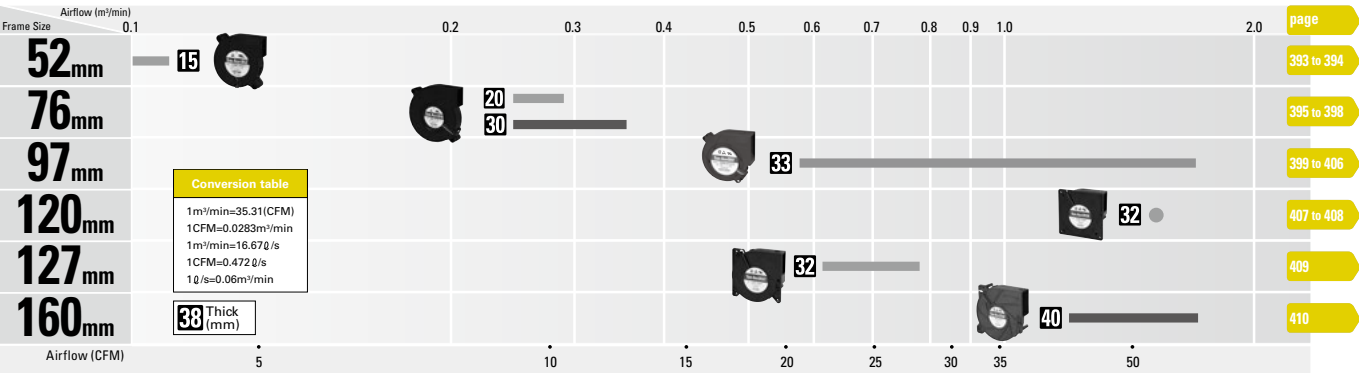


Blower

Cooling fan specialized for high static pressure

Domain Diagram



Model Numbering System

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

109B	C	12	H	C	2	-1
Type name / frame material 109B / Plastics 9B / Plastics	Frame size C : 52mm F : 120mm D : 76mm J : 127mm M : 97mm G : 160mm	Voltage 12 : 12V 24 : 24V etc	Speed code F,G,H,K,M,S etc	Sensor specifications A : Without a sensor C : With a pulse sensor D : With a lock sensor	Frame thickness 1 : 40mm thick 2 : 30mm thick, 32mm thick, 33mm thick 7 : 15mm thick 6 : 20mm thick	Individual customer's spec

9B	MB	12	G	2	01	-1
Type name / frame material 9B / Plastics	Frame size MB : 97mm FB : 120mm	Voltage 12 : 12V 24 : 24V	Speed code G / S / H etc	Frame thickness 2 : 32mm thick / 33mm thick	Sensor specifications 01 : With a pulse sensor 02 : Without a sensor	Individual customer's spec

Fans with PWM control function

Example :

9B	MB	12	P	2	G	01
Type name / frame material 9B / Plastics	Frame size MB : 97mm FB : 120mm	Voltage 12 : 12V	PWM control function	Frame thickness 2 : 32mm thick / 33mm thick	Speed code	Individual customer's spec 2 or 3 digits

How to Read Specifications

DC Fan											DC	
	①	②	③	④	⑤	⑥		⑦		⑧	⑨	⑩
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Airflow [m³/min] [CFM]		Max. Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
9GA0412G7001	12	7 to 13.8	0.17	2.04	13,100	0.36	12.7	192	0.77	42	−20 to +70	40,000/60°C (70,000/40°C)

- ①Rated Voltage This is the necessary voltage to drive the fan. 12VDC, 24VDC and 48VDC are available.
- ②Operating Voltage Range... The voltage range over which fan operation is guaranteed
- ③Rated Current The current value during the fan's rated operation without load
- ④Rated Input The input value during the fan's rated operation without load
- ⑤Rated Speed The rotating speed during the fan's rated operation without load
- ⑥Max. Airflow The maximum air volume that the fan can output during rated operation (according to the company's dual-chamber device).
The volume of air generated by the fan in a given time period
- ⑦Max. Static Pressure The maximum static pressure value that the fan can output during rated operation (according to the company's dual-chamber device). The static pressure is the fan's force to propel air by overcoming the resistance of the device that uses the fan when it propels air.
- ⑧SPL "SPL" is Sound Pressure Level. The noise level during the fan's rated operation.
Please refer to the technical material section for the method used to measure the noise level.
- ⑨Operating Temperature The temperature range over which fan operation is guaranteed (Non- condensing)
- ⑩Expected Life The fan's expected operating life when the fan operates continuously at the rated voltage at a temperature of 60°C and at relative humidity of 90%. Expected life at 40°C ambient is just reference value.
Please refer to the technical material section for the expected operating life.

DC Fan Common Specifications

Material Frame,Impeller:Plastics / Frame:Aluminum,Impeller:Plastics

* For details, refer to the appropriate page.

Expected LifeVaries for each model (L10:Survival rate:90% at 60°C ,rated voltage, and continuously run in a free air state)

* Splash proof fan: Varies for each model (Indoor, L10:Survival rate:90% at 60°C ,rated voltage, and continuously run in a free air state)

Motor ProtectionBurnout protection at locked rotor condition and Reverse polarity protection

Dielectric StrengthAC50/60Hz 500VAC 1minute(between lead conductor and frame)

Insulation Resistance10M Ω or more at 500VDC megger (between lead conductor and frame)

Sound Pressure Level(SPL) ..Expressed as the value at 1m from air inlet side

Lead WireFor details, refer to the appropriate page.

Overheating protection function

Protection Functions:

If the fan blades are restricted, an overcurrent occurs and leads to a rise in the fan coil temperature. This can result in reduced performance, damage, or a fire. To prevent this from occurring, SANYO DENKI's fans incorporate an overheating protection function. Refer to the catalog for the types of protection functions.

Burnout protection function at locked rotor condition

● Current cutoff system

If the fan blades are restricted, the coil current is cut off at regular cycles to prevent overheating of the coil. When the hindrance is removed, the fan restarts automatically.

Reverse polarity protection function

No problem about fan even if positive & negative lead are connected in reverse.

However, when wiring fans with sensors or PWM speed control function, connecting positive and negative leads in reverse may damage the fans.

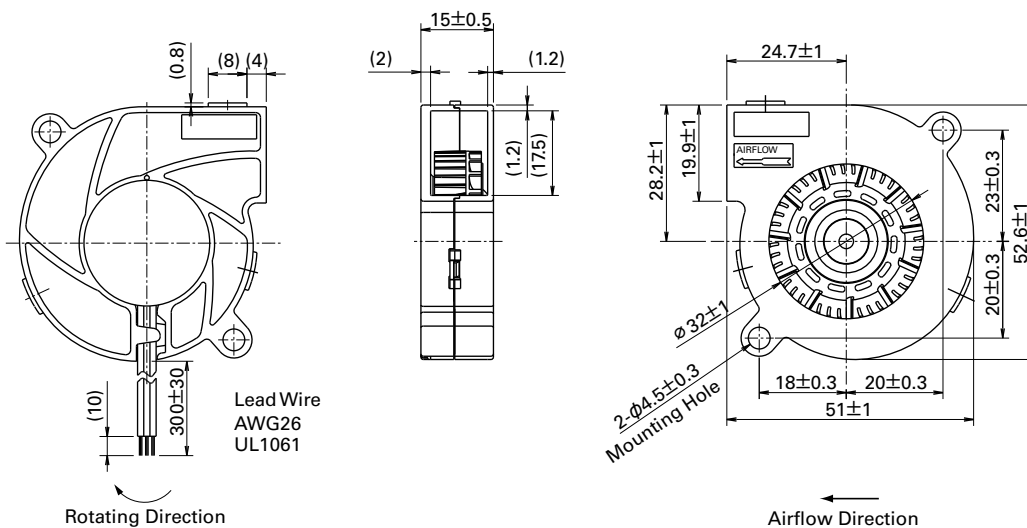
52mm**San Ace B52****General Specifications**

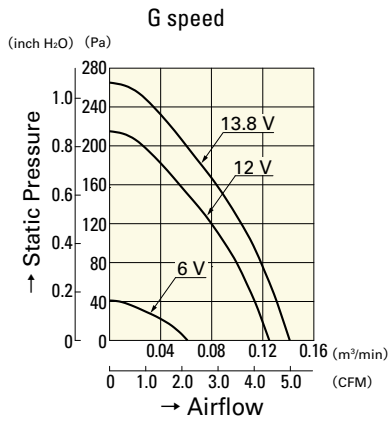
- Material.....Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-0)
- Expected LifeRefer to specifications (L10:Survival rate: 90% at 60°C ,
rated voltage, and continuously run in a free air state)
- Lead Wire⊕red ⊖black (Sensor) yellow
- Storage Temperature ...-30°C to +70°C (Non-condensing)

52mm×15mm [Mass : 33g] **9BC type****Specifications** The following nos. **have pulse sensors.**

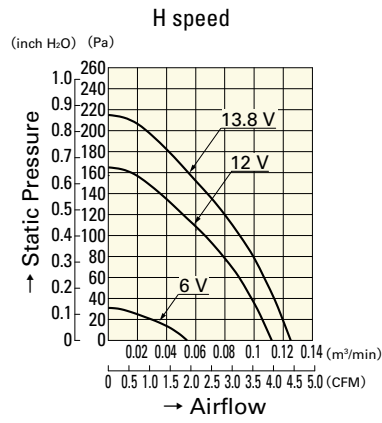
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Airflow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
109BC12GC7-1	12	6 to 13.8	0.12	1.44	6,200	0.125 4.4	215 0.86	43	-20 to +70	40,000/60°C (70,000/40°C)
109BC12HC7-1			0.10	1.20	5,600	0.112 4.0	165 0.66	40		
109BC12FC7-1			0.08	0.96	5,100	0.101 3.6	130 0.52	38		
109BC12MC7-1			0.06	0.72	4,600	0.091 3.2	100 0.40	35		
109BC24GC7-1	24	12 to 27.6	0.07	1.68	6,200	0.125 4.4	215 0.86	43		
109BC24HC7-1			0.05	1.20	5,600	0.112 4.0	165 0.66	40		
109BC24FC7-1			0.04	0.96	5,100	0.101 3.6	130 0.52	38		

Other sensor specifications are available as options. Please refer to the index (p. 495).

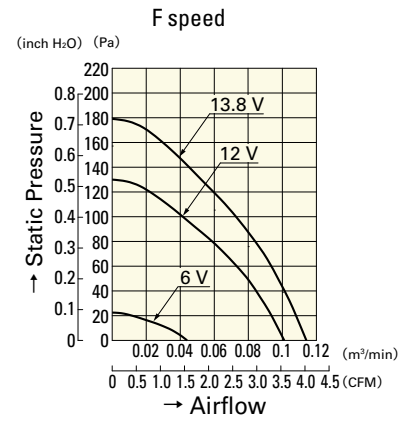
Dimensions (unit: mm)



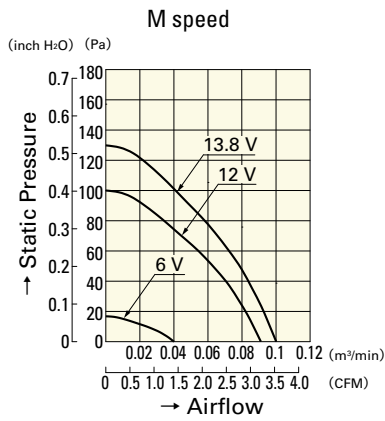
109BC12GC7-1



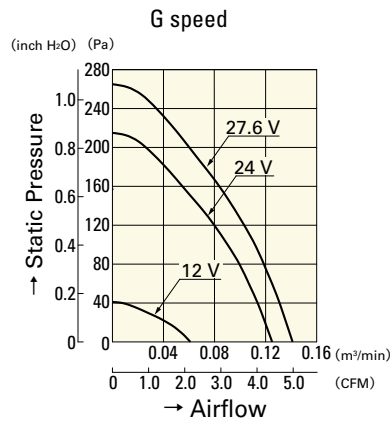
109BC12HC7-1



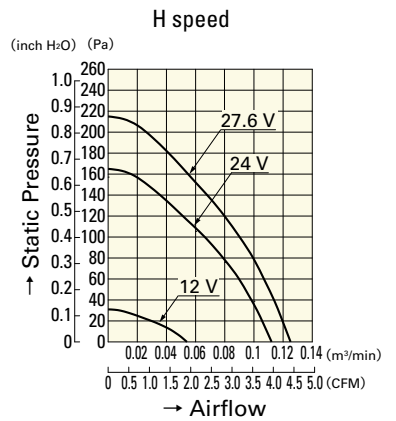
109BC12FC7-1



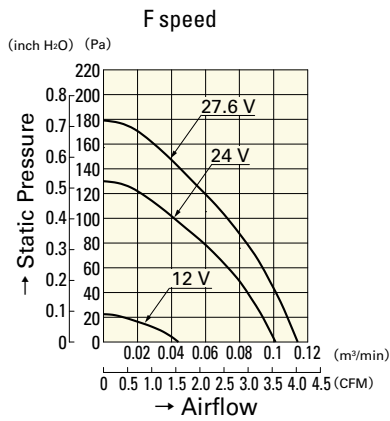
109BC12MC7-1



109BC24GC7-1



109BC24HC7-1



109BC24FC7-1

DC

Blower 52mm

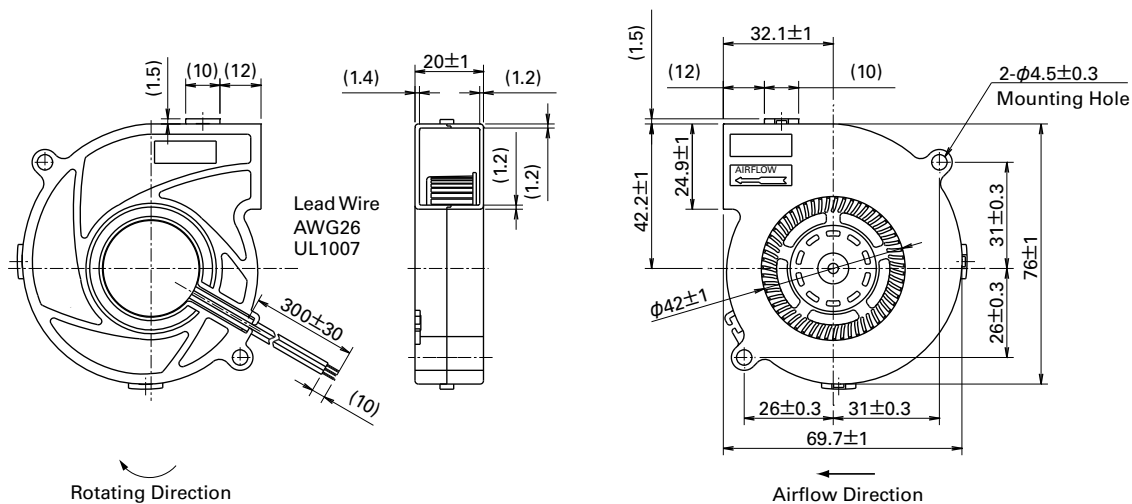
76mm**San Ace B76****General Specifications**

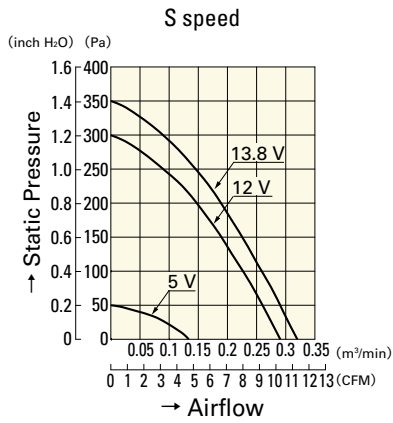
- Material.....Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-0)
- Expected LifeRefer to specifications (L10:Survival rate: 90% at 60°C ,
rated voltage, and continuously run in a free air state)
- Lead Wire⊕red ⊖black (Sensor) yellow
- Storage Temperature ...-30°C to +70°C (Non-condensing)

76mm×20mm [Mass : 58g] **9BD type****Specifications** The following nos. **have pulse sensors.**

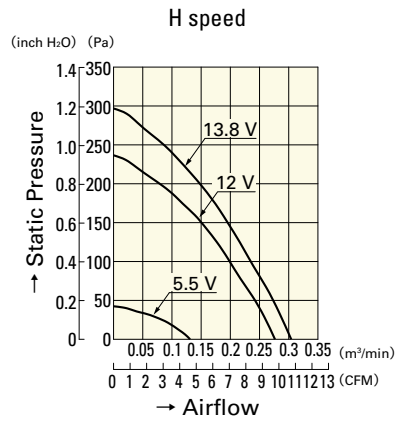
Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Airflow [m ³ /min] [CFM]		Max. Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
9BD12SC6-1	12	5 to 13.8	0.28	3.36	4,500	0.29	10.2	300	1.20	43	-20 to +70	40,000/60°C (70,000/40°C)
9BD12HC6-1		5.5 to 13.8	0.21	2.52	4,200	0.27	9.5	230	0.92	41		
9BD12FC6-1			0.18	2.16	3,900	0.25	8.8	200	0.80	39		
9BD24SC6-1	24	10 to 27.6	0.14	3.36	4,500	0.29	10.2	300	1.20	43		
9BD24HC6-1			0.12	2.88	4,200	0.27	9.5	230	0.92	41		
9BD24FC6-1			0.10	2.4	3,900	0.25	8.8	200	0.80	39		

Other sensor specifications are available as options. Please refer to the index (p. 500).

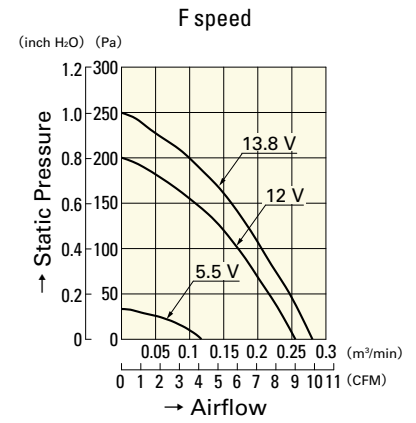
Dimensions (unit: mm)



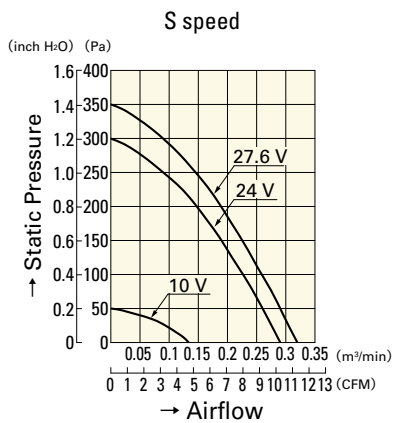
9BD12SC6-1



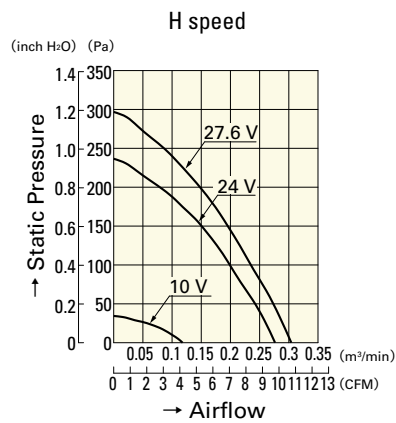
9BD12HC6-1



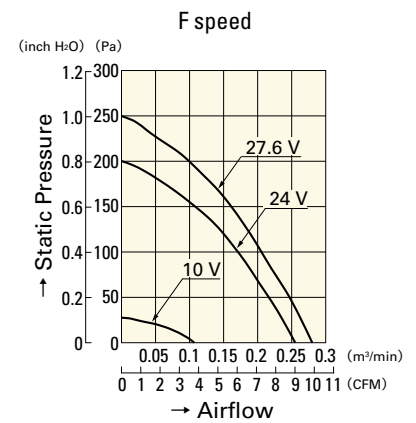
9BD12FC6-1



9BD24SC6-1



9BD24HC6-1



9BD24FC6-1

DC

Blower 76mm

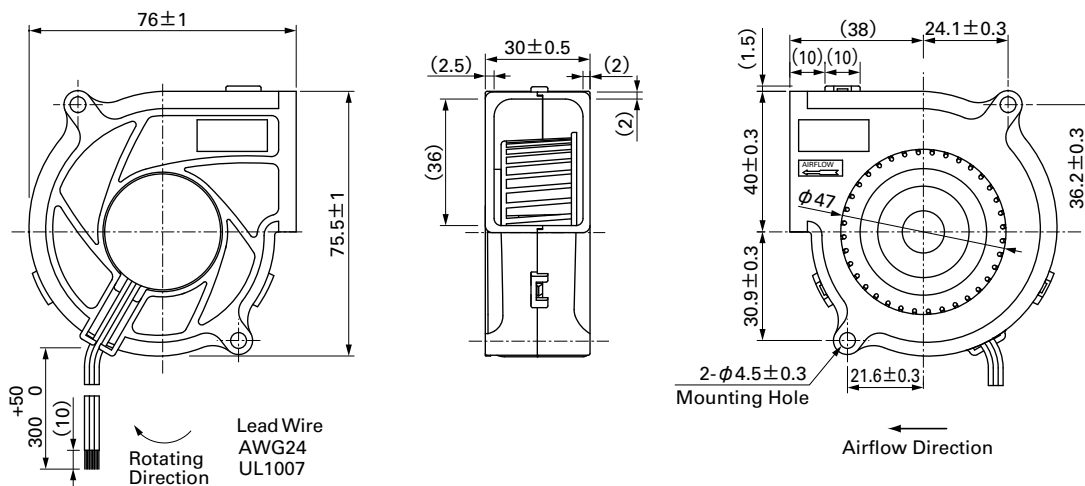
76mm**San Ace B76****General Specifications**

- Material.....Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-1)
- Expected LifeRefer to specifications (L10:Survival rate: 90% at 60°C ,
rated voltage, and continuously run in a free air state)
- Lead Wire⊕red ⊖black or blue (Sensor) yellow
- Storage Temperature ...-30°C to +70°C (Non-condensing)

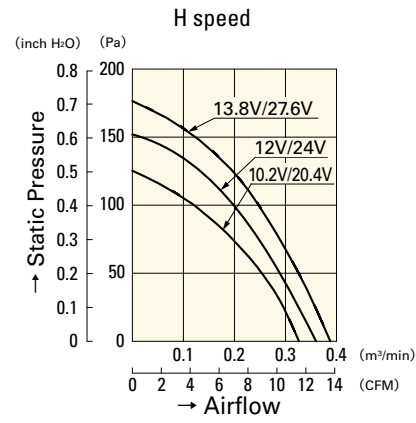
76mm×30mm [Mass : 100g] **9BD type****Specifications** The following nos. **have pulse sensors.**

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Airflow [m ³ /min] [CFM]		Max. Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
109BD12HC2	12	10.2 to 13.8	0.37	4.44	3,000	0.36	12.7	151.9	0.610	41.5	-20 to +60	40,000/60°C
109BD12FC2			0.27	3.24	2,600	0.31	10.9	98	0.394	37	-20 to +70	
109BD12MC2			0.14	1.68	2,100	0.25	8.8	58.8	0.236	32.5	-20 to +60	
109BD24HC2	24	20.4 to 27.6	0.17	4.08	3,000	0.36	12.7	151.9	0.610	41.5	-20 to +60	
109BD24FC2			0.14	3.36	2,600	0.31	10.9	98	0.394	37	-20 to +70	
109BD24MC2			0.10	2.40	2,100	0.25	8.8	58.8	0.236	32.5	-20 to +70	

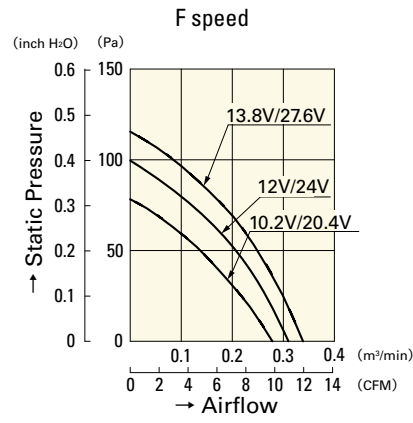
Other sensor specifications are available as options. Please refer to the index (p. 495).

Dimensions (unit: mm)

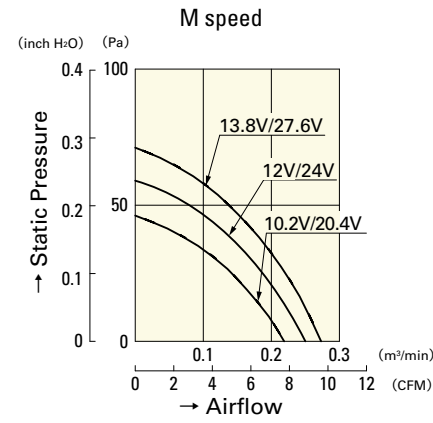
Airflow - Static Pressure Characteristics



109BD12HC2
109BD24HC2



109BD12FC2
109BD24FC2



109BD12MC2
109BD24MC2

DC

Blower 76mm

97 mm

San Ace B97



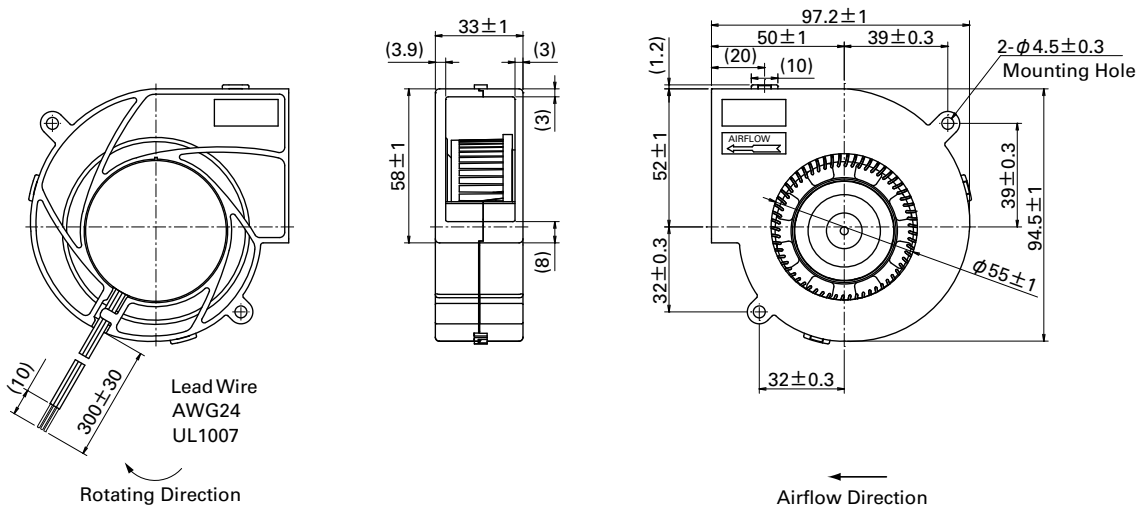
97mm×33mm (Mass : 175g) **9BM type**

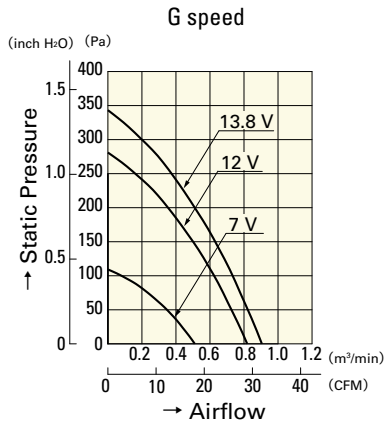
Specifications The following nos. **have pulse sensors.**

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Airflow [m³/min] [CFM]		Max. Static Pressure [Pa] [InchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
109BM12GC2-1	12	7 to 13.8	0.60	7.20	3,800	0.82	28.9	281	1.129	51.5	-20 to +70	40,000/60°C (70,000/40°C)
109BM12HC2-1			0.40	4.80	3,300	0.71	25.1	204	0.819	48.5		
109BM12MC2-1			0.26	3.12	2,700	0.58	20.5	119	0.478	43.5		
109BM24GC2-1	24	12 to 27.6	0.31	7.44	3,800	0.82	28.9	281	1.129	51.5		
109BM24HC2-1			0.26	6.24	3,300	0.71	25.1	204	0.819	48.5		
109BM24MC2-1			0.15	3.60	2,700	0.58	20.5	119	0.478	43.5		

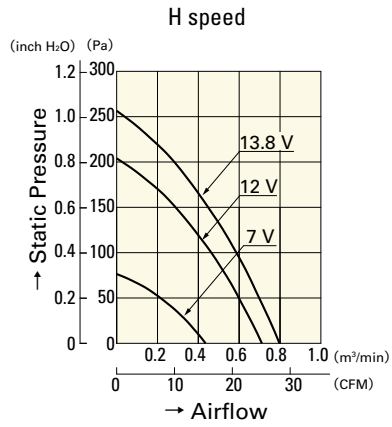
Other sensor specifications are available as options. Please refer to the index (p. 495).

Dimensions (unit: mm)

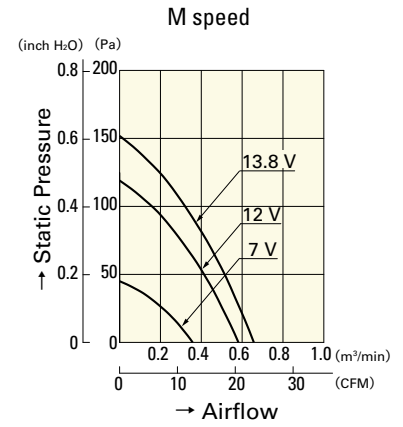




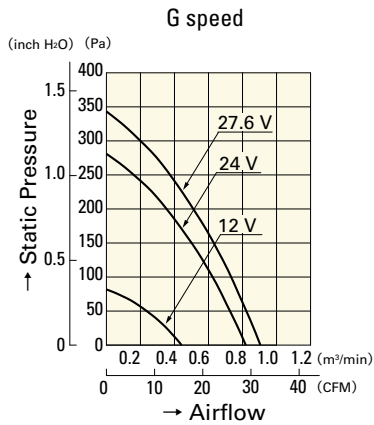
109BM12GC2-1



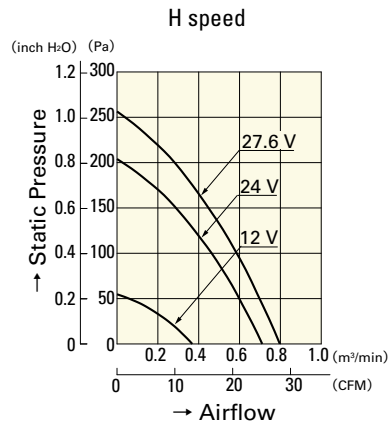
109BM12HC2-1



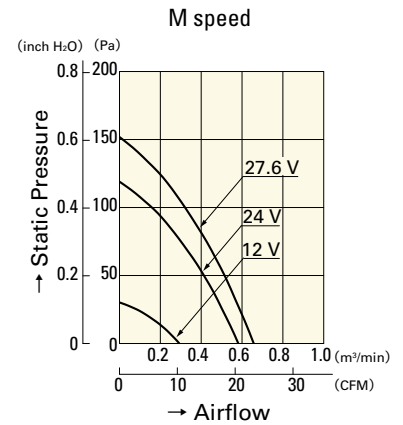
109BM12MC2-1



109BM24GC2-1



109BM24HC2-1



109BM24MC2-1

DC

Blower 97mm

97mm

San Ace B97



General Specifications

- Material.....Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-0)
- Expected LifeRefer to specifications (L10:Survival rate: 90% at 60°C ,
rated voltage, and continuously run in a free air state)
- Lead Wire⊕red ⊖black (Sensor) yellow (Control) brown
(For models without PWM control function, there is no
speed control wiring.)
- Storage Temperature ...-30°C to +70°C (Non-condensing)

97mm×33mm (Mass : 190g)

9BMB type



Specifications The following nos. have PWM controls and pulse sensors.

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle ^{Note1)} [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Airflow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
9BMB12P2K01	12	10.8 to 13.2	100	3.4	40.8	6,850	1.61 56.8	1,280 5.14	66	-20 to +70	40,000/60°C
9BMB12P2G01		10.2 to 13.8	100	1.8	21.6	5,750	1.34 47.3	760 3.050	61		
9BMB12P2S01			100	1.4	16.8	5,250	1.22 43.1	610 2.450	59		
9BMB12P2H01			100	1.1	13.2	4,850	1.11 39.2	490 1.968	57		
9BMB12P2F01			100	0.9	10.8	4,500	1.04 36.7	410 1.64	56		
9BMB24P2K01	24	21.6 to 26.4	100	1.62	38.88	6,850	1.61 56.8	1,280 5.14	66		
9BMB24P2G01			100	0.83	19.92	5,750	1.34 47.3	760 3.05	61		
9BMB24P2S01			100	0.7	16.8	5,250	1.22 43.1	610 2.450	59		
9BMB24P2H01			100	0.55	13.2	4,850	1.11 39.2	490 1.968	57		
9BMB24P2F01			100	0.45	10.8	4,500	1.04 36.7	410 1.640	56		

Note: Fan does not rotate when PWM duty cycle is 0%.

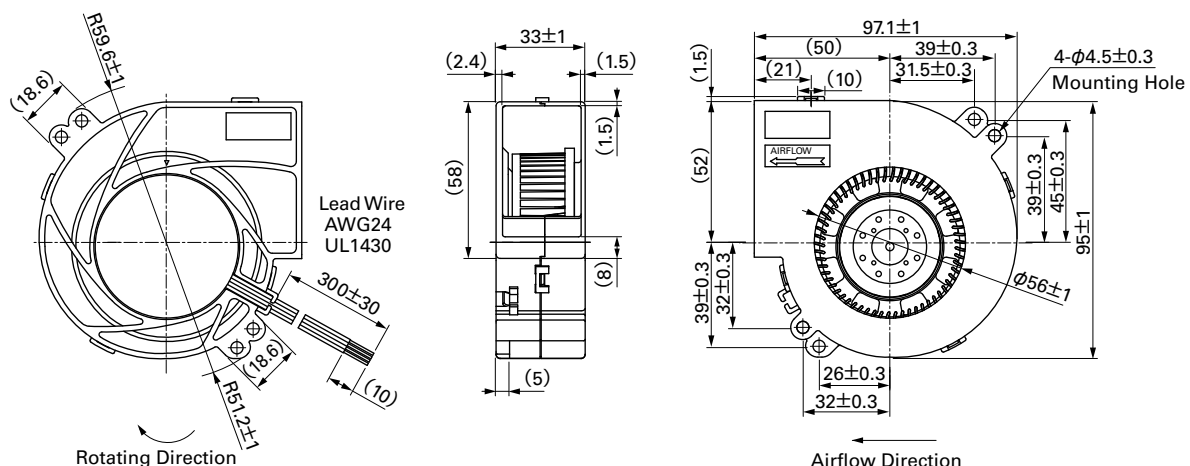
※PWM Frequency : 25kHz

The following nos. have pulse sensors.

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Airflow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
9BMB12K201	12	7 to 13.2	3.4	40.8	6,850	1.61 56.8	1,280 5.14	66	-20 to +70	40,000/60°C
9BMB12G201		7 to 13.8	1.80	21.6	5,750	1.34 47.3	760 3.052	61		
9BMB12S201			1.40	16.8	5,250	1.22 43.1	610 2.450	59		
9BMB12H201			1.10	13.2	4,850	1.11 39.2	490 1.968	57		
9BMB12F201			0.90	10.8	4,500	1.04 36.7	410 1.647	56		
9BMB24K201	24	21.6 to 26.4	1.62	38.88	6,850	1.61 56.8	1,280 5.14	66		
9BMB24G201		12 to 26.4	0.83	19.9	5,750	1.34 47.3	760 3.052	61		
9BMB24S201			0.70	16.8	5,250	1.22 43.1	610 2.450	59		
9BMB24H201			0.55	13.2	4,850	1.11 39.2	490 1.968	57		
9BMB24F201			0.45	10.8	4,500	1.04 36.7	410 1.647	56		

Other sensor specifications are available as options. Please refer to the index (p. 501).

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

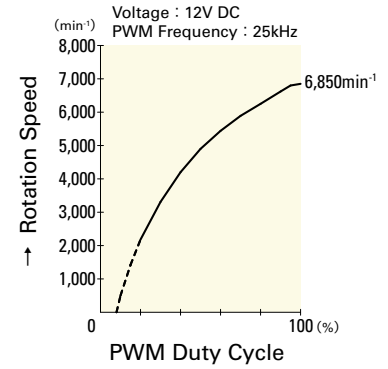
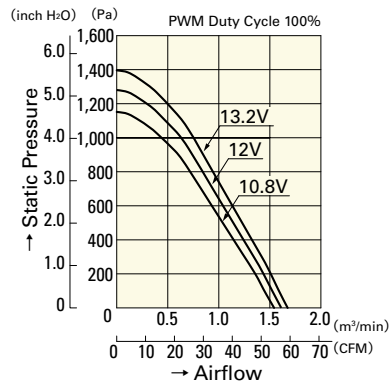
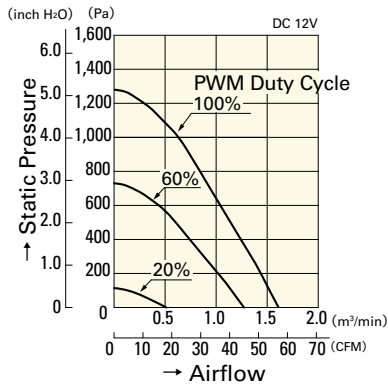


Airflow - Static Pressure Characteristics

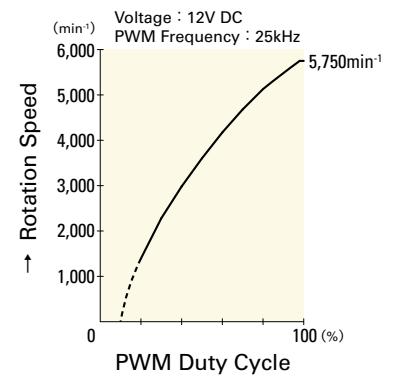
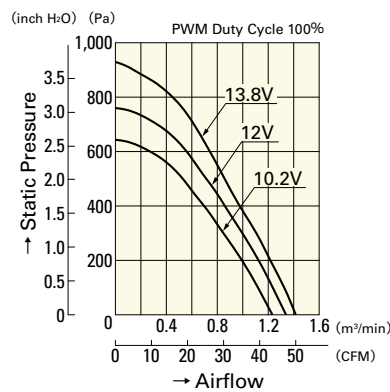
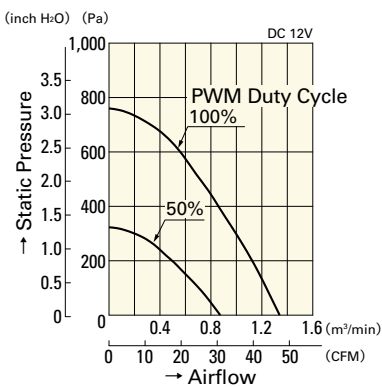
PWM Duty - Speed Characteristics Example

PWM Duty Cycle

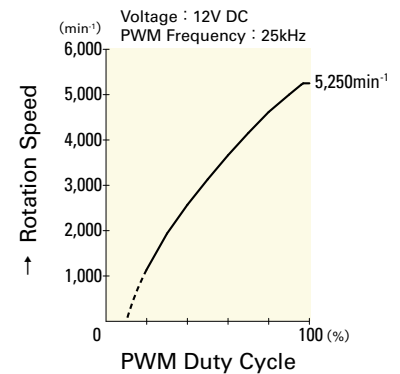
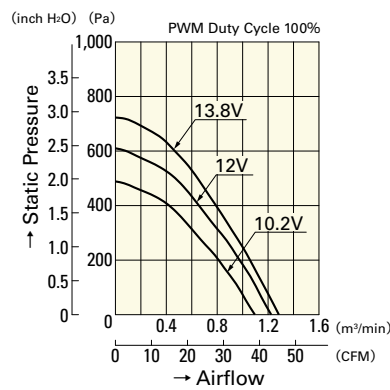
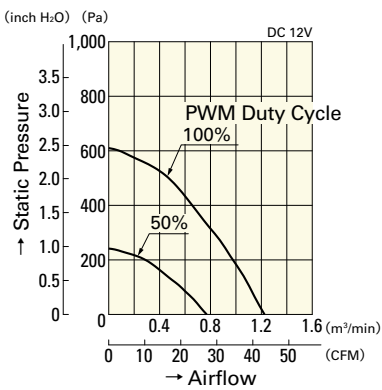
Operating Voltage Range



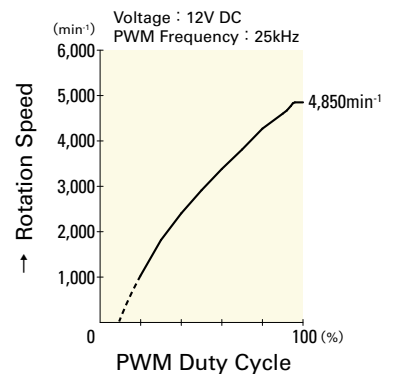
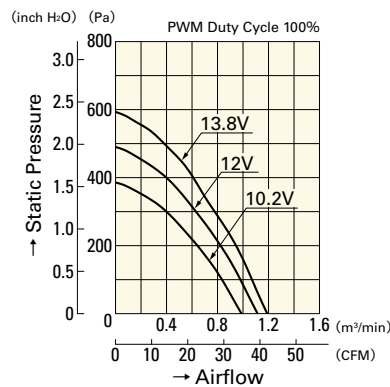
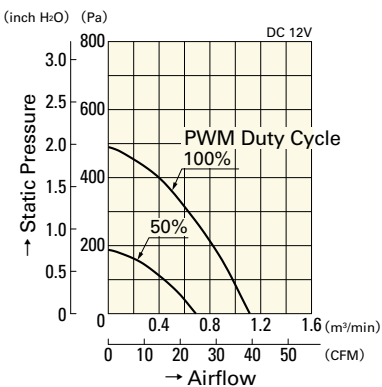
9BMB12P2K01



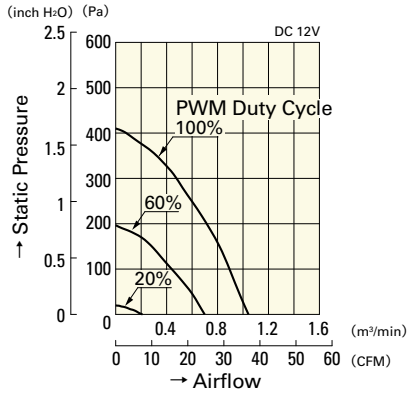
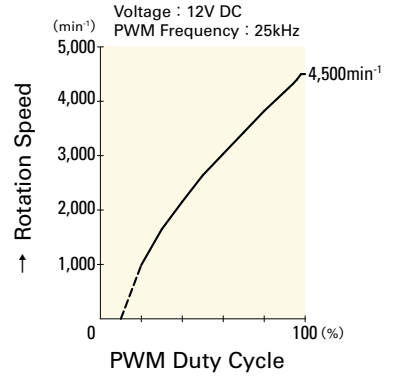
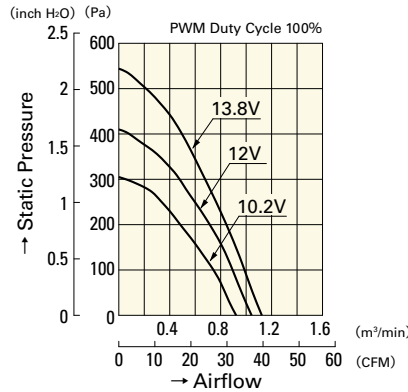
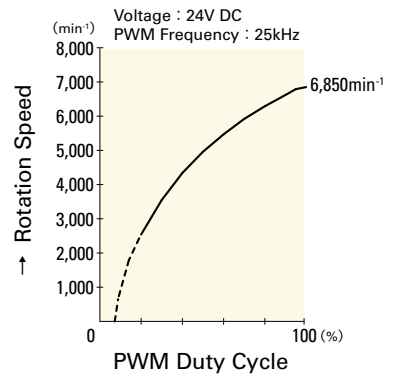
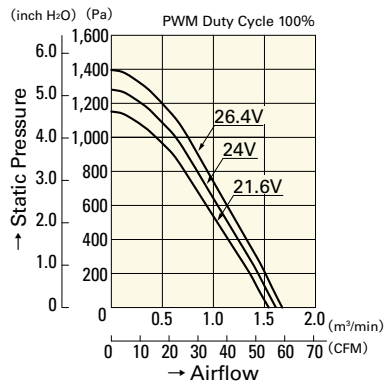
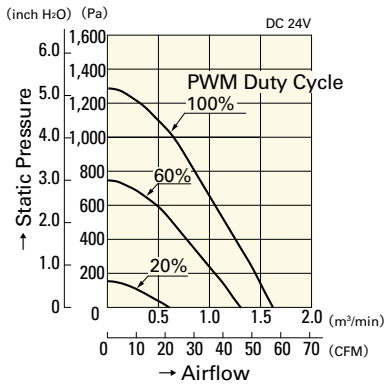
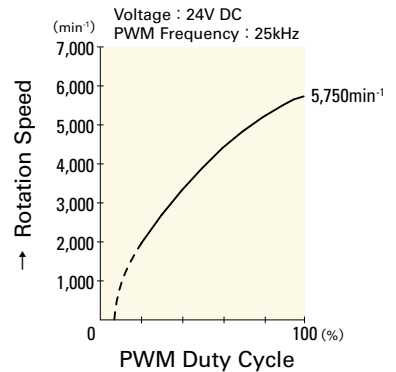
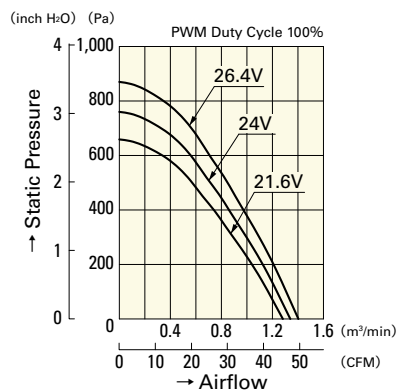
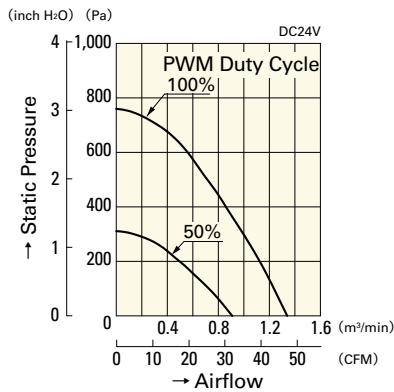
9BMB12P2G01



9BMB12P2S01



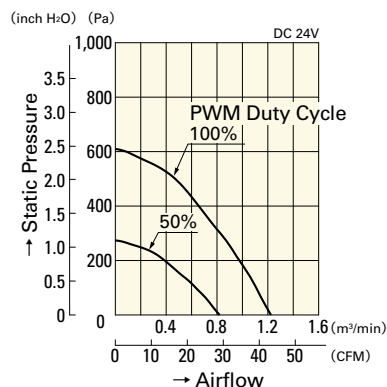
9BMB12P2H01

97mm**San Ace B97****97mm×33mm** [Mass : 190g]**Airflow - Static Pressure Characteristics****PWM Duty - Speed Characteristics Example****PWM Duty Cycle****Operating Voltage Range****9BMB12P2F01****9BMB24P2K01****9BMB24P2G01**

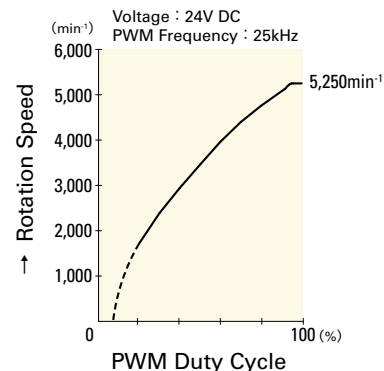
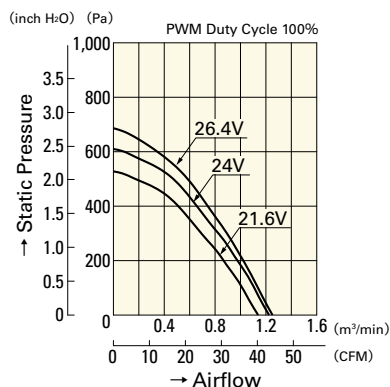
Airflow - Static Pressure Characteristics

PWM Duty - Speed Characteristics Example

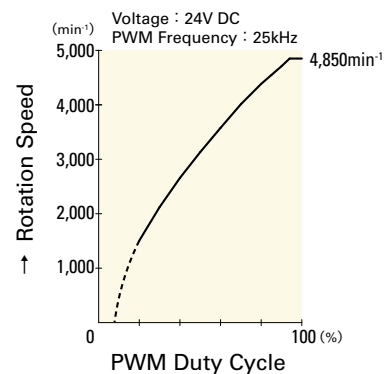
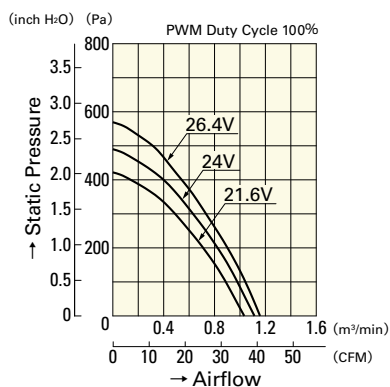
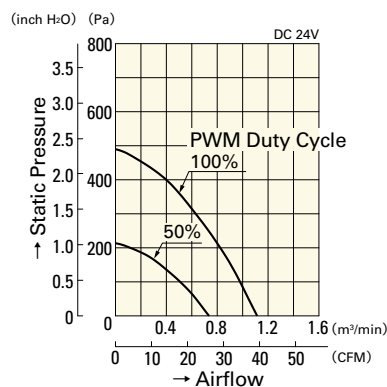
PWM Duty Cycle



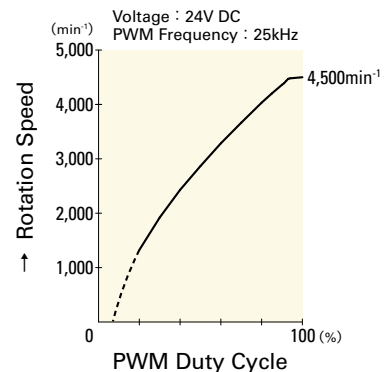
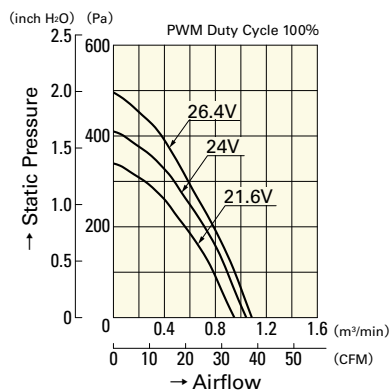
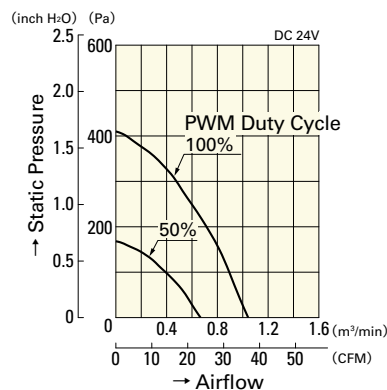
Operating Voltage Range



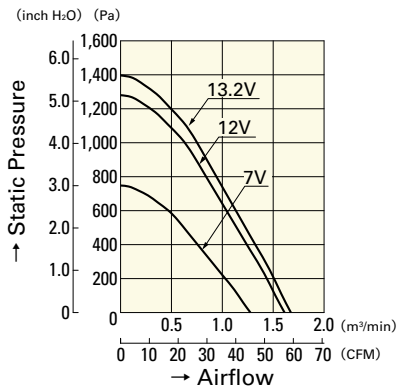
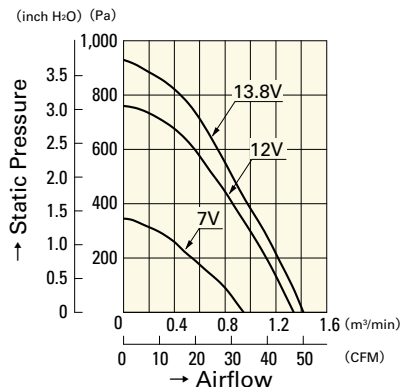
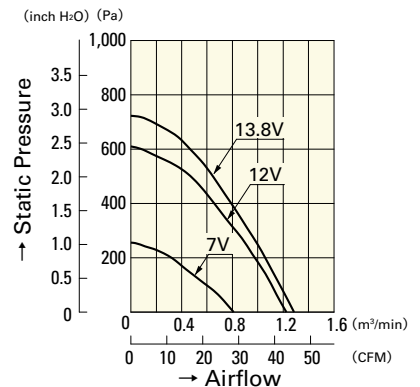
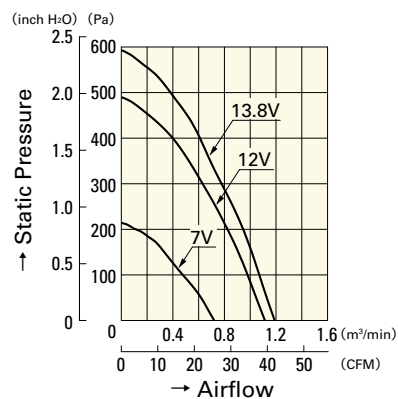
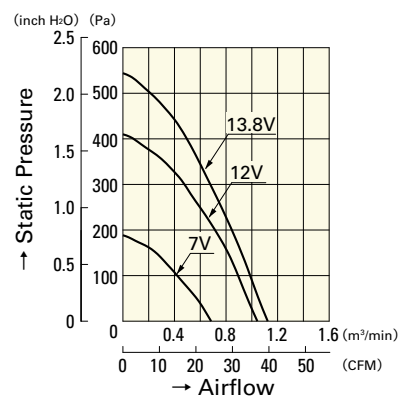
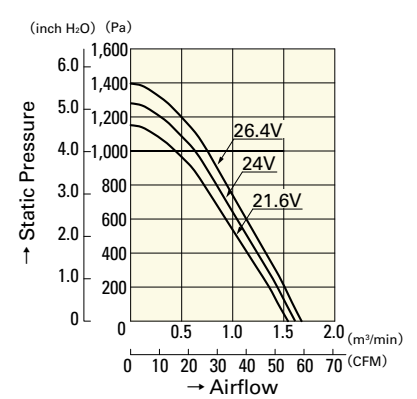
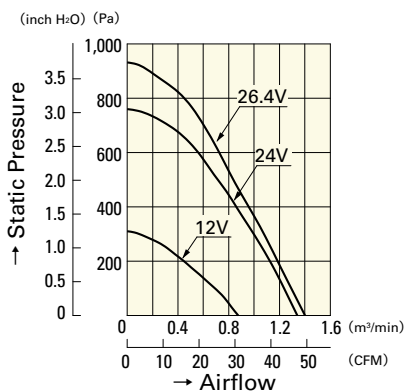
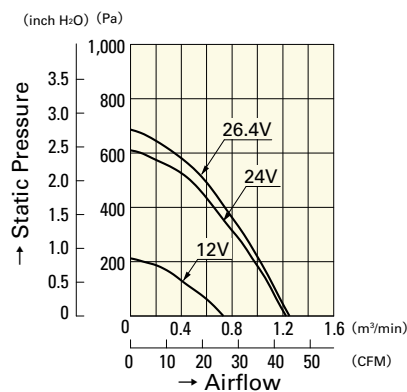
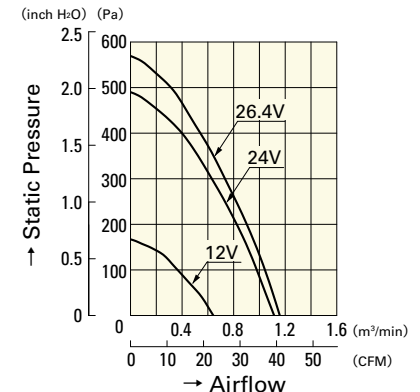
9BMB24P2S01

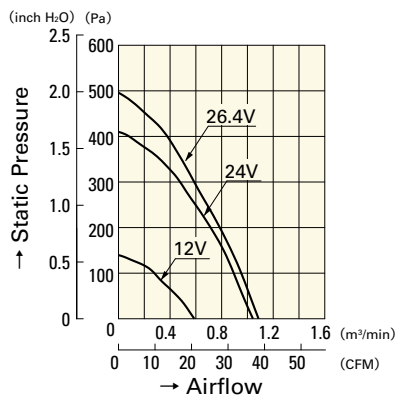


9BMB24P2H01



9BMB24P2F01

97mm**San Ace B97****97mm×33mm** [Mass : 190g]**Airflow - Static Pressure Characteristics****Operating Voltage Range****9BMB12K201****9BMB12G201****9BMB12S201****9BMB12H201****9BMB12F201****9BMB24K201****9BMB24G201****9BMB24S201****9BMB24H201**



9BMB24F201

DC
Blower 97mm



120mm×32mm [Mass : 340g] **9BFB type**

※PWM Frequency : 25kHz

Lead Wire
AWG24
UL1430

300 +30
-0
(10)

32±1
(28)
(2)

(2)

(63.7)

(5)

71.7
88±0.3
65±0.3
120±1
(56)
(7.5)
3-R5
(15)
(22)
105±0.3
(63.8)
92±0.3
92±0.3
120±1
105±0.3
88±0.3
90±0.3
(22.5)
(7.5)
15
15

Ø77±0.5
9-0.2±0.2
Mounting Hole

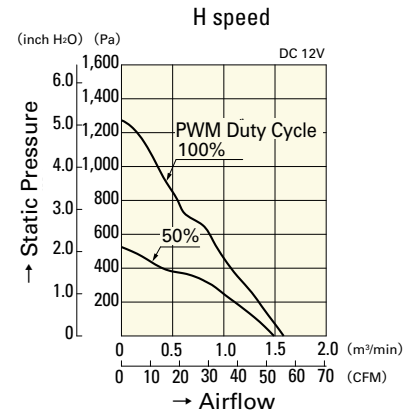
AIRFLOW

Airflow Direction

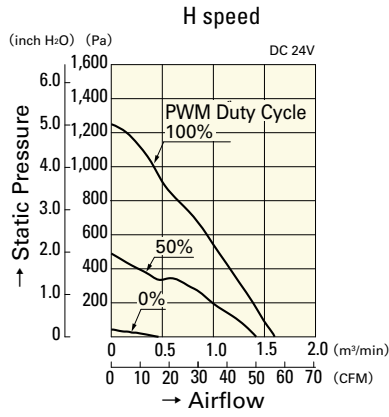
Rotating Direction

Airflow - Static Pressure Characteristics

PWM Duty Cycle

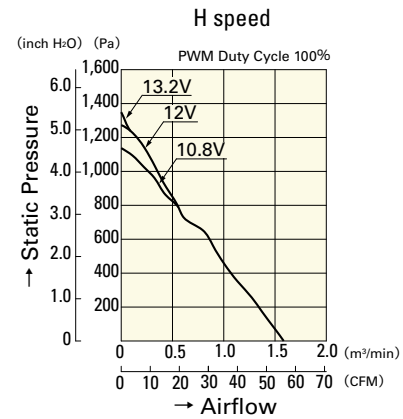


9BFB12P2H003

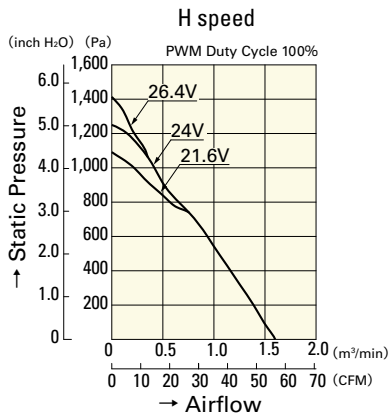


9BFB24P2H003

Operating Voltage Range

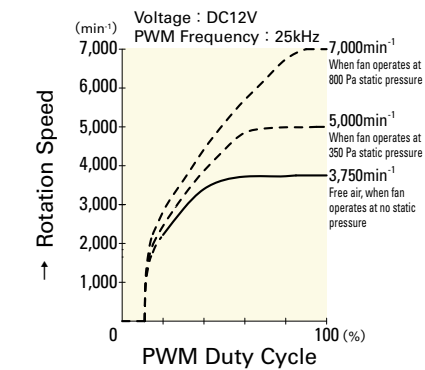


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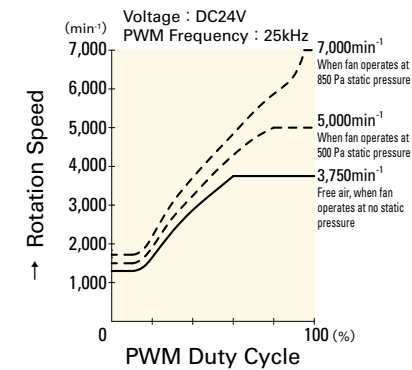


9BFB24P2H003

PWM Duty - Speed Characteristics Example



9BFB12P2H003



9BFB24P2H003

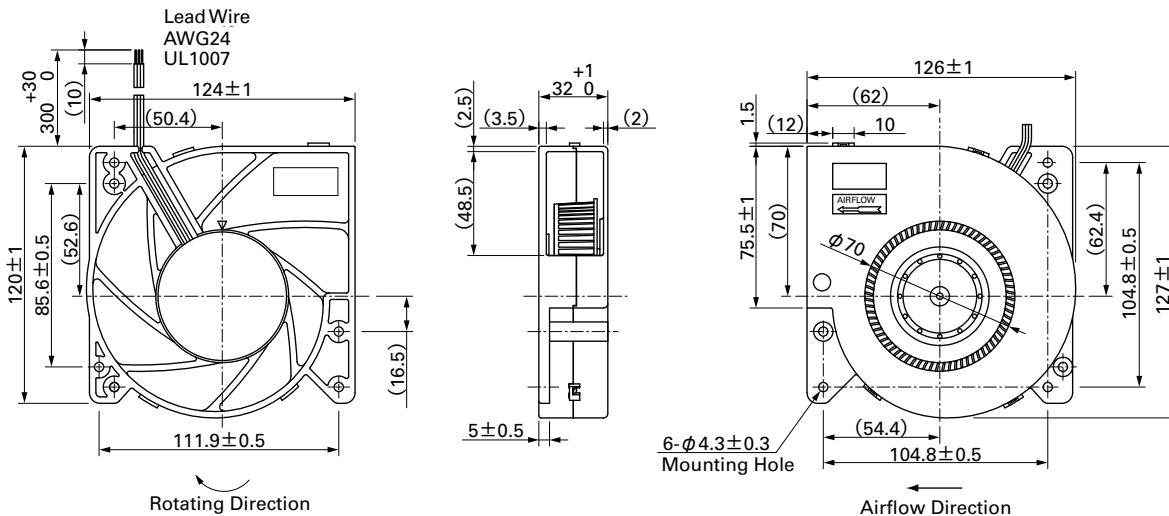
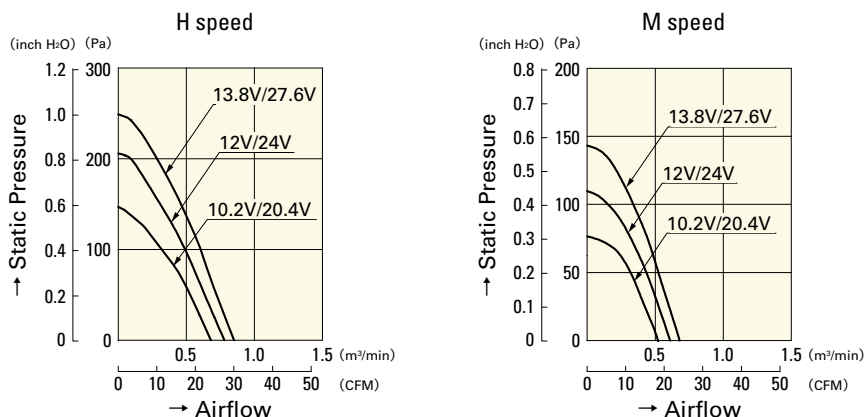
127mm**San Ace B127****General Specifications**

- Material.....Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-1)
- Expected LifeRefer to specifications (L10:Survival rate: 90% at 60°C ,
rated voltage, and continuously run in a free air state)
- Lead Wire⊕red ⊖black or blue (Sensor) yellow
- Storage Temperature ...-30°C to +70°C (Non-condensing)

127mm×32mm (Mass : 290g) **9BJ type****Specifications** The following nos. **have pulse sensors.**

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Airflow [m³/min] [CFM]		Max. Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
109BJ12HC2	12	10.2 to 13.8	0.52	6.24	2,400	0.78	27.5	205.8	0.826	46	− 20 to + 70	40,000/60°C
109BJ12MC2			0.29	3.48	1,900	0.61	21.5	109.8	0.441	40		
109BJ24HC2	24	20.4 to 27.6	0.26	6.24	2,400	0.78	27.5	205.8	0.826	46	− 20 to + 60	
109BJ24MC2			0.15	3.6	1,900	0.61	21.5	109.8	0.441	40		

Other sensor specifications are available as options. Please refer to the index (p. 495).

Dimensions (unit: mm)**Airflow - Static Pressure Characteristics**
109BJ12HC2
109BJ24HC2
109BJ12MC2
109BJ24MC2

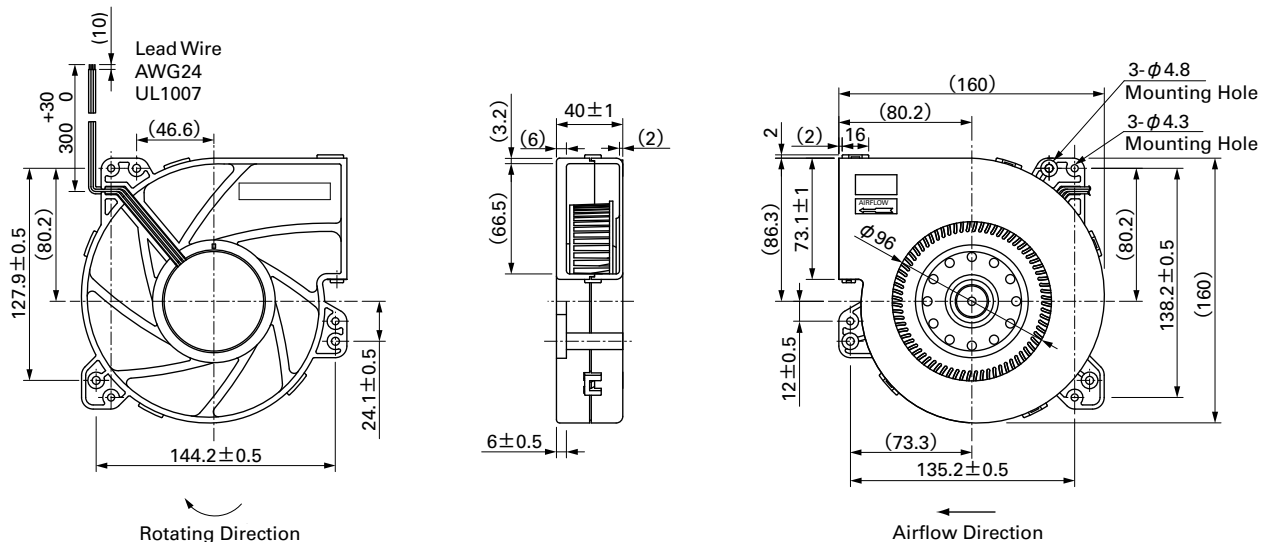
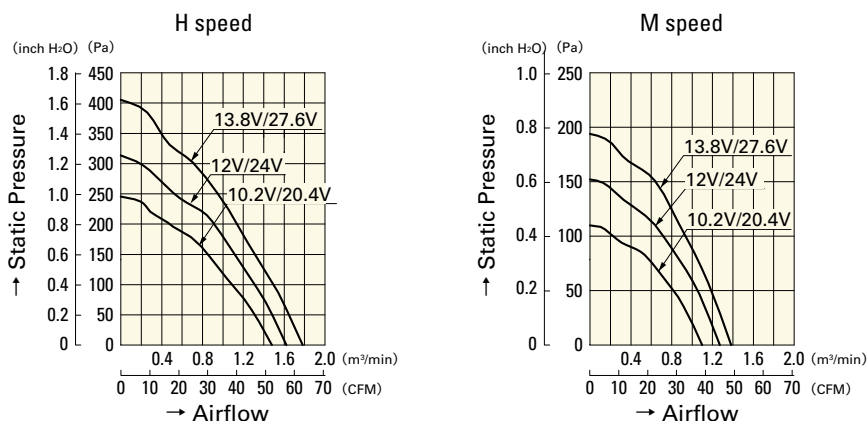
160mm**San Ace B160****General Specifications**

- Material.....Frame: Plastics (Flammability: UL94V-0),
Impeller: Plastics (Flammability: UL94V-1)
- Expected LifeRefer to specifications (L10:Survival rate: 90% at 60°C ,
rated voltage, and continuously run in a free air state)
- Lead Wire⊕red ⊖black or blue (Sensor) yellow
- Storage Temperature ...-30°C to +70°C (Non-condensing)

160mm×40mm (Mass : 580g) **9BG type****Specifications** The following nos. **have pulse sensors.**

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Airflow [m³/min] [CFM]		Max. Static Pressure [Pa] [inchH ₂ O]		SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
109BG12HC1	12	10.2 to 13.8	1.3	15.6	2,300	1.62	57.2	313.6	1.259	55	− 20 to + 60	40,000/60°C
109BG12MC1			0.64	7.68	1,800	1.26	44.5	156.8	0.629	50		
109BG24HC1	24	20.4 to 27.6	0.62	14.88	2,300	1.62	57.2	313.6	1.259	55		
109BG24MC1			0.31	7.44	1,800	1.26	44.5	156.8	0.629	50		

Other sensor specifications are available as options. Please refer to the index (p. 495).

Dimensions (unit: mm)**Airflow - Static Pressure Characteristics**
109BG12HC1
109BG24HC1
109BG12MC1
109BG24MC1

Mouser Electronics

Authorized Distributor

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Sanyo Denki:

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