

# Blower

Cooling fan specialized for high static pressure.

Related product: Splash Proof Blower p. 331

**Model Numbering System** Not every combination of the following codes or characters is available. Contact us for an available combination.

<b>109B</b>	<b>C</b>	<b>12</b>	<b>H</b>	<b>C</b>	<b>2</b>	<b>-1</b>
Type name	Frame size	Voltage	Speed code	Sensor specifications	Frame thickness	Individual customer's spec

<b>9B</b>	<b>MB</b>	<b>12</b>	<b>G</b>	<b>2</b>	<b>01</b>	<b>-1</b>
Type name	Frame size	Voltage	Speed code	Frame thickness	Sensor specifications	Individual customer's spec

Fans with PWM control function

<b>9B</b>	<b>MB</b>	<b>12</b>	<b>P</b>	<b>2</b>	<b>G</b>	<b>01</b>
Type name	Frame size	Voltage	PWM control function	Frame thickness	Speed code	Individual customer's spec (2 to 3 digits)

Type name	109B 9B					
Frame size (mm)	C	D	F, FB	G	J	M, MB, MC
	52	76	120	160	127	97
Voltage (V)	12	24				
	12	24				
Speed code	F G H K M S etc.					
Sensor specifications	A, 02, 002		C, 01, 001		D	
	Without a sensor		With a pulse sensor		With a lock sensor	
Frame thickness (mm)	1	2	7	6		
	40	30, 32, 33	15	20		

**How to Read Specifications (DC fan)** The following is a sample. See respective product pages for detailed information.

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]
<b>9GA0412G7001</b>	12	7 to 13.8	0.17	2.04	13100	0.36 12.7	192 0.77	42	-20 to +70	40000/60°C (70000/40°C)

- Rated voltage ..... This is the necessary voltage to drive the fan. E.g.) 12 VDC, 24 VDC, 48 VDC
- Operating voltage range ..... The voltage range over which fan operation is guaranteed.
- Rated current ..... The current when the fan is operating at rated voltage (at free air).
- Rated input ..... The power value when the fan is operating at rated voltage (at free air).
- Rated speed ..... The speed when the fan is operating at rated voltage (at free air).
- Max. airflow ..... The airflow at 0 Pa static pressure when the fan is operating at rated voltage. (Measured using the double chamber method)
- Max. static pressure ..... The static pressure at 0 m<sup>3</sup>/min airflow when the fan is operating at rated voltage. (Measured using the double chamber method)
- SPL ..... A-weighted sound pressure level (SPL) when the fan operates at the rated speed.  
For the measurement method, see the Technical Materials section in the catalog.
- Operating temperature ..... The temperature range over which fan operation is guaranteed (Non-condensing).
- Expected life ..... Service life hours that 90% of bearings will survive without failing when continuously operated at the rated voltage and 60°C temperature. Expected life at 40°C is for reference only.  
For more information, please refer to the technical material section.

# 52x15 mm

San Ace B52 9BC type   US



## General Specifications


- Material ..... Frame: Plastic (Flammability: UL 94V-0), 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. 580.
- Dielectric strength ..... 50/60 Hz, 500 VAC, for 1 minute (between lead wire conductors and frame)
- Insulation resistance ..... 10 MΩ min. at 500 VDC (between lead wire conductors and frame)
- Sound pressure level (SPL) ..... A-weighted sound pressure level (SPL) at 1 m away from the air inlet.
- Storage temperature ..... -30 to +70°C (Non-condensing)
- Lead wire ..... ⊕Red ⊖Black  Sensor  Yellow
- Mass ..... 33 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]
109BC12GC7-1	12	6 to 13.8	0.12	1.44	6200	0.125 4.4	215 0.86	43	-20 to +70	40000/60°C (70000/40°C)
109BC12HC7-1			0.1	1.2	5600	0.112 4.0	165 0.66	40		
109BC12FC7-1			0.08	0.96	5100	0.101 3.6	130 0.52	38		
109BC12MC7-1			0.06	0.72	4600	0.091 3.2	100 0.4	35		
109BC24GC7-1	24	12 to 27.6	0.07	1.68	6200	0.125 4.4	215 0.86	43		
109BC24HC7-1			0.05	1.2	5600	0.112 4.0	165 0.66	40		
109BC24FC7-1			0.04	0.96	5100	0.101 3.6	130 0.52	38		

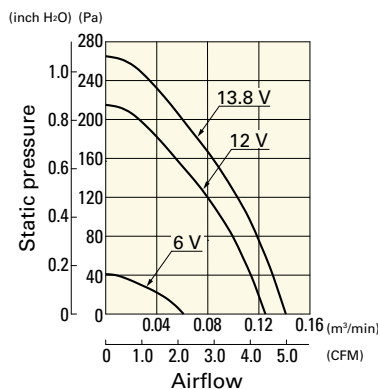
Note 1: Sensor and control options are available for selection. Refer to the table on p. 602.

Note 2: The  mark indicates Short LeadTime Service applicable models. See p. 630 for details.

## Airflow - Static Pressure Characteristics

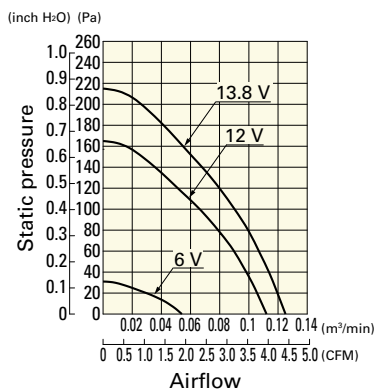
**109BC12GC7-1** With pulse sensor

Operating voltage range



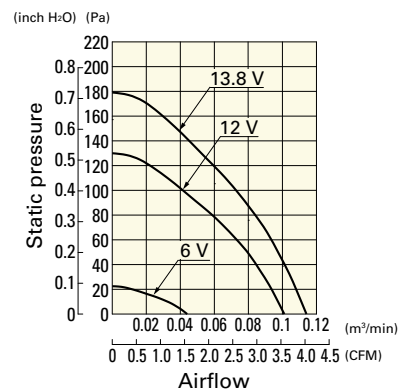
**109BC12HC7-1** With pulse sensor

Operating voltage range



**109BC12FC7-1** With pulse sensor

Operating voltage range

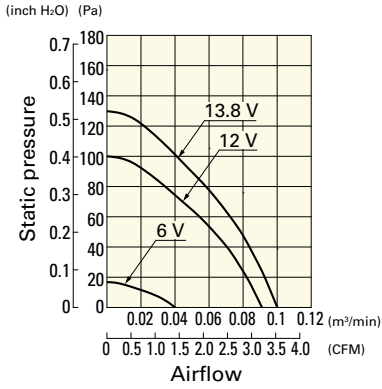


Blower 52 mm DC

## Airflow - Static Pressure Characteristics

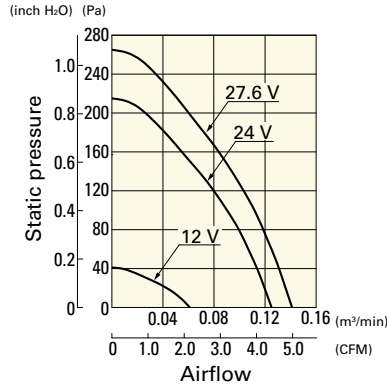
**109BC12MC7-1** With pulse sensor

Operating voltage range



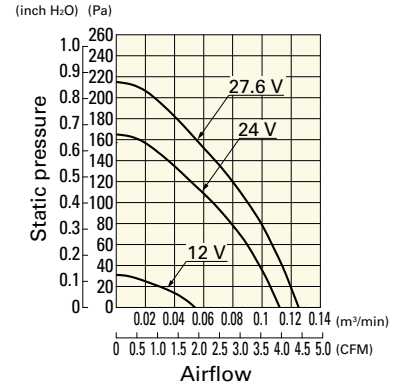
**109BC24GC7-1** With pulse sensor

Operating voltage range



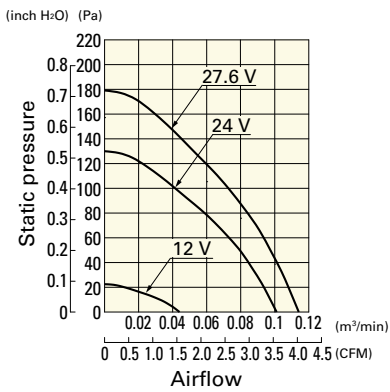
**109BC24HC7-1** With pulse sensor

Operating voltage range

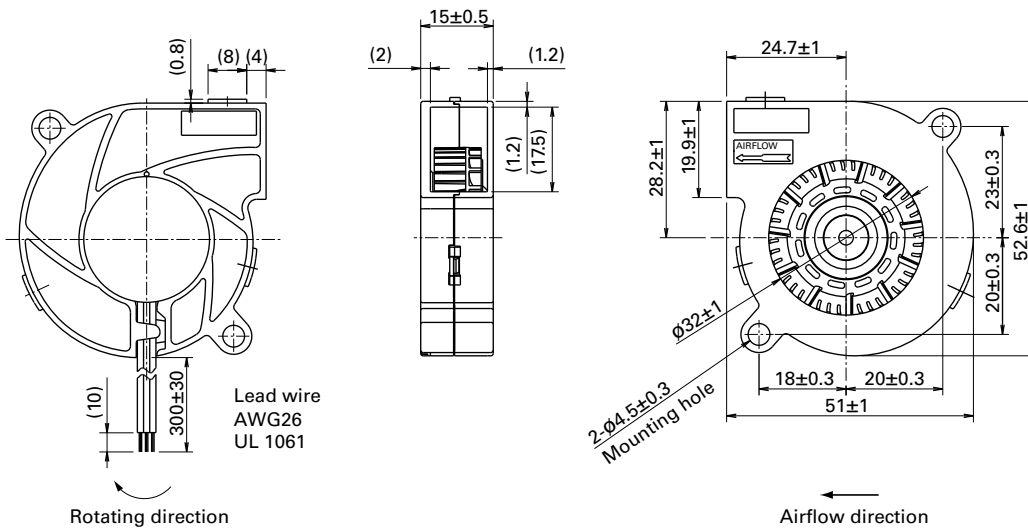


**109BC24FC7-1** With pulse sensor

Operating voltage range






## Dimensions (unit: mm)



# 76x20 mm



San Ace B76 9BD type   

## General Specifications


- Material ..... Frame: Plastic (Flammability: UL 94V-0), 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. 580.
- Dielectric strength ..... 50/60 Hz, 500 VAC, for 1 minute (between lead wire conductors and frame)
- Insulation resistance ..... 10 MΩ min. at 500 VDC (between lead wire conductors and frame)
- Sound pressure level (SPL) ..... A-weighted sound pressure level (SPL) at 1 m away from the air inlet.
- Storage temperature ..... -30 to +70°C (Non-condensing)
- Lead wire ..... ⊕Red ⊖Black Sensor Yellow
- Mass ..... 58 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]
9BD12SC6-1	12	5 to 13.8	0.28	3.36	4500	0.29 10.2	300 1.2	43	-20 to +70	40000/60°C (70000/40°C)
9BD12HC6-1			0.21	2.52	4200	0.27 9.5	230 0.92	41		
9BD12FC6-1		0.18	2.16	3900	0.25 8.8	200 0.8	39			
9BD24SC6-1	24	10 to 27.6	0.14	3.36	4500	0.29 10.2	300 1.2	43		
9BD24HC6-1			0.12	2.88	4200	0.27 9.5	230 0.92	41		
9BD24FC6-1			0.1	2.4	3900	0.25 8.8	200 0.8	39		

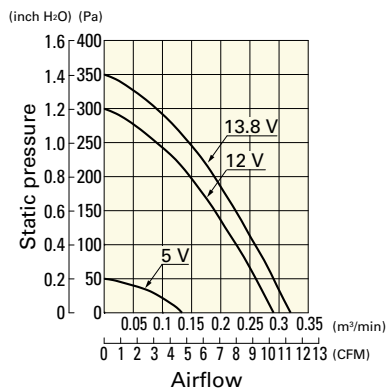
Note 1: Sensor and control options are available for selection. Refer to the table on p. 604.

Note 2: The  mark indicates Short LeadTime Service applicable models. See p. 630 for details.

## Airflow - Static Pressure Characteristics

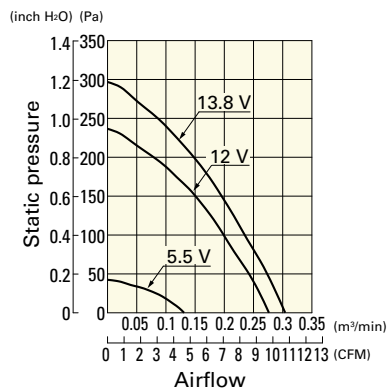
9BD12SC6-1 With pulse sensor

Operating voltage range



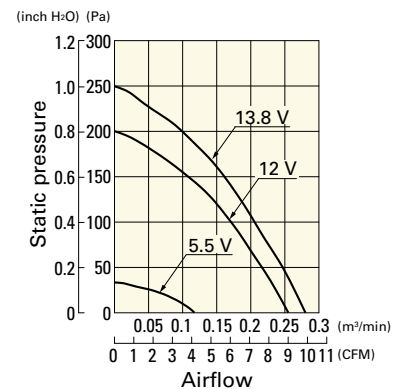
9BD12HC6-1 With pulse sensor

Operating voltage range



9BD12FC6-1 With pulse sensor

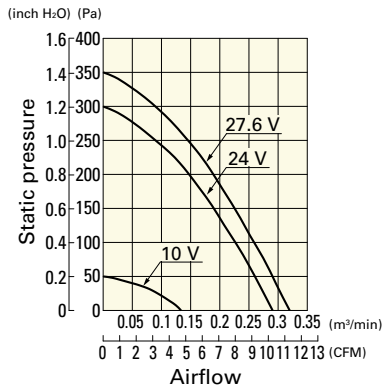
Operating voltage range



## Airflow - Static Pressure Characteristics

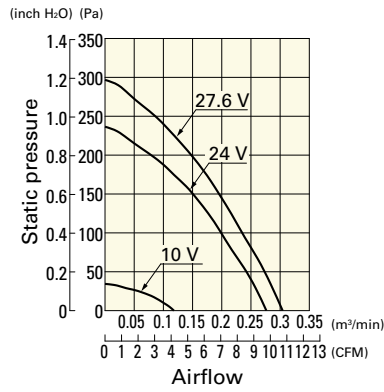
**9BD24SC6-1** With pulse sensor

Operating voltage range



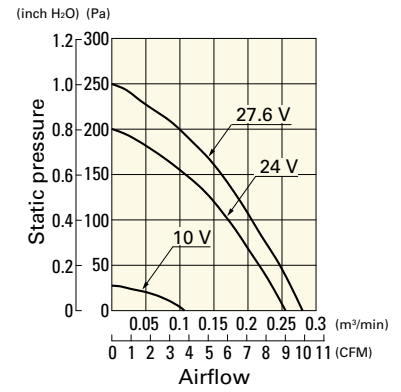
**9BD24HC6-1** With pulse sensor

Operating voltage range

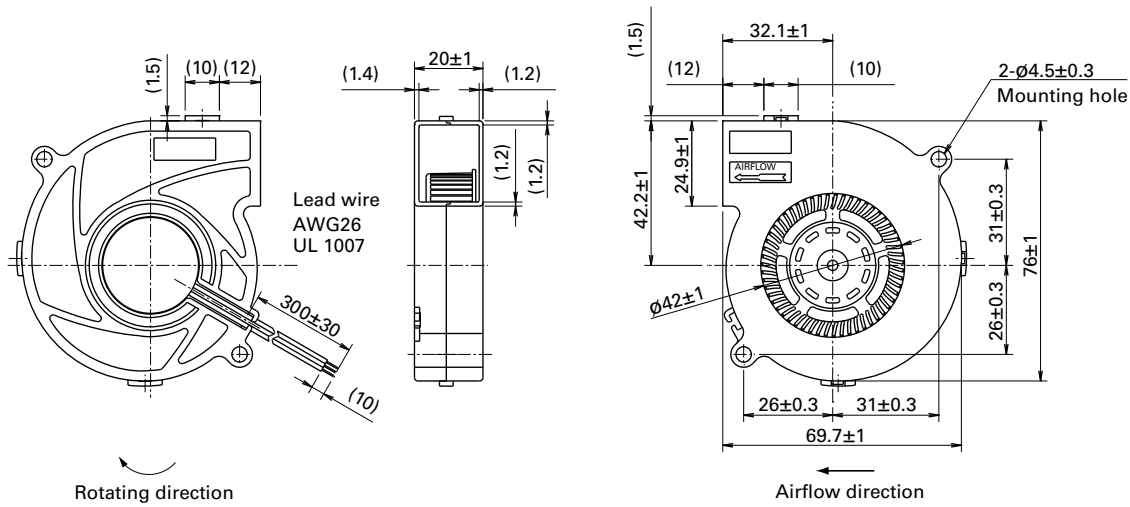


**9BD24FC6-1** With pulse sensor

Operating voltage range



## Dimensions (unit: mm)



Blower 76 mm DC

# 76x30 mm

San Ace B76 9BD type   



## General Specifications

- Material ..... Frame: Plastic (Flammability: UL 94V-0), 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. 580.
- Dielectric strength ..... 50/60 Hz, 500 VAC, for 1 minute (between lead wire conductors and frame)
- Insulation resistance ..... 10 MΩ min. at 500 VDC (between lead wire conductors and frame)
- Sound pressure level (SPL) ..... A-weighted sound pressure level (SPL) at 1 m away from the air inlet.
- Storage temperature ..... -30 to +70°C (Non-condensing)
- Lead wire ..... ⊕Red ⊖Black or Blue Sensor Yellow
- Mass ..... 100 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]
▶▶ 109BD12HC2	12	10.2 to 13.8	0.37	4.44	3000	0.36 12.7	151.9 0.61	41.5	-20 to +60	40000/60°C (70000/40°C)
▶▶ 109BD12FC2			0.27	3.24	2600	0.31 10.9	98 0.394	37		
▶▶ 109BD12MC2			0.14	1.68	2100	0.25 8.8	58.8 0.236	32.5		
▶▶ 109BD24HC2	24	20.4 to 27.6	0.17	4.08	3000	0.36 12.7	151.9 0.61	41.5	-20 to +60	
▶▶ 109BD24FC2			0.14	3.36	2600	0.31 10.9	98 0.394	37	-20 to +70	
▶▶ 109BD24MC2			0.1	2.4	2100	0.25 8.8	58.8 0.236	32.5		

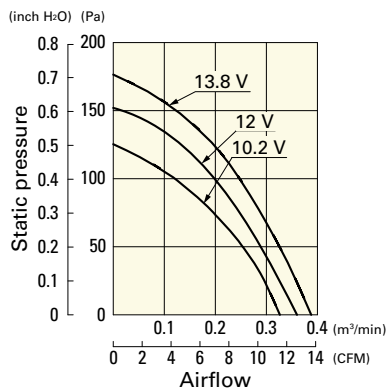
Note 1: Sensor and control options are available for selection. Refer to the table on p. 602.

Note 2: The ▶▶ mark indicates Short LeadTime Service applicable models. See p. 630 for details.

## Airflow - Static Pressure Characteristics

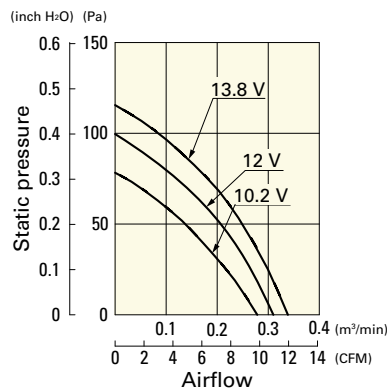
109BD12HC2 With pulse sensor

Operating voltage range



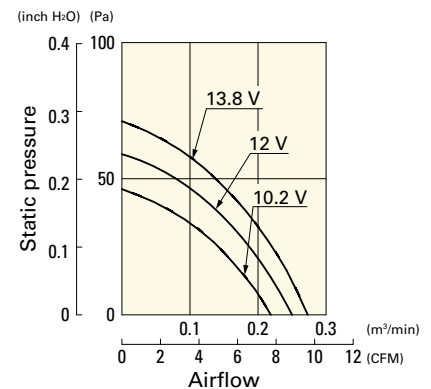
109BD12FC2 With pulse sensor

Operating voltage range



109BD12MC2 With pulse sensor

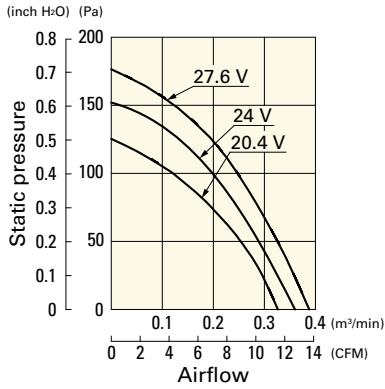
Operating voltage range



## Airflow - Static Pressure Characteristics

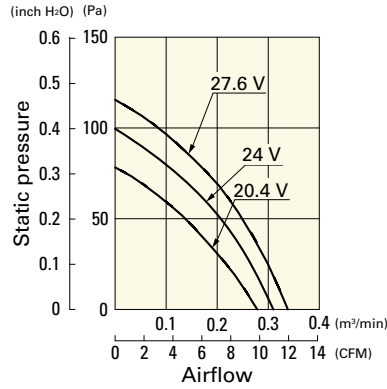
**109BD24HC2** With pulse sensor

Operating voltage range



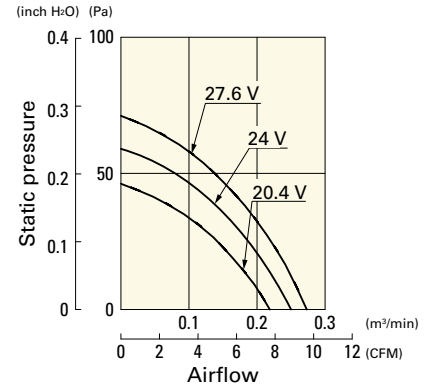
**109BD24FC2** With pulse sensor

Operating voltage range

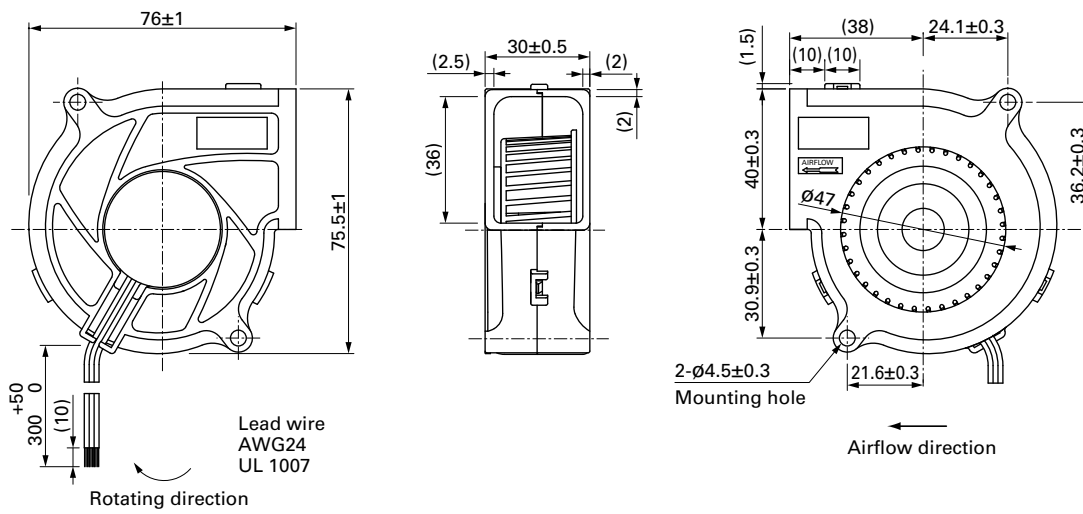


**109BD24MC2** With pulse sensor

Operating voltage range



## Dimensions (unit: mm)



Blower 76 mm DC



# 97x33 mm

San Ace B97 9BMC type US

## General Specifications

- Material ..... Frame: Plastic (Flammability: UL 94V-0), 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. 580.
- Dielectric strength ..... 50/60 Hz, 500 VAC, for 1 minute (between lead wire conductors and frame)
- Insulation resistance ..... 10 MΩ min. at 500 VDC (between lead wire conductors and frame)
- Sound pressure level (SPL) ..... A-weighted sound pressure level (SPL) at 1 m away from the air inlet.
- Storage temperature ..... -30 to +70°C (Non-condensing)
- Lead wire ..... ⊕Red ⊖Black  Sensor  Yellow  Control  Brown
- Mass ..... 200 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]
9BMC12P2G001	12	10.8 to 13.2	100	6.2	74.4	8200	1.85 65.3	1950 7.83	69	-20 to +70	40000/60°C (70000/40°C)
			20	0.38	4.56	2800	0.58 20.4	121.0 0.48	44		
9BMC24P2G001	24	21.6 to 26.4	100	3.1	74.4	8200	1.85 65.3	1950 7.83	69		
			20	0.19	4.56	2800	0.58 20.4	121.0 0.48	44		

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

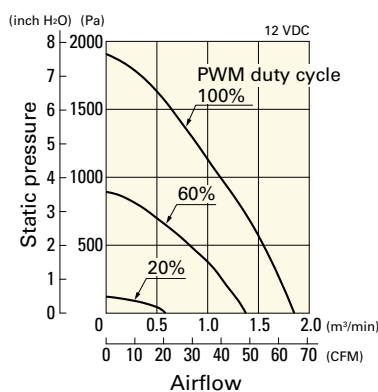
Note 1: Sensor and control options are available for selection. Refer to the table on p. 604.

Note 2: The mark indicates Short LeadTime Service applicable models. See p. 630 for details.

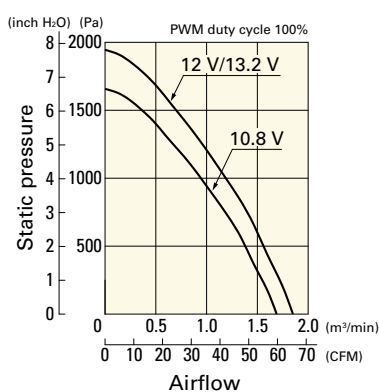
## Airflow - Static Pressure Characteristics / PWM Duty - Speed Characteristics Example

**9BMC12P2G001** With pulse sensor with PWM control function

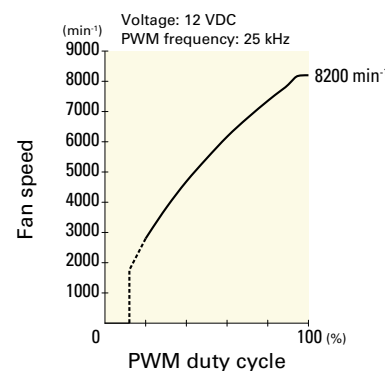
PWM duty cycle



Operating voltage range



PWM duty - Speed characteristics example

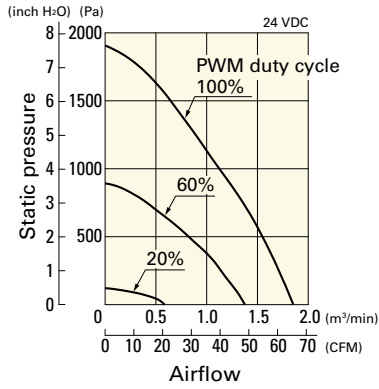




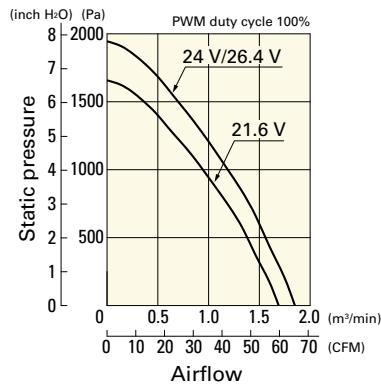
## Airflow - Static Pressure Characteristics / PWM Duty - Speed Characteristics Example

**9BMC24P2G001** With pulse sensor with PWM control function

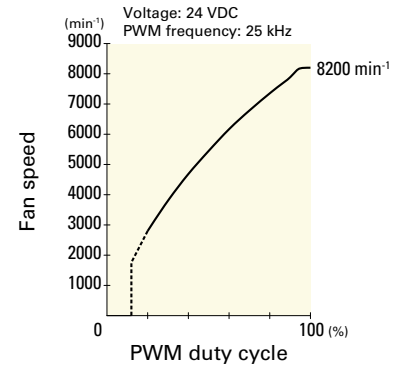
PWM duty cycle



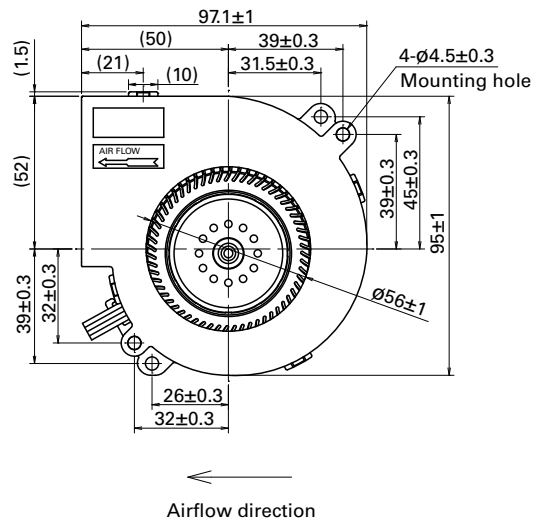
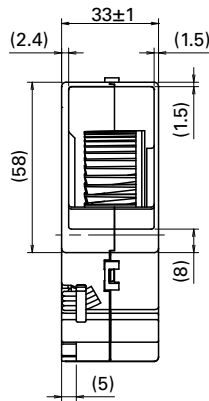
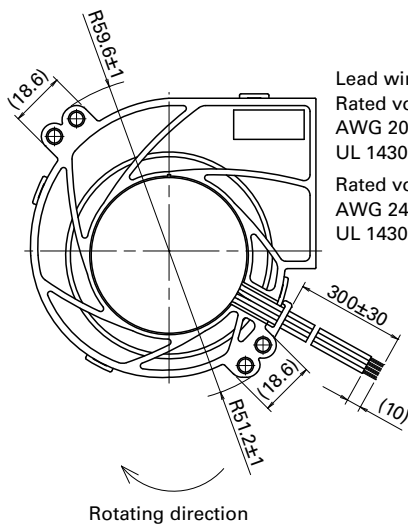
Operating voltage range



PWM duty - Speed characteristics example



## Dimensions (unit: mm)



Blower 97 mm DC



# 97×33 mm

## San Ace B97 9BMB type

### General Specifications

- Material ..... Frame: Plastic (Flammability: UL 94V-0), 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. 580.
- Dielectric strength ..... 50/60 Hz, 500 VAC, for 1 minute (between lead wire conductors and frame)
- Insulation resistance ..... 10 MΩ min. at 500 VDC (between lead wire conductors and frame)
- Sound pressure level (SPL) ..... A-weighted sound pressure level (SPL) at 1 m away from the air inlet.
- Storage temperature ..... -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 ..... 190 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]
9BMB12P2K01	12	10.8 to 13.2	100	3.4	40.8	6850	1.61 56.8	1280 5.14	66	-20 to +70	40000/60°C (70000/40°C)
9BMB12P2G01			100	1.8	21.6	5750	1.34 47.3	760 3.05	61		
9BMB12P2S01			100	1.4	16.8	5250	1.22 43.1	610 2.45	59		
9BMB12P2H01	10.2 to 13.8	100	1.1	13.2	4850	1.11 39.2	490 1.968	57			
9BMB12P2F01			0.9	10.8	4500	1.04 36.7	410 1.64	56			
9BMB24P2K01			24	21.6 to 26.4	100	1.62	38.88	6850	1.61 56.8		
9BMB24P2G01	100	0.83			19.92	5750	1.34 47.3	760 3.05	61		
9BMB24P2S01	100	0.7			16.8	5250	1.22 43.1	610 2.45	59		
9BMB24P2H01	100	0.55			13.2	4850	1.11 39.2	490 1.968	57		
9BMB24P2F01	100	0.45			10.8	4500	1.04 36.7	410 1.64	56		

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

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]
9BMB12K201	12	7 to 13.2	3.4	40.8	6850	1.61 56.8	1280 5.14	66	-20 to +70	40000/60°C (70000/40°C)
9BMB12G201			1.8	21.6	5750	1.34 47.3	760 3.052	61		
9BMB12S201			1.4	16.8	5250	1.22 43.1	610 2.45	59		
9BMB12H201			1.1	13.2	4850	1.11 39.2	490 1.968	57		
9BMB12F201			0.9	10.8	4500	1.04 36.7	410 1.647	56		
9BMB24K201	24	12 to 26.4	1.62	38.88	6850	1.61 56.8	1280 5.14	66		
9BMB24G201			0.83	19.9	5750	1.34 47.3	760 3.052	61		
9BMB24S201			0.7	16.8	5250	1.22 43.1	610 2.45	59		
9BMB24H201			0.55	13.2	4850	1.11 39.2	490 1.968	57		
9BMB24F201			0.45	10.8	4500	1.04 36.7	410 1.647	56		

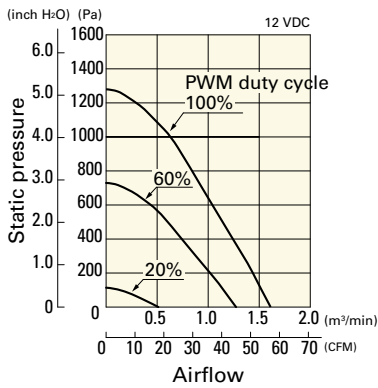
Note 1: Sensor and control options are available for selection. Refer to the table on p. 604.

Note 2: The mark indicates Short Lead Time Service applicable models. See p. 630 for details.

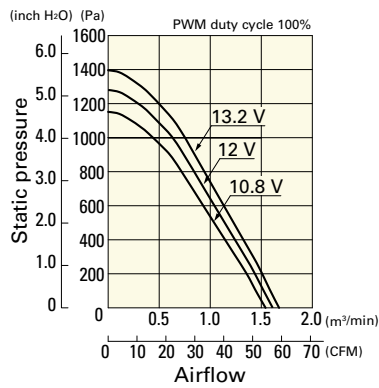
# Airflow - Static Pressure Characteristics / PWM Duty - Speed Characteristics Example

## 9BMB12P2K01 With pulse sensor with PWM control function

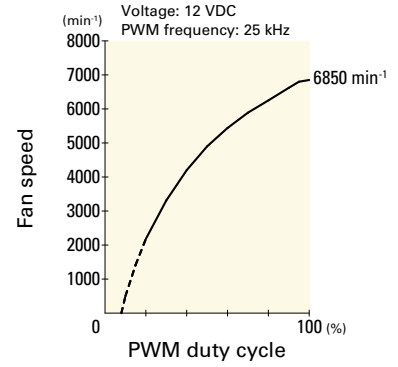
PWM duty cycle



Operating voltage range

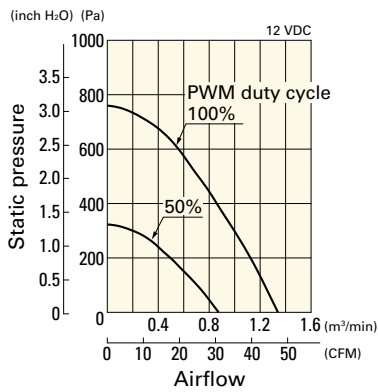


PWM duty - Speed characteristics example

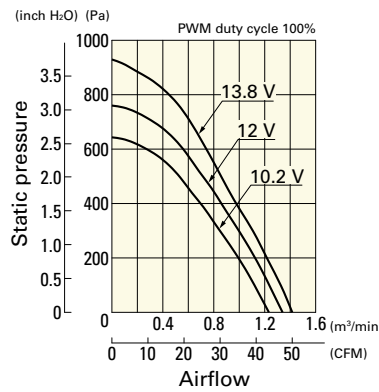


## 9BMB12P2G01 With pulse sensor with PWM control function

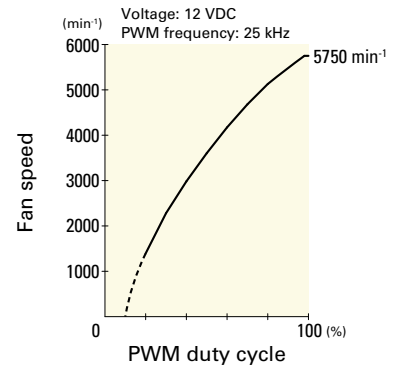
PWM duty cycle



Operating voltage range

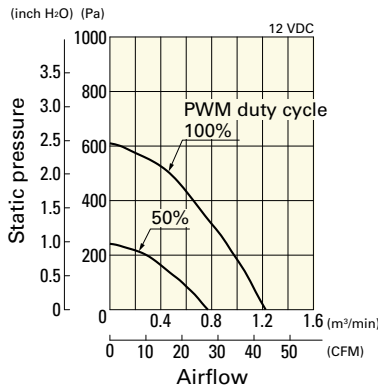


PWM duty - Speed characteristics example

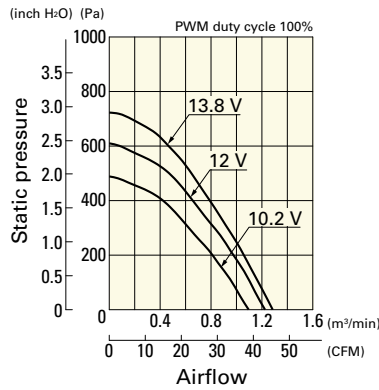


## 9BMB12P2S01 With pulse sensor with PWM control function

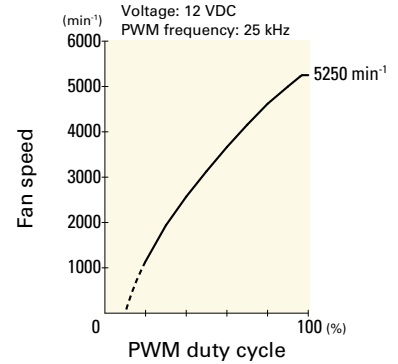
PWM duty cycle



Operating voltage range

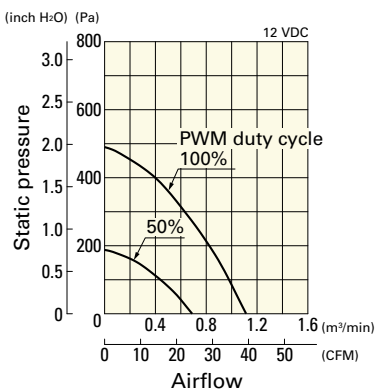


PWM duty - Speed characteristics example

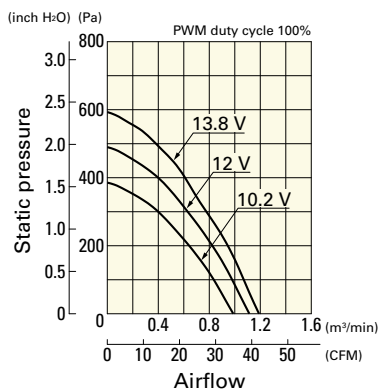


## 9BMB12P2H01 With pulse sensor with PWM control function

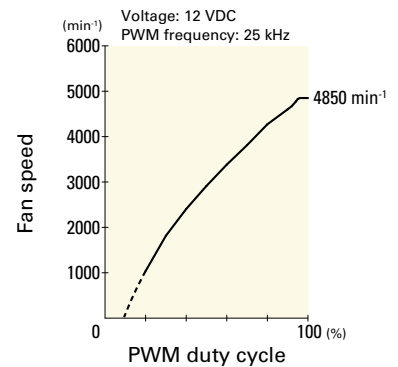
PWM duty cycle



Operating voltage range



PWM duty - Speed characteristics example

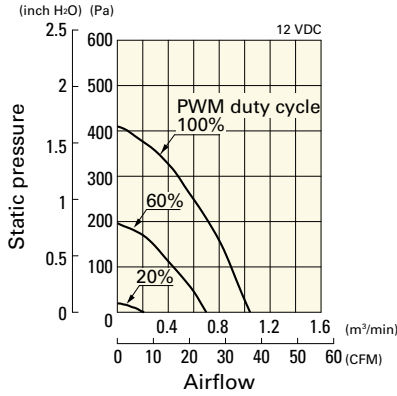


Blower 97 mm DC

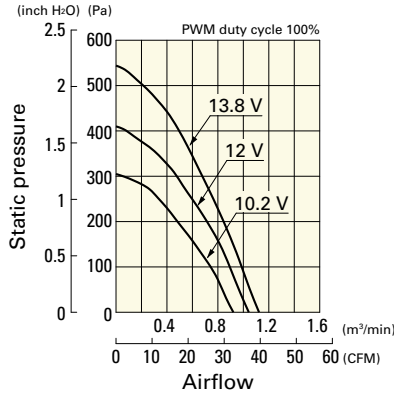
# Airflow - Static Pressure Characteristics / PWM Duty - Speed Characteristics Example

**9BMB12P2F01** With pulse sensor with PWM control function

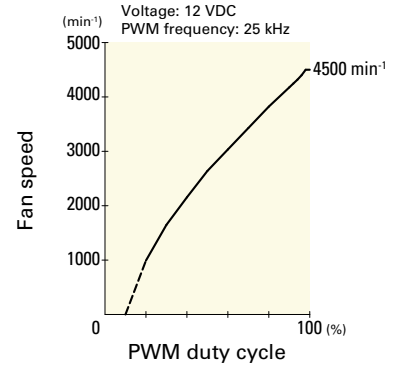
PWM duty cycle



Operating voltage range

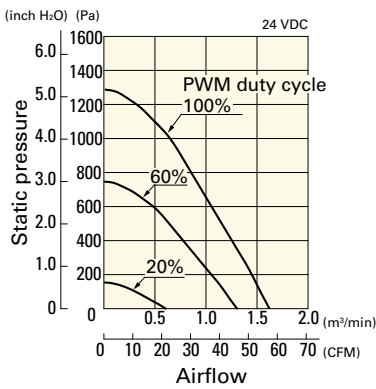


PWM duty - Speed characteristics example

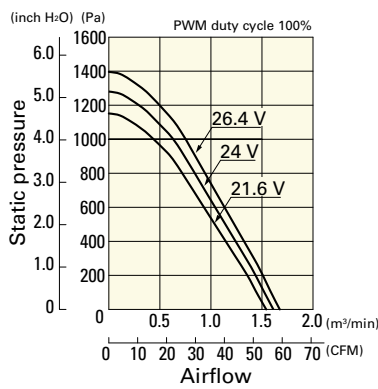


**9BMB24P2K01** With pulse sensor with PWM control function

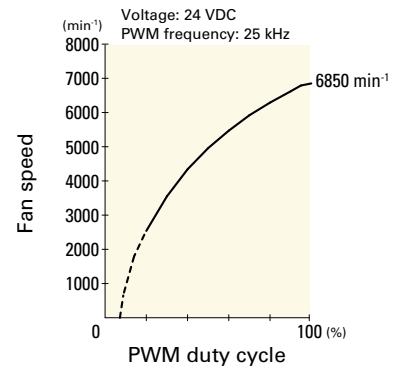
PWM duty cycle



Operating voltage range

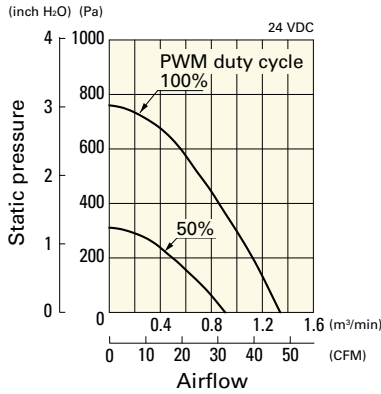


PWM duty - Speed characteristics example

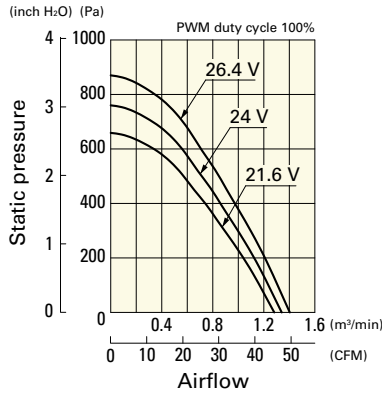


**9BMB24P2G01** With pulse sensor with PWM control function

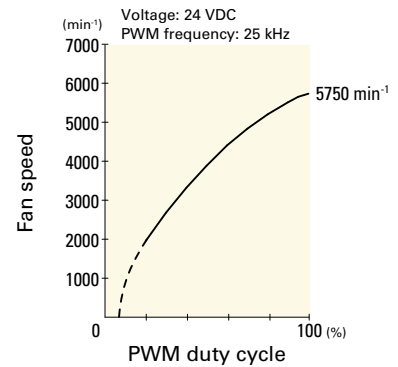
PWM duty cycle



Operating voltage range

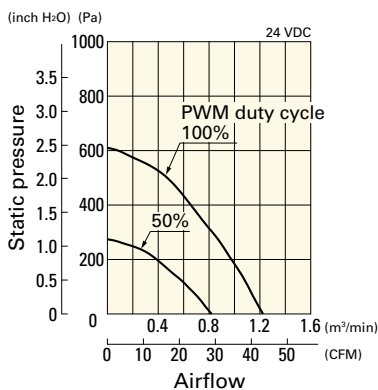


PWM duty - Speed characteristics example

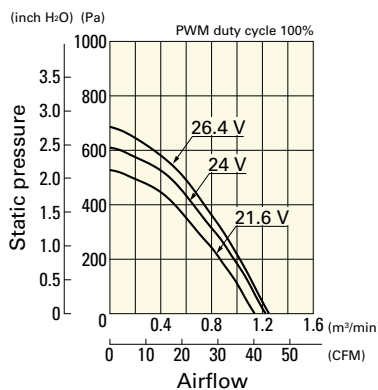


**9BMB24P2S01** With pulse sensor with PWM control function

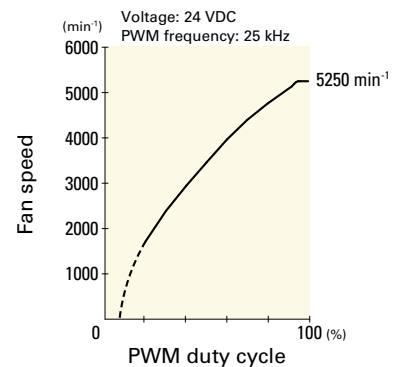
PWM duty cycle



Operating voltage range



PWM duty - Speed characteristics example

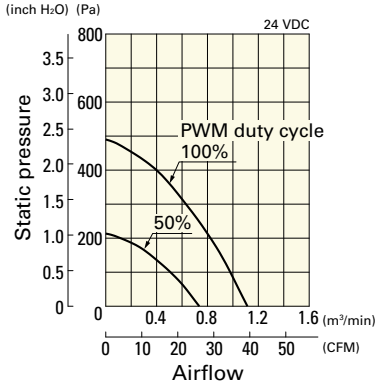


Blower 97 mm DC

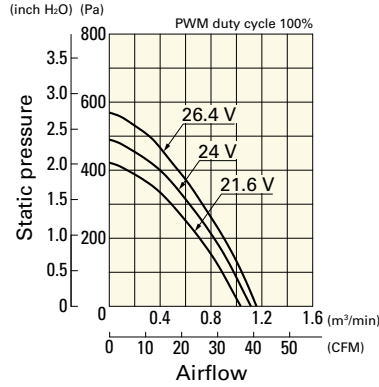
## Airflow - Static Pressure Characteristics / PWM Duty - Speed Characteristics Example

**9BMB24P2H01** With pulse sensor with PWM control function

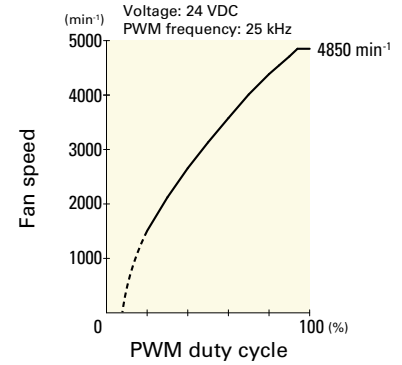
PWM duty cycle



Operating voltage range

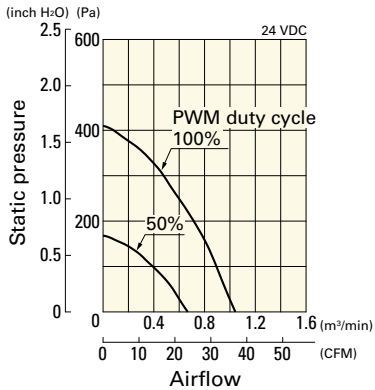


PWM duty - Speed characteristics example

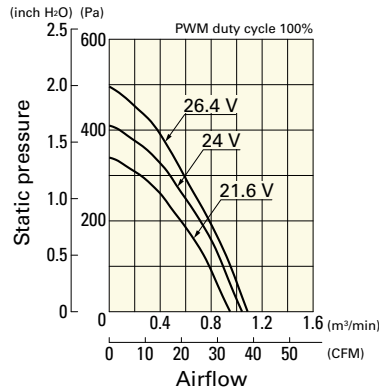


**9BMB24P2F01** With pulse sensor with PWM control function

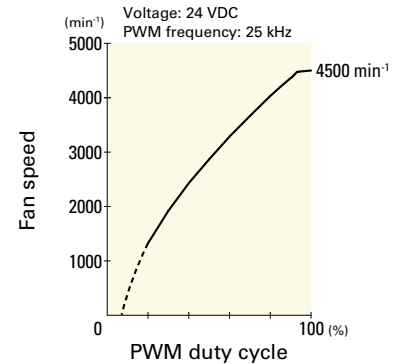
PWM duty cycle



Operating voltage range



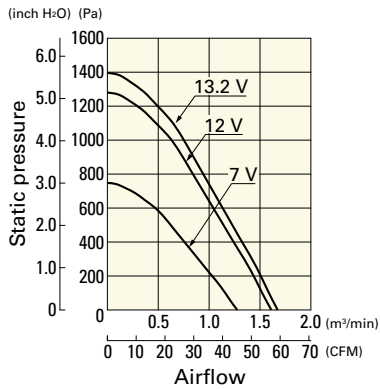
PWM duty - Speed characteristics example



## Airflow - Static Pressure Characteristics

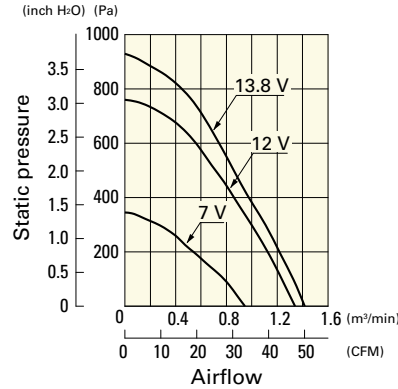
**9BMB12K201** With pulse sensor

Operating voltage range



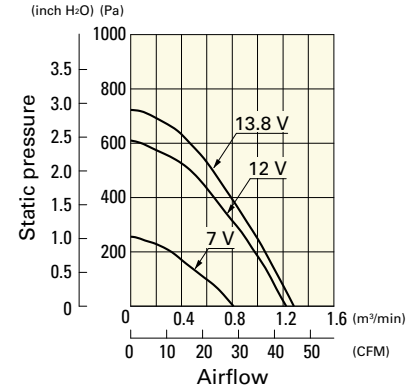
**9BMB12G201** With pulse sensor

Operating voltage range



**9BMB12S201** With pulse sensor

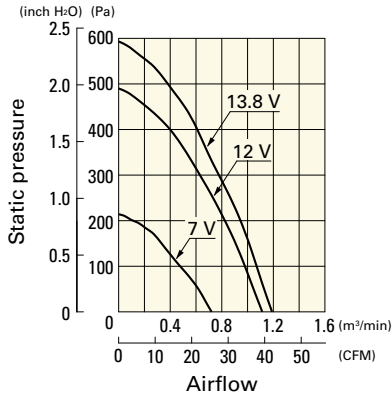
Operating voltage range



## Airflow - Static Pressure Characteristics

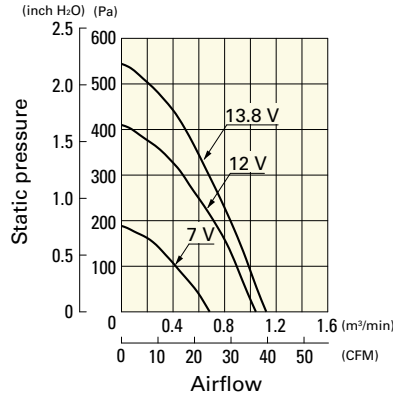
**9BMB12H201** With pulse sensor

Operating voltage range



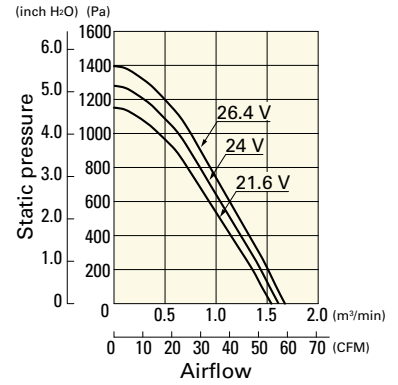
**9BMB12F201** With pulse sensor

Operating voltage range



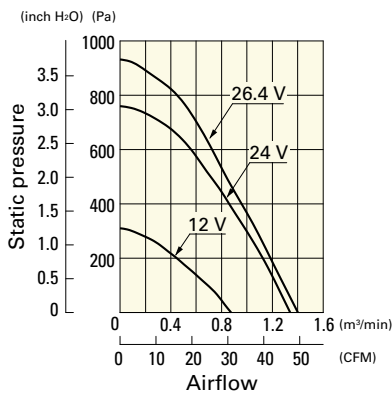
**9BMB24K201** With pulse sensor

Operating voltage range



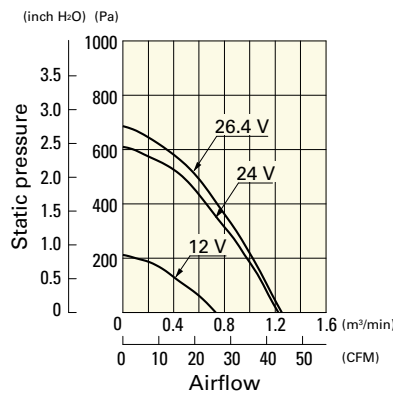
**9BMB24G201** With pulse sensor

Operating voltage range



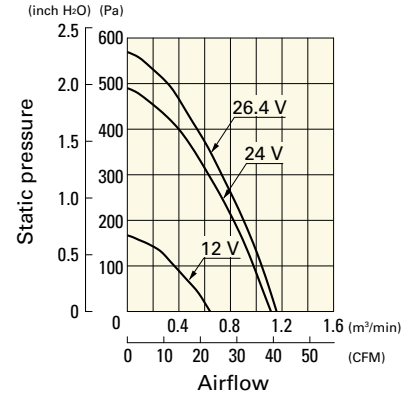
**9BMB24S201** With pulse sensor

Operating voltage range



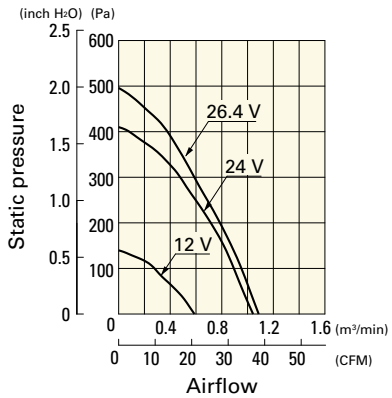
**9BMB24H201** With pulse sensor

Operating voltage range



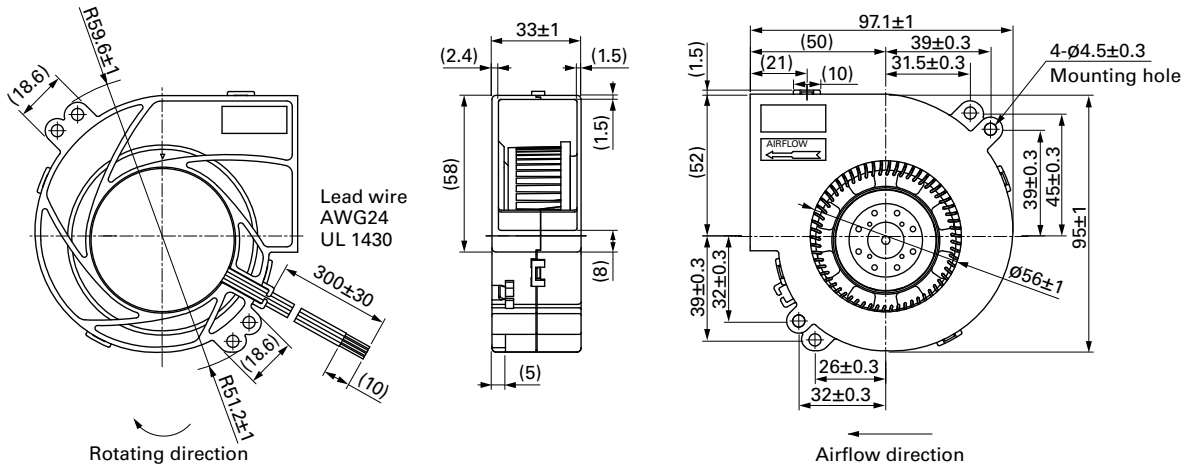
**9BMB24F201** With pulse sensor

Operating voltage range



Blower 97 mm DC

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



# 97×33 mm

## San Ace B97 9BM type



### General Specifications

- Material ..... Frame: Plastic (Flammability: UL 94V-0), 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. 580.
- Dielectric strength ..... 50/60 Hz, 500 VAC, for 1 minute (between lead wire conductors and frame)
- Insulation resistance ..... 10 MΩ min. at 500 VDC (between lead wire conductors and frame)
- Sound pressure level (SPL) ..... A-weighted sound pressure level (SPL) at 1 m away from the air inlet.
- Storage temperature ..... -30 to +70°C (Non-condensing)
- Lead wire ..... ⊕Red ⊖Black  Sensor  Yellow
- Mass ..... 175 g

### Specifications

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

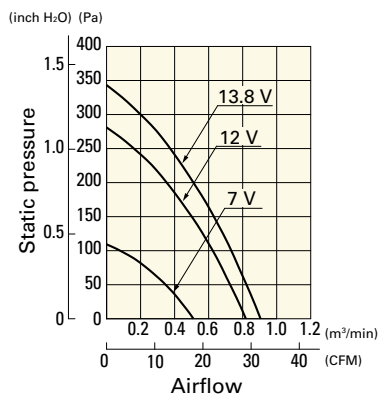
Model no.	Rated voltage [V]	Operating voltage range [V]	Rated current [A]	Rated input [W]	Rated speed [min <sup>-1</sup> ]	Max. airflow [m <sup>3</sup> /min] [CFM]	Max. static pressure [Pa] [inchH <sub>2</sub> O]	SPL [dB (A)]	Operating temperature [°C]	Expected life [h]
<b>109BM12GC2-1</b>	12	7 to 13.8	0.6	7.2	3800	0.82 28.9	281 1.129	51.5	-20 to +70	40000/60°C (70000/40°C)
<b>109BM12HC2-1</b>			0.4	4.8	3300	0.71 25.1	204 0.819	48.5		
<b>109BM12MC2-1</b>			0.26	3.12	2700	0.58 20.5	119 0.478	43.5		
<b>109BM24GC2-1</b>	24	12 to 27.6	0.31	7.44	3800	0.82 28.9	281 1.129	51.5		
<b>109BM24HC2-1</b>			0.26	6.24	3300	0.71 25.1	204 0.819	48.5		
<b>109BM24MC2-1</b>			0.15	3.6	2700	0.58 20.5	119 0.478	43.5		

Note: Sensor and control options are available for selection. Refer to the table on p. 602.

### Airflow - Static Pressure Characteristics

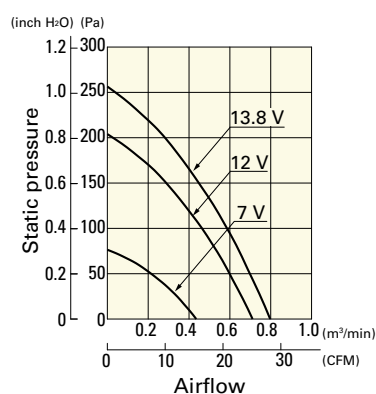
**109BM12GC2-1** With pulse sensor

Operating voltage range



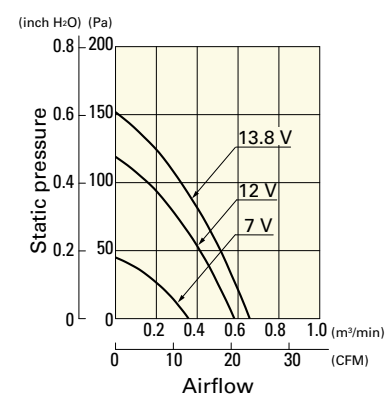
**109BM12HC2-1** With pulse sensor

Operating voltage range



**109BM12MC2-1** With pulse sensor

Operating voltage range

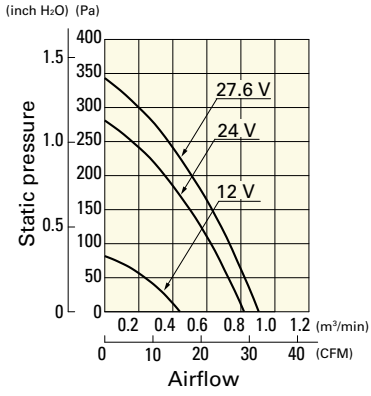




## Airflow - Static Pressure Characteristics

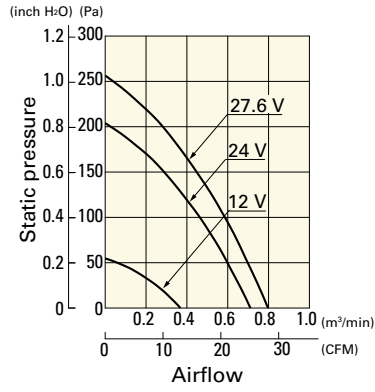
**109BM24GC2-1** With pulse sensor

Operating voltage range



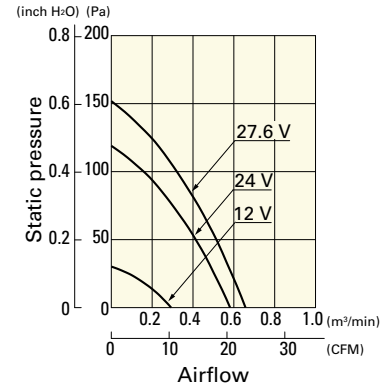
**109BM24HC2-1** With pulse sensor

Operating voltage range

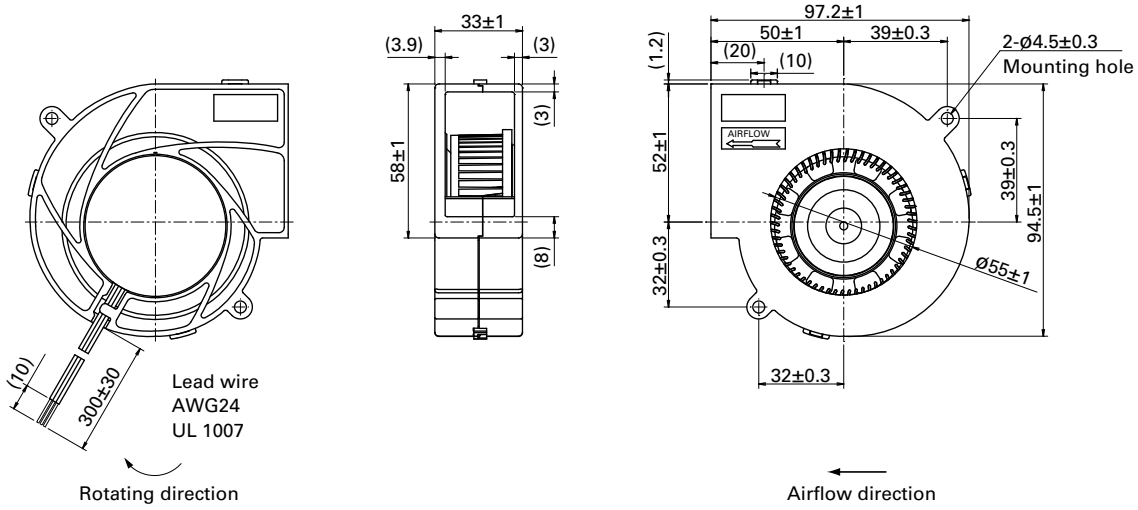


**109BM24MC2-1** With pulse sensor

Operating voltage range



## Dimensions (unit: mm)



Blower 97 mm DC



# 120x32 mm

San Ace B120 9BFB type us

## General Specifications

- Material ..... Frame: Plastic (Flammability: UL 94V-0), 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. 580.
- Dielectric strength ..... 50/60 Hz, 500 VAC, for 1 minute (between lead wire conductors and frame)
- Insulation resistance ..... 10 MΩ min. at 500 VDC (between lead wire conductors and frame)
- Sound pressure level (SPL) ..... A-weighted sound pressure level (SPL) at 1 m away from the air inlet.
- Storage temperature ..... -30 to +70°C (Non-condensing)
- Lead wire ..... ⊕Red ⊖Black  Sensor Yellow  Control Brown
- Mass ..... 340 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]
9BFB12P2H003	12	10.8 to 13.2	100	2.3	27.6	3750	1.6 56.5	1250 5.02	62	-20 to +70	40000/60°C (70000/40°C)
9BFB24P2H003	24	21.6 to 26.4	100	1.1	26.4	3750	1.6 56.5	1250 5.02	62		
			0	0.12	2.88	1300	0.46 16.2	43 0.17	41		

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

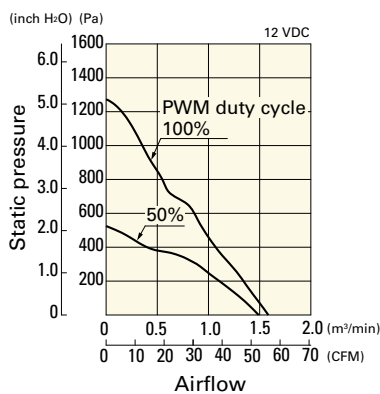
Note 1: Sensor and control options are available for selection. Refer to the table on p. 604.

Note 2: The mark indicates Short Lead Time Service applicable models. See p. 630 for details.

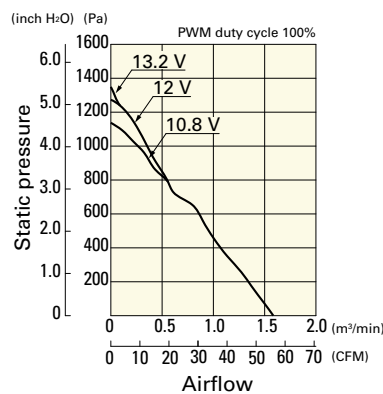
## Airflow - Static Pressure Characteristics / PWM Duty - Speed Characteristics Example

**9BFB12P2H003** With pulse sensor with PWM control function

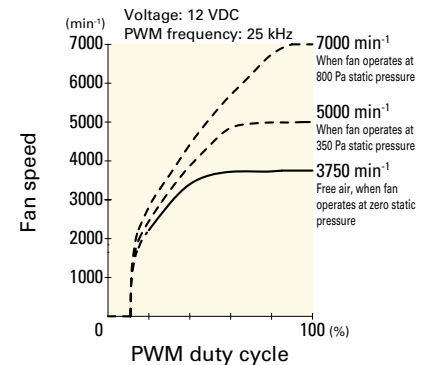
PWM duty cycle



Operating voltage range



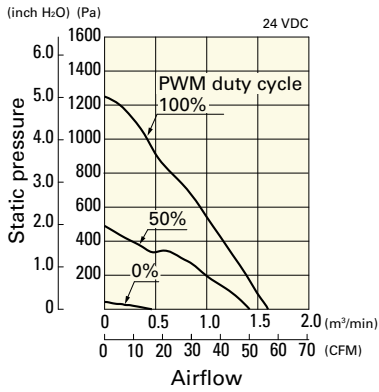
PWM duty - Speed characteristics example



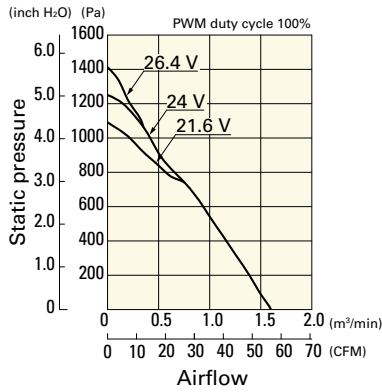
## Airflow - Static Pressure Characteristics / PWM Duty - Speed Characteristics Example

9BFB24P2H003 With pulse sensor with PWM control function

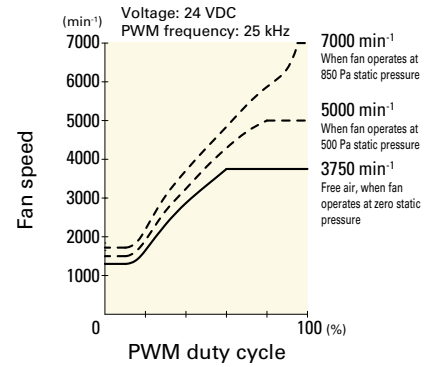
PWM duty cycle



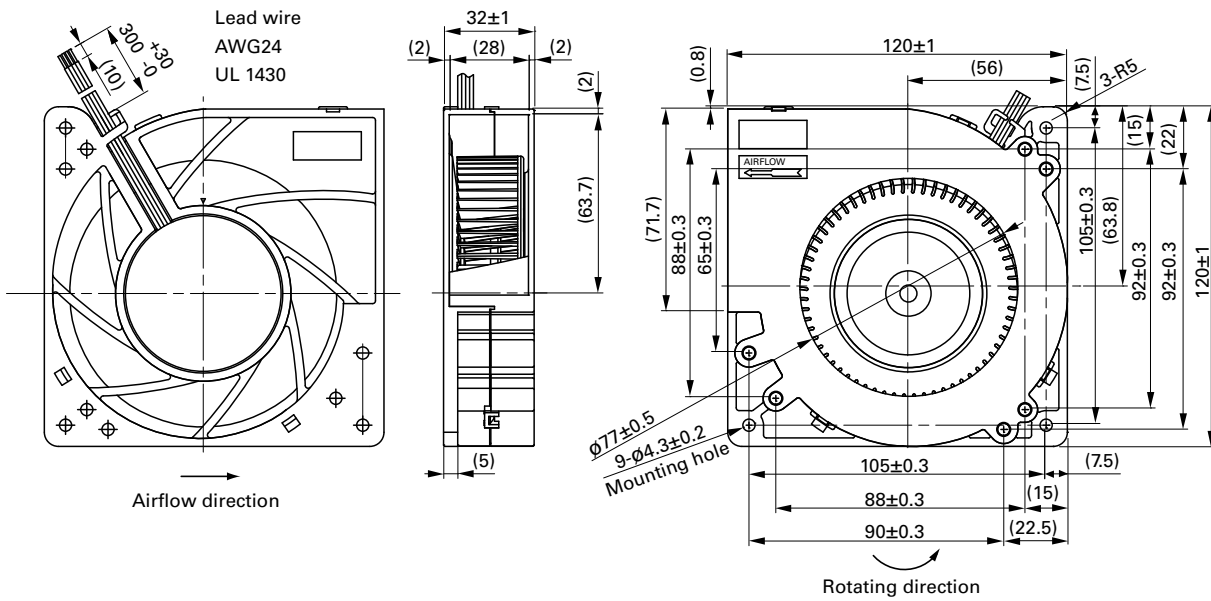
Operating voltage range



PWM duty - Speed characteristics example




## Dimensions (unit: mm)



Blower 120 mm DC

# 127×32 mm



San Ace B127 9BJ type   

## General Specifications

- Material ..... Frame: Plastic (Flammability: UL 94V-0), 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. 580.
- Dielectric strength ..... 50/60 Hz, 500 VAC, for 1 minute (between lead wire conductors and frame)
- Insulation resistance ..... 10 MΩ min. at 500 VDC (between lead wire conductors and frame)
- Sound pressure level (SPL) ..... A-weighted sound pressure level (SPL) at 1 m away from the air inlet.
- Storage temperature ..... -30 to +70°C (Non-condensing)
- Lead wire ..... ⊕Red ⊖Black or Blue  Sensor  Yellow
- Mass ..... 290 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]
▶▶ 109BJ12HC2	12	10.2 to 13.8	0.52	6.24	2400	0.78 27.5	205.8 0.826	46	-20 to +70	40000/60°C (70000/40°C)
▶▶ 109BJ12MC2			0.29	3.48	1900	0.61 21.5	109.8 0.441	40		
▶▶ 109BJ24HC2	24	20.4 to 27.6	0.26	6.24	2400	0.78 27.5	205.8 0.826	46	-20 to +60	
▶▶ 109BJ24MC2			0.15	3.6	1900	0.61 21.5	109.8 0.441	40		

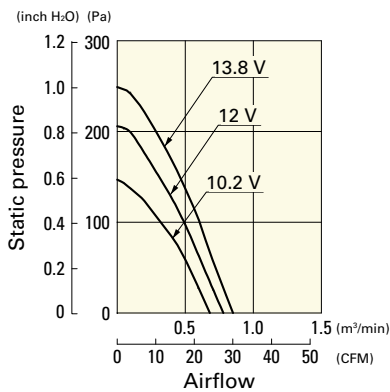
Note 1: Sensor and control options are available for selection. Refer to the table on p. 602.

Note 2: The ▶▶ mark indicates Short LeadTime Service applicable models. See p. 630 for details.

## Airflow - Static Pressure Characteristics

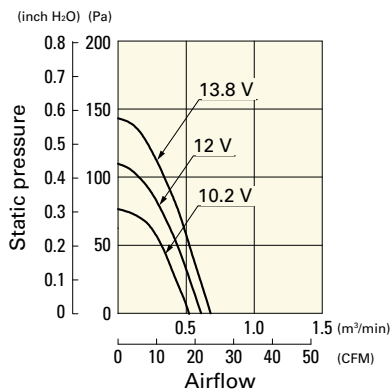
109BJ12HC2 With pulse sensor

Operating voltage range



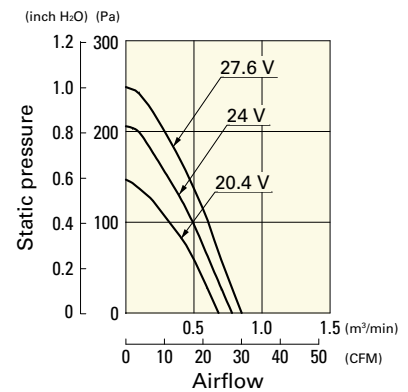
109BJ12MC2 With pulse sensor

Operating voltage range



109BJ24HC2 With pulse sensor

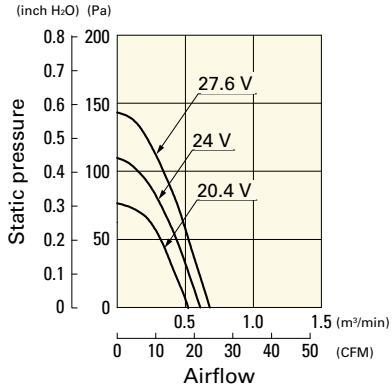
Operating voltage range



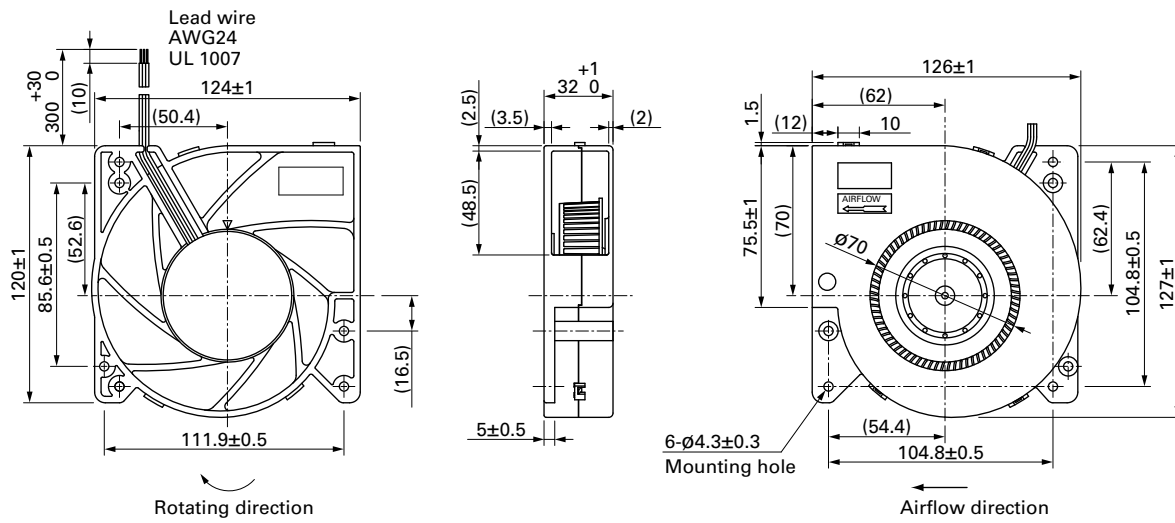
## Airflow - Static Pressure Characteristics

**109BJ24MC2** With pulse sensor

Operating voltage range



## Dimensions (unit: mm)



Blower 127 mm DC

# 160x40 mm



San Ace B160 9BG type

## General Specifications

- Material ..... Frame: Plastic (Flammability: UL 94V-0), 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. 580.
- Dielectric strength ..... 50/60 Hz, 500 VAC, for 1 minute (between lead wire conductors and frame)
- Insulation resistance ..... 10 MΩ min. at 500 VDC (between lead wire conductors and frame)
- Sound pressure level (SPL) ..... A-weighted sound pressure level (SPL) at 1 m away from the air inlet.
- Storage temperature ..... -30 to +70°C (Non-condensing)
- Lead wire ..... ⊕Red ⊖Black or Blue  Sensor  Yellow
- Mass ..... 580 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]
▶▶ 109BG12HC1	12	10.2 to 13.8	1.3	15.6	2300	1.62 57.2	313.6 1.259	55	-20 to +60	40000/60°C (70000/40°C)
▶▶ 109BG12MC1			0.64	7.68	1800	1.26 44.5	156.8 0.629	50		
▶▶ 109BG24HC1	24	20.4 to 27.6	0.62	14.88	2300	1.62 57.2	313.6 1.259	55		
▶▶ 109BG24MC1			0.31	7.44	1800	1.26 44.5	156.8 0.629	50		

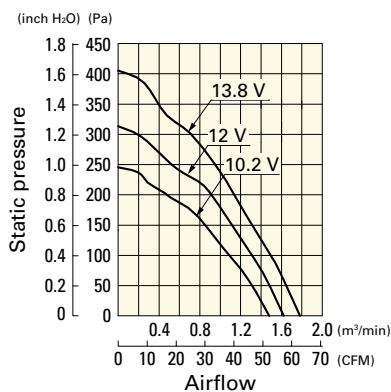
Note 1: Sensor and control options are available for selection. Refer to the table on p. 602.

Note 2: The ▶▶ mark indicates Short LeadTime Service applicable models. See p. 630 for details.

## Airflow - Static Pressure Characteristics

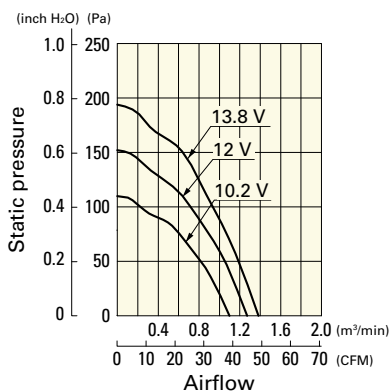
109BG12HC1 With pulse sensor

Operating voltage range



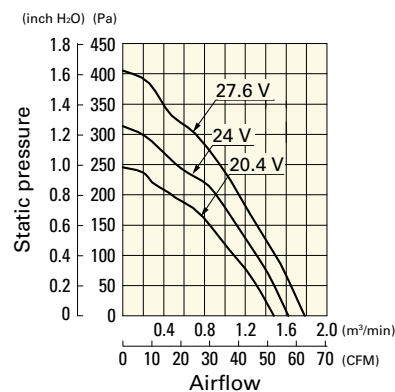
109BG12MC1 With pulse sensor

Operating voltage range



109BG24HC1 With pulse sensor

Operating voltage range

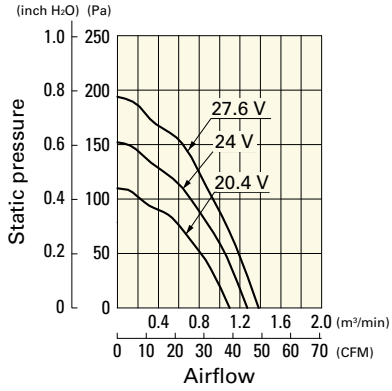


Blower 160 mm DC

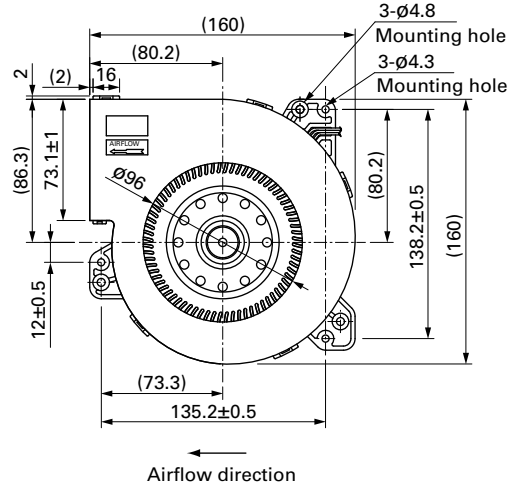
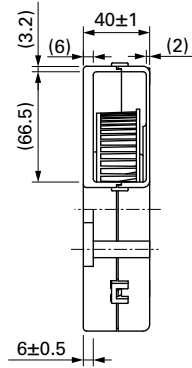
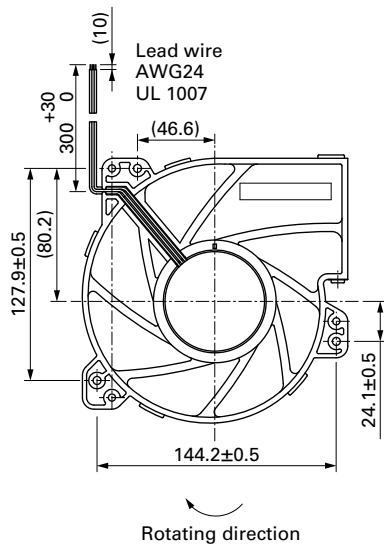
## Airflow - Static Pressure Characteristics

**109BG24MC1** With pulse sensor

Operating voltage range



## Dimensions (unit: mm)



Blower 160 mm DC