

12038VA (E-Type*)

DC Axial Fan

120[□]X38^L



General Specifications

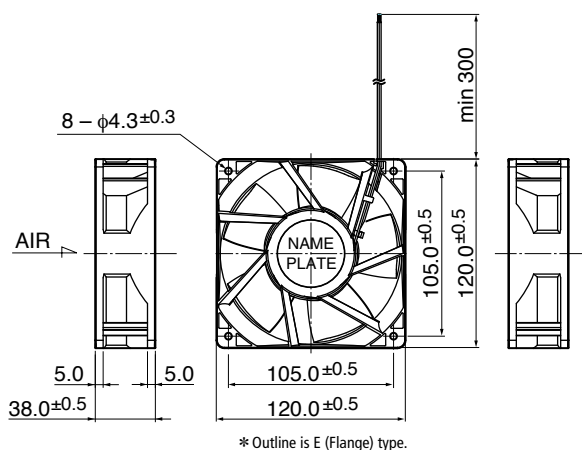
Motor Protection Auto Restart / Polarity Protection

Insulation Resistance 10M Ω or over with a DC500V Megger
 Dielectric Withstand Voltage : AC700V 1s
 : M, N, P, Q Class : -10°C ~ +70°C (Operating)
 Allowable Ambient Temperature Range R Class : -10°C ~ +60°C (Operating)
 : -40°C ~ +70°C (Storage)
 non-condensing environment

Expected Life ※ Failure Rate: 10% (L10 Life)

60°C 40,000 (Hours)

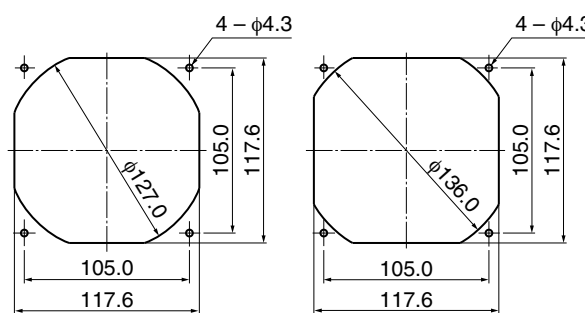
Outline



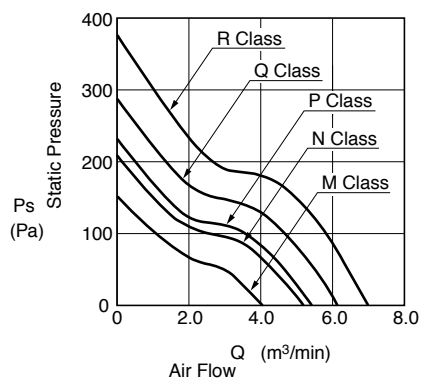
Panel Out-cuts

(Inlet Side)

(Outlet Side)



Characteristic Curves



Material

Casing : Plastic (Black) UL94V-0
 Impeller : Plastic (Black) UL94V-0
 Bearing : Ball Bearing
 Lead Wire : UL10368 AWG24 + : Red, - : Black or UL3443 AWG24

Customize service for IP compatible type and Oil-proof type is available for this item.
 Please contact to our sales representative for more detail.

*(0-Type for 48 volt fan)

Specifications

Model**	Product Number	Rating Voltage (V)	Operating Voltage (V)	Current (A)*1	Input Power (W)*1	Speed (min-1)*1	Max Air Flow (m³/min)*1	(CFM)*1	Max Static Pressure (Pa)	(In H2O)*1	Noise (dB)*1	Mass (g)
12038VA-12P-AAE-	0	12	10.8 ~ 13.2	1.60	19.20	5000	5.35	188.9	235.0	0.94	60.0	370
12038VA-12Q-AAE-	0	12	10.8 ~ 13.2	2.25	27.00	5700	6.11	215.7	287.0	1.15	63.0	
12038VA-12R-AAE-	0	12	10.8 ~ 12.6	3.20	38.40	6400	6.90	243.6	370.0	1.49	66.0	
12038VA-24M-AAE-	0	24	18.0 ~ 27.6	0.45	10.80	3800	4.00	141.2	150.0	0.60	53.0	
12038VA-24N-AAE-	0	24	18.0 ~ 27.6	0.74	17.76	4700	5.17	182.6	207.0	0.83	59.0	
12038VA-24P-AAE-	0	24	18.0 ~ 27.6	0.74	17.76	5000	5.35	188.9	235.0	0.94	60.0	
12038VA-24Q-AAE-	0	24	18.0 ~ 27.6	1.04	24.96	5700	6.11	215.7	287.0	1.15	63.0	
12038VA-24R-AAE-	0	24	18.0 ~ 27.6	1.48	35.52	6400	6.90	243.6	370.0	1.49	66.0	
12038VA-48P-AA-	00	48	40.0 ~ 52.8	0.40	19.20	5000	5.35	188.9	235.0	0.94	59.5	
12038VA-48Q-AA-	00	48	40.0 ~ 52.8	0.55	26.40	5700	6.11	215.7	287.0	1.15	62.0	
12038VA-48R-AA-	00	48	40.0 ~ 52.8	0.75	36.00	6400	6.90	243.6	370.0	1.49	64.0	

Rotation: Clockwise as seen from the label side
 Airflow Outlet: Label side

**Flange casing also available

*1: Average Values in Free Air

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 Ω or over with a DC500V Megger

Dielectric Withstand Voltage:

AC 700V 1s or 500V 1min

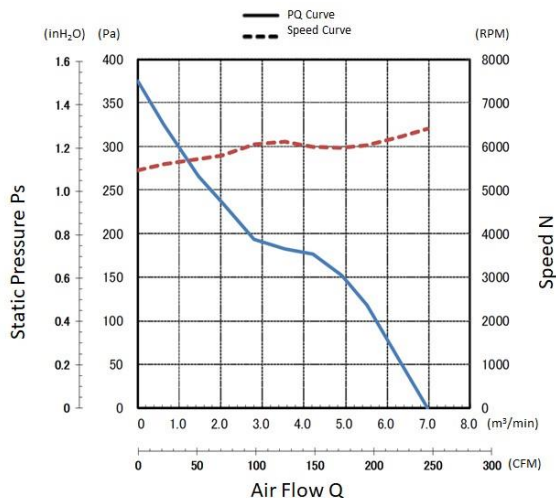
Allowable Ambient Temperature Range:

-10°C ~ +60°C (Operating)

-40°C ~ +60°C (Storage)

(non-condensing environment)

Characteristics Curves



PWM Benefits & Applications

PWM Benefits

- Increased Life Expectancy
- Energy Saving
- Lower Vibration
- Lower Noise
- Current Spike Prevention

PWM Applications

- Routers
- Switches
- Storage
- Data Centers
- Optical Repeaters
- Broadcast Equipment
- Inverters
- UPS
- Battery Chargers
- Fuel Cells
- Industrial Power Supplies
- Welders
- Plasma Cutters
- Instrumentation
- Test Equipment
- Enclosures and more

- Customized fan performances at multiple operating points.
- Peak efficiency resulting in lower total ownership costs.
- Cost effective and better reliability.

Life Expectancy L10

60°C 40,000 Hours

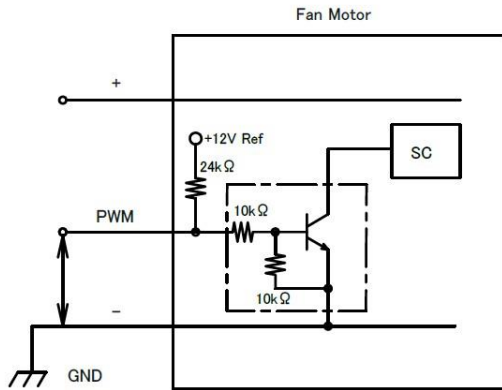
Specifications

MODEL	Rated	Operating	Current		Input Power		Speed	Max.		Max. Static		Noise	Mass
	Voltage	Voltage	Avg	Max	Avg	Max		Air Flow		Pressure			
	(V)	(V)	(A) ^{*1}	(A) ^{*1}	(W) ^{*1}	(W) ^{*1}	(min ⁻¹) ^{*1}	(CFM)	(m³/min)	(inH₂O)	(Pa)	(dB) ^{*1}	(g)
	12038VA-24R-FU-6	24	18.0 ~ 27.6	1.48	1.77	35.52	42.48	6400	243.7	6.90	1.49	370	64.0

*1: Values in Free Air

PWM Specifications

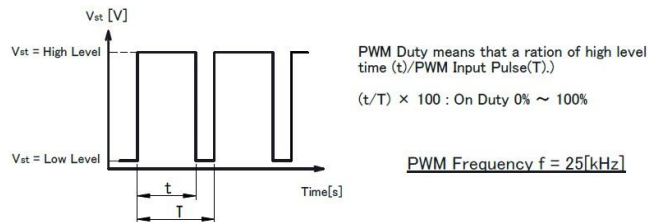
PWM CONTROL ● CONNECTION



1. PWM Control

V_{st} = Low Level (0V~0.4V)	→ Stop (On Duty 0%)
V_{st} = High Level	→ Full Speed (On Duty 100%)
V_{st} = Open	→ Full Speed

2. PWM Duty & PWM Input Pulse



TACHO Specifications

TACHO SIGNAL

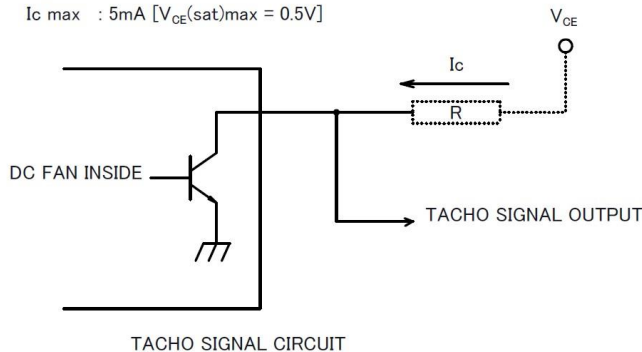
1. OUTPUT CIRCUIT : OPEN COLLECTOR
2. SPECIFICATION

$T_a = 25^\circ C$

Absolute Maximum Ratings at $T_a = 25^\circ C$

V_{CE} max : +30V

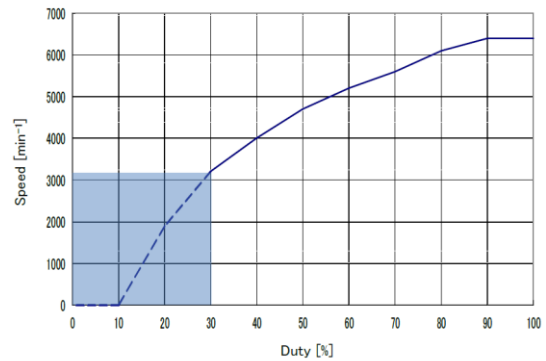
I_C max : 5mA [$V_{CE(sat)}$ max = 0.5V]



PWM Characteristics Curve

Reference PWM Duty VS Speed

Conditions: at rating Voltage, $V_{st} = 5.0V$, $f = 25kHz$, $T_a = 25^\circ C$



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.

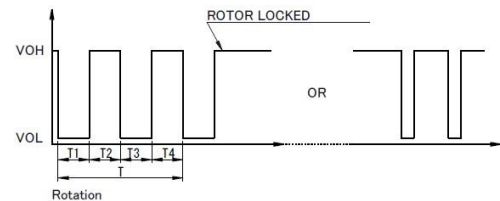
- To run at Rating Voltage.

- Please use the start with Duty 30% or more at 25kHz.
[At rated voltage input, Ambient temperature $25^\circ C$]

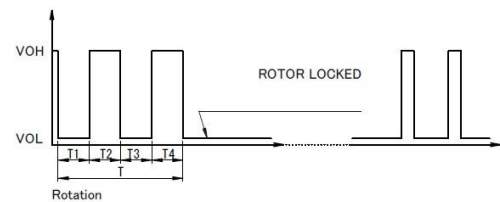
3. OUTPUT WAVEFORM : AT RATED VOLTAGE

4. 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 or signal becomes to VOL position for a few seconds at any time of the auto-restart motion.

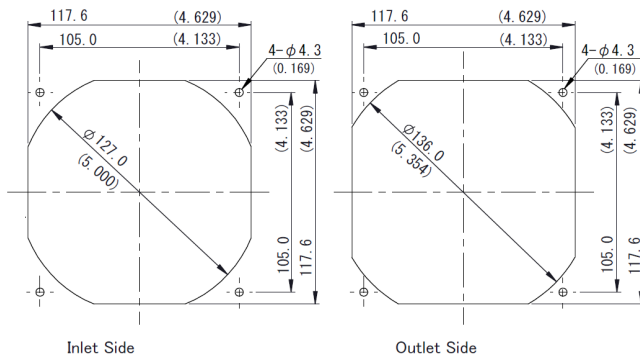
- 2) When the rotor is locked at VOL position of signal, signal keeps VOL position or signal becomes to VOH position for a few seconds at any time of the auto-restart motion.

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

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

Tach Duty Cycle = $50\% \pm 10\%$

Panel Cut-Outs



Unit: mm (inch)

Materials

Casing : Plastic (Black UL94V-0)

Impeller : Plastic (Black UL94V-0)

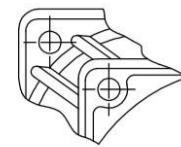
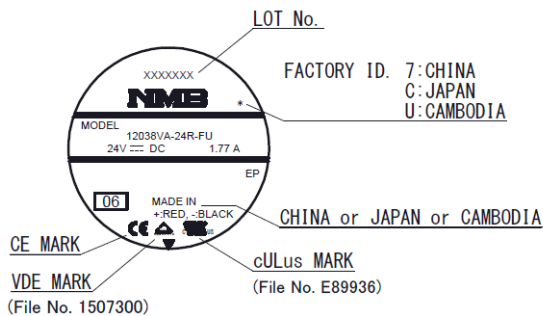
Bearing : Ball Bearing

Lead Wire : UL3443 AWG24

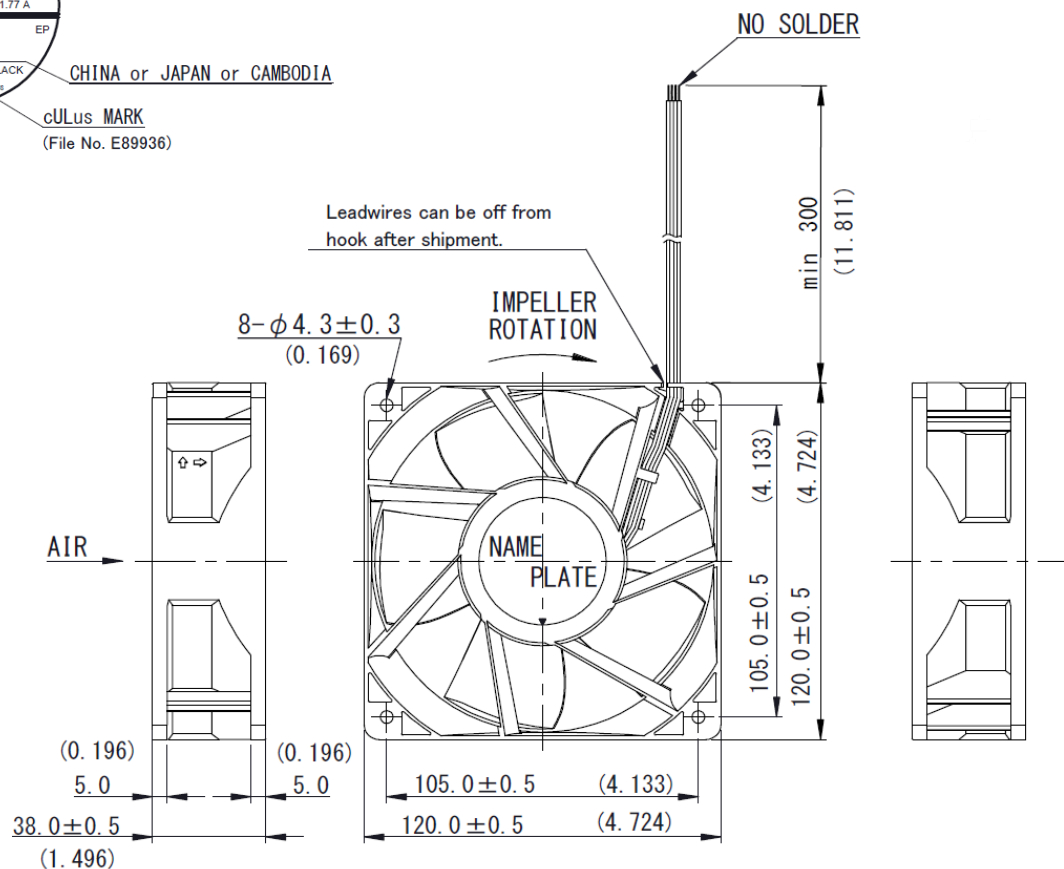
(+) : Red (-) : Black

PWM : Brown Tach : White

Outline



FLANGE TYPE



Unit: mm (inch)

General Specifications

Motor Protection:

Auto Restart/Polarity Protection

Insulation Resistance:

10M Ω or over with a DC500V Megger

Dielectric Withstand Voltage: AC 700V 1s

Allowable Ambient Temperature Range:

-10°C ~ +60°C (Operating)

-40°C ~ +60°C (Storage)

IP Code: IP69K

Expected Life

25°C 100,000 Hours (L10)

Material

Casing : Plastic (Black) UL94V-0

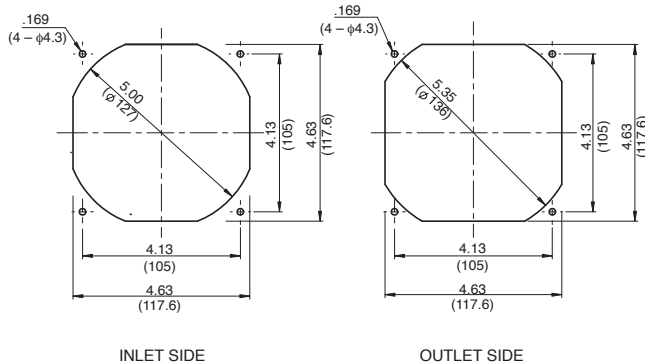
Impeller : Plastic (Black) UL94V-0

Bearing : Ball Bearing

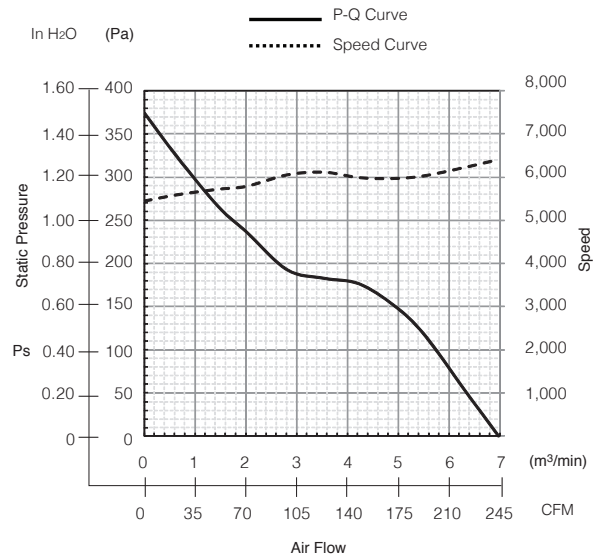
Lead Wire : UL10368, AWG22, +Red, -Black

Panel Cut-Outs

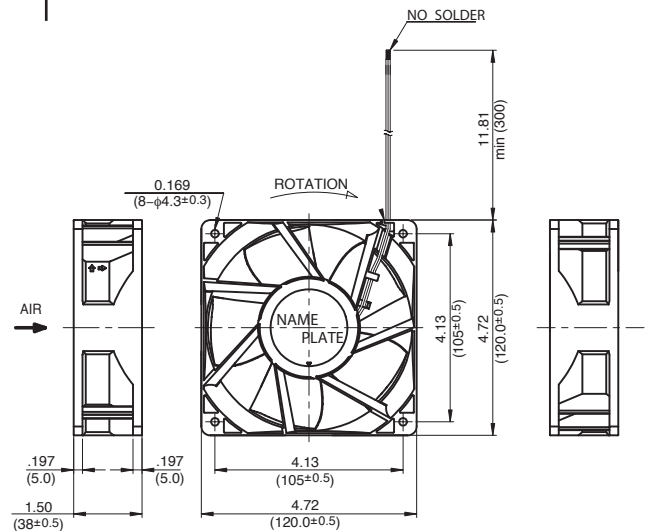
Units: $\frac{\text{inch}}{(\text{mm})}$



Characteristic Curves



Outline



Specifications

MODEL	Rated Voltage	Operating Voltage	Current	Input Power	Speed	Max. Air Flow		Max. Static Pressure		Noise	Mass
	(V)	(V)	(A) ^{*1}	(W) ^{*1}	(min ⁻¹) ^{*1}	CFM ^{*1}	(m³/min) ^{*1}	in H ₂ O	(Pa) ^{*1}	(dB) ^{*1}	(g)
12038VA-24R-GA-00	24	18.0 ~ 27.6	1.48	35.5	6400	243.67	6.9	1.48	370	64.0	370

Rotation: Clockwise

Airflow Outlet: Air Out Over Struts

*1: Average Values in Free Air

Note: PWM/Locked Rotor/Tach Available

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

[NMB Technologies:](#)

[12038VA-48P-EA-00](#)