

## General Specifications

**Motor Type:** DC Brushless Motor

**Motor Protection:**

Auto Restart/Polarity Protection  
(Motor withstands reverse connection for positive and negative leads.)

**Insulation Resistance:**

10M  $\Omega$  or over with a DC500V Megger

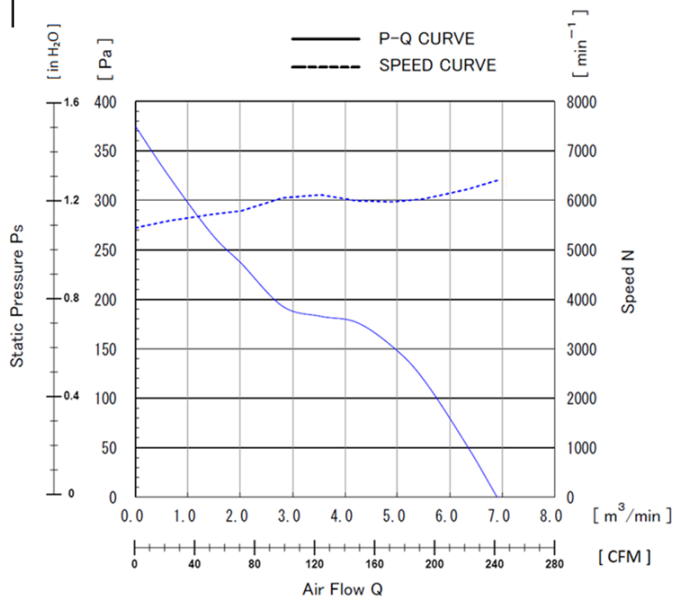
**Dielectric Withstand Voltage:**

AC 700V 1s or 500V 1min

**Allowable Ambient Temperature Range:**

-10°C ~ +60°C (Operating)  
-40°C ~ +70°C (Storage)  
(non-condensing environment)

## Characteristics Curves



## IP Rated Fan Benefits & Applications

**IP 68/69K**

NMB offers the industry's highest Ingress Protection (IP) rated cooling fans. IP69K fans provide dust tight protection, and safeguard against powerful, high temperature, water jets for outdoor applications and other harsh environments. NMB fans are designed with NMB precision machined ball bearings with stainless steel outer ring and stainless steel or ceramic balls, assuring long life and high reliability.

**Benefits**

- IP69K rating per IEC 60529 standard
- Long life and high reliability with NMB precision ball bearings
- Open Collector Tacho Signal output for fan speed

**Applications**

- Outdoor Applications
- Factory Automation
- Food Processing
- Refrigeration
- LED Lighting
- Inverters
- Telecomm
- Horticulture

## Life Expectancy L10

60°C 40,000 Hours

## Specifications

MODEL	Rated Voltage	Operating Voltage	Current		Input Power		Speed	Max. Air Flow		Max. Static Pressure		Noise	Mass
	(V)	(V)	Avg (A) <sup>*1</sup>	Max (A) <sup>*1</sup>	Avg (W) <sup>*1</sup>	Max (W) <sup>*1</sup>		(CFM)	(m <sup>3</sup> /min)	(inH <sub>2</sub> O)	(Pa)		
12038VE-24R-GTE-0	24	18.0 ~ 27.6	1.48	2.00	35.52	48.00	6400	243.67	6.90	1.49	370	66.0	370

\*1: Values in Free Air

## TACHO Specifications

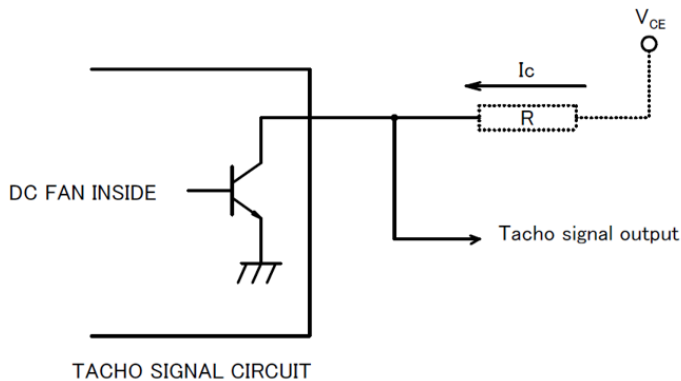
### TACHOMETER SIGNAL

1. OUTPUT CIRCUIT : OPEN COLLECTOR)
2. SPECIFICATION

Absolute Maximum Ratings at Ta=25°C

$V_{CE\ max}$  : +30V

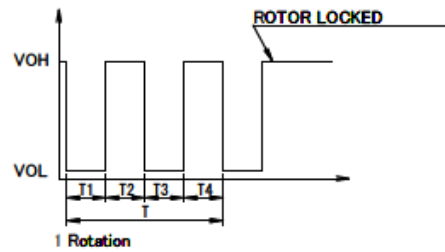
$I_c\ max$  : 5mA [ $V_{CE(sat)max}$  = 1.5V]



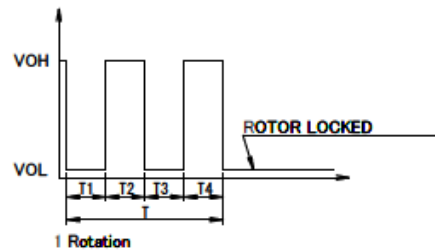
### 3. OUTPUT WAVEFORM: RATED VOLTAGE

#### OUTPUT SIGNAL VOLTAGE

##### 3-1 Case-1



##### 3-2 Case-2

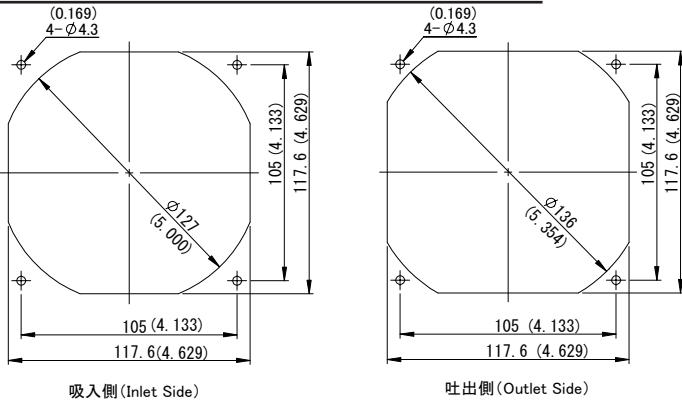


- 1) When the rotor is locked at VOH position of signal, signal keeps VOH position.
- 2) When the rotor is locked at VOL position of signal, signal keeps VOL position.
- 3)  $T = T1 + T2 + T3 + T4 = 60 / m = 1\ rotation$

$m : \text{min}^{-1}$

Tacho Duty Cycle = 50% ± 10%

## Panel Cut-Outs



Unit: mm (inch)

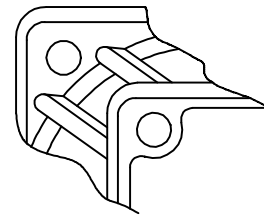
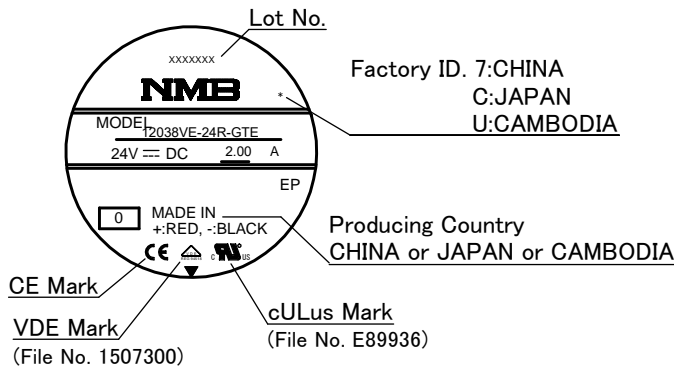
## Materials

- Casing : Plastic (Black UL94V-0)
- Impeller : Plastic (Black UL94V-0)
- Bearing : Ball Bearing
- Lead Wire : UL3443 AWG24

(+) : Red (-) : Black  
Tach: White

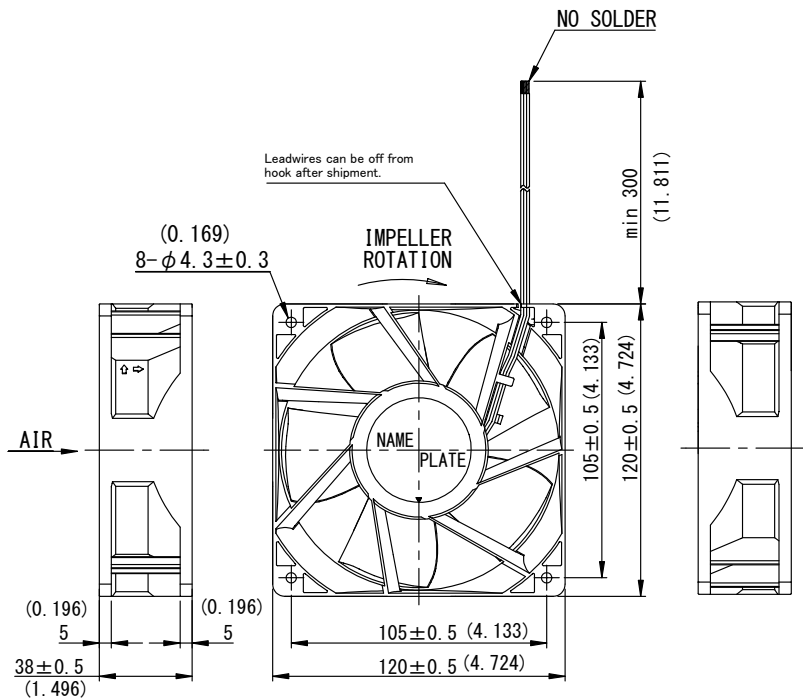
## Outline

### Name Plate



Flange type

Unit: mm (inch)



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