IP68 Protected DC Fan with PWM and Tach Output

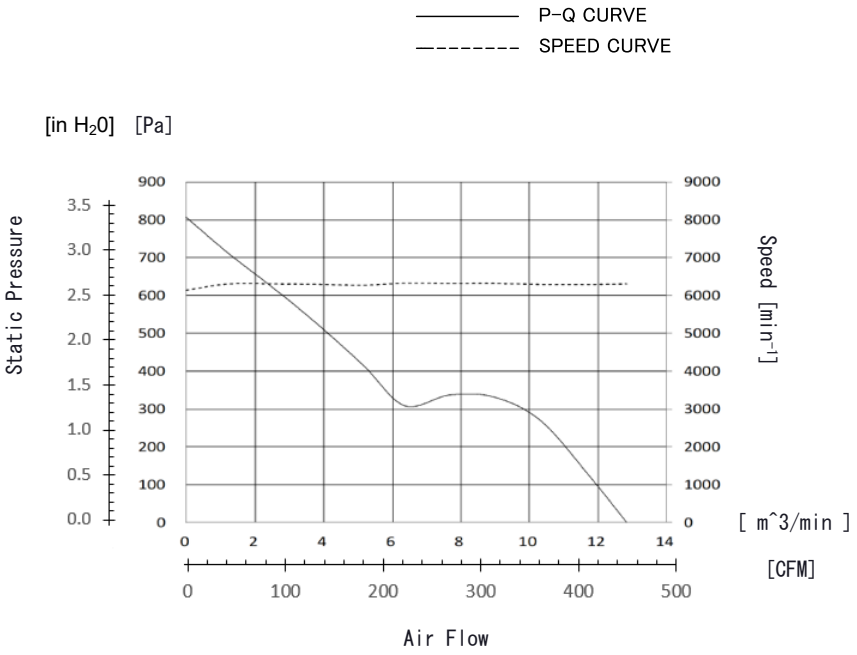
15050VE (D-Type)

General Specifications

Motor Type:
DC Brushless Motor
Motor Protection:
Auto Restart / Polarity Protection (Motor withstands reverse connection for positive and negative leads.)
Insulation Resistance:
10MΩ or over with a DC 500V Megger
Dielectric Withstand Voltage:
AC 500V 1min or AC 700V 1sec
Allowable Ambient Temperature Range:
-10˚C ~ + 70˚C (Operating)
-40˚C ~ + 70˚C (Storage)
(non-condensing environment)

**For reference only. Please see fan outline for details*

Characteristic Curves



Features

- DC axial fan with outstanding P-Q performance, IP68 protection, PWM speed control, and tach output
- Vertically integrated manufacturing, with key components made in-house
- IP68 with highest level of protection from water/dust ingress
- Outfitted with NMB precision machined stainless steel ball bearings for long life
- Ideal for applications such as EV chargers, PV inverters, telecom cabinets, Bi-Directional chargers and many other outdoor applications

Life Expectancy L10

70,000 Hours at 40 Celsius

**Fan life expectation is based on free air operation at 40°C, rated voltage, and indoor benign lab environment*

**1: Values in Free Air*

Specifications

MODEL	Rating Voltage	Operating Voltage	Current		Input Power		Speed	Max. Air Flow		Max. Static Pressure		Noise	Mass
			Avg	Max	Avg	Max							
	(V)	(V)	(A)*1	(A)*1	(W)*1	(W)*1	(min-1)*1	(CFM)	(m3/min)	(in H2O)	(Pa)	(dB)*1	(g)
15050VE-24S-G6D-2	24	16.0 to 27.6	4.0	5.2	96.0	124.8	6,300	452	12.8	3.24	806	73.5	1000

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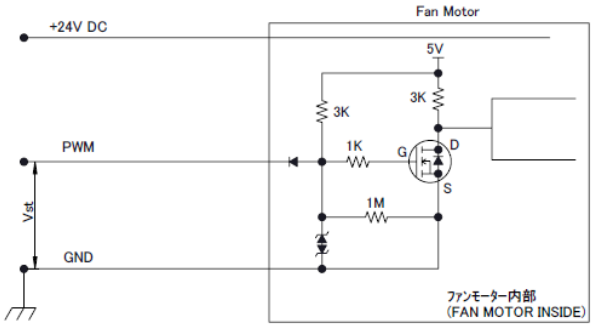
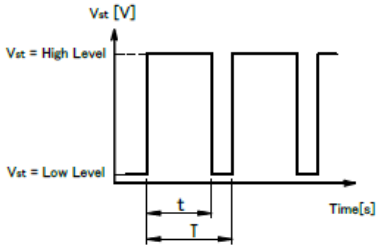
PWM Specifications

Connection



1. PWM Control
   Vst = Low Level (0V~0.4V) → Stop (On Duty 0%)
   Vst = High Level (3.0V~5.0V) → Full Speed (On Duty 100%)
   Vst = Open → Full Speed

2. PWM Duty & PWM Input Pulse



PWM Duty means that a ratio of high level time (t)/PWM Input Pulse(T).

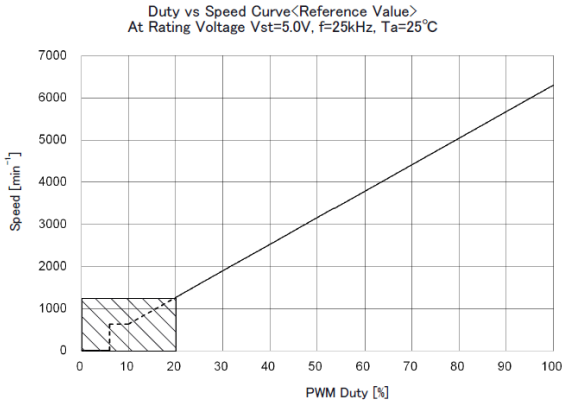
(t/T) × 100 : On Duty 0%~100%

PWM Frequency f = 25± 5[kHz]

3. The condition for PWM control are as follows

- Please install the fan in your system when inputting the PWM function. If the PWM duty is very low, or affected by external factors, the fan might not start up under your system conditions
- Run the fan at rated voltage only during PWM operation
- Please start the fan with duty cycle of 20% or more at 25kHz.[At rated voltage input, Ambient temperature 25℃]

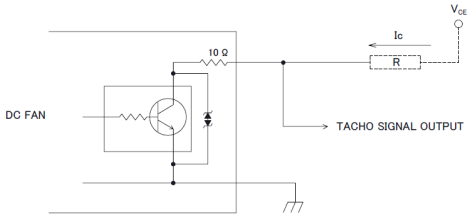
PWM Characteristic Curve



TACHO Specifications

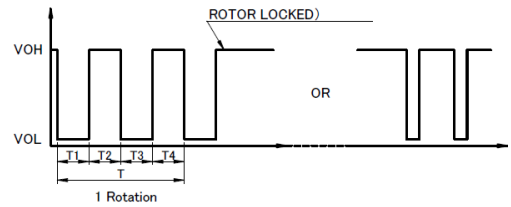
Tachometer Signal

1. Output Circuit: Open Collector
2. Specification
   Absolute Maximum Ratings at Ta=25°C
   V_{CE}max: +27.6V
   $I_C$max: 5mA[V_{CE}(sat)max=0.5V]

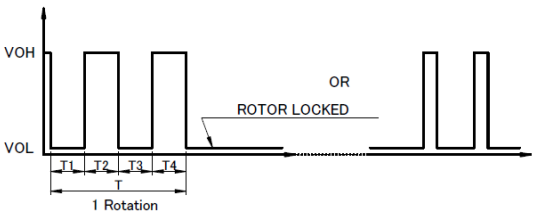


3. Output Waveform: At Rated Voltage
   Output Signal Voltage

Case-1



Case-2



1) When the rotor is locked at VOH position of signal, signal stays at VOH position.
2) When the rotor is locked at VOL position of signal, signal stays at VOL position.

3) T=T1+T2+T3+T4=60/m=1 rotation

   m: Fan Speed (min^{-1})

   Tacho Duty Cycle=50%±10%

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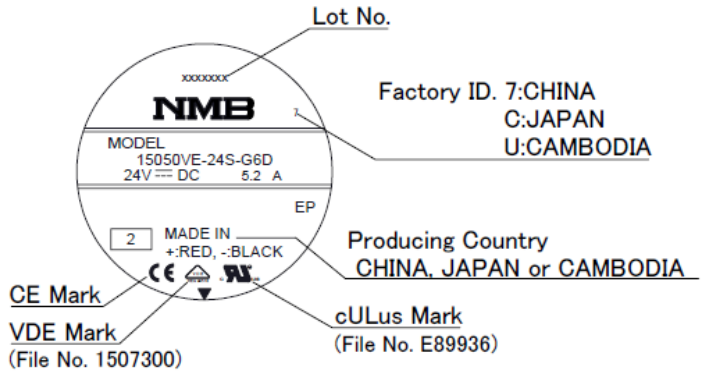
Outlines

(Name Plate)



Materials

Casing: Aluminum

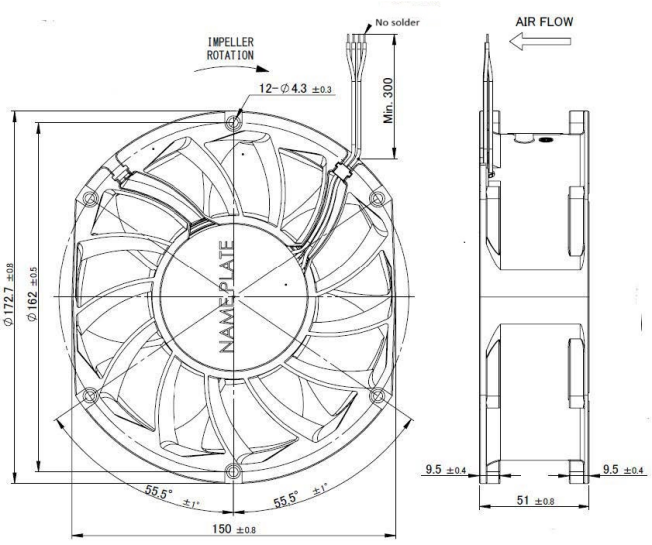
Impeller: Plastic (Black UL 94V-0)

Bearing: Stainless Steel Ball Bearing

Lead Wire: UL1430 AWG22 or
UL3443 AWG22 or
equivalent for

Red (+)
Black (-)
Blue (Tach)
Yellow (PWM)

(Outline)



(Panel Out-line)