



SPECIFICATION FOR APPROVAL

★ 1. SCOPE:

THIS SPECIFICATION DEFINES THE ELECTRICAL AND MECHANICAL CHARACTERISTICS OF THE DC BRUSHLESS AXIAL FLOW AND BLOWER FAN.

★ 2. CHARACTERS:

NO ITEM

SPECIFICATION

2--1	Rated Voltage	<input type="checkbox"/> 5V <input checked="" type="checkbox"/> 12V <input type="checkbox"/> 24V <input type="checkbox"/> 48V
2--2	Starting Voltage	N/A
2--3	Operating Voltage Range	11.4V~12.6V
2--4	Rated Current	0.38Amp (MAX.0.55Amp) 0.10Amp(MAX) Duty cycle =100% Duty cycle =0~20%
2--5	Rated Power	4.56W (MAX.6.60W) 1.20W(MAX) Duty cycle =100% Duty cycle =0~20%
2--6	Rated Speed	3600RPM±10% Duty cycle =100% 1800±300RPM Duty cycle =50% (REF) 800±300 RPM Duty cycle =0~20% (Testing Speed After Continuous 3Minute Operation At Ambient Temperature Of 25°C)
2--7	Air Flow	73.29CFM 2.08m3/min Duty cycle =100% 16.29CFM 0.46m3/min Duty cycle =0~20%
2--8	Static Pressure	6.51mmH2O Duty cycle =100% 0.32mmH2O Duty cycle =0~20%
2--9	Sound Level	MAX.44 dB(A) Duty cycle =100% MAX.21 dB(A) Duty cycle =0~20%
2--10	Product Type	<input checked="" type="checkbox"/> Rohs <input type="checkbox"/> HF <input type="checkbox"/> GP
2--11	Life Expectancy	<input type="checkbox"/> 40,000hours at 40°C <input checked="" type="checkbox"/> 70,000hours at 40°C (WITH 15~65% RH)
2--12	Bearing Type	<input checked="" type="checkbox"/> Two Ball <input type="checkbox"/> Ball And Sleeve <input type="checkbox"/> EBR <input type="checkbox"/> Ball Bearing <input type="checkbox"/> One Ball
2--13	Protection	<input type="checkbox"/> Impedance Protection <input checked="" type="checkbox"/> Auto-Restart <input type="checkbox"/> Current-Limit
2--14	Pole	<input type="checkbox"/> 2 Pole <input checked="" type="checkbox"/> 4Pole <input type="checkbox"/> 8Pole <input type="checkbox"/> Three Phase
2--15	IP Grade	N/A
2--16	Safety Approval	<input checked="" type="checkbox"/> TUV <input checked="" type="checkbox"/> UL <input checked="" type="checkbox"/> CE



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★ 3. MECHANICAL:

3--1	DIMENSIONS	SEE DIMENSIONS DRAWING
3--2	FRAME	<input checked="" type="checkbox"/> PBT(BLACK) PLASTIC {UL 94V-0} <input type="checkbox"/> PC PLASTIC {UL 94V-2}
3--3	IMPELLER	<input checked="" type="checkbox"/> PBT(BLACK) PLASTIC {UL 94V-0} <input type="checkbox"/> PC PLASTIC {UL 94V-2}
3--4	WEIGHT	94 GRAMS (REF)

★ 4. ENVIRONMENTAL:

4--1. OPERATING TEMPERATURE----- -10°C ~70°C

4--2. STORAGE TEMPERATURE----- -20°C ~75°C

4-3. OPERATING HUMIDITY----- 5 TO 90% RH

4-4. STORAGE HUMIDITY ----- 5 TO 95% RH

4-5. DIRECTION OF ROTATION----- CLOCKWISE
COUNTER-CLOCKWISE
 (VIEWED FROM LABEL SIDE)

4-6. DIELECTRIC STRENGTH ----- APPLIED AC 500V FOR ONE MINUTE OR
 AC 600V FOR SECONDS BETWEEN HOUSING
 AND LEAD WIRE(+)

4-7. INSULATION STRENGTH-----MORE THAN 500 M OHM INTERNAL STATOR
 AND LEAD WIRE(+) MEASURED AT DC 500V

4-8. DROP TEST-----IN MINIMUM PACKAGING CONDITION, FAN WITHSTANDS
 EACH ONE DROP OF THREE FACES FROM 60cm DISTANCE
 HEIGHT ON TO 2cm THICKNESS OF SOLEPLATE.

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4--9. VIBRATION TEST-----

1. ORIENTATION : X , Y, Z (3 AXES)
2. OVERALL RMS = 3.2 G
3. FREQUENCY (Hz) PSD (G2/HZ)

10	0.04
20	0.1
40	0.1
800	0.002
1000	0.002
4. DURATION : 2 HOURS ON EACH ORIENTATION
5. SAMPLE CONDITION : NON-PACKING , NON-OPERATION

4--10. SHOCK TEST-----

TEMPERATURE : +25°c
 ORIENTATION : X , Y , Z .
 POWER : NON-OPERATING.,
 ACCELERATION: 50G MAX.
 PULSE: 11 MS HALF-SINE WAVE.
 NUMBER OF SHOCKS:
 5 SHOCKS FOR EACH DIRECTION.

4--11. NOISE TEST -----

MEASURED IN A SEMI-ANECHOIC CHAMBER WITH BACKGROUND NOISE LEVEL BELOW 19DB(A). THE FAN IS RUNING IN FREE AIR WITH THE MICROPHONE AT A DISTANCE OF ONE METER FRAM THE FAN INTAKE

4--12. AIR PERFORMANCE -----

MEASURED BY A DOUBLE CHAMBER.THE VALUES ARE RECORDED WHEN THE FAN SPEED HAS STABILIZED AT RATED VOLTAGE.

★ 5. NOTES:

- 5--1. THE ABOVE STANDARD SHOULD BE THE SPECIFIED VALUE AT NORMAL TEMPERATURE (25°C) AND NORMAL HUMIDITY (60~65%) UNLESS OTHERWISE NOTICED.
- 5--2. SPECIFICATION CHANGE:
 ANY CHANGES TO THE PARAMETERS SPECIFIED IN THIS DOCUMENT WILL BE DETERMINED BY MUTUAL AGREEMENT ON BOTH PARTIES.
- 5--3. IT IS VERY IMPORTANT TO CHECK THE POLARITY CORRECTLY BEFORE CONNECTING THE ANSTO THE POWER SOURCE. POSITIVE (+) AND NEGATIVE (-). DAMGE MAY BECAUSED TO THE FANS IF CONNECTION IS WITH REVERSE POLARITY, IF THERE IS NO FOOLPROOF METHOD TO PROTECT AGAINST SUCH ERROR SPECIFICALLY MENTIONED IN THIS SPEC.



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5--4. PLEASE BE CAUTIOUS WHEN MOUNTING THE FAN THE FAN. INCORRECT MOUNTING OF FANS MAY CAUSE EXCESS RESONANCE, VIBRATION AND SUBSEQUENT NOISE, EVEN SCREW HOLE BROKEN.

5--5. PLEASE EXERCISE CAUTION WHEN HANDLING FANS. DAMAGE MAY BE CAUSED BY OUTSIDE ABNORMAL PRESSURE OR ENVIRONMENT STRESS DURING MOVING.

5--6. All THE FANS SHALL MEET THE QUALITY INSPECTION UNDER SAMPLING PLAN MIL-STD-105E AS FOLLOW, EXCEPT AS PERTAINS TO SOME SPECIAL,DESIGNS , THERE IS NO GUARANTEE THAT THE PRODUCTS WILL BE FREE FROM ANY SUCH SAFETY PROBLEMS OR FAILURES AS CASSED BY THE INVADING OF POWDER, DROP LOTS OF WATER OR ENCROACHMENT OF INSECT INTO THE HUB.

CRITICAL	0.25%
MAJOR	1.00%
MINOR	2.50%

5--7. CUSTOMER SHALL CONFIRM THE MATCHING AND RELIABILITY OF FAN ON ACTUAL SET OR UNIT APPLICATION.THIS INCLUDE CONFIRMATION ON SET OR UNIT LIFE, ELECTRICAL NOISE, MECHANICAL NOISE, VIBRATION, STATIC ELECTRICITY, ELECTRIC POWER NOISE, DRIFT,ELECTRIC RESONANCE BETWEEN MOTOR AND CONTROL CIRCUIT, MECHANICAL RESONANCE BETWEEN MOTOR AND CHASSIS, IRREGULAR MOVEMENT OF SET DUE TO MOTOR NOISE, IRREGULAR MOVEMENT OF SET INSTRONG ELECTROMAGNETIC FIELD, DAMAGED BY LIGHTNING SURGE EARTHING METHOD ETC.

5--7. ANY REVISIONS ON THE SPECIFICATION SHALL BE DONE BASED ON MUTUAL DISCUSSION AND AGREEMENT.

5--8. IN ORDER TO IMPROVE THE PERFORMANCE WITHIN THE SCOPE OF SPECIFICATION, PARTS OR MATERIAL CHANGES ARE SUBJECT TO PRIOR NOTICE TO CUSTOMER.

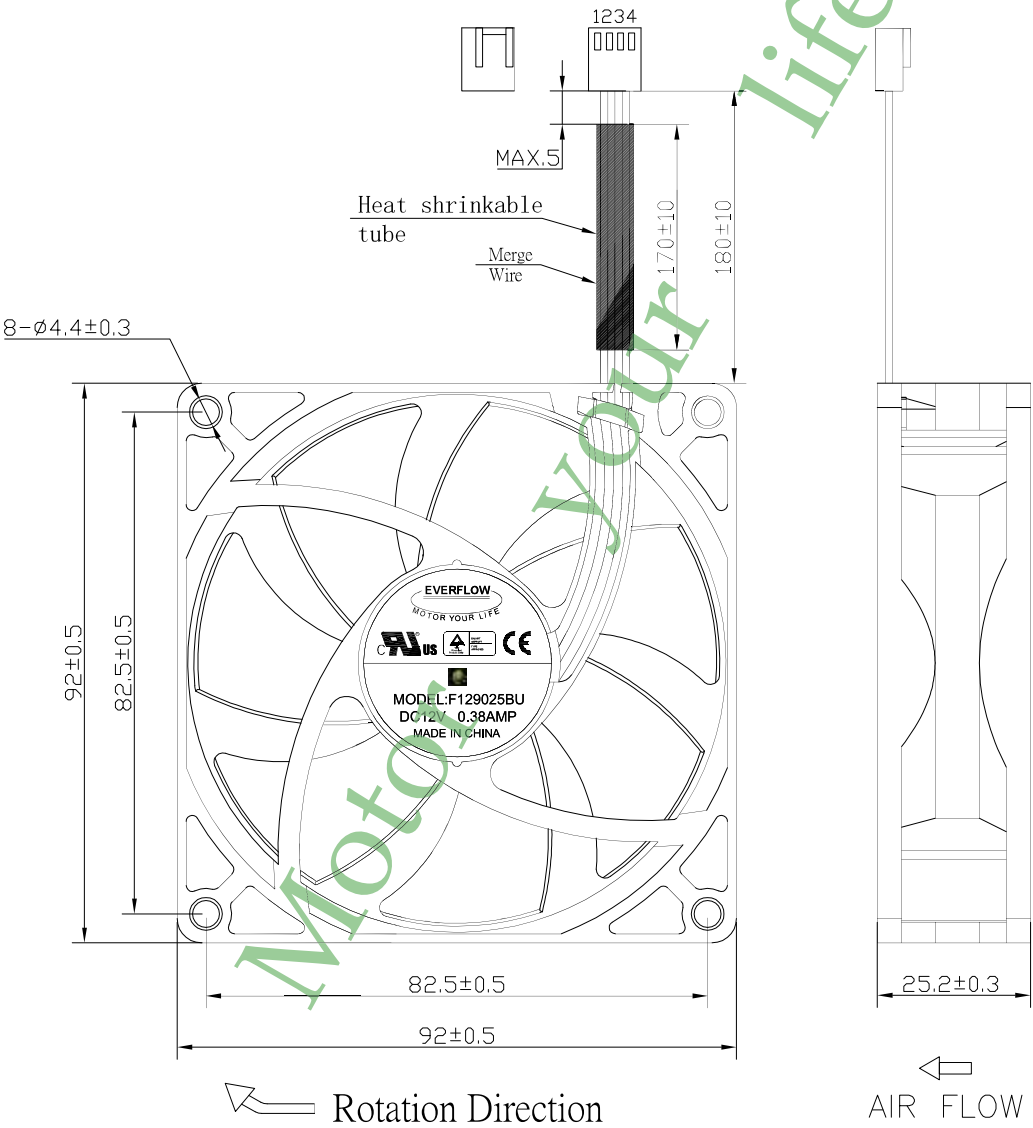
5--9. ANY ITEM WHICH IS NEEDED TO ADD INTO SPECIFICATION SHALL BE DETERMINED ON CUSTOMER'S PRIOR WRITTEN REQUEST. IF NO INFORMATION GIVEN, FAN WILL BE DELIVERED BASED ON OUR STANDARD JUDGMENT.

5--10. WHEN ANY TROUBLE OCCURS, BOTH PARTIES SHALL DISCUSS ON THIS SPECIFICATION TO SOLVE THE MATTERS. IN THIS CASE, OUR GUARANTEE IS ONLY LIMITED TO FANS.

REVISES B

F129025BUAFW30dR

★ 6. DIMENSION DRAWING. UNIT: mm



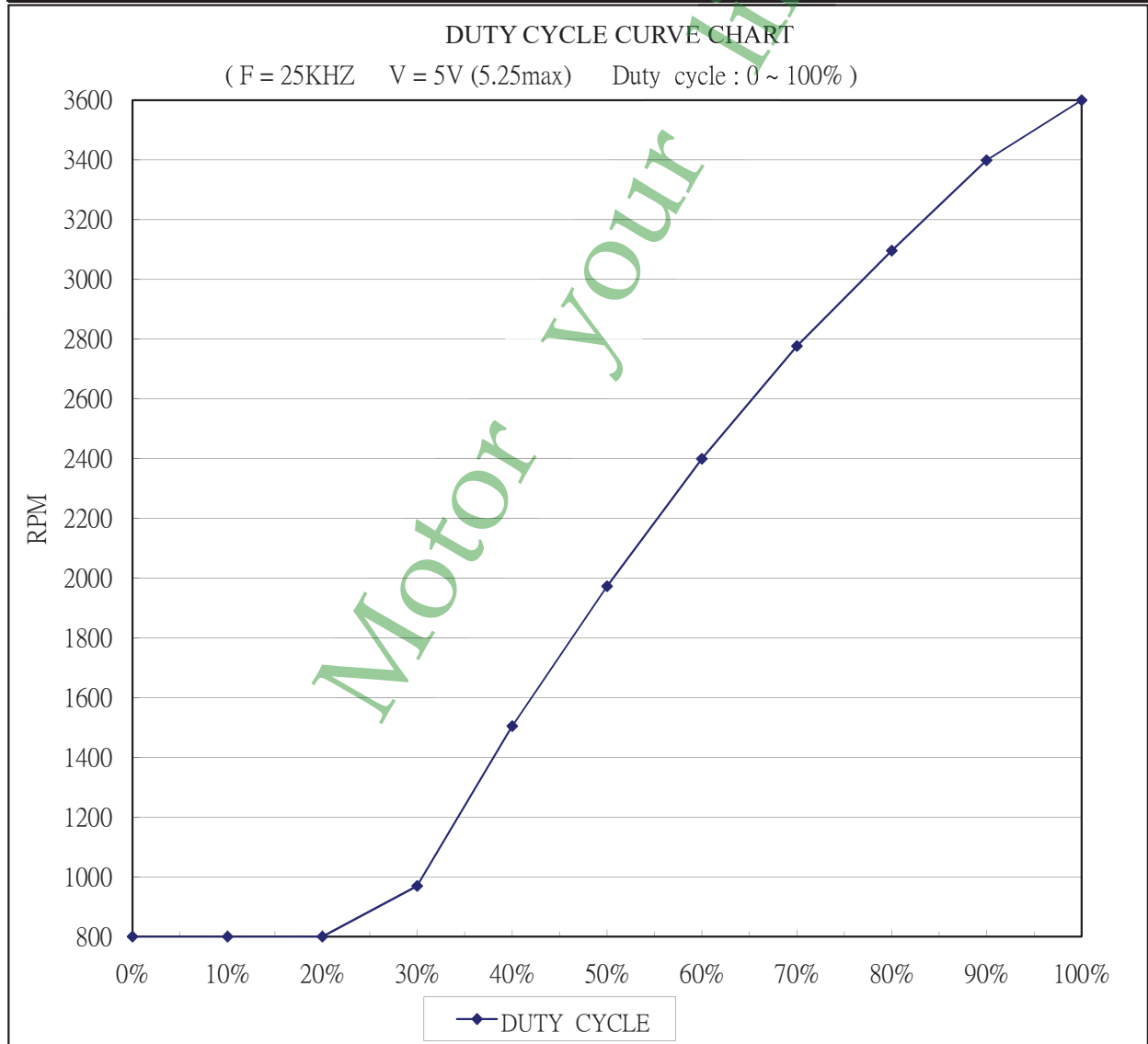
- NOTES:
1. LEAD WIRE UL 1061 AWG 26#
 PIN 1: BLACK WIRE---(-)
 PIN 2: YELLOW WIRE---(+)
 PIN 3: GREEN WIRE---(SIGNAL)
 PIN 4: BLUE WIRE---(PWM INPUT)
 2. HOUSING: 2510-4P(BROWN) OR EQUIVALENT



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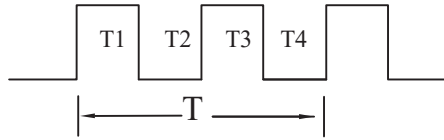
★ **7. DUTY CYCLE CURVE CHART**

DUTY CYCLE	SPEED (RPM)	RANGE	CURRENT
0~20%	800	±300	<0.10A
50%	1800	±300(REF)	<0.20A(REF)
100%	3600	±10%	<0.55A



★ 7. CHARACTERISTICS & DEFINITION

- 4 Pole Motor: Fan with 4 pole motor.



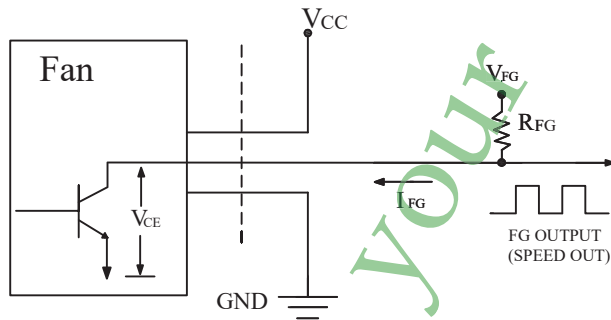
1 Rotation=T

$T=T_1+T_2+T_3+T_4=1$ Rotation

$T_1=T_2=T_3=T_4=\frac{60}{4 \times \text{r.p.m}} \text{Sec}$

- FG(Frequency Generator)Signal External Circuit:

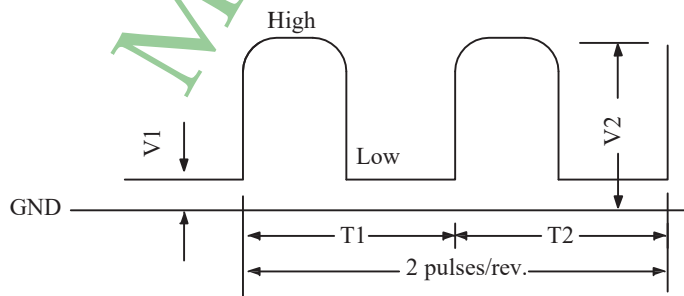
Open-collector output for rotation frequency detection



Note:Max. $V_{FG}=13.2\text{VDC}$, Max. $I_{FG}=5\text{mA}$, $\Rightarrow R_{FG} \geq V_{FG}/I_{FG}$
We Recommend $R_{FG}=10\text{K}\Omega$

- FG(Frequency Generator)Type Output Waveform:

1.Motor Rotating Condition(at 25°C , $V = 5\text{VDC}$)



V_1 :within 0.7V when I_{FG} less Than 3mA

$V_2:V_{FG}$,FG signal output voltage,maximum rating:13.2VDC

Duty= $T_1/(T_1+T_2) \times 100=50 \pm 20\%$ (measured between $0.3 \times V_2 \sim 0.7 \times V_2$)

$V_1 _ V_2$ rise time:less than 1.0ms

$V_2 _ V_1$ fall time:less than 1.0ms

Rotation Speed (RPM)=(60/2) $\times f_{FG}=30 \times f_{FG}$

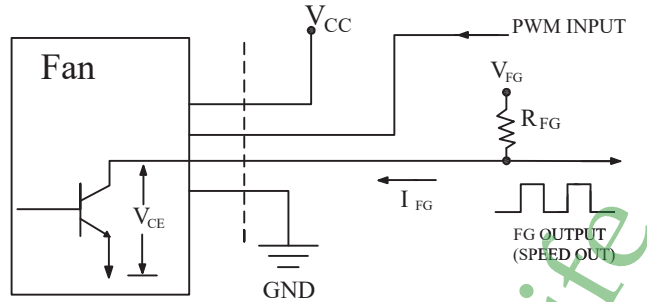
f_{FG} :frequency of FG output waveform(Hz)

2.Motor locked condition(at $V_{cc} = 12 \text{ VDC}$)

Output is fixed at low or high when motor is locked.

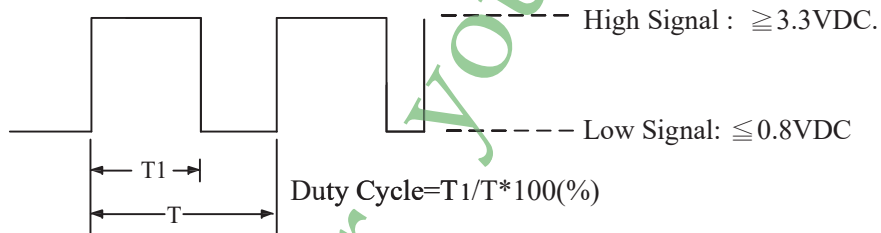
★ 9. CHARACTERISTICS & DEFINITION

- PWM Circuit:(for reference)



- PWM Control Signal Input:

Signal Voltage Range :DC 0V ~5.5V (V = 5V)



- 1.The 25KHz operating frequency(customer preferred)has been tested and checked.
- 2.At 100% duty cycle, The fan will operate at maximum speed.
- 3.The fan will default to operate at maximum speed when the speed control input(PWM input)is left unconnected.