

# San Ace 60 CRA type Counter Rotating Fan

Counter Rotating Fan 60mm

## Features

### High Air Flow and High Static Pressure

Even with a thickness 20 mm less, the maximum air flow of this fan is approximately 1.1 times and its maximum static pressure is approximately 1.1 times greater than that of our conventional counter rotating fan.\*

This contributes to space optimization in devices.

\* : Specification of Model No. 9CRA0612P6K001. Our conventional counter rotating fan is 60 x 60 x 76 mm "San Ace 60" CRA type, Model No. 9CRA0612P0G001.



60×60×56mm

## Specifications

Model No.	Rated Voltage [V]	Operating Voltage Range [V]	PWM Duty Cycle [%] <sup>Note1)</sup>	Rated Current [A]	Rated Input [W]	Rated Speed [min <sup>-1</sup> ]		Max. Air Flow [m <sup>3</sup> /min] [CFM]		Max. Static Pressure [Pa] [inchH <sub>2</sub> O]		SPL [dB(A)]	Operating Temperature [°C]	Expected Life [h] <sup>Note2)</sup>
						Inlet	Outlet							
9CRA0612P6K001	12	10.8 to 13.2	100	3.10	37.2	18,300	15,800	2.28	80.5	1,130	4.54	73	-20 to +70	30,000/60°C
			0	0.17	2.0	3,800	3,300	0.47	16.6	49	0.20	35		
9CRA0612P6J001			100	2.30	27.6	16,800	14,500	2.10	74.2	950	3.82	70		40,000/60°C (70,000/40°C)
			0	0.15	1.8	3,800	3,300	0.47	16.6	49	0.20	35		
9CRA0612P6G001	100	1.30	15.6	13,500	11,400	1.65	58.3	620	2.49	65				
	0	0.10	1.2	3,000	2,500	0.36	12.7	31	0.12	29				

Note1 : PWM Frequency : 25kHz

Note2 : Expected life at 40°C ambient is just reference value.

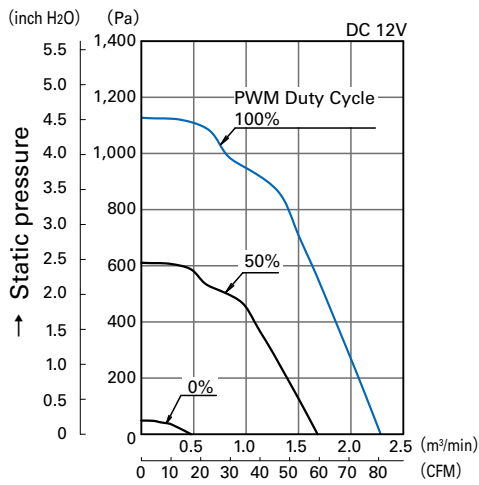
## Common Specifications

- Material ..... Frame, Impeller : Plastics (Flammability: UL94V-0)
- Expected Life ..... 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 ..... Inlet: ⊕Red ⊖Black Sensor: Yellow Control: Brown  
Outlet: ⊕Orange ⊖Gray Sensor: Purple Control: White
- Mass ..... Approx. 200g

60mm

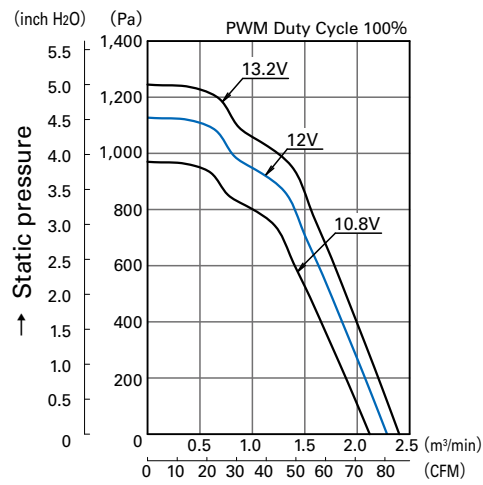
## Air Flow - Static Pressure Characteristics

- PWM Duty Cycle

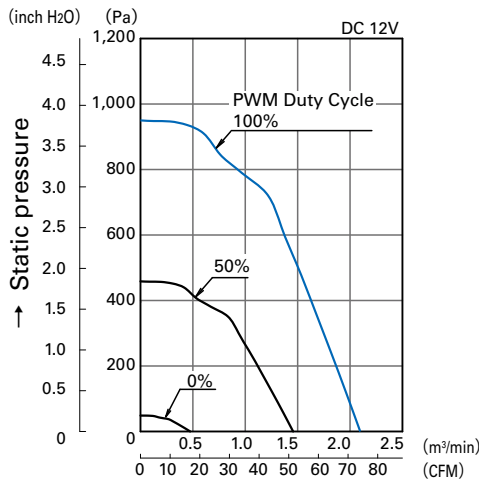


9CRA0612P6K001

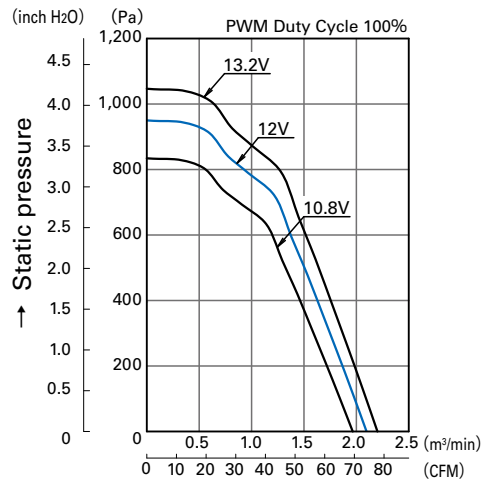
- Operating Voltage Range



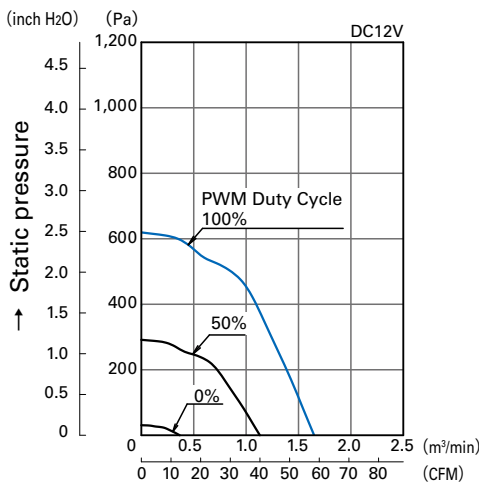
9CRA0612P6K001



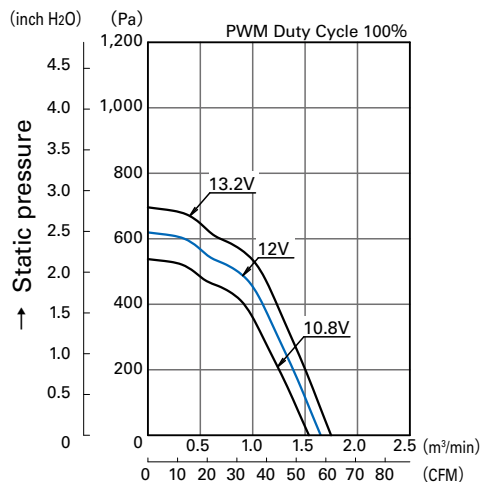
9CRA0612P6J001



9CRA0612P6J001

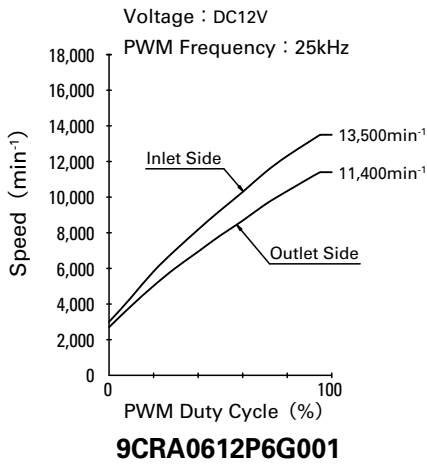
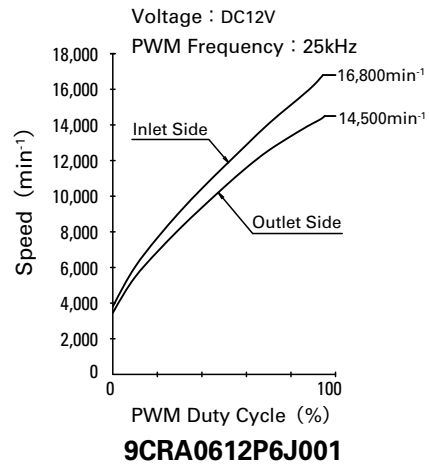
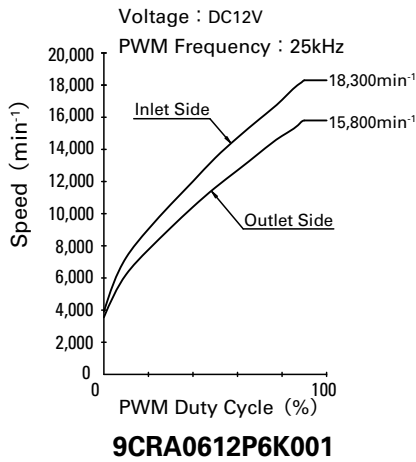


9CRA0612P6G001



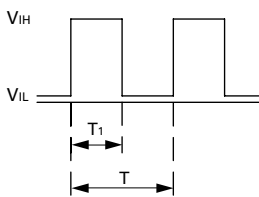
9CRA0612P6G001

**PWM Duty - Speed Characteristics Example**



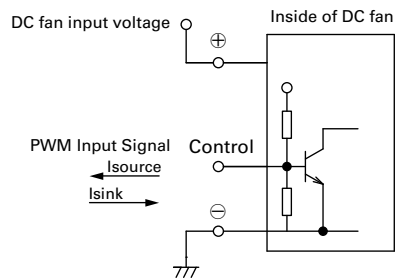
**PWM Input Signal Example**

Input Signal Waveform



$V_{IH}=4.75V$  to  $5.25V$   
 $V_{IL}=0V$  to  $0.4V$   
 PWM Duty Cycle (%) =  $\frac{T_1}{T} \times 100$   
 PWM Frequency 25 (kHz) =  $\frac{1}{T}$   
 Source Current : 5mA Max. at control voltage 0V  
 Sink Current : 5mA 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.

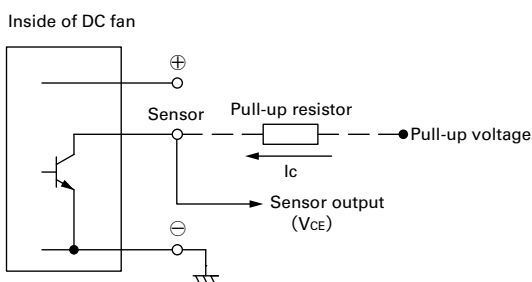
**Example of Connection Schematic**



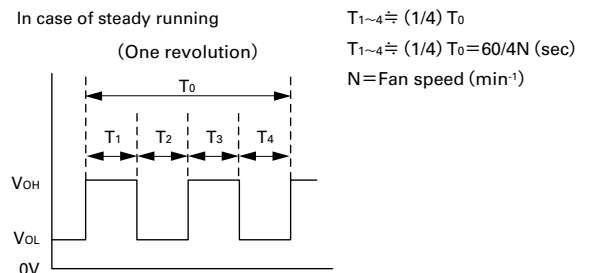
**Specifications for Pulse Sensors**

Output circuit : Open collector

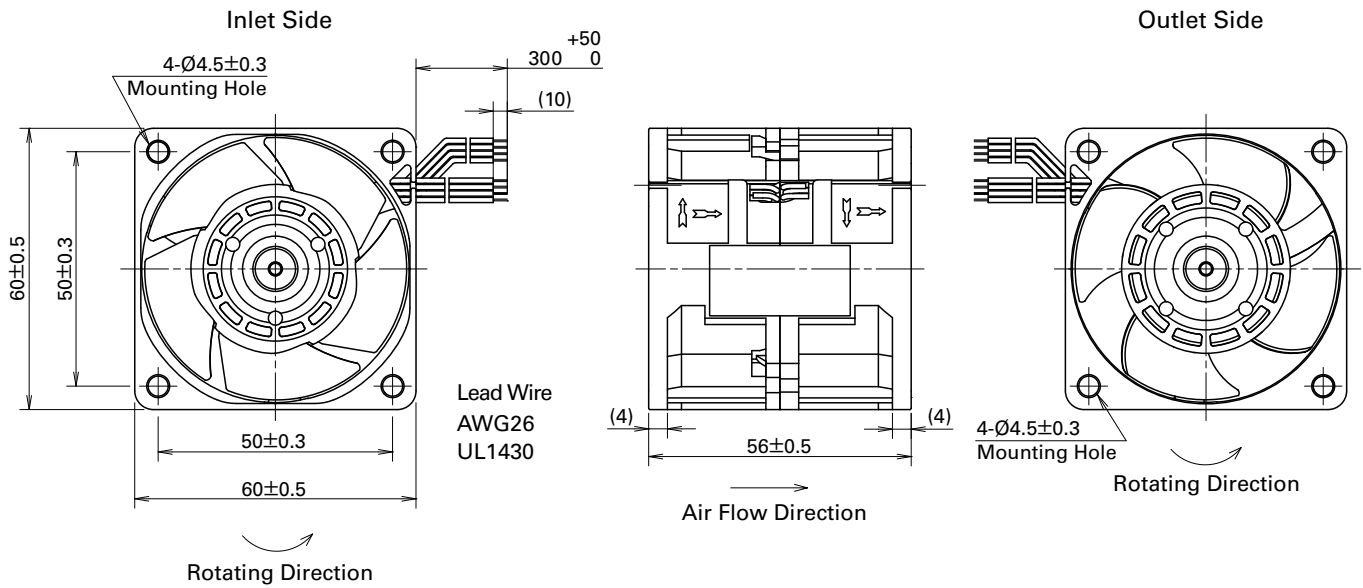
$V_{CE}=+13.8V$  MAX.  
 $I_C=10mA$  MAX. [ $V_{OL}=V_{CE} (SAT) =1.0V$  MAX.]



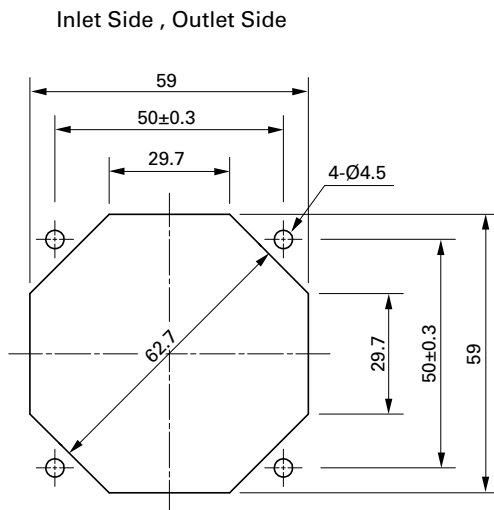
Output Waveform (Need pull-up resistor)



## Dimensions (unit : mm)



## 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.

**SANYO DENKI CO.,LTD.** 3-33-1, Minami-Otsuka, Toshima-ku, Tokyo, 170-8451, Japan TEL: +81 3 5927 1020

<http://www.sanyodenki.com>

The names of companies and/or their products specified in this catalog are the trade names, and/or trademarks and/or registered trademarks of such respective companies. "San Ace" is a trademark of SANYO DENKI CO.,LTD.

Specifications are subject to change without notice.

CATALOG No. C1023B001 '13.9