

# Dual Fusion Bearing Fan

## 08038DT-12U/48U

NMB

### 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:**

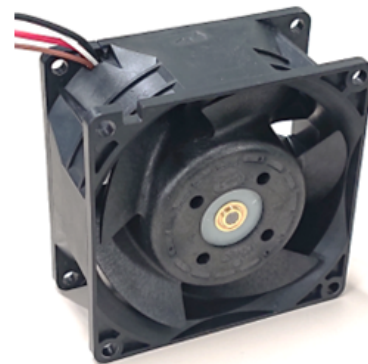
AC 500V 1min or AC 700V 1sec

**Allowable Ambient Temperature Range:**

-10°C ~ + 70°C (Operating) [Target Value]

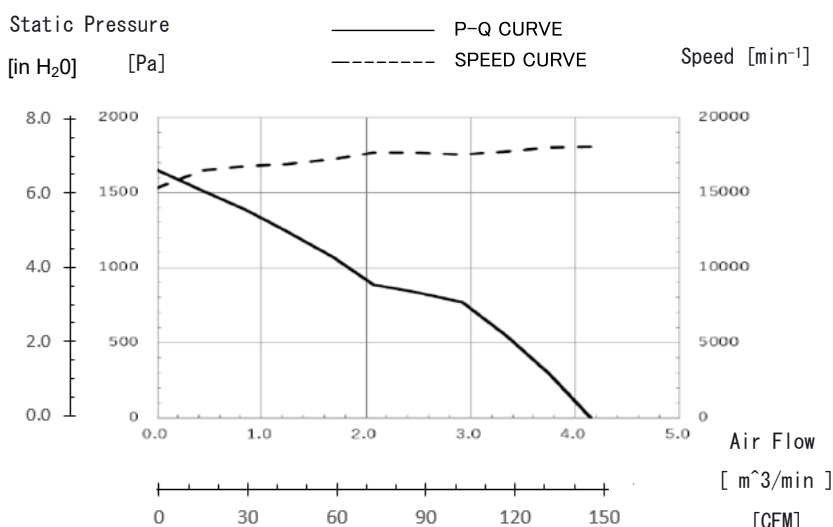
-40°C ~ + 70°C (Storage)

(non-condensing environment)



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

### Characteristic Curves



### Features

- In-house Dual Fusion Bearings minimize deterioration due to vibration over time
- High speed and high performance; up to 18,000 RPM for select models
- Improved operating efficiency
- Increased shaft concentricity to decrease vibration
- Improved mechanical fitting tolerance decreases shaft movement relative to the bearings

### Life Expectancy L10

100,000 Hours at 60°C [Target Value]

\*Fan life expectation is based on free air operation at 60°C, rated voltage, and indoor benign lab environment

\*1: Values in Free Air

### Specifications

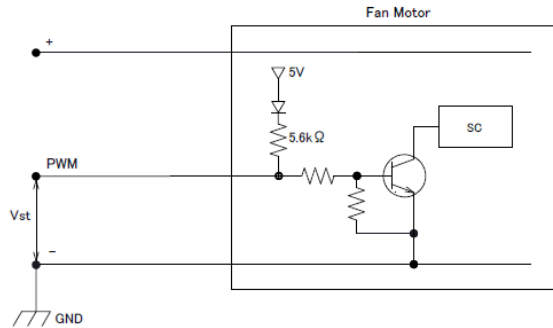
MODEL	Rating Voltage (V)	Operating Voltage (V)	Current		Input Power		Speed (min <sup>-1</sup> )*1	Max. Air Flow		Max. Static Pressure		Noise (dB)*1	Mass (g)
			Avg (A)*1	Max (A)*1	Avg (W)*1	Max (W)*1		(CFM)	(m <sup>3</sup> /min)	(in H <sub>2</sub> O)	(Pa)		
			(A)*1	(A)*1	(W)*1	(W)*1		(min <sup>-1</sup> )*1	(CFM)	(m <sup>3</sup> /min)	(in H <sub>2</sub> O)		
08038DT-12U-E6E-□	12	10.8 to 12.6	6.3	8.0	75.6	96.0	18,000	144.8	4.10	6.56	1640	77.0	240
08038DT-48U-E6E-□	48	43.2 to 52.8	1.6	2.0	76.8	96.0	18,000	144.8	4.10	6.56	1640	77.0	240

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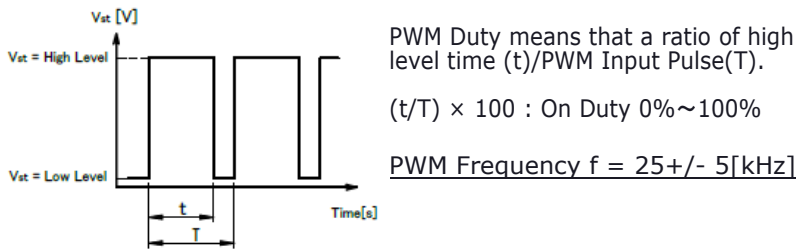
## PWM Specifications

### Connection



1. PWM Control  
 $V_{st} = \text{Low Level (0V} \sim \text{0.4V)} \rightarrow \text{Stop (On Duty 0\%)}$   
 $V_{st} = \text{High Level (4.0V} \sim \text{5.0V)} \rightarrow \text{Full Speed (On Duty 100\%)}$   
 $V_{st} = \text{Open} \rightarrow \text{Full Speed}$

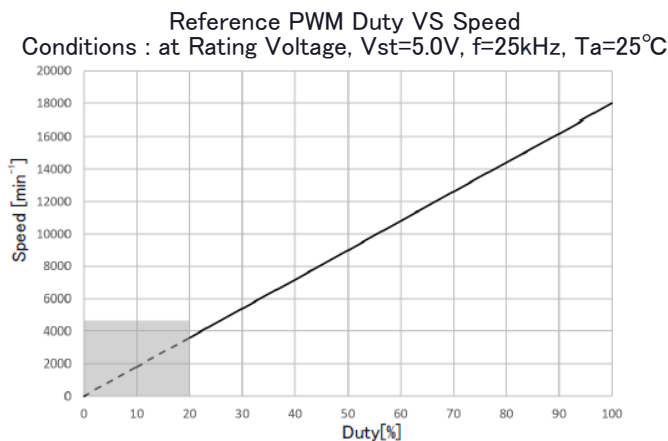
### 2. PWM Duty & PWM Input Pulse



### 3. The condition for PWM control are as follows

- When you use this under PWM control, always be sure the motor's operation under practical mounting state. Fan motor may not start up caused by PWM control at very low speed condition.
- To run at Rating Voltage +12V DC for 08038DT-12U or +48V DC for 08038DT-48U
- Please use the start with Duty 20% or more at 25kHz.[At rated voltage input, Ambient temperature 25°C]

## PWM Characteristic Curve



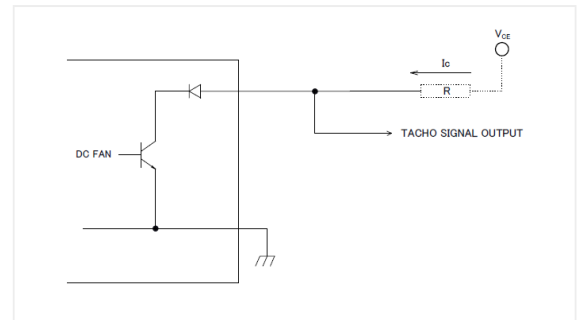
## TACHO Specifications

### Tachometer Signal

1. Output Circuit: Open Collector

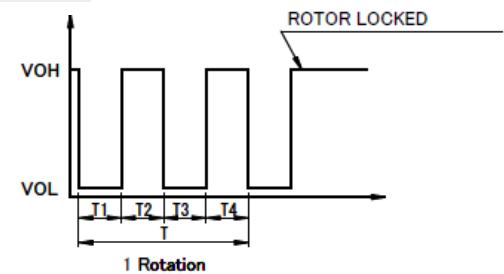
### 2. Specification

Absolute Maximum Ratings at  $T_a=25^\circ C$   
 $V_{CEmax}$ : +15V for 12 V rating voltage,  
 +60V for 48 V rating voltage  
 $I_{Cmax}$ : 5mA [ $V_{CE(sat)max}=1.5V$ ]

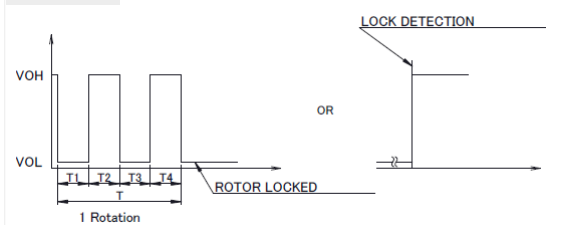


3. Output Waveform: At Rated Voltage  
 Output Signal Voltage

### Case-1



### Case-2



- 1) When the rotor is locked at VOH position of signal, signal keeps VOH position.
- 2) When the rotor is locked at VOL position of signal, signal keeps VOL position.
- 3)  $T=T_1+T_2+T_3+T_4=60/m=1 \text{ rotation}$

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

Tacho Duty Cycle=50%±10%

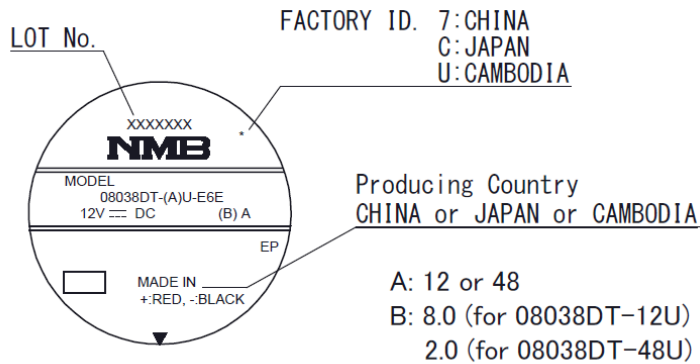
# Dual Fusion Bearing Fan

## 08038DT-12U/48U

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### Outlines

(Name Plate)

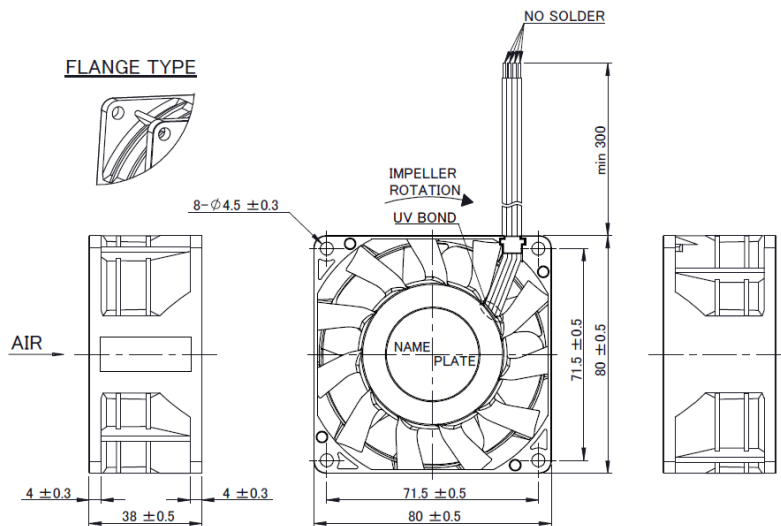


### Materials

**Caseing:** Plastic (Black UL 94V-0)  
**Impeller:** Plastic (Black UL 94V-0)  
**Bearing:** Dual Fusion Bearing  
**Lead Wire:** UL3385 AWG20 or equivalent for Red and Black  
 UL3385 AWG26 or equivalent for White and Brown

Red (+)  
 Black (-)  
 White (Tach)  
 Brown (PWM)

(Outline)



(Panel Out-line)

