Customer No.: DBPJ1238B4GP006	
AVC Model: DBPJ1238B4GP006	f Rev. B)

SPECIFICATION FOR APPROVAL

1. SCOPE:

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

2. CHARACTERS:

(AT Ta=25°C)

		SPEC.
2-1.	RATED VOLTAGE	24 VDC
2-2.	OPERATION VOLTAGE	14.0- 27.6 VDC
2-3.	RATED CURRENT (INFREEAIR)	1.00(1.32 MAX.) A (AVERAGE)
2-4.	CURRENT ON LABEL	1.32 A
2-5.	START PEAK CURRENT (INFREEAIR)	1.98 A
2-6.	RATED POWER (INFREEAIR)	24.0 (30.36 MAX.) W
2-7.	SPEED (INFREEA	ACTUAL:6500 ± 10% VIRTUAL5600+10% R.P.M
2-8.	SPEED CONTROL TYPE	PWM CONTROLLER
2-9.	SIGNAL OUTPUT	FREQUENCY GENERATOR (FG)
2-10.	MAX. AIR FLOW (AT ZERO STATIC PRESSURE)	6.039 (5.435 MIN.) M^3/MIN 213.19(191.87MIN.) CFM
2-11.	MAX. AIR PRESSURE (AT ZERO FLOW)	39.55 (32.04 MIN.) mm-H20 1.557 (1.245 MIN.) inch-H20
2-12.	ACOUSTICAL NOISE	67.4 (70.4 MAX.) dB-A

2-13.	INSULATION RESISTANCE ——10 MEGA OHM MIN. AT 500 VDC	
2-14.	DIELECTRIC STRENGTH	5 mA MAX. AT 500 VAC 60Hz ONE MINUTE, (BETWEEN FRAME AND (+) TERMINAL)
2-15.	LIFE EXPECTANCE	L10: 70,000 HOURS AT 40°C ROOM, AMBIENT 15%~65%RH
2-16.	INSULATION CLASS	UL: CLASS A (BETWEEN FRAME AND (+) TERMINAL)

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 210-85.

3. MECHANICAL

3. DIMENSION ---------- SEE DIMENSION DRAWING

3. FRAME ---------- THERMOPLASTIC OF UL 94V-0

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

3. BEARING SYSTEM ---------- TWO BALLBEARINGS

3. WEIGHT ---------- 300 g

4. ENVIRONMENTAL

4- 1. OPERATING TEMPERATURE -25 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. RoHS COMPLIANCE SEERoHS STANDARD

4-6. DROP TEST ----------

IN MINIMUM PACKAGING CONDITION FAN WITHSTAND EACH ONE DROP OF THREE FACES FROM 30cm DISTANCE HEIGHT ONTO 10mm THICKNESS OF WOODEN BOARD

4-7. VIBRATION TEST ----------

SINEWAVE

DISPLACEMENT AMPLITUDE: 0.75 mm (EQUIVALENT 10G) FREQUENCY RANGE: 10Hz -55 Hz/30 SEC. 55Hz -10 Hz/30 SEC. LINEAR SCANNING 120 CYCLE

ENDURANCE TIMER PER AXIS: 2 HOURS

ORIENTATION: X,Y,Z

4-8. SHOCK TEST ----------

APPLY PEAK ACCELERATION 50 G AND KEEP DURATION OF THE PLUSES FOR llmS (HALF SINE WAVE)

Customer No.: DBPJ123 8B4GP006

AVC Model: DBPJ1238B4GP006

5. PROTECTION

5---------- 1. LOCKED ROTOR PROTECTION

IMPEDANCE OF MOTOR WINDING PROTECTS MOTOR FROM DAMAGE IN 72 HOURS OF LOCKED ROTOR CONDITION AT THE RATED VOLTAGE

5---------- 2. POLARITY PROTECTION

BE CAPABLE OF WITHSTANDING IF REVERSE CONNECTION FOR POSITIVE AND NEGATIVE LEADS

5----------3. HOT SWAP PROTECTION

THIS FAN HAS NO HOT SWAP FUNCTION.

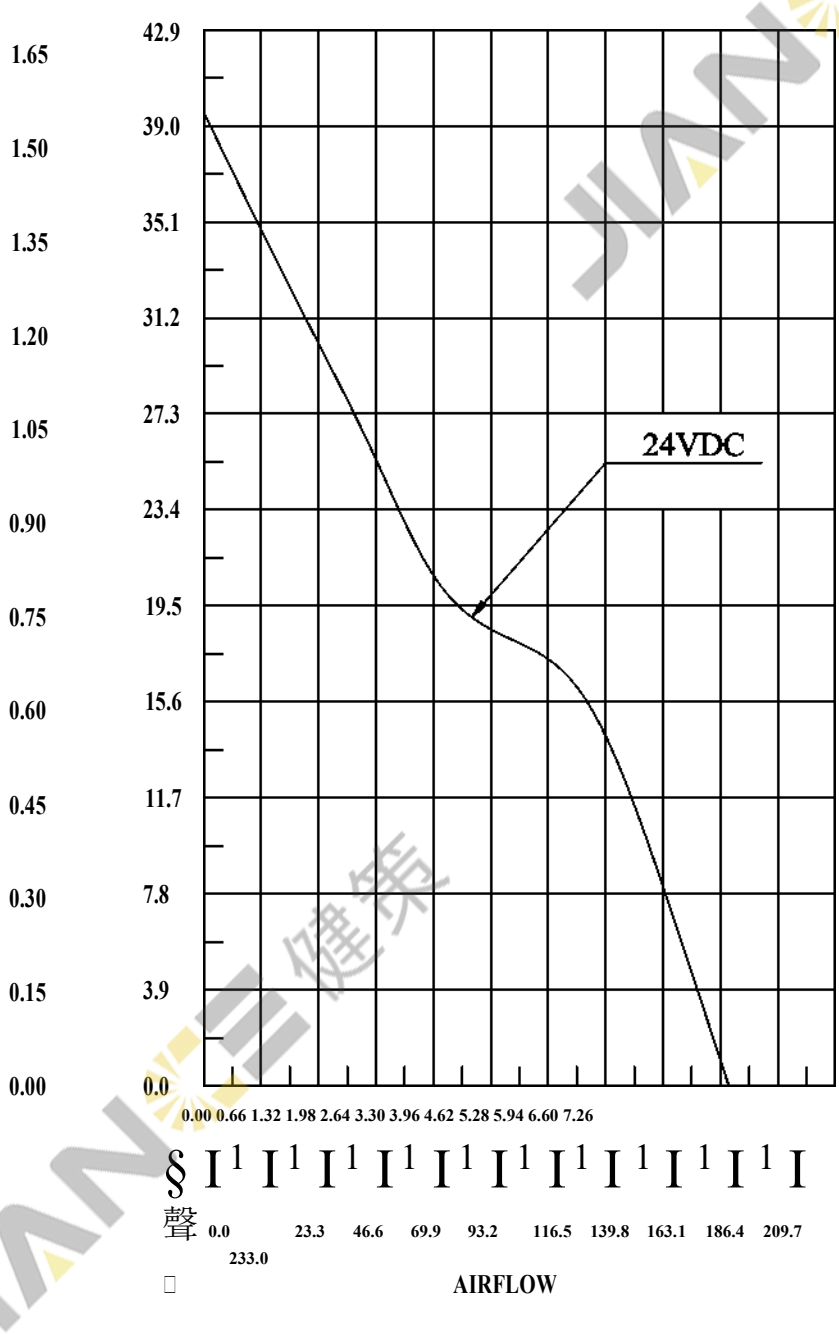
5---------- 4. PCBA PROTECTION

LIQUID COATING OF PCBA IS TO PREVENT FROM SHORT, DUE TO MOISTURE CONDENSATION AT LOW TEMP.

5---------- 5. SOLDERED PAD OF CABLE PROTECTION ----------

UV GLUE COATING FOR SOLDERED DOT OF CABLE IS TO PREVENT DROP.

6. P&Q CURVE



* TEST CONDITION:

INPUT VOLTAGE — OPERATION VOLTAGE

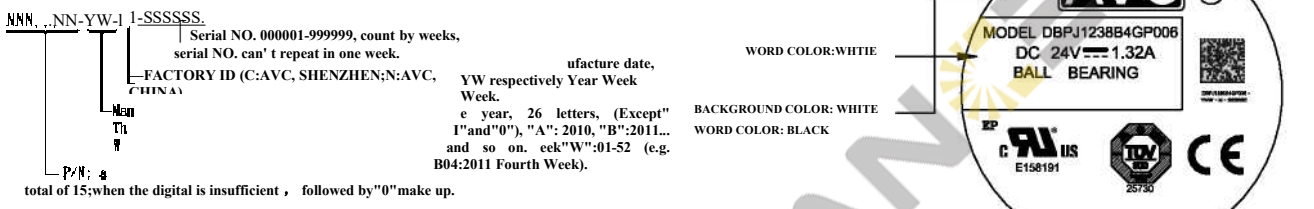
TEMPERATURE — ROOM TEMPERATURE

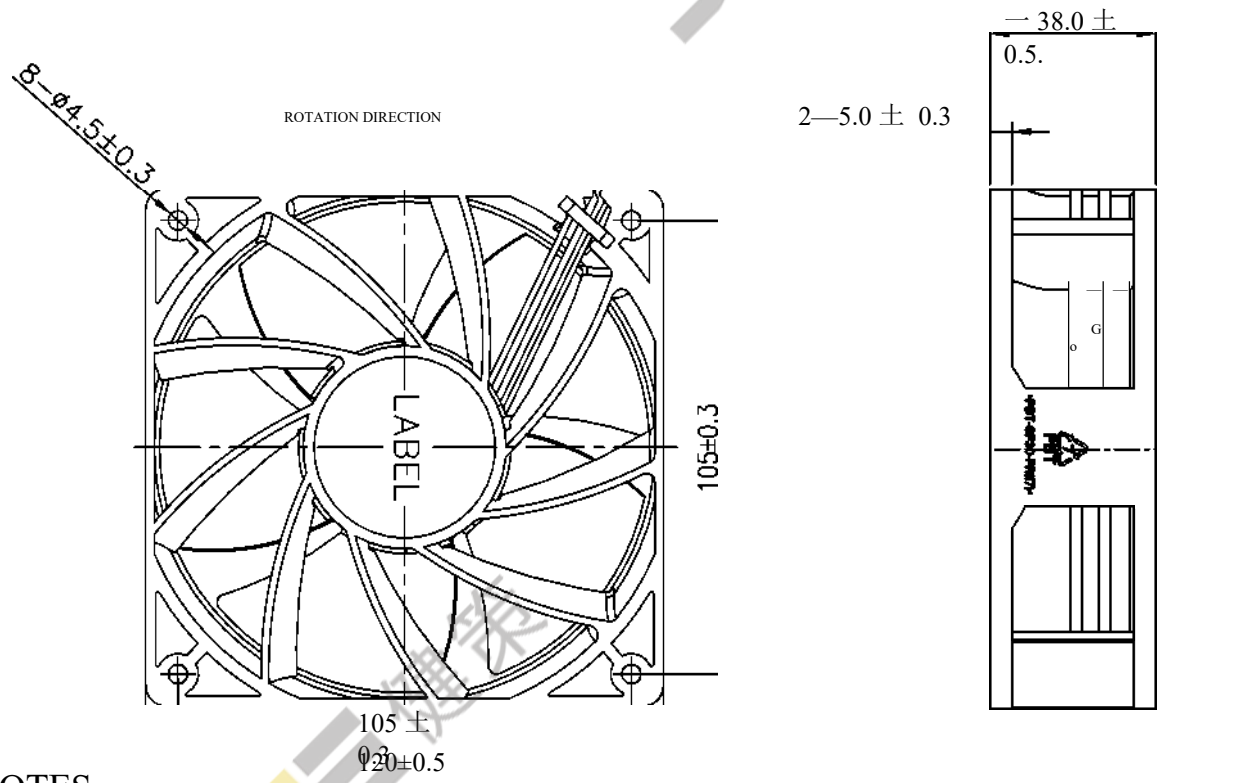
HUMIDITY — 65%RH

Customer No.: DBPJ1238B4GP006

AVC Model: DBPJ1238B4GP006

7. DIMENSION DRAWING





NOTES:

1. LEAD WIRES: PVC WIRES UL1007 AWG#24

   BROWN WIRE ..... (PWM)

   WHITE WIRE ..... (FG)

   RED WIRE ..... (+)

   B3CK WIRE ..... (-)

UNIT: mm

2. BARCODE LABEL SHOWS TRACEABLE INFO. IT IS AVAORLE ON ENGINEERING MANUFACTURE.

8. SPEED CONTROL FUNCTION

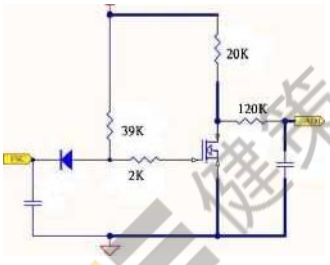
8-1. PWM SIGNAL DESCRIPTION :

1. CONTROL SIGNAL: PWM CONTROL
2. THE RANGE OF SIGNAL VOLTAGE: LOW LEVEL VOLTAGE: MIN. >-0.8V ,MAX. <0.4V
   HIGH LEVEL VOLTAGE: MIN. >2.8V, MAX. < 12V
3. THE FREQUENCY OF PWM SIGNAL SHALL BE ABLE TO ACCEPT A 300HZ□ 60KHZ
4. INPUT IMPEDANCE : 20K OHM MIN.

8-2. FAN SPEED CONTROL DESCRIPTION

1. FAN INPUT VOLTAGE (POSITIVE): 24VDC
2. PWM FREQUENCY : 25KHZ
3. THE FAN SPEED WILL SPIN AT MAXIMUM WHEN THE DUTY CYCLE IS 100%.
4. THE FAN SPEED WILL STOP WHEN THE DUTY CYCLE IS 0%.
5. THE FAN SPEED WILL SPIN AT 0□ 7000 RPM WHEN THE DUTY CYCLE IS 30% ~ 100%.
6. THE FAN SPEED WILL SPIN AT MAXIMUM WHEN THE LEAD WIRE OF PWM SIGNAL DISCONNECTED.
7. THE FAN WILL BE ABLE TO START WHEN THE DUTY CYCLE IS 30% .

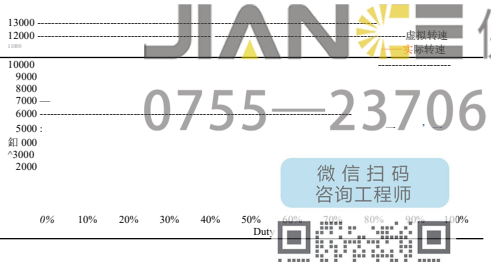
8-3.



PWM CONTROL LEAD WIRE INPUT IMPEDANCE

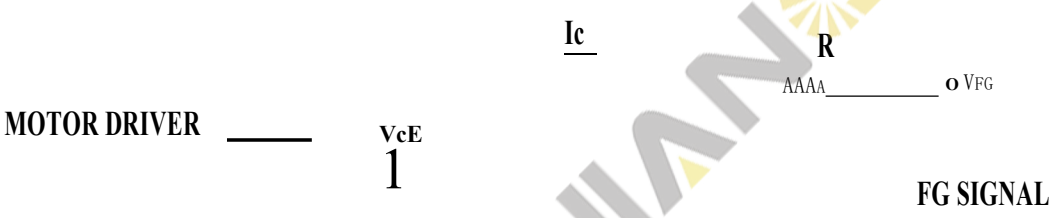
8-4. PWM DUTY CYCLE VS. RPM (AT Ta=25°C)

DUTY CYCLE(%)	SPEED R.P.M (ACTUAL)	SPEED R.P.M (VIRTUAL)	TYPICAL CURRENT(A)
0%	0	0	0.03
30%	11001200	946±200	0.08
50%	3488110%	3000110%	0.24
100%	6500110%	5600±10%	1.00



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 COLLECTOR

VFG MAXIMUM VOLTAGE = 27.6V

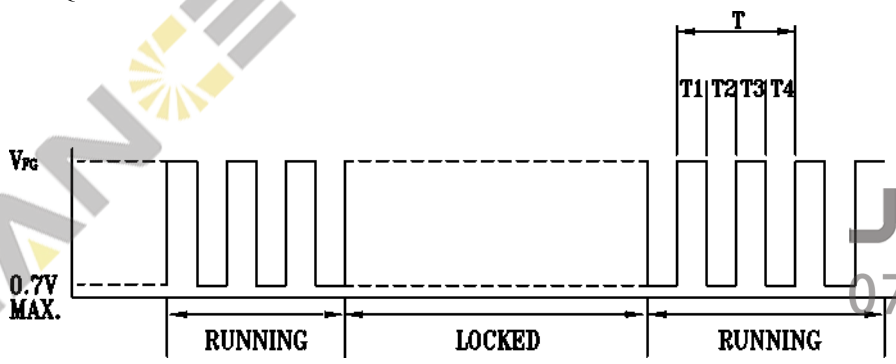
"G MINIMUM VOLTAGE =2.8V

Ic MAXIMUM CURRENT =5mA

LOW LEVEL VOLTAGE = 0.7V MAX.

R>VFG/Ic

9-3. FREQUENCY GENERATOR WAVEFORM:



T=T1+T2+T3+T4=6O/N (Sec) N: SPEED (RPM)

FAN INSTALLATION INSTRUCTIONS:

1. In case of using bolt-nut fasteners, the flatness of chassis mating surfaces should be kept below 0.1mm.

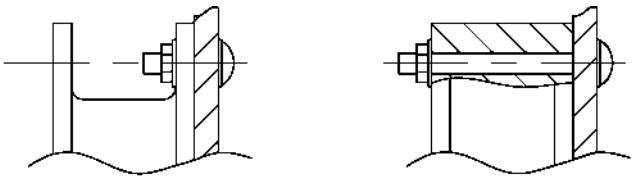
2. How to fasten the frames of different types:

   A. Flange type : Screw the bolt and nut together from the inlet or outlet.
   The torque should not exceed 4.5 kgf-cm [figure(a)]

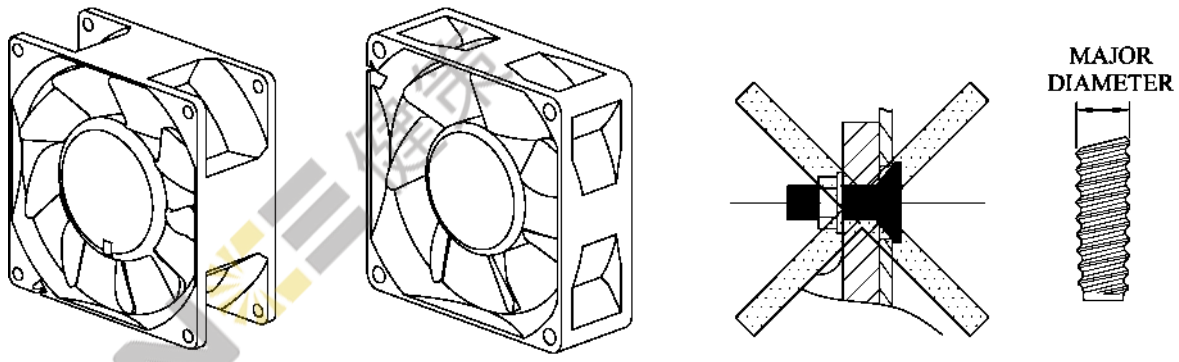
   B. Rib type : Screw the bolt through the rib.
   The torque should not exceed 7.5 kgf-cm [figure(b)]

3. In case of using self-tapping screws, appropriate screws according to JIS B 1122 Type 2 should be used. The dimensional details of the self-tapping screws recommended are shown in Table(a). Each fastener hole should only be tightened once or slippage may occur. In addition, the torque to be applied to the self-tapping screws must not exceed the values stated in Table(a).

4. The countersunk part of fastener head should not interfere with the frame or there would be a risk of breakage [figure(e)]. Fastener head with flat inner surface, i.e. no countersunk, is recommended.



(a) (b)



(c) (d) (e) (f)

MOUNTING HOLE DIAMETER	SCREW SPEC.	MAJOR DIAMETER [Fig (f)]		**REC0MMENDED MAX. TORQUE (kgf-cm)	
		MAXIMUM	MINIMUM	FLANGE HPE FRAME	RIB TYPE FRAME
03.5	M4 X1.41	4.0	3.85	4.5	7.5
*04.3	M4.8X1.59	4.8	4.65	5.5	7.5
04.5	M5 X1.59	5.0	4.85	5.5	7.5

* Non JIS B 1122 spec.
** A lower torque than the recommended value should be used if slippage is observed.
TABLE (a)