Customer No.:	BA10033B12HP077
AVC Model:	BA10033B12HP077

Rev. A

SPECIFICATION FOR APPROVAL

1. SCOPE:

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

2. CHARACTERS:

	ITEM	SPEC.
2-1.	RATED VOLTAGE	12 VDC
2-2.	OPERATION VOLTAGE	7.0 ~ 13.2 VDC
2-3.	INPUT CURRENT	0.7 (1.32 MAX.) A
2-4.	INPUT POWER	8.4 (15.84 MAX.) W
2-5.	SPEED	3600±10% R.P.M
2-6.	SPEED CONTROL TYPE	PWM CONTROLLER
2-7.	SIGNAL OUTPUT	FREQUENCY GENERATOR (FG)
2-8.	MAX. AIR FLOW (AT ZERO STATIC PRESSURE)	0.910 (0.819 MIN.) M^3/MIN 32.13 (28.92 MIN.) CFM
2-9.	MAX. AIR PRESSURE (AT ZERO FLOW)	34.45 (27.90 MIN.) mm−H_2O 1.356 (1.098 MIN.) inch−H_2O
2-10.	ACOUSTICAL NOISE	54.7 (57.7 MAX.) dB−A

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2-11. INSULATION RESISTANCE —— 10 MEGA OHM MIN. AT 500 VDC
(BETWEEN FRAME AND (+) TERMINAL)

2-12. DIELECTRIC STRENGTH ——— 5 mA MAX. AT 500 VAC 60Hz ONE MINUTE,
(BETWEEN FRAME AND (+) TERMINAL)

2-13. LIFE EXPECTANCE ———— 50,000 HOURS AT 40°C ROOM, HUMIDITY 15%~ 65%RH

2-14. ROTATION ———————— COUNTER-CLOCKWISE VIEWED FROM INLET

2-15. AIR FLOW DIRECTION ——— RADIAL AIR EXHAUST THROUGH HOUSING PORT

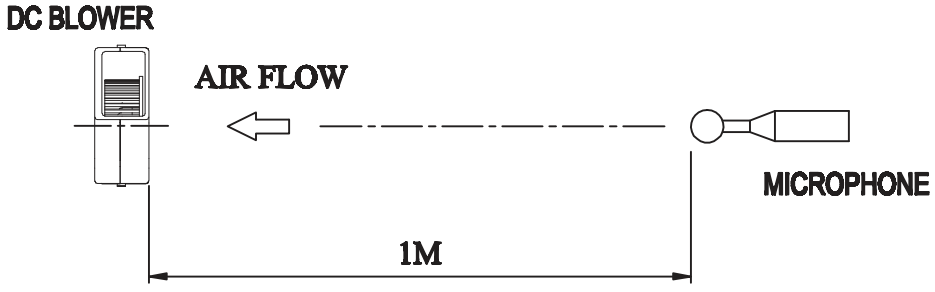
2-16. INSULATION CLASS ———— UL: CLASS A

2-17. LEAD WIRE ———————— UL: 1007 AWG 24 , - : BLACK
+: RED
FG : YELLOW
PWM : BLUE

NOTE:

A. THE VALUES WRITTEN IN PARENTHESIS, ( ), ARE LIMITED SPEC.

B. ACOUSTICAL NOISE MEASURING CONDITION:



NOISE IS MEASURED AT RATED VOLTAGE IN FREE AIR IN ACOUSTICAL CHAMBER WITH LARSON DAVIS TYPE 824S SOUND LEVEL METER.

C. THE AIR FLOW AND AIR PRESSURE MEASURED AT RATED VOLTAGE IN DOUBLE CHAMBER IS MEASURED ACCORDING TO AMCA STANDARD 210-99.

Customer No.:	BA10033B12HP077
AVC Model:	BA10033B12HP077

3. MECHANICAL

3-1. DIMENSION ——— SEE DIMENSION DRAWING

3-2. FRAME ——— THERMOPLASTIC PBT OF UL 94V-0

3-3. FAN BLADE ——— THERMOPLASTIC PBT OF UL 94V-0

3-4. BEARING SYSTEM ——— TWO BALL BEARING

3-5. WEIGHT ——— 180 g

4. ENVIRONMENTAL

4-1. OPERATING TEMPERATURE ——— -10 TO +70 °C

4-2. STORAGE TEMPERATURE ——— -40 TO +75 °C

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

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

4-5. DROP TEST ———
IN MINIMUM PACKGING CONDITION FAN WITHSTAND EACH ONE DROP OF THREE FACES FROM 30cm DISTANCE HEIGHT ONTO 10mm THICKNESS OF WOODEN BOARD

4-6. VIBRATION TEST ———
SINEWAVE
DISPLACEMENT AMPLITUDE: 0.75 mm (EQUIVALENT 10G)
FREQUENCY RANGE: 10Hz - 55 Hz / 30 SEC. 55Hz - 10 Hz / 30 SEC.
LINEEAR SCANNING 120 CYCLE
ENDURANCE TIMER PER AXIS: 2 HOURS
ORIENTATION: X,Y,Z

4-7. SHOCK TEST ———
APPLY PEAK ACCELERATION 50 g AND KEEP DURATION OF THE PULSES FOR 11MS (HALF SINE WAVE)

4-8. RoHS ——— SEE RoHS STANDARD

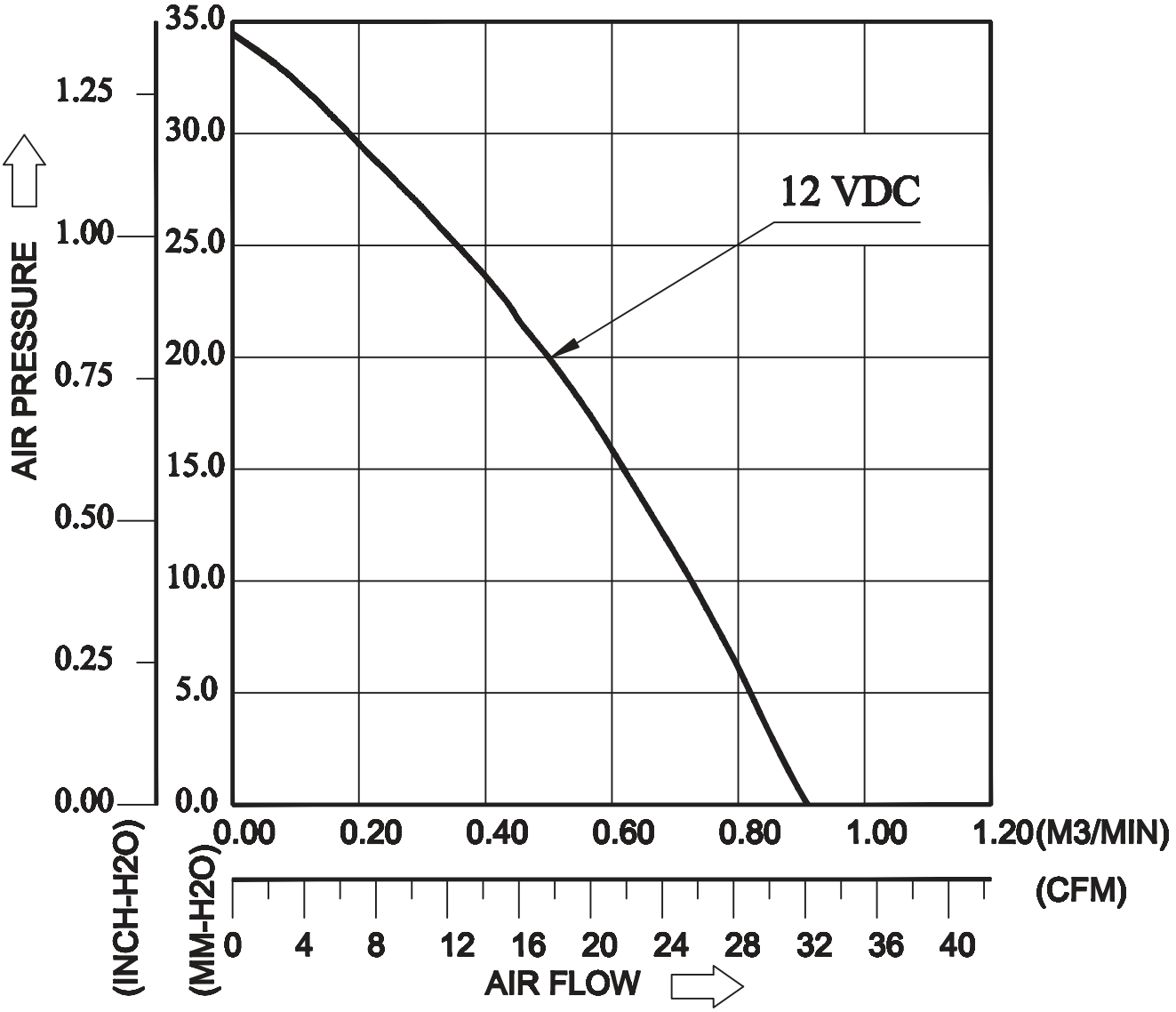
5. PROTECTION

5-1. LOCKED ROTOR PROTECTION ———
IMPEDANCE OF MOTOR WINDING PROTECTS MOTOR FROM DAMAGE IN 72 HOURS OF LOCKED ROTOR CONDITION AT THE REATED VOLTAGE

5-2. POLARITY PROTECTION ———
BE CAPABLE OF WITHSTANDING IF REVERSE CONNECTION FOR POSITIVE AND NEGATIVE LEADS

Customer No.:	BA10033B12HP077
AVC Model:	BA10033B12HP077

6. P & Q CURVE

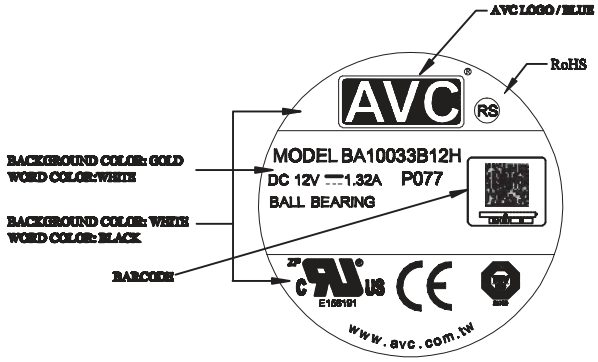


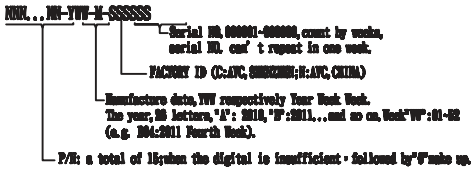
* TEST CONDITION:

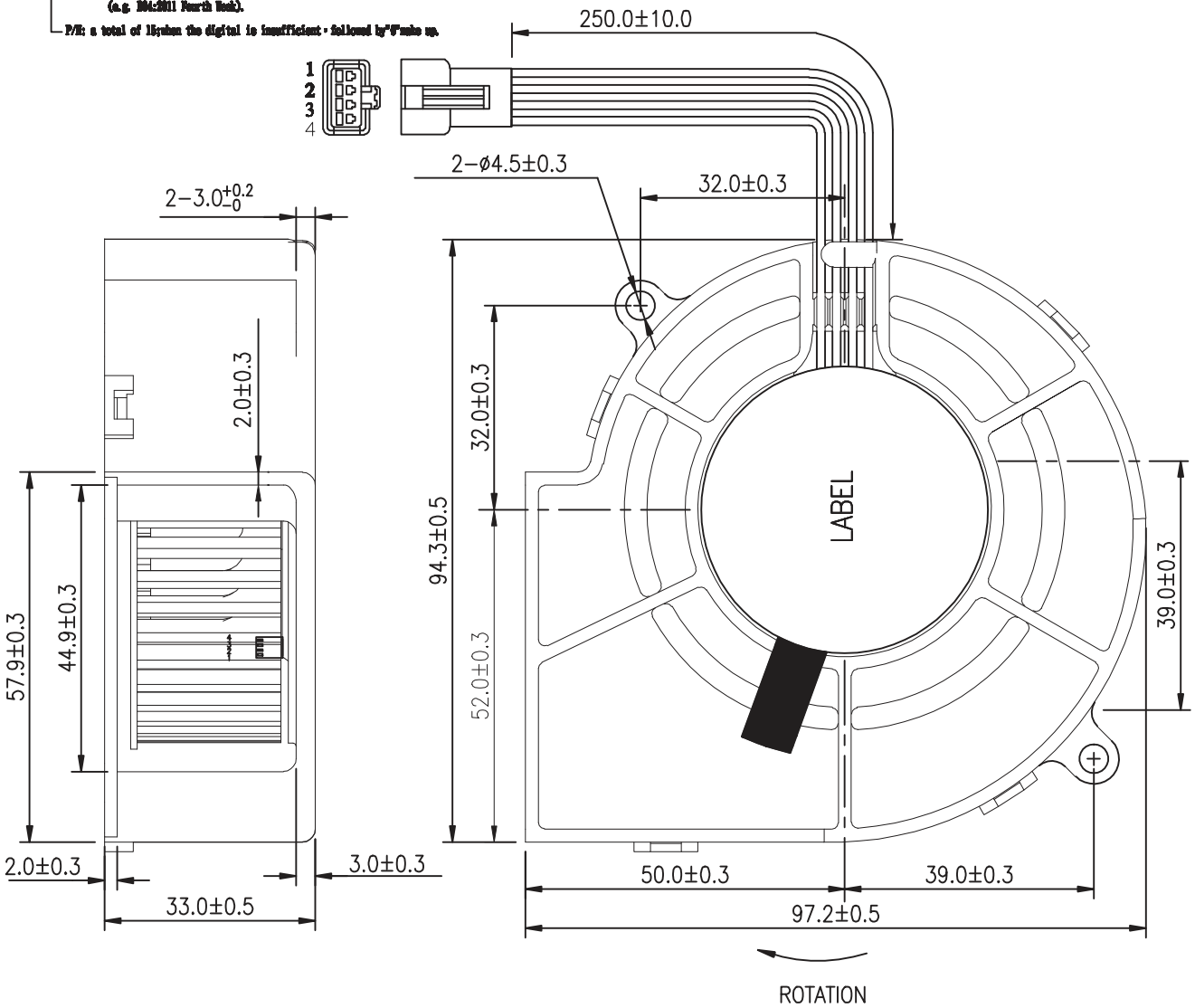
INPUT VOLTAGE	———	OPERATION VOLTAGE
TEMPERATURE	———	ROOM TEMPERATURE
HUMIDITY	———	65%RH

Customer No.: BA10033B12HP077
AVC Model: BA10033B12HP077

7. DIMENSION DRAWING







UNIT: mm

1. LEAD WIRES: PVC WIRES UL1007 AWG#24
   PIN1: BLACK WIRE ..... (−)
   PIN2: RED WIRE ..... (+)
   PIN3: YELLOW WIRE ..... (FG)
   PIN4: BLUE WIRE ..... (PWM)
2. CONNECTOR
   HOUSING: JST SMR−04V−N (COLOR:WHITE) OR EQUIVALENT−−− 1PCS
   TERMINAL: JST SYM−001T−P0.6 OR EQUIVALENT −−−− 4PCS
3. BARCODE LABEL SHOWS TRACEABLE INFO. IT IS NOT AVAILABLE ON ENGINEERING SAMPLE.

Customer No.:	BA10033B12HP077
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8. SPEED CONTROL FUNCTION

8-1. SIGNAL DESCRIPATION

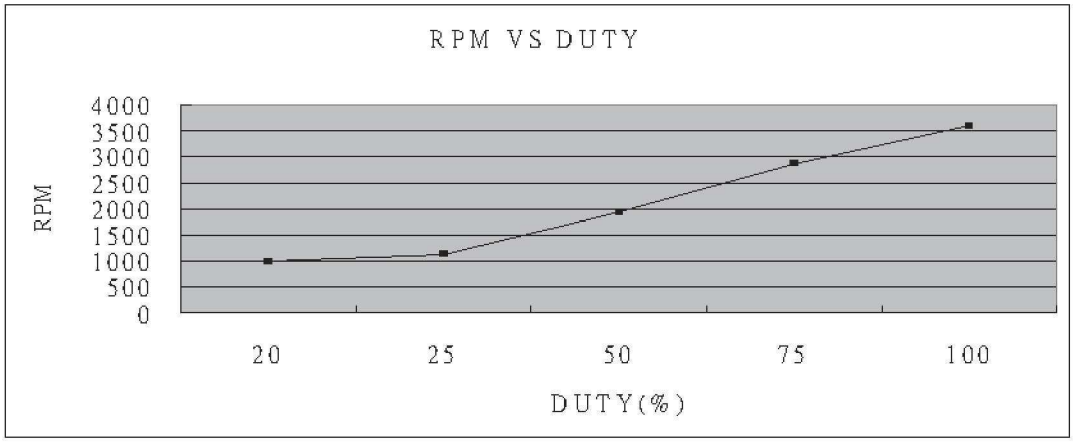
1. CONTROL SIGNAL: PWM
2. SIGNAL TYPE: INPUT LOW LEVEL VOLTAGE: MAX. <0.6V
   INPUT HIGH LEVEL VOLTAGE: MIN. >2.6V , MAX.<12V
3. PWM FREQUENCY RANGE: 20HZ~30KHZ
4. MAX. SINK CURRENT: 8mA
5. INPUT IMPEDANCE : 10K OHM MIN

8-2. FAN SPEED CONTROL

1. PWM FREQUENCY : 25KHZ
2. THE FAN SPEED SHOULD RUN AT FULL SPEED GIVEN PWM 100% DUTY CYCLE INPUT.
3. THE FAN IS SET TO RUN AT LOW SPEED WHEN PWM DUTY CYCLE IS ABOVE 0% ~ 20% .
4. THE FAN IS SET TO RUN AT SPEED OF 1000 ~ 3600 RPM BETWEEN PWM 20% ~ 100% DUTY CYCLE.
5. THE FAN WILL GO TO HIGH SPEED WHEN IF THE CONTROL SIGNAL IS DISCONNECTED.
6. PWM DUTY CYCLE (%) FOR FAN START UP=30%

8-3. PWM DUTY VS RPM

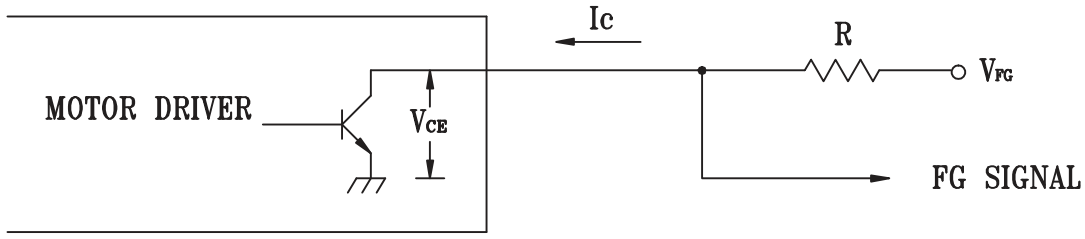
DUTY CYCLE %	R.P.M (REF)	CURRENT
20	1000	0.06
25	1130	0.06
50	1940	0.16
75	2872	0.4
100	3600	0.7



Customer No.:	BA10033B12HP077
AVC Model:	BA10033B12HP077

9. FREQUENCY GENERATOR (FG) SIGNAL

9-1. SCHEMATIC:



CAUTION:

THE LEAD WIRE OF FG SIGNAL CAN NOT TOUCH
THE LEAD WIRE OF POSITIVE OR NEGATIVE.

9-2. SIGNAL SPECIFICATION:

OUTPUT TYPE: OPEN COLLECT

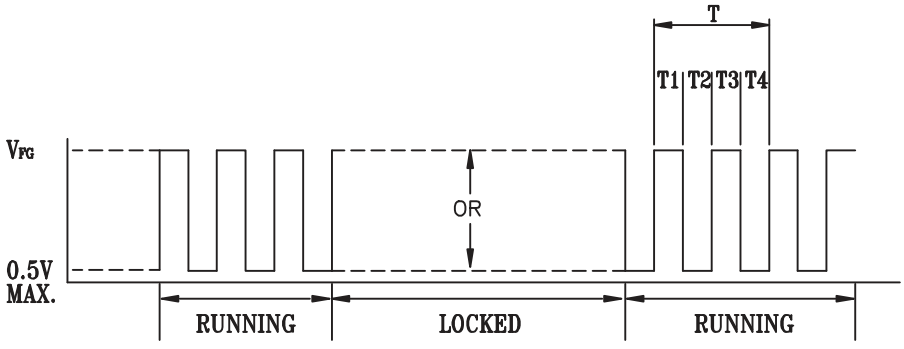
V_{FG} MAXIMUM VOLTAGE = 13.8V

Ic MAXIMUM CURRENT =5mA

LOW LEVEL VOLTAGE = 0.5V MAX.

$R \geq V_{FG} / Ic$

9-3. FREQUENCY GENERATOR WAVEFORM:



T=T1+T2+T3+T4=60/N (Sec) N: SPEED (RPM)