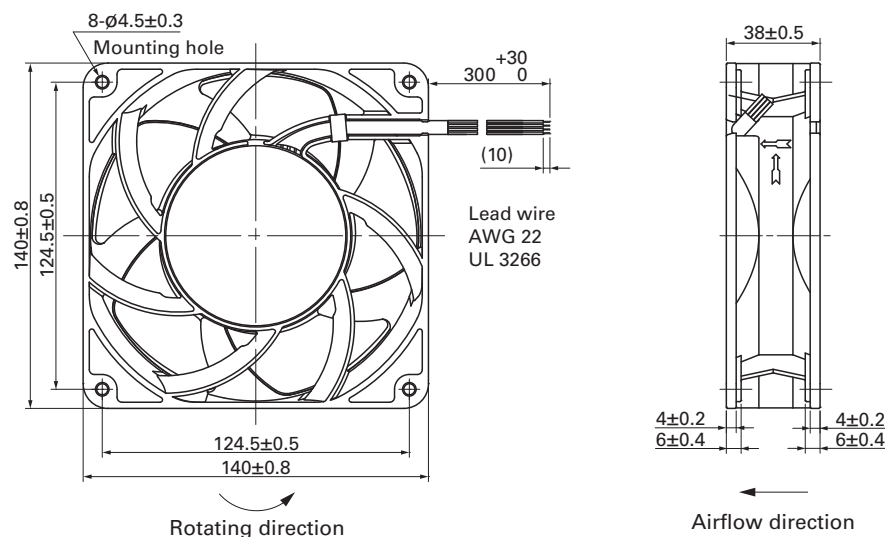


**9LG1448L1001** With pulse sensor

Operating voltage range



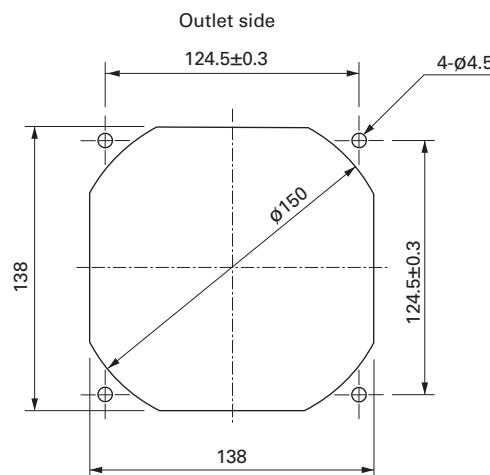
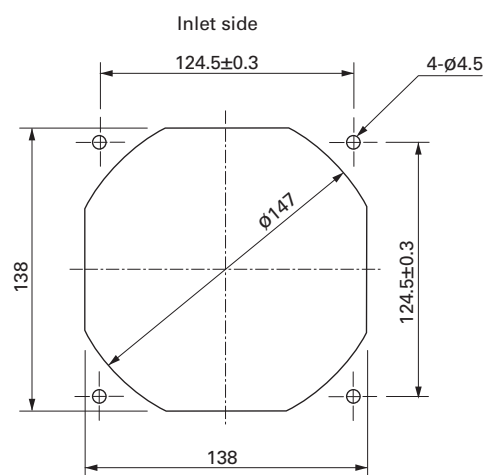
## Dimensions (unit: mm) (With pulse sensor with PWM control function)



DC

Long Life Fan 140 mm sq.

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



## Options

Finger guards

page: p. 585

Model no.: 109-719, 109-719H



# 140×140×51 mm

## San Ace 140L 9LG type

### General Specifications

- Material ..... Frame: Aluminum (Black coating), Impeller: Plastic (Flammability: UL 94V-0)
- Expected life ..... See the table below. (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  
For details, please refer to p. 599.
- Dielectric strength ..... 50/60 Hz, 500 VAC, for 1 minute (between lead wire conductors and frame)
- Insulation resistance ..... 10 MΩ or more with a 500 VDC megger (between lead wire conductors and frame)
- Sound pressure level (SPL) ..... At 1 m away from the air inlet
- Storage temperature ..... -30 to +70°C (Non-condensing)
- Lead wire ..... ⊕Red ⊖Black ☐Sensor Yellow ☐Control Brown  
(For models without PWM control function, there is no speed control wiring.)
- Mass ..... 790 g

### Specifications

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 <sup>-1</sup> ] | Max. airflow [m <sup>3</sup> /min] [CFM] | Max. static pressure [Pa] [inchH <sub>2</sub> O] | SPL [dB (A)] | Operating temperature [°C] | Expected life [h]            |
|---------------|-------------------|-----------------------------|--------------------|-------------------|-----------------|----------------------------------|------------------------------------------|--------------------------------------------------|--------------|----------------------------|------------------------------|
| 9LG1412P5G001 | 12                | 10.2 to 13.8                | 100                | 5.16              | 62              | 7500                             | 9.0 318                                  | 655 2.63                                         | 69           | -20 to +70                 | 180000/60°C<br>(215000/40°C) |
|               |                   |                             | 20                 | 0.31              | 3.72            | 2300                             | 2.75 97                                  | 80 0.32                                          | 38           |                            |                              |
| 9LG1412P5S001 |                   |                             | 100                | 1.83              | 22              | 5000                             | 6.0 212                                  | 295 1.18                                         | 57           |                            |                              |
|               |                   |                             | 20                 | 0.31              | 3.72            | 2300                             | 2.75 97                                  | 80 0.32                                          | 38           |                            |                              |
| 9LG1424P5G001 | 24                | 20.4 to 27.6                | 100                | 2.58              | 62              | 7500                             | 9.0 318                                  | 655 2.63                                         | 69           |                            |                              |
|               |                   |                             | 20                 | 0.16              | 3.84            | 2300                             | 2.75 97                                  | 80 0.32                                          | 38           |                            |                              |
| 9LG1424P5S001 |                   |                             | 100                | 0.91              | 22              | 5000                             | 6.0 212                                  | 295 1.18                                         | 57           |                            |                              |
|               |                   |                             | 20                 | 0.16              | 3.84            | 2300                             | 2.75 97                                  | 80 0.32                                          | 38           |                            |                              |
| 9LG1448P5G001 | 48                | 40.8 to 55.2                | 100                | 1.29              | 62              | 7500                             | 9.0 318                                  | 655 2.63                                         | 69           |                            |                              |
|               |                   |                             | 20                 | 0.12              | 5.76            | 2300                             | 2.75 97                                  | 80 0.32                                          | 38           |                            |                              |
| 9LG1448P5S001 |                   |                             | 100                | 0.45              | 22              | 5000                             | 6.0 212                                  | 295 1.18                                         | 57           |                            |                              |
|               |                   |                             | 20                 | 0.12              | 5.76            | 2300                             | 2.75 97                                  | 80 0.32                                          | 38           |                            |                              |

\* PWM input frequency is 25 kHz; models without specifications at 0% PWM duty cycle have zero fan speed at 0%.

The models listed below **have pulse sensors.**

| Model no.    | Rated voltage [V] | Operating voltage range [V] | Rated current [A] | Rated input [W] | Rated speed [min <sup>-1</sup> ] | Max. airflow [m <sup>3</sup> /min] [CFM] | Max. static pressure [Pa] [inchH <sub>2</sub> O] | SPL [dB (A)] | Operating temperature [°C] | Expected life [h]            |
|--------------|-------------------|-----------------------------|-------------------|-----------------|----------------------------------|------------------------------------------|--------------------------------------------------|--------------|----------------------------|------------------------------|
| 9LG1412A5001 | 12                | 10.2 to 13.8                | 2.61              | 31.4            | 5700                             | 6.9 243.8                                | 500 2                                            | 61           | -20 to +70                 | 180000/60°C<br>(215000/40°C) |
| 9LG1412H5001 |                   |                             | 1                 | 12              | 4100                             | 4.9 173.1                                | 260 1.04                                         | 52           |                            |                              |
| 9LG1412M5001 |                   |                             | 0.43              | 5.16            | 2600                             | 3.1 109.5                                | 100 0.4                                          | 40           |                            |                              |
| 9LG1424A5001 | 24                | 20.4 to 27.6                | 1.21              | 29.1            | 5700                             | 6.9 243.8                                | 540 2.17                                         | 61           |                            |                              |
| 9LG1424H5001 |                   |                             | 0.55              | 13.2            | 4100                             | 4.9 173.1                                | 260 1.04                                         | 52           |                            |                              |
| 9LG1424M5001 |                   |                             | 0.23              | 5.52            | 2600                             | 3.1 109.5                                | 100 0.4                                          | 40           |                            |                              |
| 9LG1448A5001 | 48                | 40.8 to 55.2                | 0.66              | 31.7            | 5700                             | 6.9 243.8                                | 540 2.17                                         | 61           |                            |                              |
| 9LG1448H5001 |                   |                             | 0.31              | 14.9            | 4100                             | 4.9 173.1                                | 260 1.04                                         | 52           |                            |                              |
| 9LG1448M5001 |                   |                             | 0.15              | 7.2             | 2600                             | 3.1 109.5                                | 100 0.4                                          | 40           |                            |                              |

Note 1: Sensor and control options are available for selection. Refer to the table on p. 635.

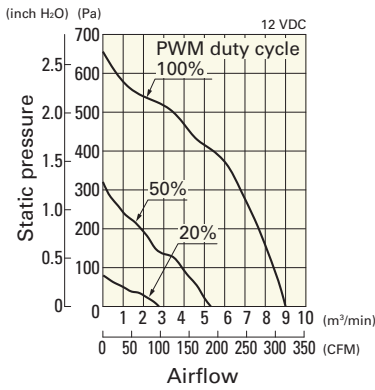
Note 2: The  mark indicates Short Lead Time Service applicable models. See p. 654 for details.



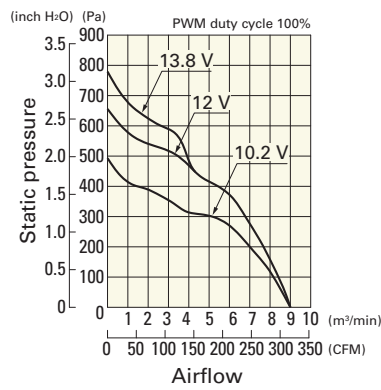
## Airflow - Static Pressure Characteristics / PWM Duty - Speed Characteristics Example

**9LG1412P5G001** With pulse sensor with PWM control function

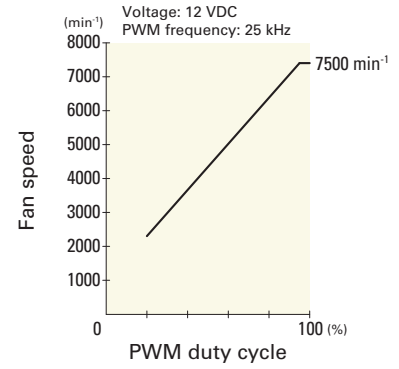
PWM duty cycle



Operating voltage range

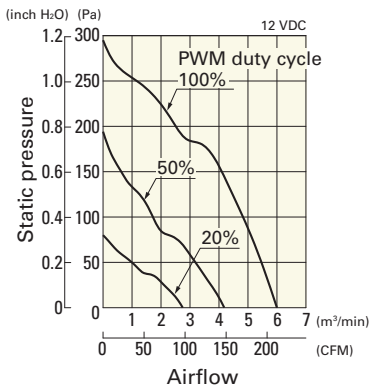


PWM duty - Speed characteristics example

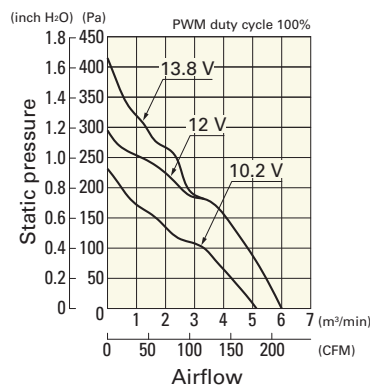


**9LG1412P5S001** With pulse sensor with PWM control function

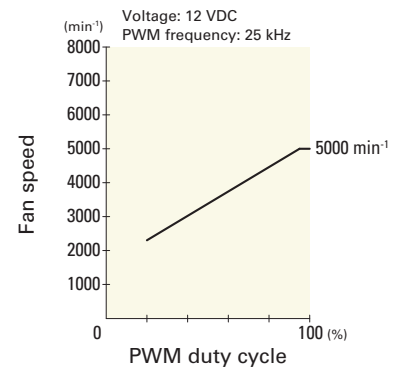
PWM duty cycle



Operating voltage range

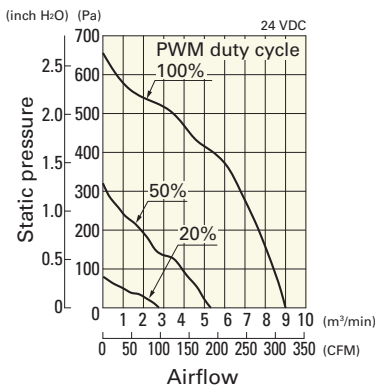


PWM duty - Speed characteristics example

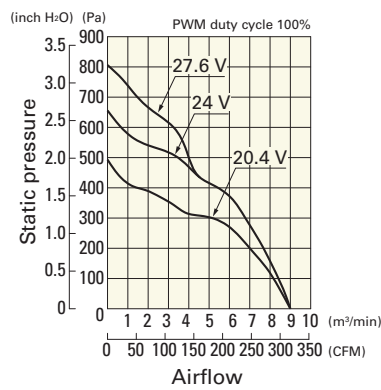


**9LG1424P5G001** With pulse sensor with PWM control function

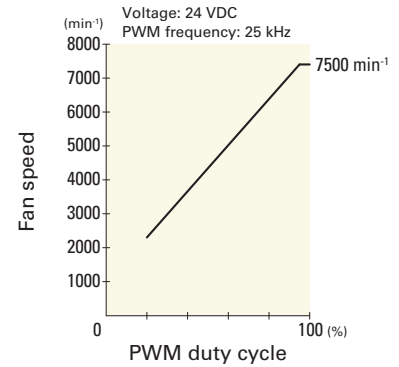
PWM duty cycle



Operating voltage range

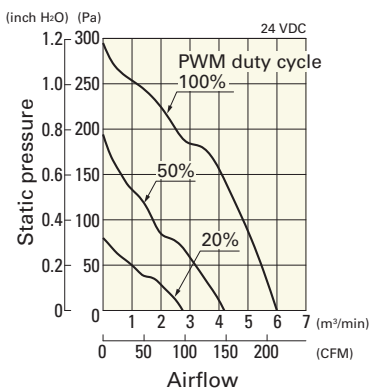


PWM duty - Speed characteristics example

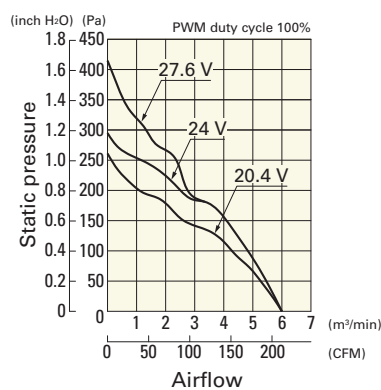


**9LG1424P5S001** With pulse sensor with PWM control function

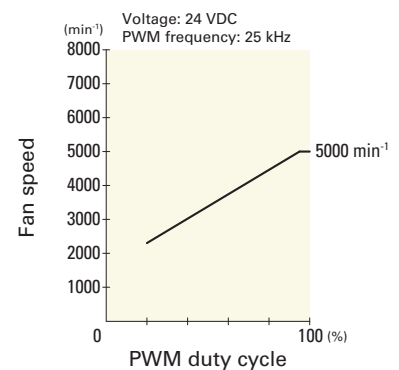
PWM duty cycle



Operating voltage range



PWM duty - Speed characteristics example

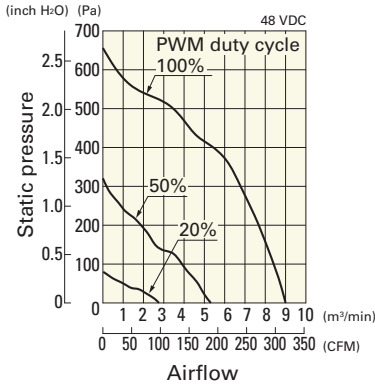


DC  
Long Life Fan 140 mm sq.

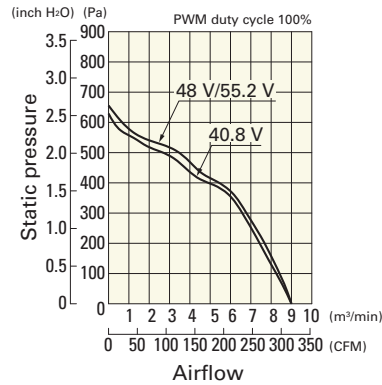
## Airflow - Static Pressure Characteristics / PWM Duty - Speed Characteristics Example

**9LG1448P5G001** With pulse sensor with PWM control function

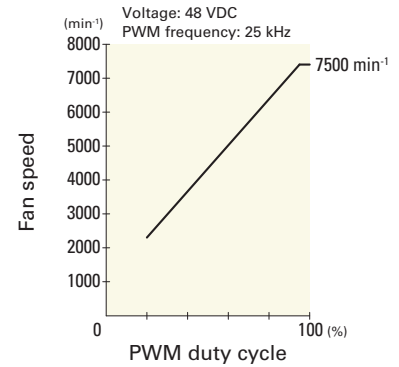
PWM duty cycle



Operating voltage range

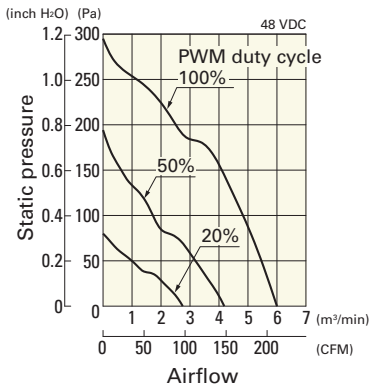


PWM duty - Speed characteristics example

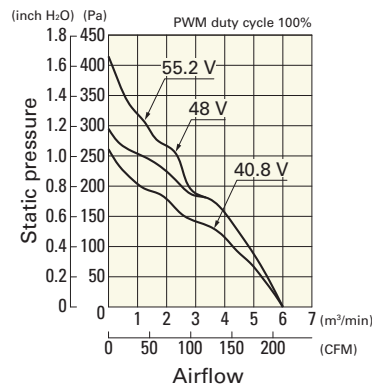


**9LG1448P5S001** With pulse sensor with PWM control function

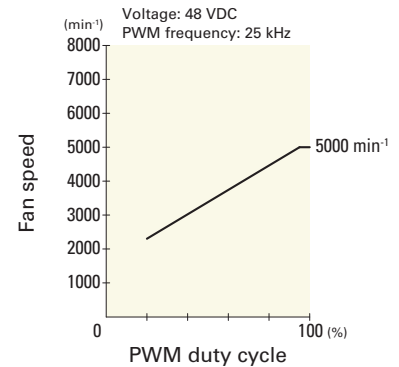
PWM duty cycle



Operating voltage range



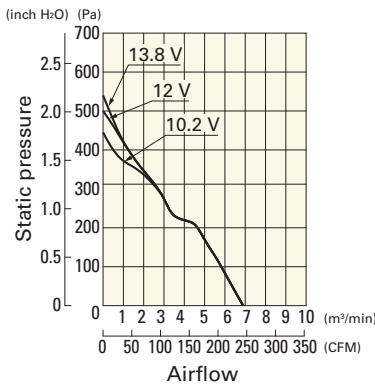
PWM duty - Speed characteristics example



## Airflow - Static Pressure Characteristics

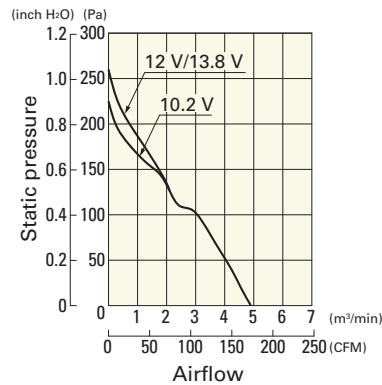
**9LG1412A5001** With pulse sensor

Operating voltage range



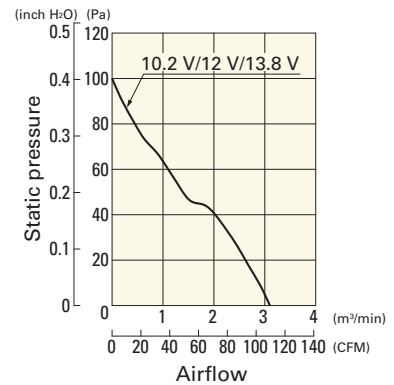
**9LG1412H5001** With pulse sensor

Operating voltage range



**9LG1412M5001** With pulse sensor

Operating voltage range

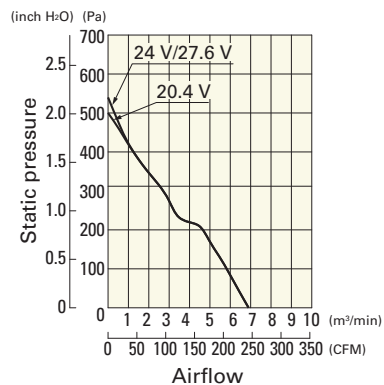


DC  
Long Life Fan 140 mm sq.

## Airflow - Static Pressure Characteristics

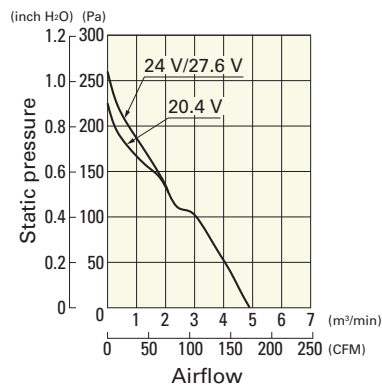
### 9LG1424A5001 With pulse sensor

Operating voltage range



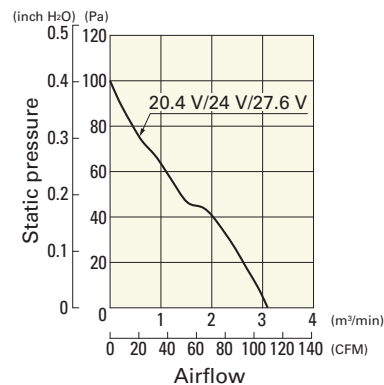
### 9LG1424H5001 With pulse sensor

Operating voltage range



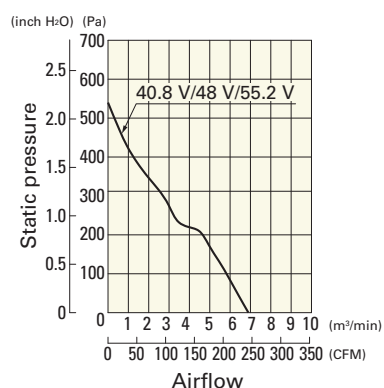
### 9LG1424M5001 With pulse sensor

Operating voltage range



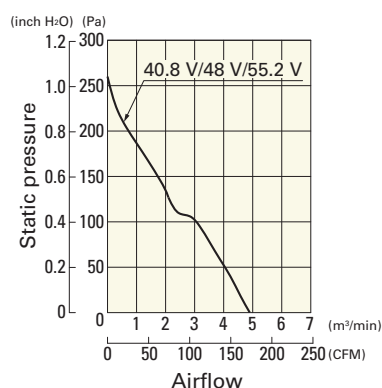
### 9LG1448A5001 With pulse sensor

Operating voltage range



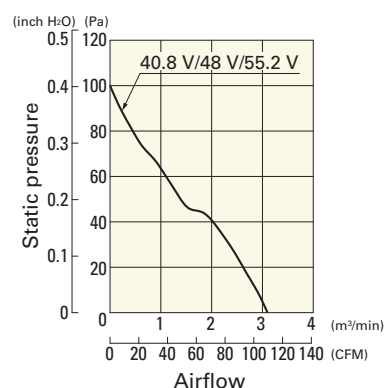
### 9LG1448H5001 With pulse sensor

Operating voltage range

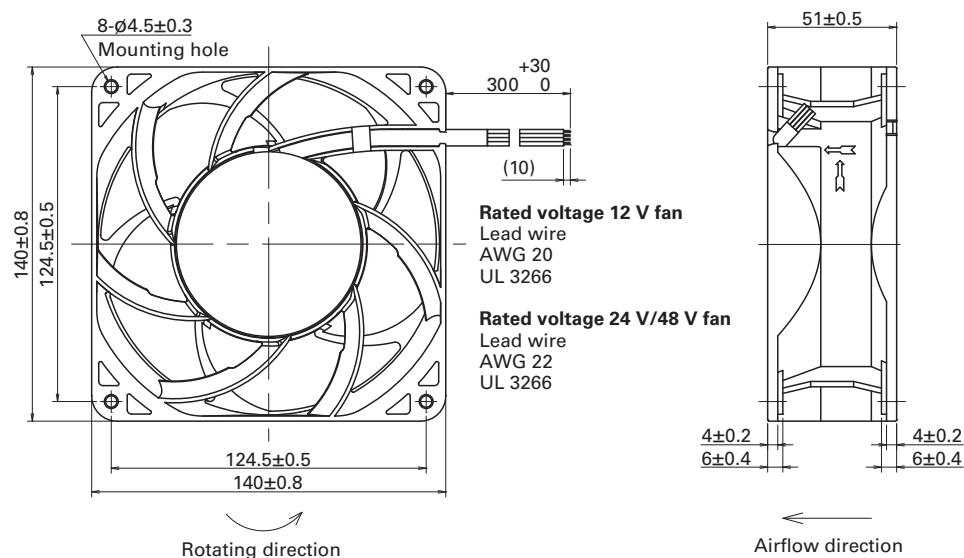


### 9LG1448M5001 With pulse sensor

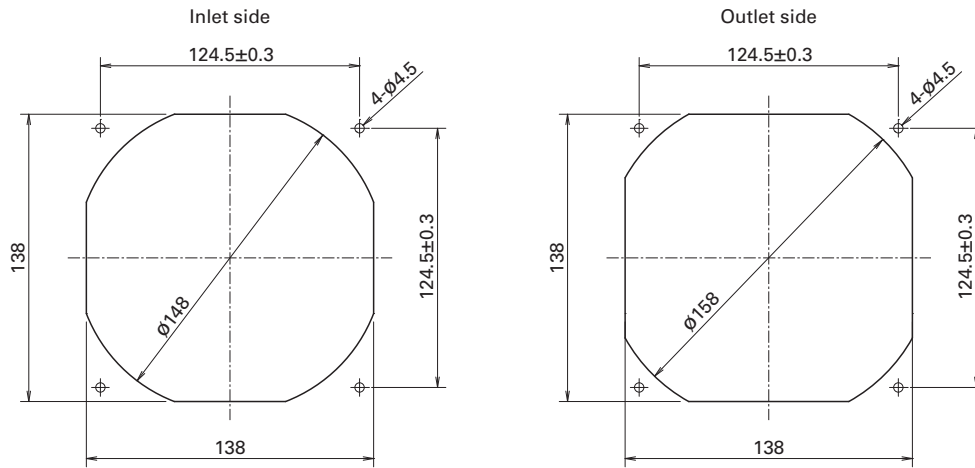
Operating voltage range



## Dimensions (unit: mm) (With pulse sensor with PWM control function)



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



## Options

Finger guards

page: p. 585

Model no.: 109-719, 109-719H

# Ø172×150×51 mm

**San Ace 172L 9L type**

Sidecut type



## General Specifications

- Material ..... Frame: Aluminum, Impeller: Plastic (Flammability: UL 94V-1)
- Expected life ..... See the table below. (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  
For details, please refer to p. 599.
- Dielectric strength ..... 50/60 Hz, 500 VAC, for 1 minute (between lead wire conductors and frame)
- Insulation resistance ..... 10 MΩ or more with a 500 VDC megger (between lead wire conductors and frame)
- Sound pressure level (SPL) ..... At 1 m away from the air inlet
- Storage temperature ..... -30 to +70°C (Non-condensing)
- Lead wire ..... ⊕Red ⊖Black or Blue Sensor Yellow
- Mass ..... 760 g

## Specifications

The models listed below **have pulse sensors**.

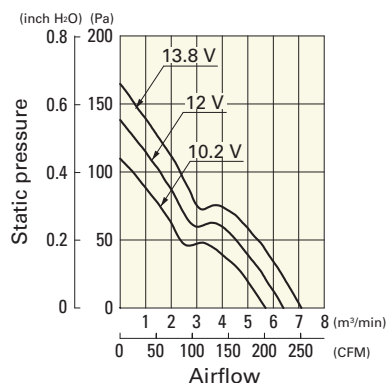
| Model no.    | Rated voltage<br>[V] | Operating voltage range<br>[V] | Rated current<br>[A] | Rated input<br>[W] | Rated speed<br>[min <sup>-1</sup> ] | Max. airflow<br>[m <sup>3</sup> /min] [CFM] | Max. static pressure<br>[Pa] [inchH <sub>2</sub> O] | SPL<br>[dB (A)] | Operating temperature<br>[°C] | Expected life<br>[h]         |
|--------------|----------------------|--------------------------------|----------------------|--------------------|-------------------------------------|---------------------------------------------|-----------------------------------------------------|-----------------|-------------------------------|------------------------------|
| 109L5712H501 | 12                   | 10.2 to 13.8                   | 1.2                  | 14.4               | 3050                                | 6.4 226                                     | 137.2 0.551                                         | 52              | -20 to +70                    | 100000/60°C<br>(135000/40°C) |
| 109L5712M501 |                      |                                | 0.48                 | 5.76               | 2000                                | 4.2 148                                     | 67.6 0.271                                          | 41              |                               |                              |
| 109L5724H501 | 24                   | 20.4 to 27.6                   | 0.58                 | 13.92              | 3050                                | 6.4 226                                     | 137.2 0.551                                         | 52              |                               |                              |
| 109L5724M501 |                      |                                | 0.2                  | 4.8                | 2000                                | 4.2 148                                     | 67.6 0.271                                          | 41              |                               |                              |
| 109L5748H501 | 48                   | 40.8 to 55.2                   | 0.28                 | 13.44              | 3050                                | 6.4 226                                     | 137.2 0.551                                         | 52              |                               |                              |
| 109L5748M501 |                      |                                | 0.11                 | 5.28               | 2000                                | 4.2 148                                     | 67.6 0.271                                          | 41              |                               |                              |

Note: Sensor and control options are available for selection. Refer to the table on p. 621.

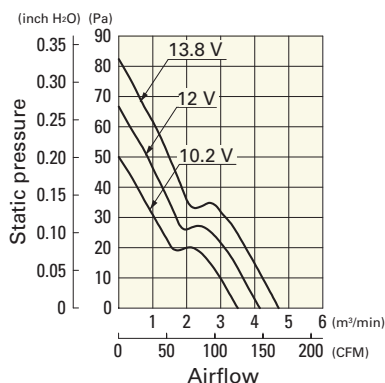
## Airflow - Static Pressure Characteristics

**109L5712H501** With pulse sensor

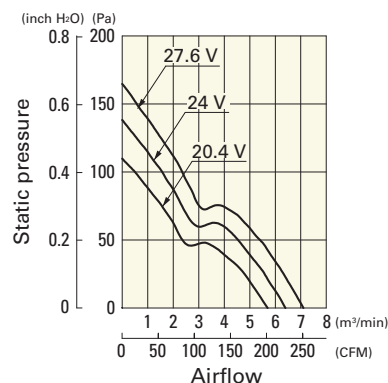
Operating voltage range


**109L5712M501** With pulse sensor

Operating voltage range


**109L5724H501** With pulse sensor

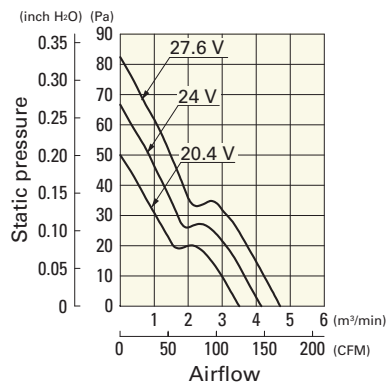
Operating voltage range



## Airflow - Static Pressure Characteristics

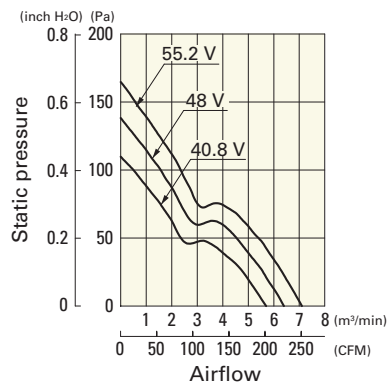
**109L5724M501** With pulse sensor

Operating voltage range



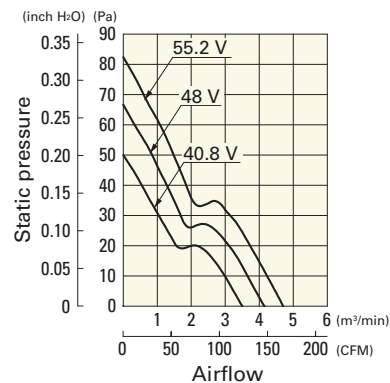
**109L5748H501** With pulse sensor

Operating voltage range

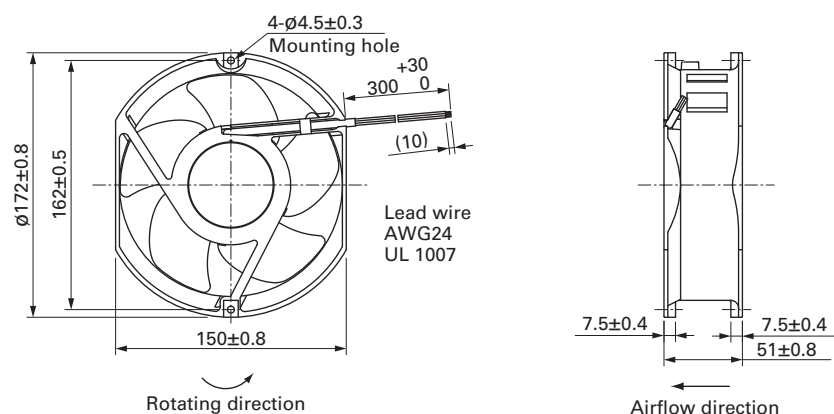


**109L5748M501** With pulse sensor

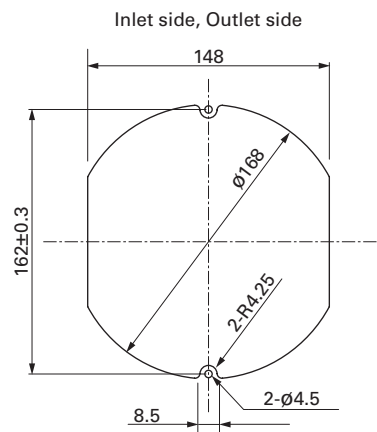
Operating voltage range



## Dimensions (unit: mm)



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



## Options

Finger guards

page: p. 586

Model no.: 109-319E, 109-319H, 109-320

DC

Long Life Fan  $\phi 172$  mm

# Ø172x51 mm

**San Ace 172L 9L type**


Round type



## General Specifications

- Material ..... Frame: Aluminum, Impeller: Plastic (Flammability: UL 94V-1)
- Expected life ..... See the table below. (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  
For details, please refer to p. 599.
- Dielectric strength ..... 50/60 Hz, 500 VAC, for 1 minute (between lead wire conductors and frame)
- Insulation resistance ..... 10 MΩ or more with a 500 VDC megger (between lead wire conductors and frame)
- Sound pressure level (SPL) ..... At 1 m away from the air inlet
- Storage temperature ..... -30 to +70°C (Non-condensing)
- Lead wire ..... ⊕Red ⊖Black or Blue Sensor Yellow
- Mass ..... 780 g

## Specifications

The models listed below **have pulse sensors**.

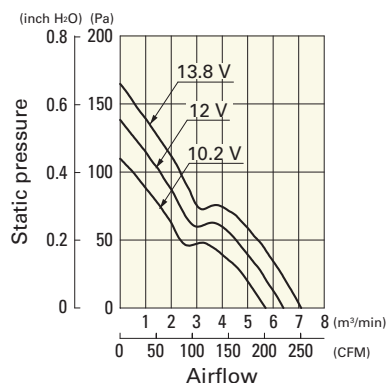
| Model no.    | Rated voltage [V] | Operating voltage range [V] | Rated current [A] | Rated input [W] | Rated speed [min <sup>-1</sup> ] | Max. airflow [m <sup>3</sup> /min] [CFM] | Max. static pressure [Pa] [inchH <sub>2</sub> O] | SPL [dB (A)] | Operating temperature [°C] | Expected life [h]            |
|--------------|-------------------|-----------------------------|-------------------|-----------------|----------------------------------|------------------------------------------|--------------------------------------------------|--------------|----------------------------|------------------------------|
| 109L1712H501 | 12                | 10.2 to 13.8                | 1.2               | 14.4            | 3050                             | 6.4 226                                  | 137.2 0.551                                      | 47           | -20 to +70                 | 100000/60°C<br>(135000/40°C) |
| 109L1712M501 |                   |                             | 0.48              | 5.76            | 2000                             | 4.2 148                                  | 67.6 0.271                                       | 36           |                            |                              |
| 109L1724H501 | 24                | 20.4 to 27.6                | 0.58              | 13.92           | 3050                             | 6.4 226                                  | 137.2 0.551                                      | 47           |                            |                              |
| 109L1724M501 |                   |                             | 0.2               | 4.8             | 2000                             | 4.2 148                                  | 67.6 0.271                                       | 36           |                            |                              |
| 109L1748H501 | 48                | 40.8 to 55.2                | 0.28              | 13.44           | 3050                             | 6.4 226                                  | 137.2 0.551                                      | 47           |                            |                              |
| 109L1748M501 |                   |                             | 0.11              | 5.28            | 2000                             | 4.2 148                                  | 67.6 0.271                                       | 36           |                            |                              |

Note: Sensor and control options are available for selection. Refer to the table on p. 621.

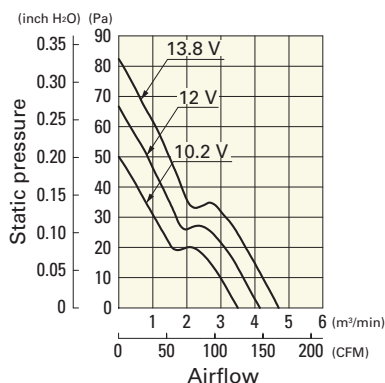
## Airflow - Static Pressure Characteristics

**109L1712H501** With pulse sensor

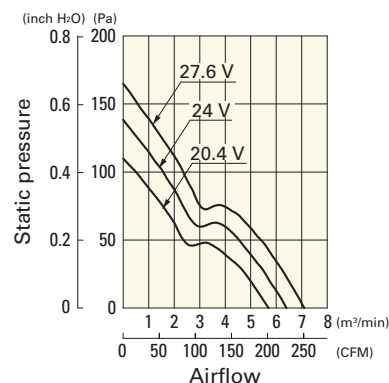
Operating voltage range


**109L1712M501** With pulse sensor

Operating voltage range


**109L1724H501** With pulse sensor

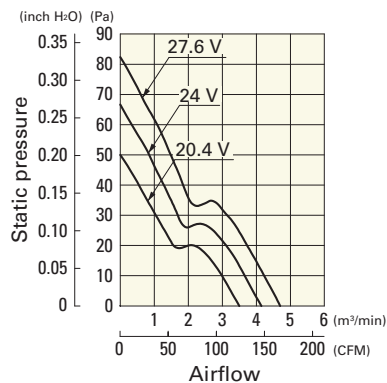
Operating voltage range



## Airflow - Static Pressure Characteristics

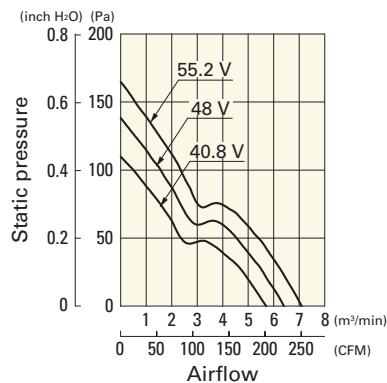
**109L1724M501** With pulse sensor

Operating voltage range



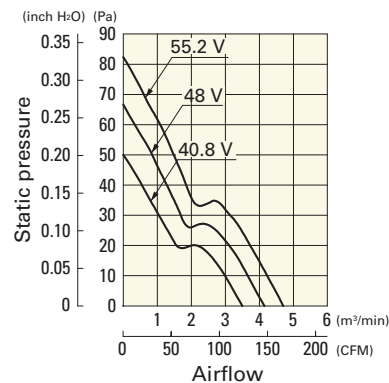
**109L1748H501** With pulse sensor

Operating voltage range

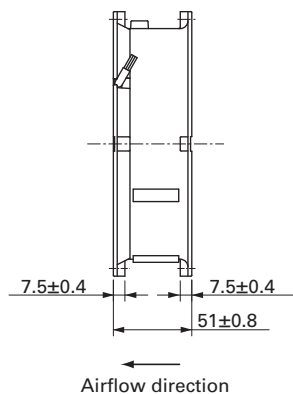
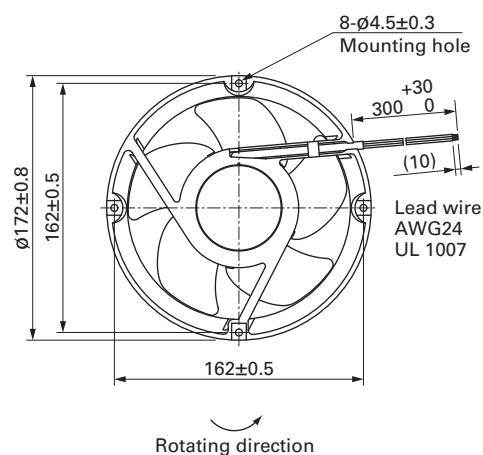


**109L1748M501** With pulse sensor

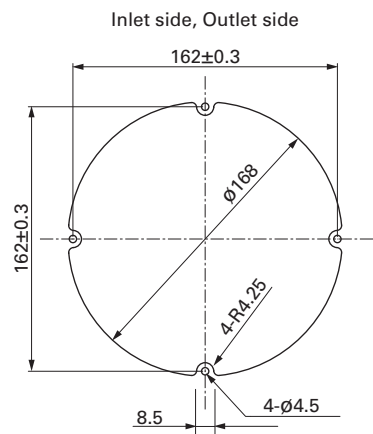
Operating voltage range



## Dimensions (unit: mm)



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



## Options

Finger guards

page: p. 586

Model no.: 109-1066, 109-1068, 109-319E, 109-319H, 109-320

DC

Long Life Fan  $\phi 172$  mm