

San Ace 40

Low power consumption fan

Features

Energy-saving

Power consumption is reduced by approx. 30 % compared with our conventional fan*.

Low noise

Sound pressure level is reduced by 6dB(A) compared with our conventional fan*.

* Our conventional product is the DC cooling fan :
40 x 40 x 28 mm fan "San Ace 40" (9GV0412P3K03)



Low power consumption fan 40mm

40×40×28mm **GA type**

Specifications

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM duty cycle ^{Note1)} [%]	Rated Current [A]	Rated Input [W]	Rated Speed [min ⁻¹]	Max. Air Flow [m ³ /min] [CFM]	Max. Static Pressure [Pa] [inchH ₂ O]	SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h]
9GA0412P3K01(011)	12	10.8 to 13.2	100	0.92	11.04	22,000	0.81 28.6	799 3.21	61	-10 to +60	30,000
			0	0.10	1.2	6,500	0.23 8.12	68 0.27	32		
9GA0412P3J01(011)			100	0.49	5.88	18,000	0.67 23.7	535 2.15	54	-10 to +70	40,000
			0	0.05	0.6	4,500	0.16 5.7	33 0.13	22		
9GA0412P3G01(011)			100	0.39	4.68	16,500	0.61 21.5	450 1.81	53		
			0	0.05	0.6	4,500	0.16 5.7	33 0.13	22		
9GA0412P3H01(011)			100	0.28	3.36	14,500	0.54 19.1	347 1.39	50		
			0	0.04	0.48	3,500	0.13 4.6	20 0.08	17		
9GA0412P3M01(011)			100	0.21	2.52	12,500	0.46 16.2	258 1.04	47		
			0	0.04	0.48	3,500	0.13 4.6	20 0.08	17		
9GA0424P3J001(0011) ^{Note2)}	24	21.6 to 26.4	100	0.27	6.48	18,000	0.67 23.7	535 2.15	54		
9GA0424P3G001(0011) ^{Note2)}			100	0.22	5.28	16,500	0.61 21.5	450 1.81	53		
9GA0424P3H001(0011) ^{Note2)}			100	0.16	3.84	14,500	0.54 19.1	347 1.39	50		
9GA0424P3M001(0011) ^{Note2)}			100	0.11	2.64	12,500	0.46 16.2	258 1.04	47		

Note1: PWM Frequency : 25kHz

Note2: Rated voltage 24V fans do not rotate when PWM duty cycle is 0%.

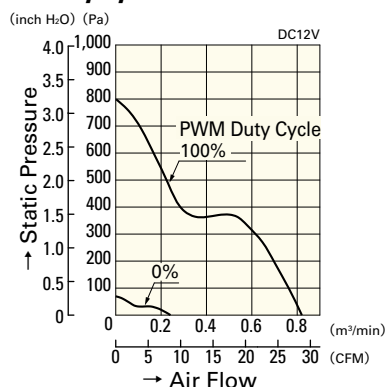
Common Specifications

- ☐ Material Frame, Impeller: Plastics (Flammability: UL94V-0)
- ☐ Life Expectancy Varies for each model
(L10: Survival rate: 90% at 60°C, rated voltage, and continuously run in a free air state)
- ☐ Motor Protection System Current blocking function and Reverse polarity protection
- ☐ Dielectric Strength 50/60 Hz, 500VAC, 1 minute (between lead conductor and frame)
- ☐ Sound Pressure Level (SPL) Expressed as the value at 1m from air inlet side
- ☐ Operating Temperature Varies for each model (Non-condensing)
- ☐ Storage Temperature -30°C to +70°C (Non-Condensing)
- ☐ Lead Wire ⊕red ⊖black Sensor: yellow Control: brown
- ☐ Mass Approx. 53 g

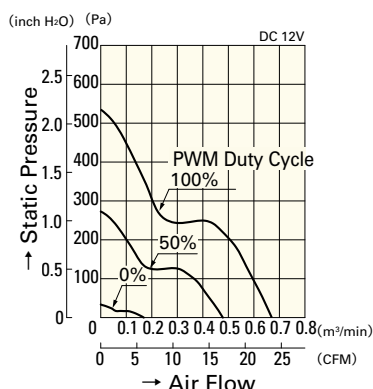
40mm

Air Flow - Static Pressure Characteristics

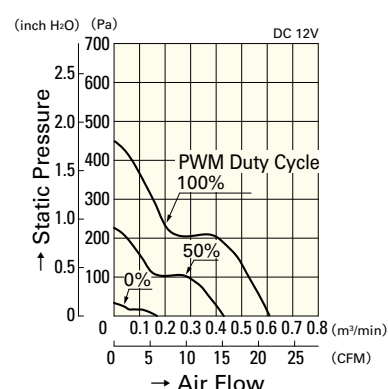
PWM Duty Cycle



9GA0412P3K01(011)

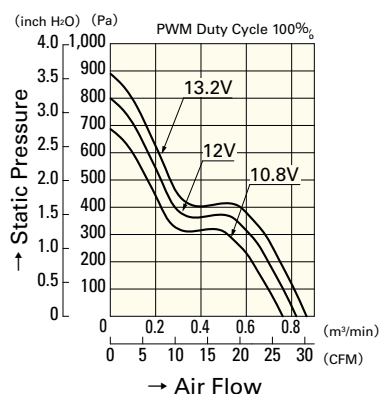


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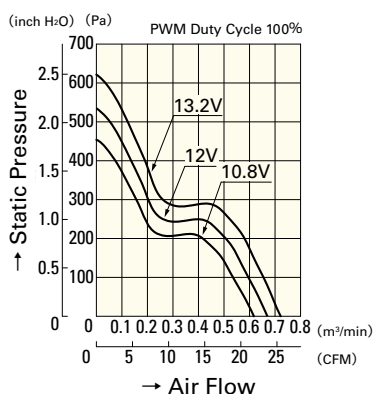


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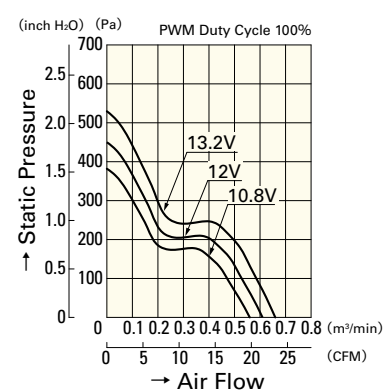
Operating Voltage Range



9GA0412P3K01(011)

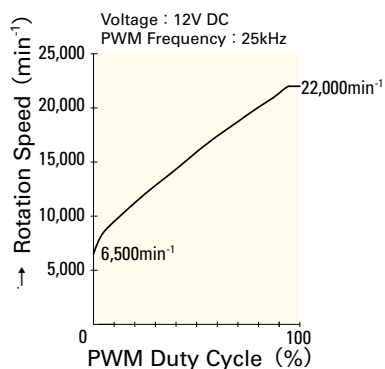


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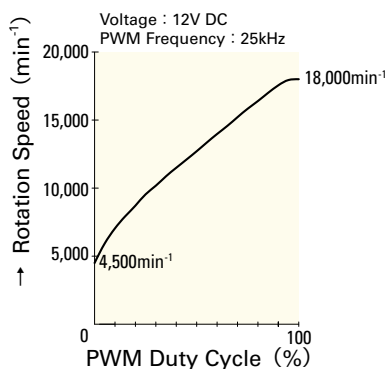


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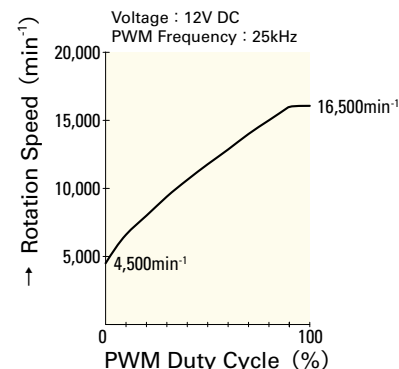
PWM Duty - Speed Characteristics Example



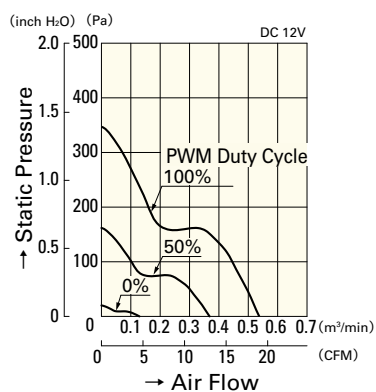
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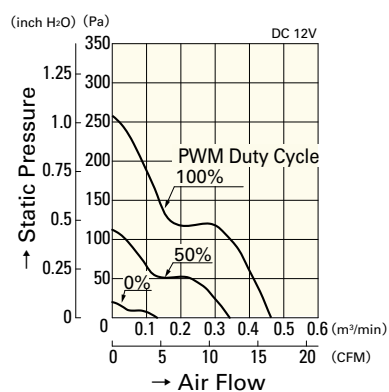
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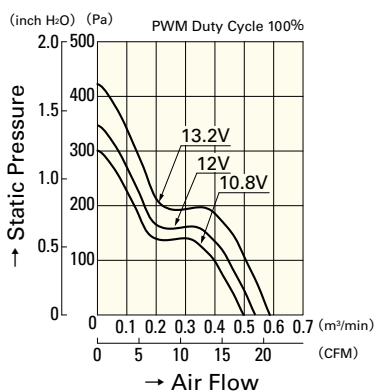
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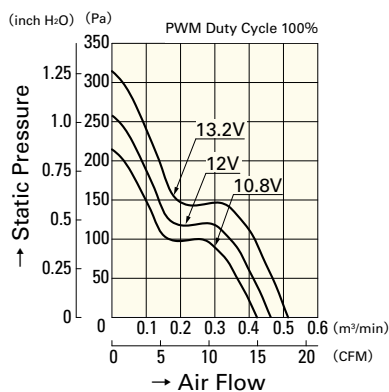
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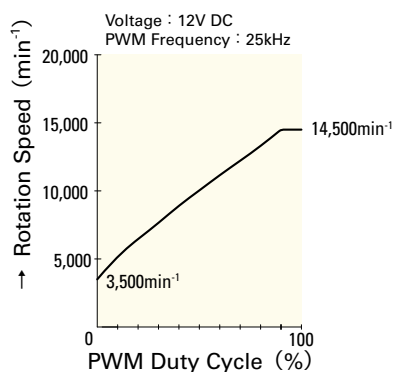
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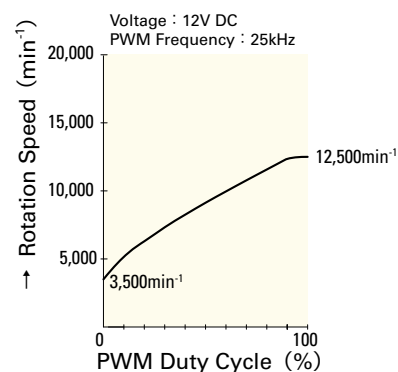
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9GA0412P3M01(011)



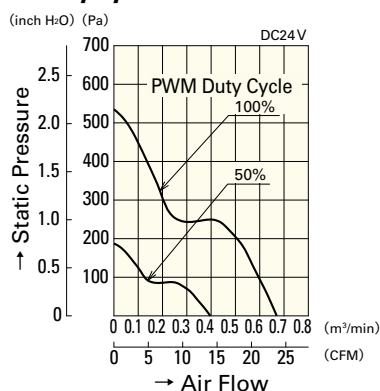
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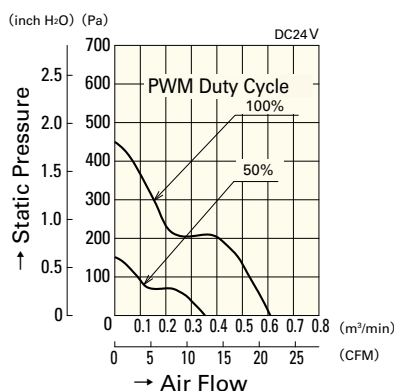
9GA0412P3M01(011)

Air Flow - Static Pressure Characteristics

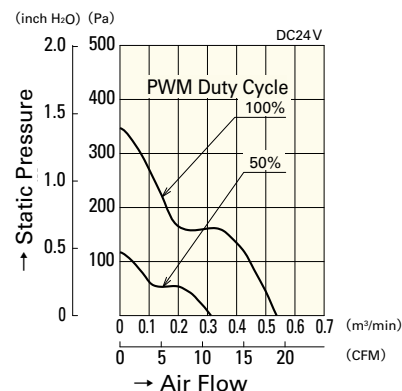
PWM Duty Cycle



9GA0424P3J001(0011)

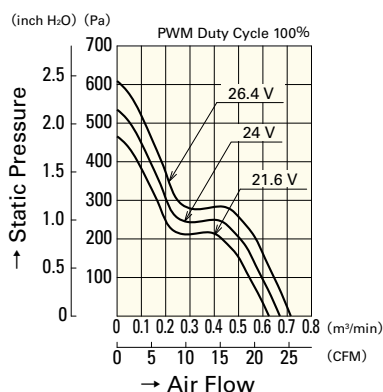


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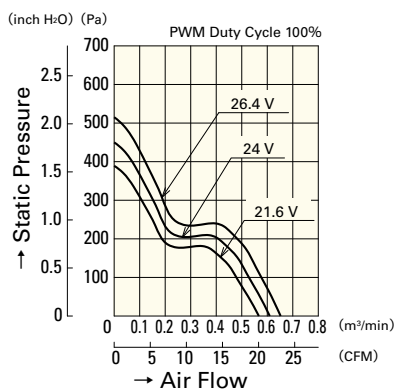


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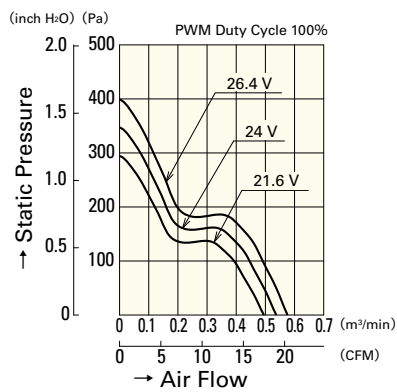
Operating Voltage Range



9GA0424P3J001(0011)

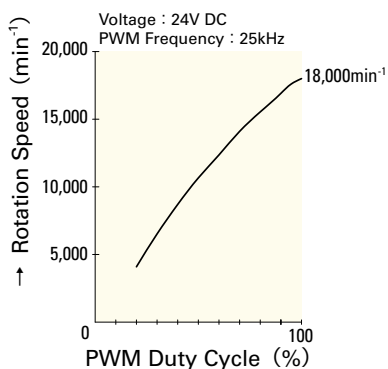


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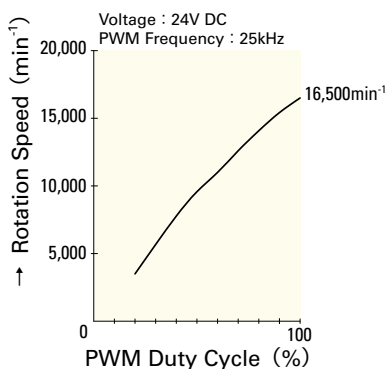


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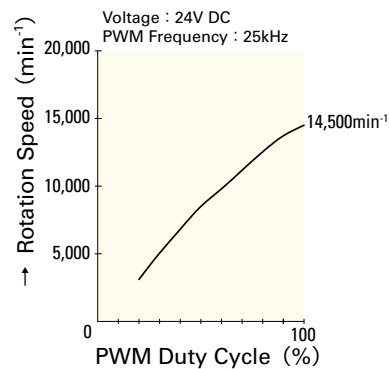
PWM Duty - Speed Characteristics Example



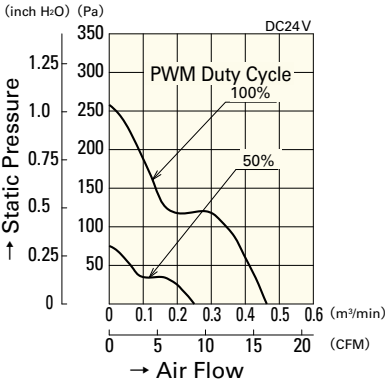
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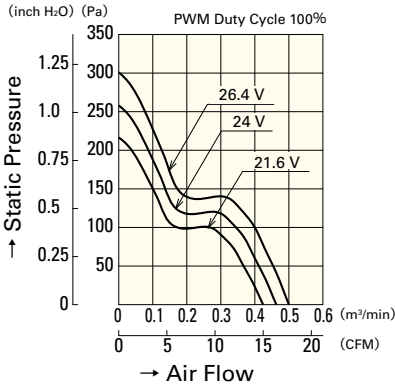
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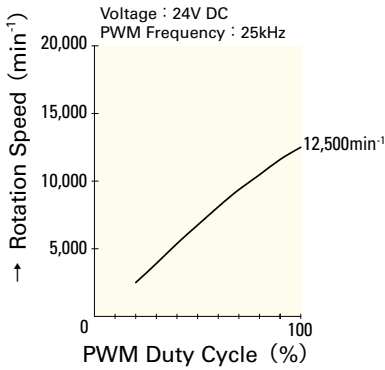
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9GA0424P3M001(0011)



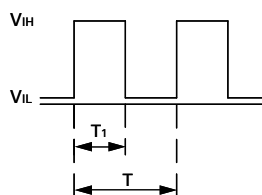
9GA0424P3M001(0011)



9GA0424P3M001(0011)

PWM Input Signal Example

Input Signal Wave Form



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

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

Rated Voltage 12V fan

$V_H = 2.8\text{V}$ to 3.8V

$V_L = 0\text{V}$ to 0.4V

Source Current : 3mA Max. at control voltage 0V

Sink Current : 1mA Max. at control voltage 3.8V

Control Terminal Voltage : 3.8V Max. (Open Circuit)

Rated Voltage 24V fan

$V_H = 4.75\text{V}$ to 5.25V

$V_L = 0\text{V}$ to 0.4V

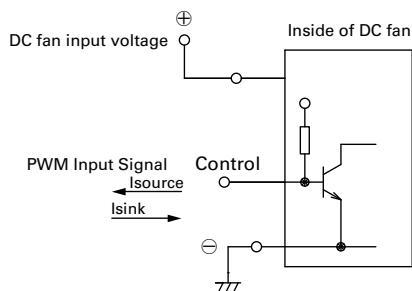
Source Current : 1mA Max. at control voltage 0V

Sink Current : 1mA Max. at control voltage 5.25V

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

When the control lead wire is open,
the fan speed is the same as the one at a PWM duty cycle of 100% .
Either TTL input, open collector or open drain can be used for PWM control input signal.

Connection Schematic



Specifications for Pulse Sensors

Output circuit : Open collector

Rated Voltage 12V fan

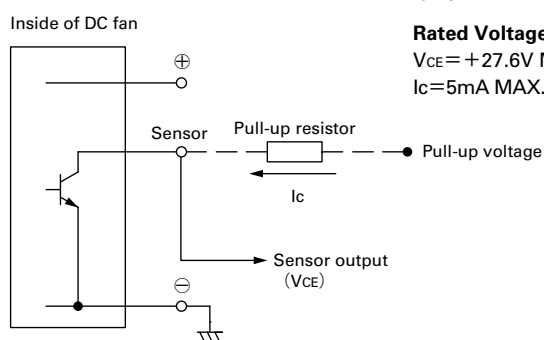
$V_{CE} = +13.8\text{V}$ MAX.

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

Rated Voltage 24V fan

$V_{CE} = +27.6\text{V}$ MAX.

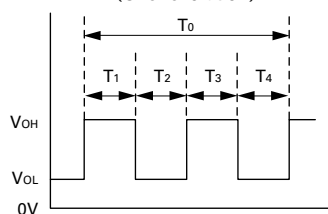
$I_c = 5\text{mA}$ MAX. [$V_{OL} = V_{CE}(\text{SAT}) = 0.8\text{V}$ MAX.]



Output waveform (Need pull-up resistor)

In case of steady running

(One revolution)

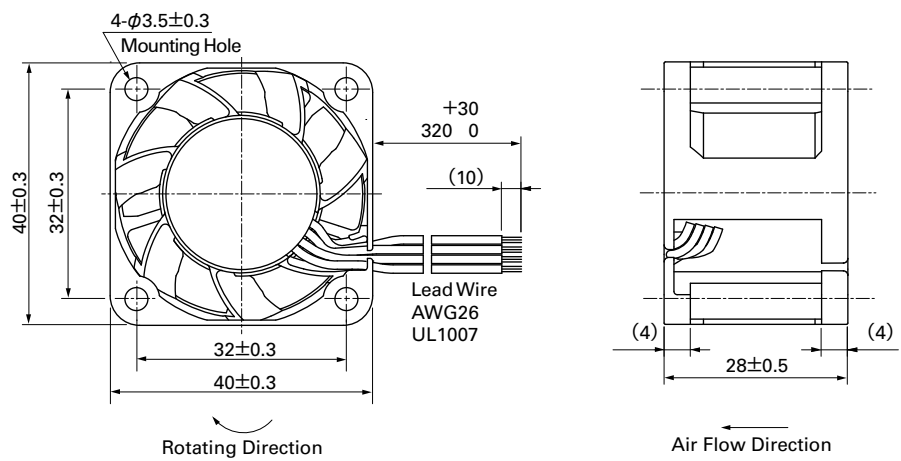


$$T_1 \sim 4 \div (1/4) T_0$$

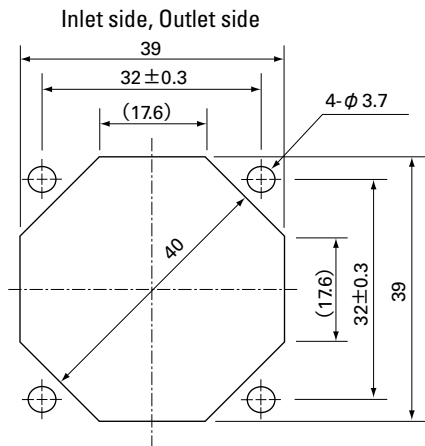
$$T_1 \sim 4 \div (1/4) T_0 = 60/4N \text{ (sec)}$$

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

■ Dimensions (Unit : mm) (with ribs)



■ Reference dimension of mounting holes and vent opening (Unit : mm)



Notice

- The products shown in the catalog are subject to Japanese Export Control Law. Diversion contrary to the law of exporting country is prohibited.
- To protect against electrolytic corrosion that may occur in locations with strong electromagnetic noise, we provide fans that are unaffected by electrolytic corrosion.

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