


Engineering Sample Specifications

For Reference

CUSTOMER :

MOTOR TYPE : 

DESCRIPTION : **MagLev Motor Fan**

DIMENSIONS : **50X50X15 mm**

MODEL : **MF50151V2-1C01A-S99**

SUNON SPEC. NO. : **S2000035-0**

Preliminary Data Sheet is for reference only final specification might be changed according to design verification (or mass production) data.

ENGINEER	Chin/Stanley	APPROVAL	Single
SSR NO.	S2000035-0	ISSUE DATE	2020.02.11
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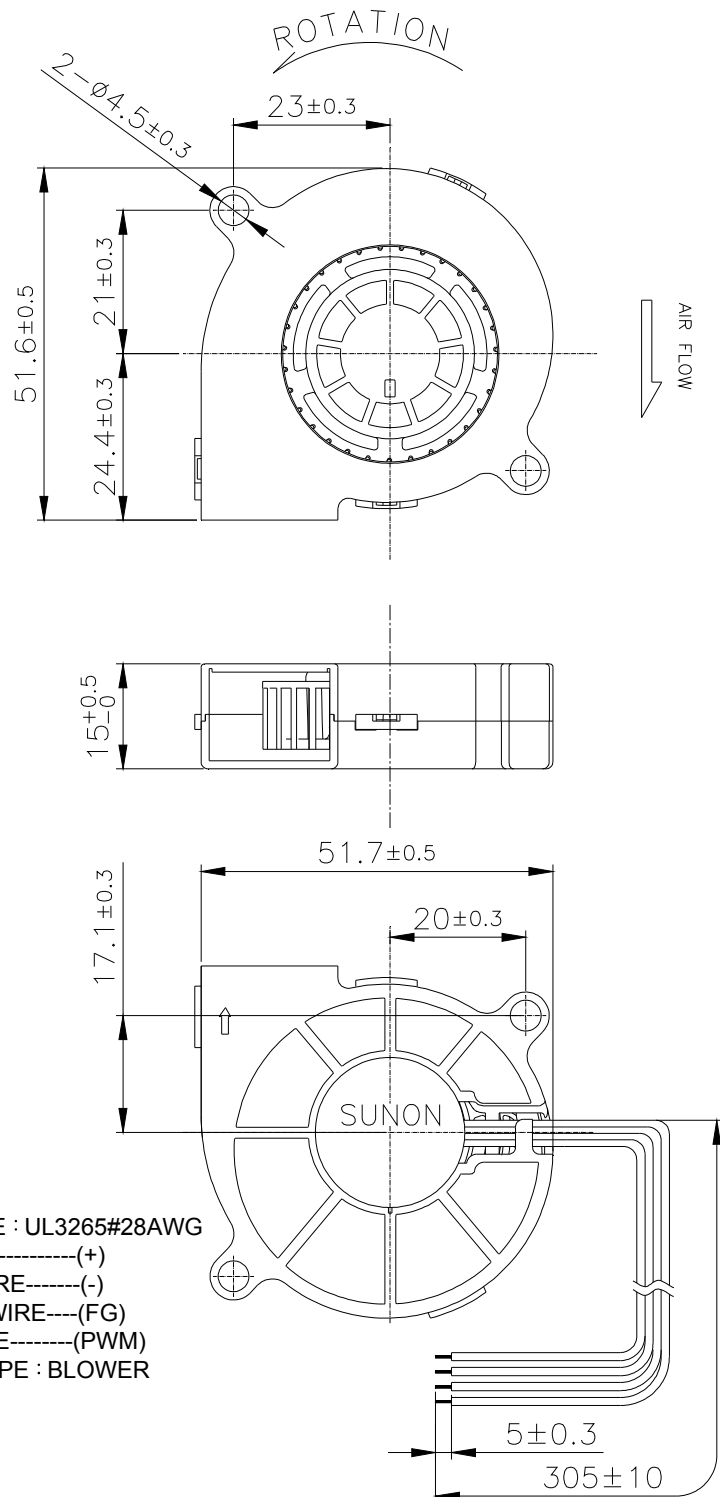
1. Construction

MOTOR DESIGN	Single phase, 4-poles Brushless DC motor.
BEARING SYSTEM	Vapo bearing system
DIMENSIONS	See Page 3
MATERIALS OF HOUSING	Thermoplastic PBT of UL 94-V0
MATERIALS OF FAN BLADE	Thermoplastic PBT of UL 94-V0
DIRECTION OF ROTATION	Counter-Clockwise viewed from front of fan blade
TOLERANCE	±20% on rated power and current.
WEIGHT	30 g

2. Rating

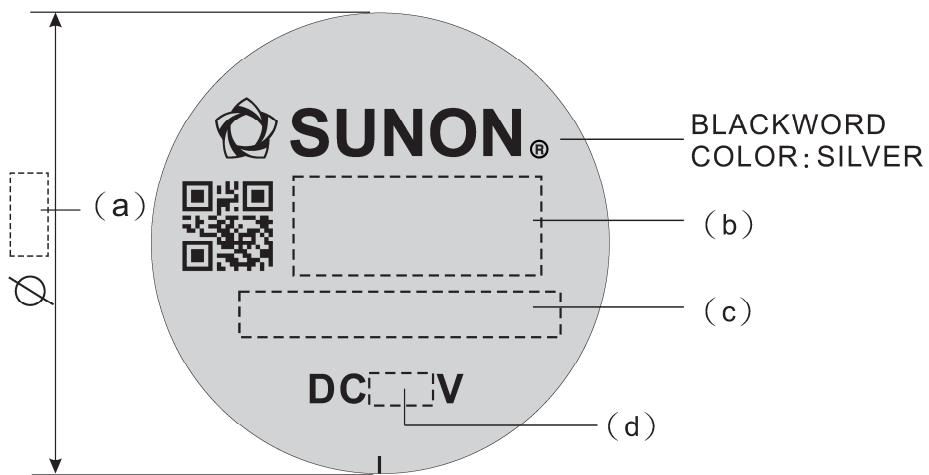
RATED VOLTAGE	12 VDC
STARTING VOLTAGE	10.2 VDC
OPERATING VOLTAGE RANGE	10.2~13.8 VDC
RATED CURRENT	42 mA / Max. 51 mA
RATED POWER CONSUMPTION	0.51 WATTS / Max. 0.62 WATTS
AIR FLOW	Nominal 3.2 CFM
STATIC PRESSURE	Nominal 0.30 Inch-H2O
ACOUSTIC NOISE	Nominal 30.7 dB(A)
RATED SPEED	4000 RPM ± 10 %
OPERATING TEMPERATURE RANGE	-10 to +70 deg. C
STORAGE TEMPERATURE RANGE	-40 to +70 deg. C
PROTECTION	<input checked="" type="checkbox"/> Automatic Restart Note: The motor will shut down when rotor was locked, then auto restart within 10 seconds.
	<input checked="" type="checkbox"/> Polarity Protection

3. Dimensions



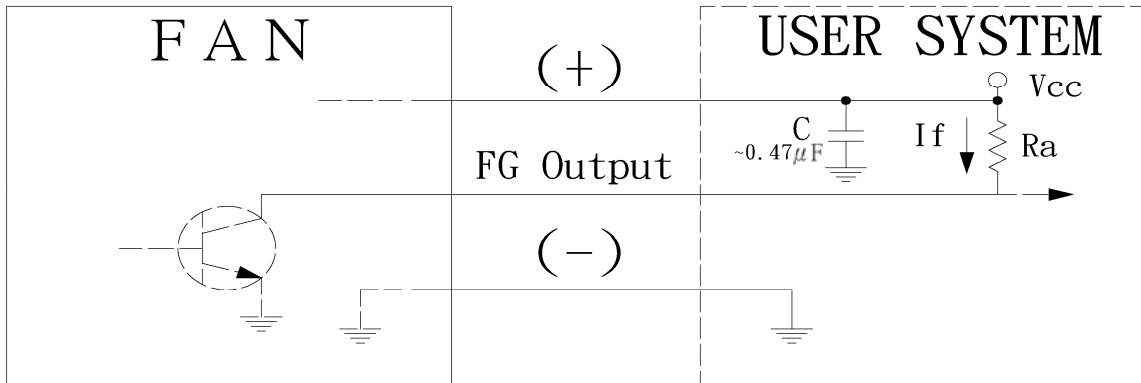
UNIT:mm

4. LABEL

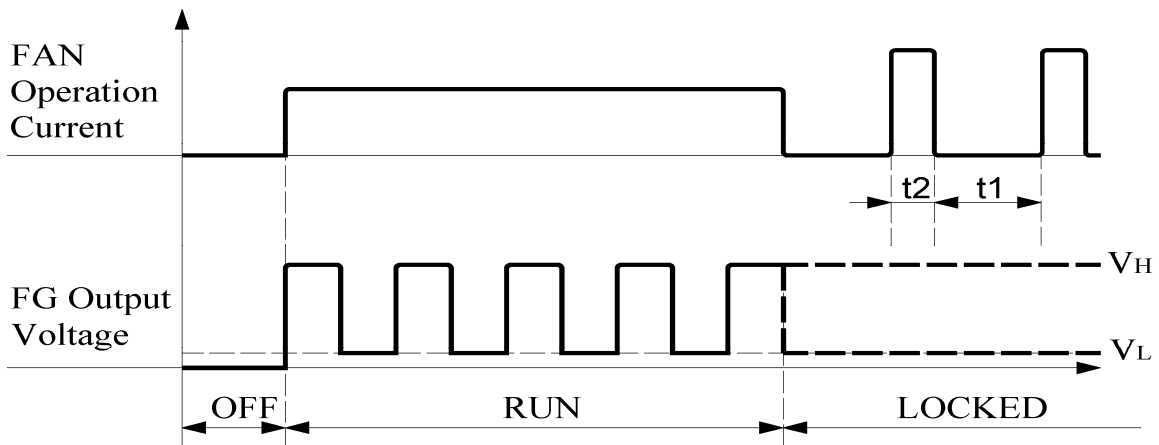


(a) Dimension	(b) Model Name	(c) Property NO.	(d) Voltage
22	MF50151V2-1C01A-S99	RD0200048S01	12

5. FG Type with auto-restart

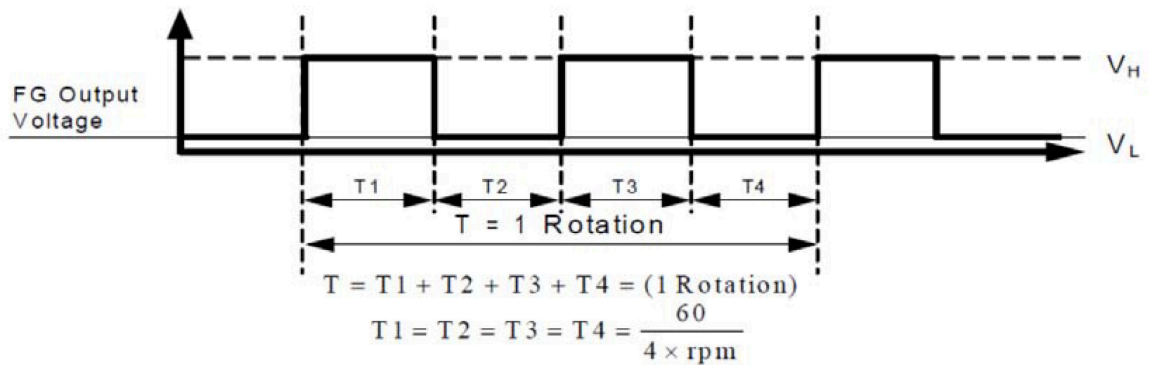


$*Ra \geq V^+ / If(\max)$

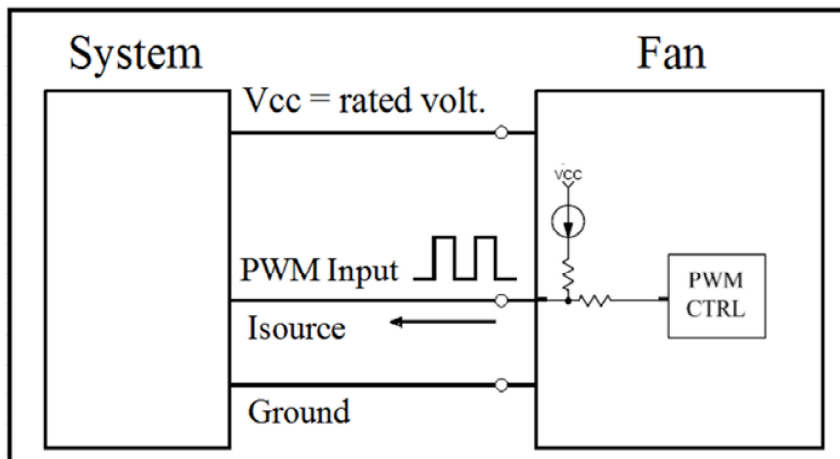


★Electrical Characteristics : (at $T_a = 25^\circ C$, $V_{cc} = \text{Rated Volt.}$)

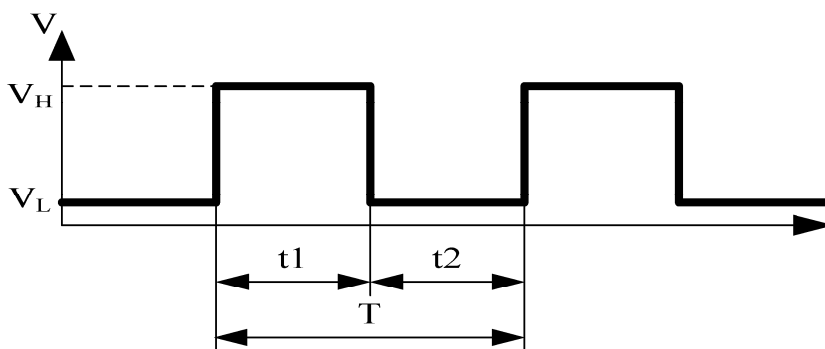
Parameter	Ratings			Unit
	min.	typ.	max.	
FG Output Current (I_f)	--	--	5	mA
FG Output (V_L)	--	--	0.4	Voltage
FG Output (V_H)	--	--	V_{cc}	Voltage
Ratio(= t_1/t_2)	--	15	--	



6. PWM Input Signal



★PWM INPUT WAVEFORM



1. Period :
$$T = \frac{1}{f_{PWM}} = t_1 + t_2(\text{sec})$$

2. Duty Cycle (D.C.) :
$$\frac{t_1}{t_1 + t_2} * 100 = \frac{t_1}{T} * 100(\%)$$

3. PWM Duty Cycle VS Speed (at $T_a = 25^\circ\text{C}$, $V_{cc} = \text{Rated Volt.}$, $f_{pwm} = 25 \text{ KHz}$)

PWM Duty Cycle (%)	FAN Speed (R.P.M.) (REF.)
100	4000±10%
50	2250±10%

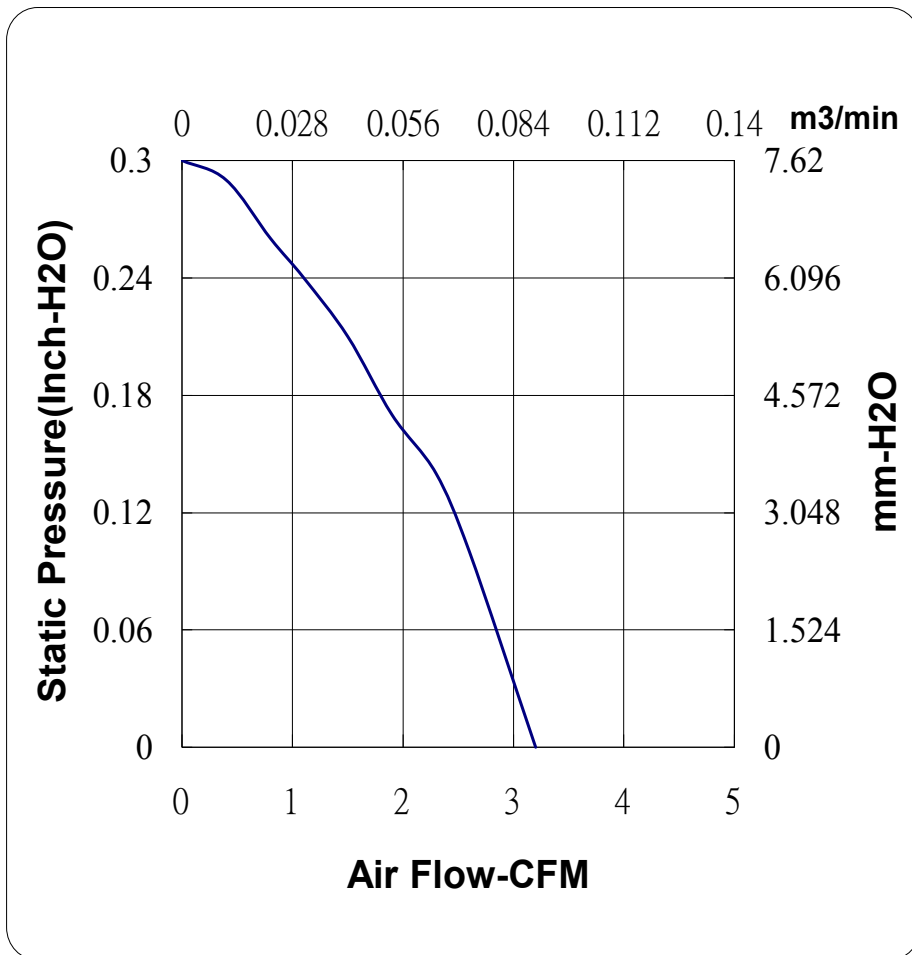
★Electrical Characteristics : (at $T_a = 25^\circ\text{C}$, $V_{cc} = \text{Rated Volt.}$)

Parameter	Min	Typical	Max	Unit
f_{pwm}	22K	25K	28K	Hz
V_H	2.5	--	V_{cc}	V
V_L	0	--	0.6	V
Isource	--	3	--	mA
D.C.	20	--	100	%

* The speed is default to be maximum if PWM input pin is unconnected.

* Min. start up duty cycle is 20%. Please don't apply 1 ~ 19% duty cycle to prevent unstable fan speed.

7. Performance Curve



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