

# San Ace 38 CRA type

DC Fan 38mm

## Features

### Large air flow and high static pressure

- Maximum airflow : 0.77m<sup>3</sup>/min
- Maximum static pressure : 700Pa
- Reduced mass by approx. 10% and increased maximum static pressure by approx. 25% with our conventional product\*.

\* Our conventional product is the DC cooling fan :  
40 mm square x 48 mm thick fan "San Ace 40" CRA type (9CRA0412P4J03)



**38mm square** × **48mm thick**

## Specifications

Model No.	Rated Voltage (V)	Operating Voltage Range (V)	PWM duty cycle* (%)	Rated Current (A)	Rated Input (W)	Rated Speed (min <sup>-1</sup> )		Air Flow		Static Pressure		SPL (dB[A])	Operating Temperature Range (°C)	Life Expectancy (h)
						Inlet	Outlet	(m <sup>3</sup> /min)	(CFM)	(Pa)	(inchH <sub>2</sub> O)			
9CRA0312P4K03	12	10.8 to 13.2	100	1.5	18.0	17,600	14,520	0.77	27.2	700.0	2.81	64	-10 to +70	30,000
			0	0.2	2.4	5,280	4,200	0.22	7.8	54.9	0.22	33		
9CRA0312P4J03			100	1.1	13.2	16,000	13,200	0.7	24.7	560.0	2.25	62		40,000
			0	0.18	2.2	4,800	3,960	0.21	7.4	50.4	0.20	31		

※PWM Frequency : 25kHz

## Common Specifications

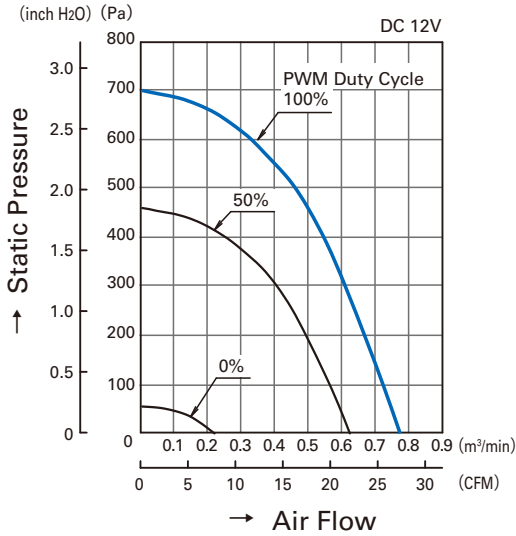
- Material ..... Frame: Plastics (Flammability: UL94V-0) , Impeller: Plastics (Flammability: UL94V-1)
- Life Expectancy ..... Varies for each model  
(L10: Survival rate: 90% at 60°C, rated voltage, and continuously run in a free air state)
- Motor Protection System ..... Current blocking function and 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 Range ..... Varies for each model (Non-condensing)
- Lead Wire ..... Inlet ⊕red ⊖black Sensor: yellow Control: brown  
Outlet ⊕orange ⊖gray Sensor: purple Control: white
- Mass ..... 80g

38mm

# San Ace 38 CRA type

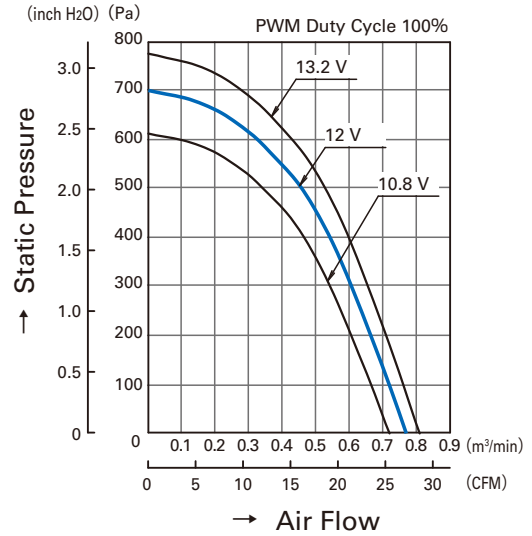
## Air Flow and Static Pressure Characteristics

### • PWM Duty Cycle

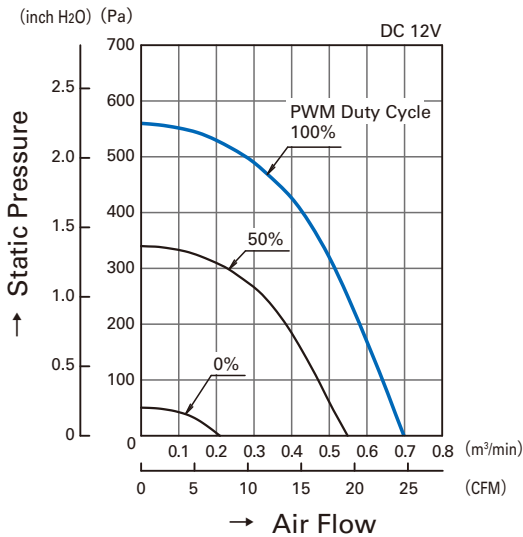


**9CRA0312P4K03**

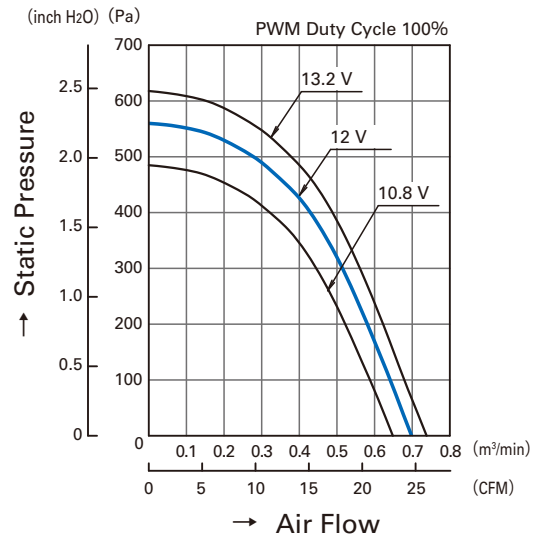
### • Operating Voltage Range



**9CRA0312P4K03**

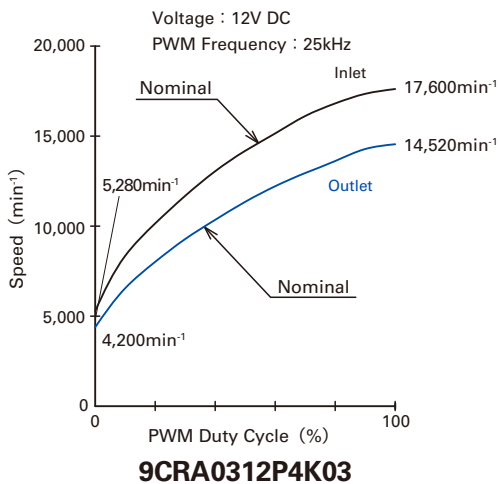


**9CRA0312P4J03**

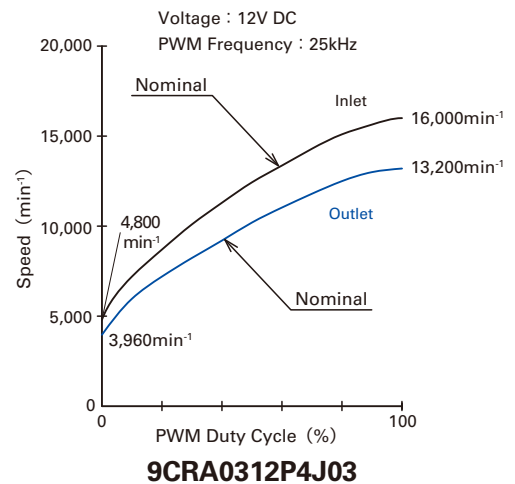


**9CRA0312P4J03**

## PWM Duty - Speed Characteristics Example



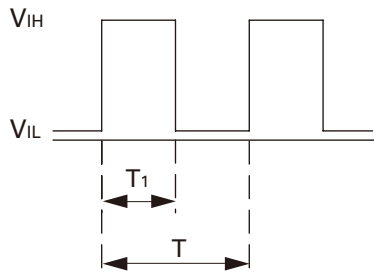
**9CRA0312P4K03**



**9CRA0312P4J03**

**PWM Input Signal Example**

Input Signal Wave Form



$V_{IH}=2.8V$  to  $3.8V$

$V_{IL}=0V$  to  $0.4V$

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

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

Source Current ( $I_{source}$ ) : 2mA Max. at control voltage 0V

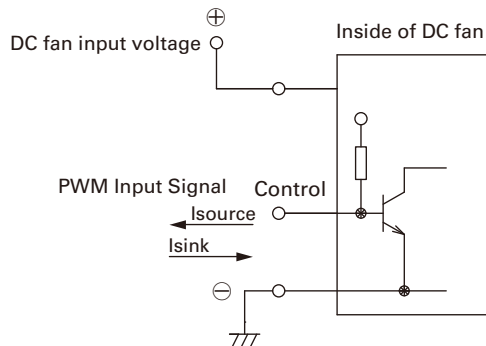
Sink Current ( $I_{sink}$ ) : 2mA Max. at control voltage 3.8V

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

When the control lead wire is no connecting, the speed is the same speed as at 100% of PWM cycle.

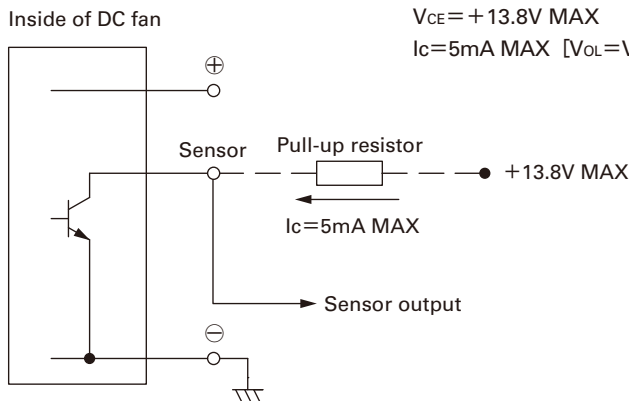
This fan speed should be controlled by PWM input signal of either TTL input or open collector, drain input.

**Connection Schematic**



**Specifications for Pulse Sensors**

Output circuit : Open collector



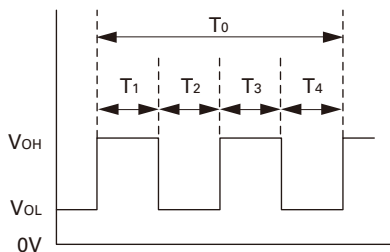
$V_{CE}=+13.8V$  MAX

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

Output waveform (Need pull-up resistor)

In case of steady running

(One revolution)

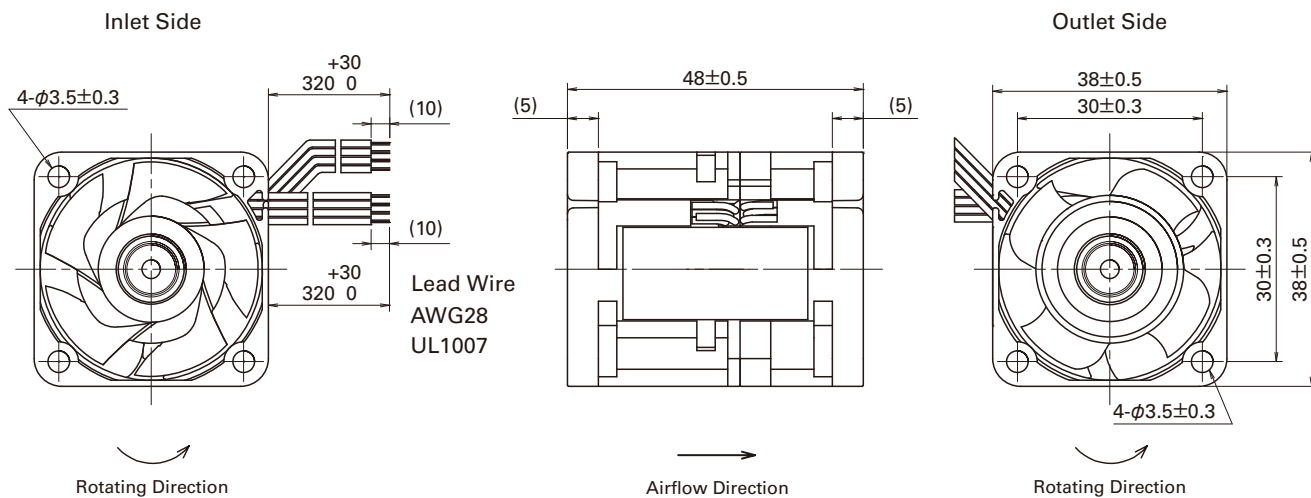


$T_{1\sim 4} \doteq (1/4) T_0$

$T_{1\sim 4} \doteq (1/4) T_0=60/4N$  (sec)

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

**Dimensions (unit : mm)**



**Reference dimension of mounting holes and vent opening (unit : mm)**

