DC Fan

60×60×38 mm

San Ace 60 9GA type Low Power Consumption Fan ⚠ c⒰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)
· Motor protection function ···················· Locked rotor burnout protection, Reverse polarity protection
For details, please refer to p. 529.
· 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 ··· 130 g

■ Specifications

The models listed below **have ribs and pulse sensors with PWM control function.** For models without ribs, append "1" to the end of model numbers.

Model no.	Rated voltage [V]	Operating voltage range [V]	PWM duty cycle* [%]	Rated current [A]	Rated input [W]	Rated speed [min⁻¹]	Max. airflow		Max. static pressure		SPL [dB (A)]	Operating temperature [˚C]	Expected life [h]
							[m³/min]	[CFM]	[Pa]	[inchH₂O]			
9GA0612P1J03**	12	10.8 to 12.6	100	1.5	18.0	17500	1.75	62	820	3.3	63	-20 to +60	40000/60˚C (70000/40˚C)
			20	0.1	1.2	4000	0.4	14	43	0.17	24		
9GA0612P1K03**		10.8 to 13.2	100	0.95	11.4	14800	1.5	53	600	2.4	59	-20 to +70	
			20	0.1	1.2	4000	0.4	14	43	0.17	24		
9GA0612P1H03**			100	0.55	6.6	11500	1.15	40	375	1.5	52		
			20	0.06	0.72	2600	0.27	9.5	20	0.08	19		
9GA0612P1K60			100	0.95	11.4	14800	1.5	53	675	2.7	59	-20 to +60	
			0	0.05	0.6	1480	0.134	4.7	8.3	0.03	16		
9GA0624P1J03**	24	21.6 to 25.2	100	0.75	18.0	17500	1.75	62	820	3.3	63	-20 to +60	
			20	0.1	2.4	6200	0.63	22	104	0.42	35		
9GA0624P1K03**		21.6 to 26.4	100	0.5	12	14800	1.5	53.0	600	2.4	59	-20 to +70	
			20	0.06	1.44	5000	0.5	17.7	70	0.28	28		

* PWM frequency: 25 kHz   ** Fan does not rotate when PWM duty cycle is 0%.

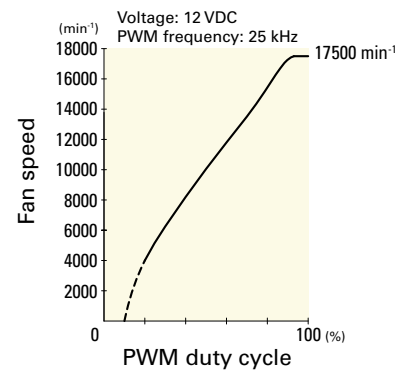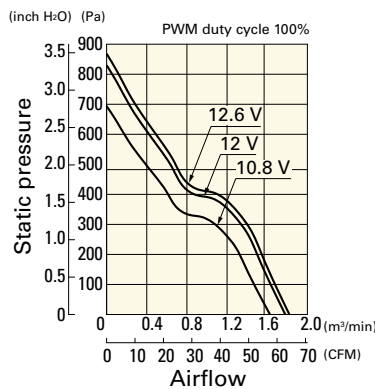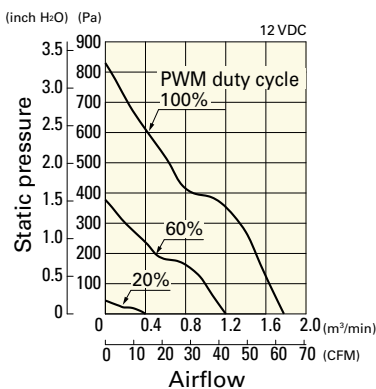Other sensor specifications are available as options. Refer to the index (pp. 551 to 552).

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

9GA0612P1J03 With pulse sensor with PWM control function
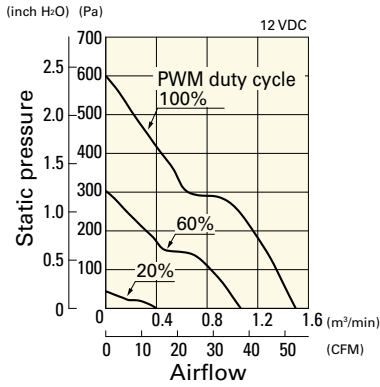
PWM duty cycle

Operating voltage range
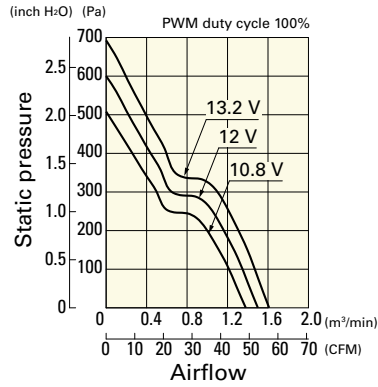
PWM duty - Speed characteristics example

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

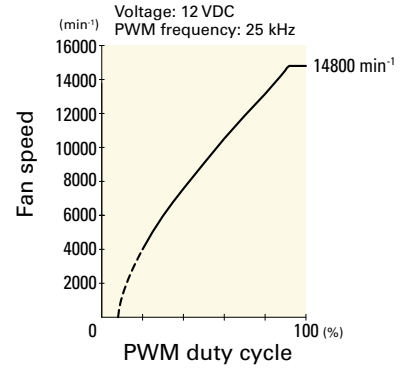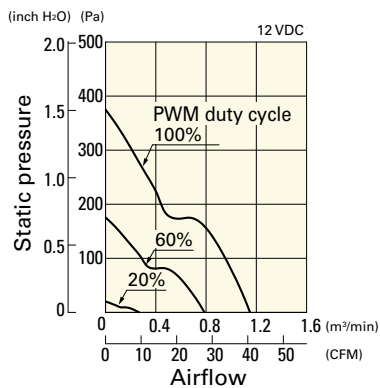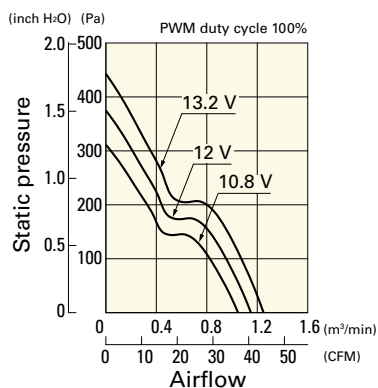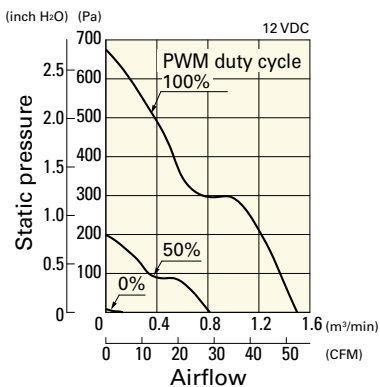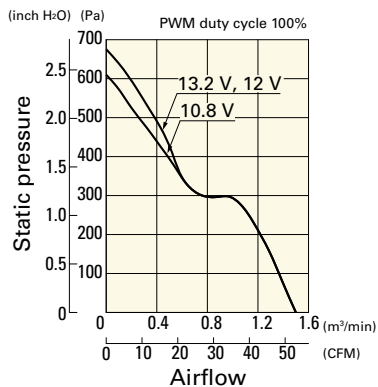### 9GA0612P1K03 With pulse sensor with PWM control function

PWM duty cycle

(inch H₂O) (Pa)   12 VDC
Static pressure
700 / 2.5 / 600
PWM duty cycle 100%
500
2.0
400
1.5 / 300 / 60%
1.0 / 200
0.5 / 100 / 20%
0
0   0.4   0.8   1.2   1.6 (m³/min)
0   10   20   30   40   50 (CFM)
Airflow

Operating voltage range

(inch H₂O) (Pa)
PWM duty cycle 100%
700 / 2.5 / 600
500
2.0
400 / 13.2 V
1.5 / 300 / 12 V
1.0 / 200 / 10.8 V
0.5 / 100
0
0   0.4   0.8   1.2   1.6   2.0 (m³/min)
0   10   20   30   40   50   60   70 (CFM)
Airflow

PWM duty - Speed characteristics example

(min⁻¹)   Voltage: 12 VDC
PWM frequency: 25 kHz
16000
14000   14800 min⁻¹
12000
10000
Fan speed
8000
6000
4000
2000
0   100 (%)
PWM duty cycle

9GA0612P1H03 With pulse sensor with PWM control function

PWM duty cycle

(inch H₂O) (Pa)   12 VDC
Static pressure
2.0 / 500
400
1.5 / PWM duty cycle 100%
300
1.0 / 200 / 60%
100 / 20%
0.5
0
0   0.4   0.8   1.2   1.6 (m³/min)
0   10   20   30   40   50 (CFM)
Airflow

Operating voltage range

(inch H₂O) (Pa)
PWM duty cycle 100%
2.0 / 500
400 / 13.2 V
1.5 / 300 / 12 V
1.0 / 200 / 10.8 V
0.5 / 100
0
0   0.4   0.8   1.2   1.6 (m³/min)
0   10   20   30   40   50 (CFM)
Airflow

PWM duty - Speed characteristics example

(min⁻¹)   Voltage: 12 VDC
PWM frequency: 25 kHz
14000
12000   11500 min⁻¹
10000
8000
Fan speed
6000
4000
2000
0   100 (%)
PWM duty cycle
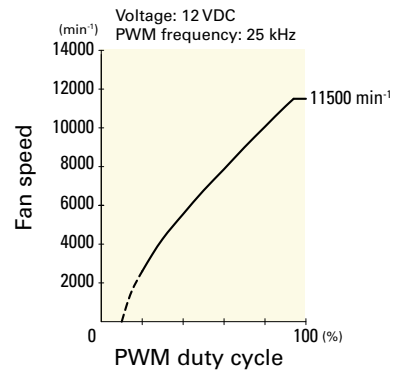
9GA0612P1K60 With pulse sensor with PWM control function

PWM duty cycle

(inch H₂O) (Pa)   12 VDC
700 / 2.5 / 600
PWM duty cycle 100%
500
2.0
400
1.5 / 300
Static pressure
1.0 / 200 / 50%
100 / 0%
0.5
0
0   0.4   0.8   1.2   1.6 (m³/min)
0   10   20   30   40   50 (CFM)
Airflow

Operating voltage range

(inch H₂O) (Pa)
PWM duty cycle 100%
700 / 2.5 / 600
500 / 13.2 V, 12 V
2.0
400 / 10.8 V
1.5 / 300
1.0 / 200
0.5 / 100
0
0   0.4   0.8   1.2   1.6 (m³/min)
0   10   20   30   40   50 (CFM)
Airflow

PWM duty - Speed characteristics example

(min⁻¹)   Voltage: 12 VDC
PWM frequency: 25 kHz
16000
14000   14800 min⁻¹
12000
10000
Fan speed
8000
6000
4000
2000   1480 min⁻¹
0   100 (%)
PWM duty cycle
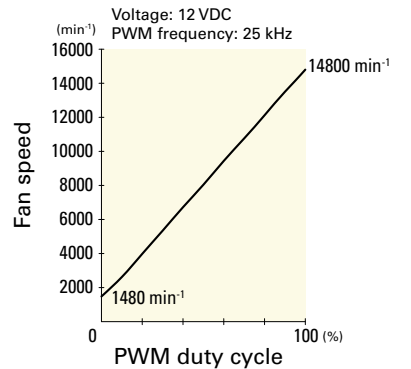
9GA0624P1J03 With pulse sensor with PWM control function

PWM duty cycle

(inch H₂O) (Pa)   24 VDC
3.5 / 900 / 800
3.0 / 700
2.5 / 600 / PWM duty cycle 100%
500
2.0
400 / 60%
1.5 / 300
Static pressure
1.0 / 200 / 20%
0.5 / 100
0
0   0.4   0.8   1.2   1.6   2.0 (m³/min)
0   10   20   30   40   50   60   70 (CFM)
Airflow

Operating voltage range

(inch H₂O) (Pa)
PWM duty cycle 100%
3.5 / 900 / 800
3.0 / 700
2.5 / 600 / 25.2 V
500
2.0 / 24 V
400 / 21.6 V
1.5 / 300
1.0 / 200
0.5 / 100
0
0   0.4   0.8   1.2   1.6   2.0 (m³/min)
0   10   20   30   40   50   60   70 (CFM)
Airflow

PWM duty - Speed characteristics example

(min⁻¹)   Voltage: 24 VDC
PWM frequency: 25 kHz
18000   17500 min⁻¹
16000
14000
12000
10000
Fan speed
8000
6000
4000
2000
0   100 (%)
PWM duty cycle

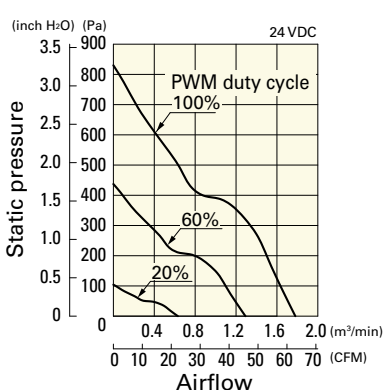## ■ Airflow - Static Pressure Characteristics / PWM Duty - Speed Characteristics Example
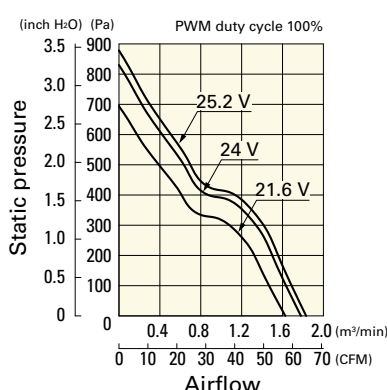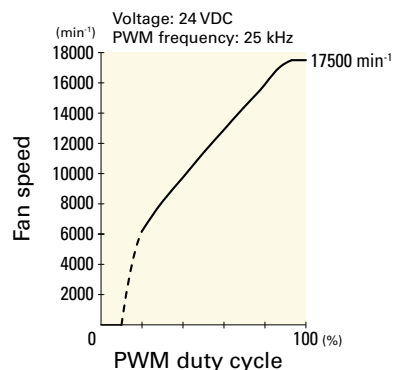
9GA0624P1K03 With pulse sensor with PWM control function
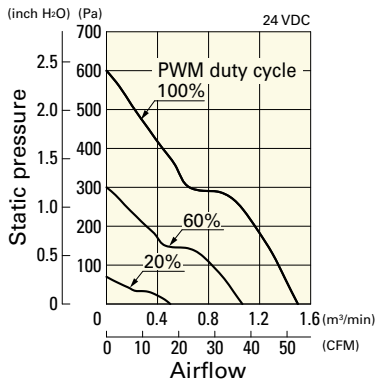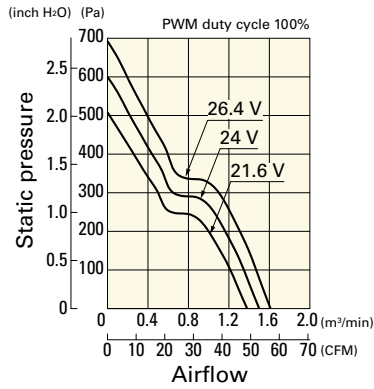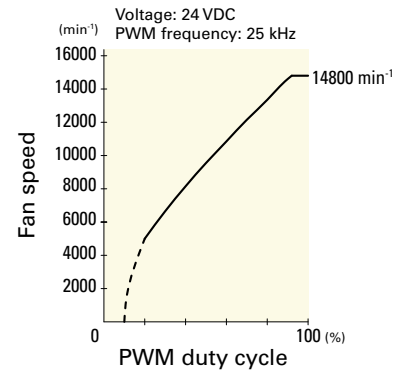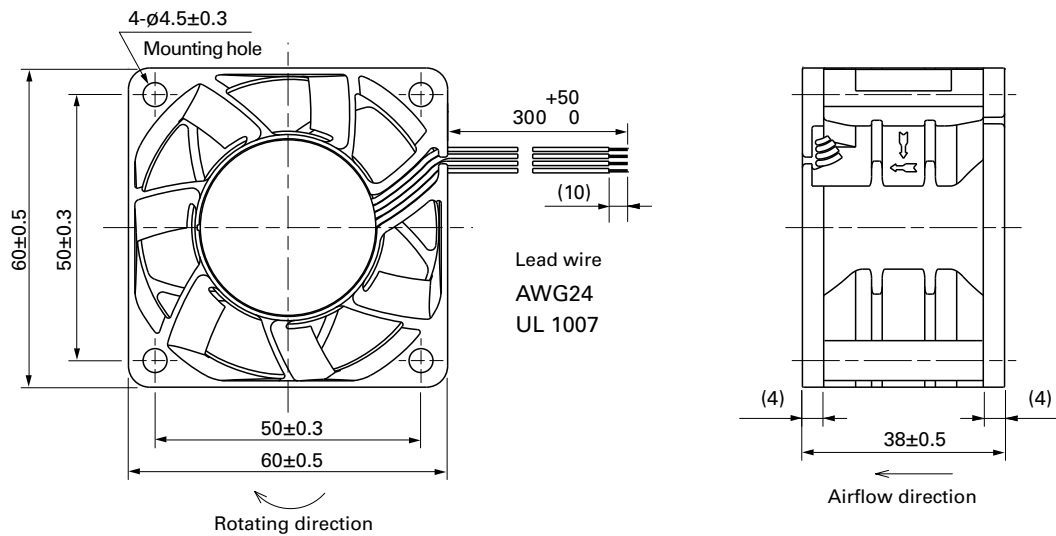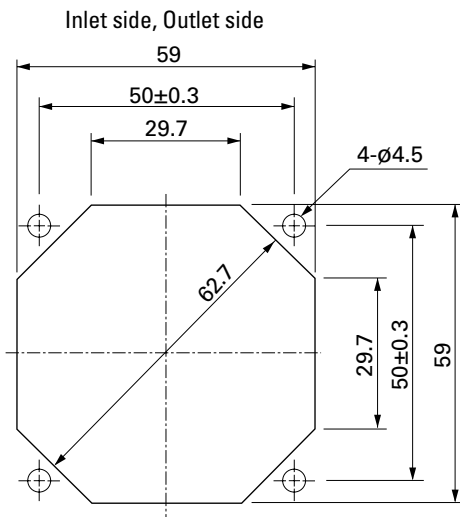
PWM duty cycle

Operating voltage range

PWM duty - Speed characteristics example

Voltage: 24 VDC
PWM frequency: 25 kHz

14800 min⁻¹

■ Dimensions (unit: mm) (With ribs)

4-ø4.5±0.3
Mounting hole

+50
300 0

(10)

Lead wire
AWG24
UL 1007

60±0.5
50±0.3
50±0.3
60±0.5

Rotating direction

(4)   (4)
38±0.5

Airflow direction

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

Inlet side, Outlet side

59
50±0.3
29.7
4-ø4.5
62.7
29.7
50±0.3
59

■ Options

Finger guards	page: p. 513
Model no.: 109-139E, 109-139H	

Resin finger guards	page: p. 520
Model no.: 109-1003G	

Resin filter kits	page: p. 521
Model no.: 109-1003F13 (13PPI), 109-1003F20 (20PPI), 109-1003F30 (30PPI), 109-1003F40 (40PPI)	