Customer No.:	DAPA1290B8FY004
AVC Model:	DAPA1290B8FY004

* History

REV.	DESCRIPTION	DATE
A	ISSUE SPEC.	05/20'24

Customer No.:	DAPA1290B8FY004
AVC Model:	DAPA1290B8FY004

Rev. A

SPECIFICATION FOR APPROVAL

1. SCOPE:

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

2. CHARACTERS BY SETTING COMMUNICATION POWER (AT Ta=25°C)

	ITEM	SPEC.
2-1.	RATED VOLTAGE	53.0 VDC
2-2.	OPERATION VOLTAGE	36.0 ~ 60.0 VDC
2-3.	RATED CURRENT (IN FREE AIR)	10.70(12.84 MAX.) A (AVERAGE)
2-4.	CURRENT ON LABEL	14.20 A
2-5.	RATED POWER (IN FREE AIR)	567.1 (680.6 MAX.) W
2-6.	MAX. POWER (INPUT VOLTAGE 53V,IN FULL PRESSURE)	700.0 W
2-7.	START PEAK CURRENT (IN FREE AIR)	15.0(MAX) A
2-8.	SPEED (IN FREE AIR)	$17000^{+2\%}_{-5\%}$ R.P.M
2-9.	SPEED CONTROL TYPE	PWM CONTROLLER
2-10.	SIGNAL OUTPUT	FREQUENCY GENERATOR (FG)
2-11.	MAX. AIR FLOW (AT ZERO STATIC PRESSURE)	15.13 (13.61 MIN.) M^3/MIN 534.26 (480.83 MIN.) CFM
2-12.	MAX. AIR PRESSURE (AT ZERO FLOW)	345.47(279.83 MIN.) mm-H_2O 13.60 (11.02 MIN.) inch-H_2O
2-13.	ACOUSTICAL NOISE	83.0 (88.0 MAX.) dB-A

Customer No.:	DAPA1290B8FY004
AVC Model:	DAPA1290B8FY004

2-14. INSULATION RESISTANCE —— 10 MEGA OHM MIN. AT 500 VDC (BETWEEN FRAME AND (+) TERMINAL)

2-15. DIELECTRIC STRENGTH ——— 5 mA MAX. AT 500 VAC 60Hz ONE MINUTE, (BETWEEN FRAME AND (+) TERMINAL)

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

2-17. DYNAMIC CLEARANCE BETWEEN FRAME AND IMPELLER ———

WHEN THE FAN IS RUNNING AT FULL SPEED, THE CLEARANCE BETWEEN THE FRAME AND THE BLADE MUST BE GREATER THAN OR EQUAL TO 0.3MM

2-18. STATIC GAP BETWEEN FRAME AND IMPELLER ———

WHEN THE FAN IS STATIONARY, THE RADIAL CLEARANCE BETWEEN THE FRAME AND THE BLADE IS GREATER THAN 0.5MM

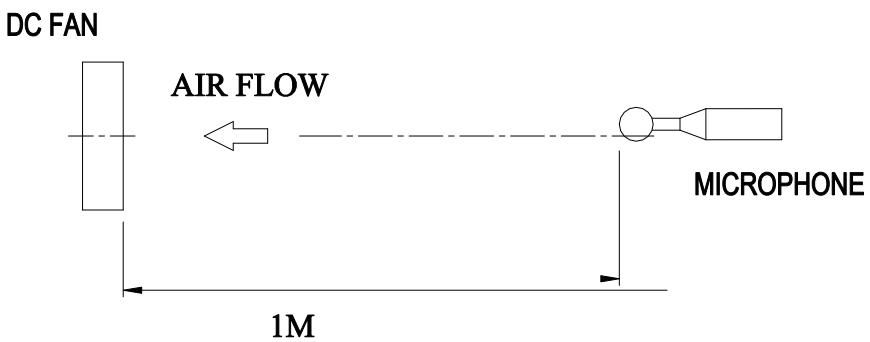
2-19. WIRE IMPEDANCE TEST ———

IMPEDANCE FROM THE END OF THE RED AND BLACK WIRES TO THE PLUG TERMINALS $\leq 50m\Omega$

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.

Customer No.:	DAPA1290B8FY004
AVC Model:	DAPA1290B8FY004

3. MECHANICAL

3-1. DIMENSION ——— SEE DIMENSION DRAWING

3-2. FRAME ——— DIECASTING ALUMINUM

3-3. FAN BLADE ——— THERMOPLASTIC OF UL94-V0

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

3-5. WEIGHT ——— 1158 g

4. ENVIRONMENTAL

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

4-2. STORAGE TEMPERATURE ——— -40 TO +80°C

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

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

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

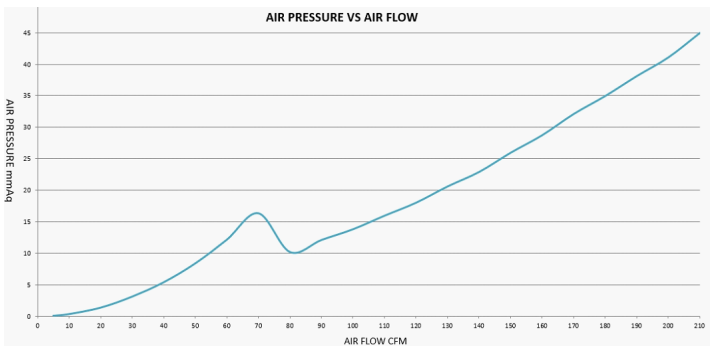
4-6. VIBRATION TEST ———
SINEWAVE
DISPLACEMENT AMPLITUDE: 0.75 mm (EQUIVALENT 10G)
FREQUENCY RANGE: 10Hz - 55 Hz / 30 SEC. 55Hz - 10 Hz / 30 SEC.
LINEAR SCANNING 120 CYCLE
ENDURANCE TIMER PER AXIS: 2 HOURS
ORIENTATION: X,Y,Z

4-7. SHOCK TEST ———
APPLY PEAK ACCELERATION 100 G AND KEEP DURATION OF THE PLUSES FOR 6mS (HALF SINE WAVE)

4-8. RoHS COMPLIANCE ——— SEE RoHS STANDARD

4-9.REVERSE START PROTECTION ——— THE LIMITED AIR FLOW VALUE FOR REVERSE START IS 195CFM.

4-10. CURVE FOR REVERSE ROTATION VS AIR PRESSURE.



Customer No.:	DAPA1290B8FY004
AVC Model:	DAPA1290B8FY004

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.

5-6. OTHERS

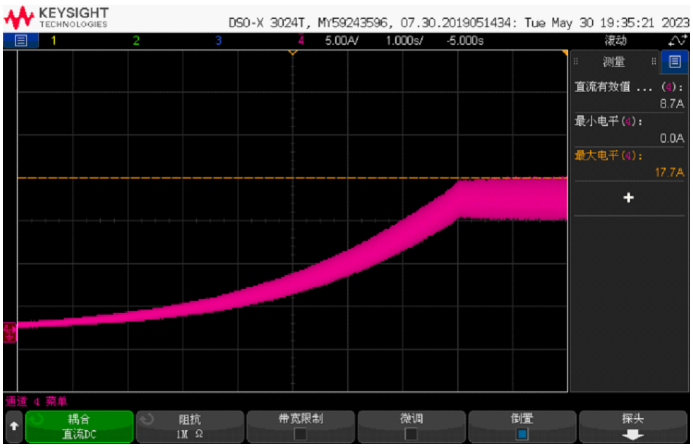
1. OVER VOLTAGE PROTECTOR TVS

THE FAN NOT USED TVS, THE MAXIMUM REVERSE VOLTAGE (USUALLY THE DERATING VALUE OF MOSFET Vds) WHEN FAN RUNNING AT THE MAX OPERATING VOLTAGE
DERATING V_{ds}=85V

2. OVER CURREN PROTECTOR FUSE

THE FAN NOT USED FUSE COMPOMENT, DEFINED THE PEAK CURRENT WHEN FAN STARTING AT MAX OPERATION VOLTAGE.
THE SUGGESTED FUSE CURRENT = THE PEAK CURRENT VALUE 0.9 /0.65.

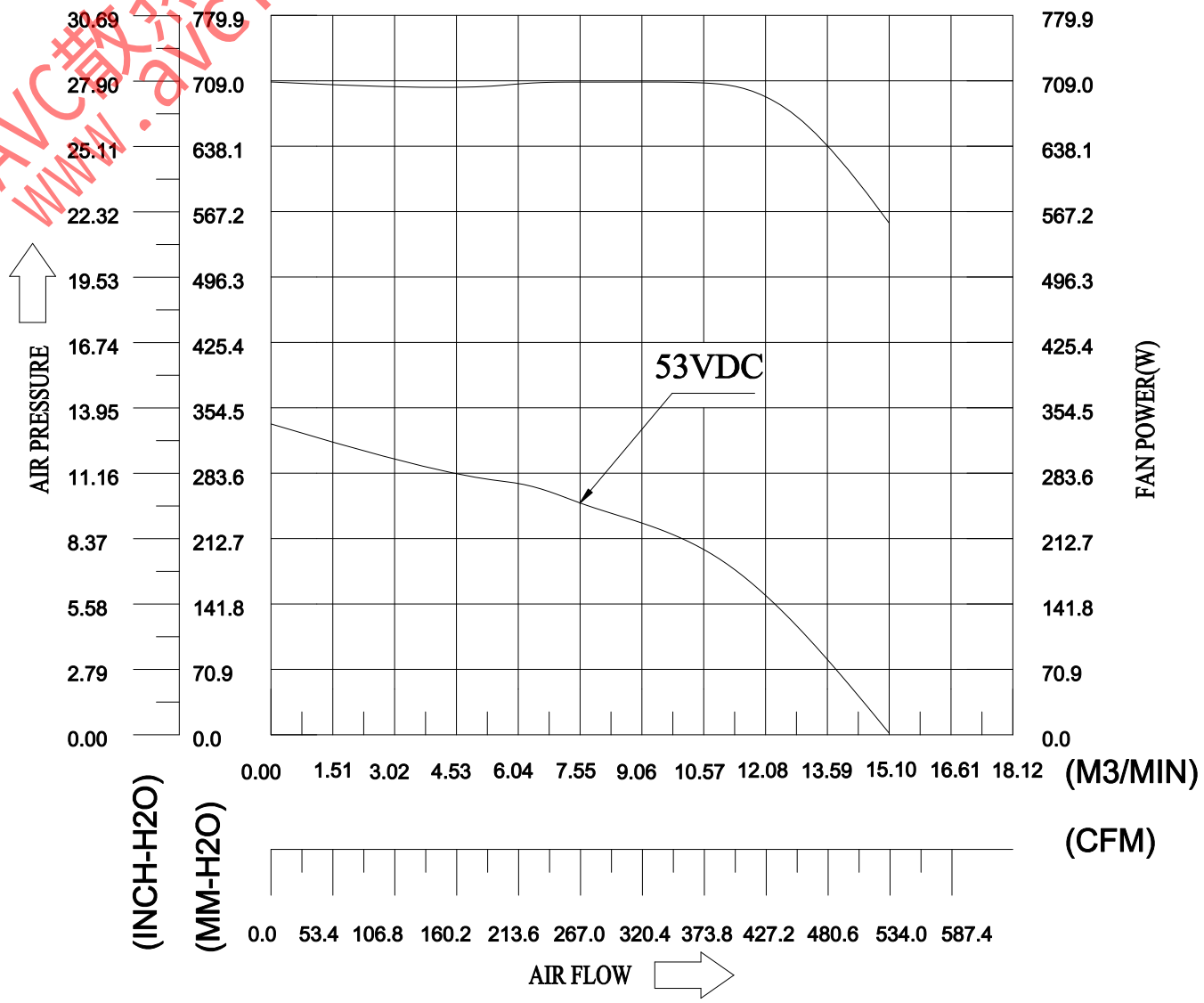
0.9 IS THE CURRENT DERATING VALUE. 0.65 IS THE TEMPERATURE DETAING VALUE
THE PEAK CURRENT VALUE IS 17.7A
THE SUGGESTED FUSE CURRENT VALUE = 17.7/0.9/0.65= 30.3A



PEAK CURRENT

Customer No.:	027020100210
AVC Model:	DAPA1290B8FY001

6. P & Q CURVE BY SETTING COMMUNICATION POWER

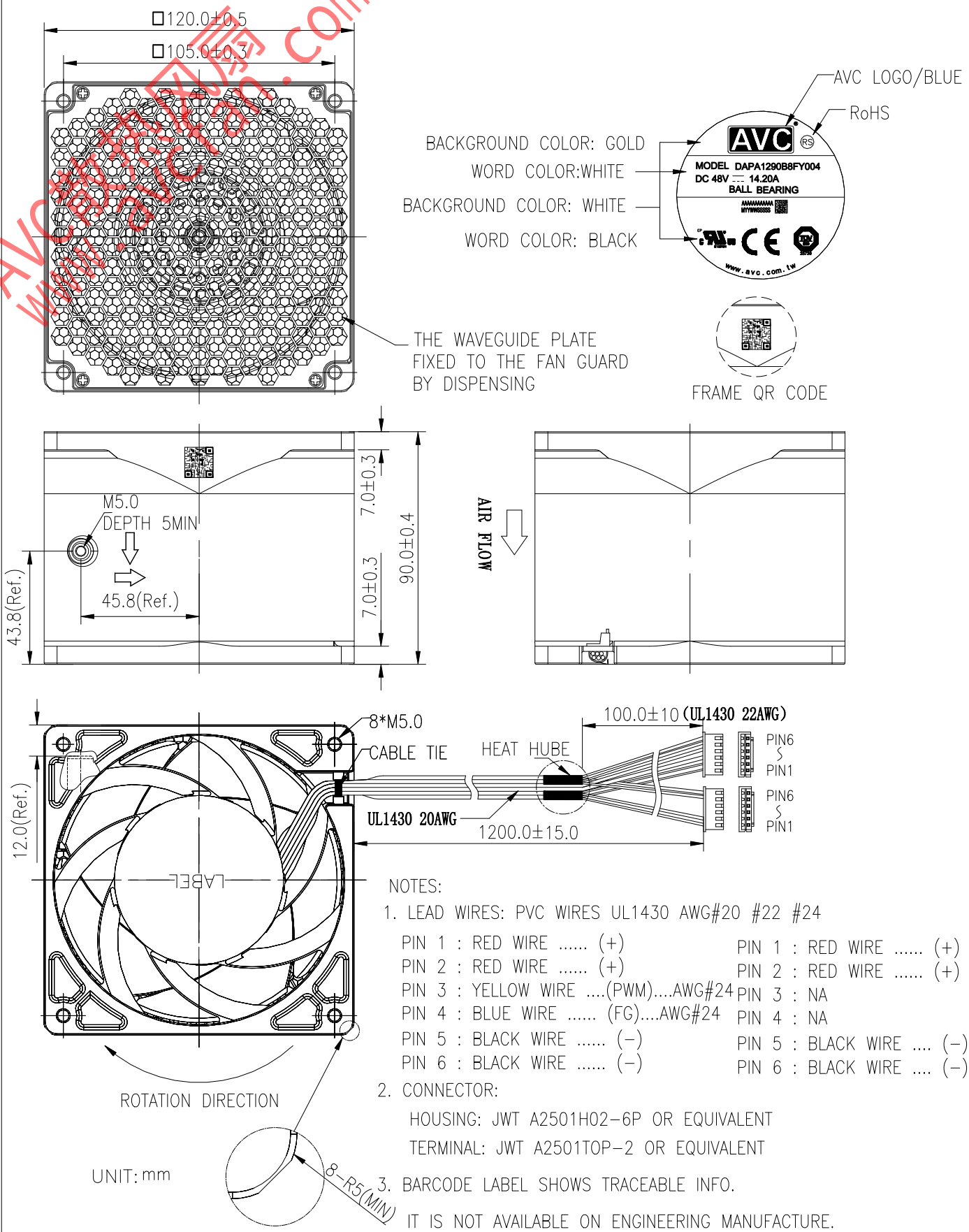


* TEST CONDITION:

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

Customer No.:	DAPA1290B8FY004
AVC Model:	DAPA1290B8FY004

7-1 DIMENSION DRAWING



NOTES:

1. LEAD WIRES: PVC WIRES UL1430 AWG#20 #22 #24

PIN 1 : RED WIRE ..... (+)	PIN 1 : RED WIRE ..... (+)
PIN 2 : RED WIRE ..... (+)	PIN 2 : RED WIRE ..... (+)
PIN 3 : YELLOW WIRE ....(PWM)....AWG#24	PIN 3 : NA
PIN 4 : BLUE WIRE ..... (FG)....AWG#24	PIN 4 : NA
PIN 5 : BLACK WIRE ..... (−)	PIN 5 : BLACK WIRE .... (−)
PIN 6 : BLACK WIRE ..... (−)	PIN 6 : BLACK WIRE .... (−)

2. CONNECTOR:
   HOUSING: JWT A2501H02-6P OR EQUIVALENT
   TERMINAL: JWT A2501TOP-2 OR EQUIVALENT
3. BARCODE LABEL SHOWS TRACEABLE INFO.

IT IS NOT AVAILABLE ON ENGINEERING MANUFACTURE.

Customer No.:	DAPA1290B8FY004
AVC Model:	DAPA1290B8FY004

8. SPEED CONTROL FUNCTION

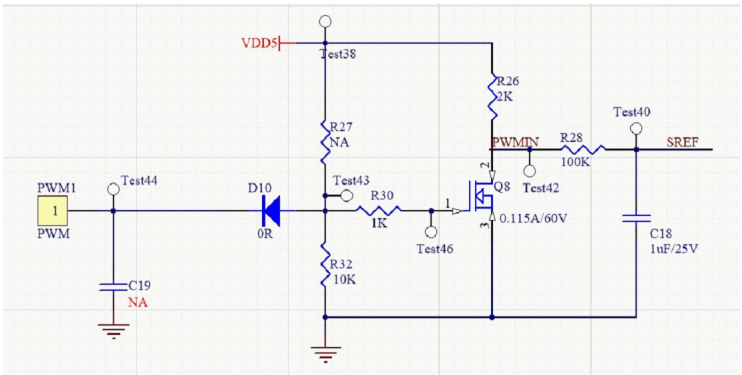
8-1. PWM SIGNAL DESCRIPTION :

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.<20V
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

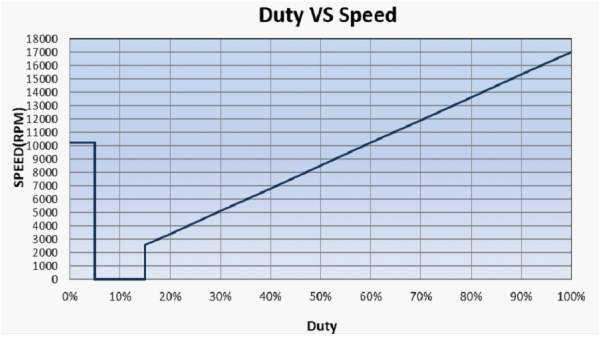
1. FAN INPUT VOLTAGE (POSITIVE) : 53VDC
2. PWM FREQUENCY : 2KHZ
3. THE FAN SPEED WILL SPIN AT MAXIMUM WHEN THE DUTY CYCLE IS 100%.
4. THE FAN WILL STOP WHEN THE DUTY CYCLE IS 10 %.
5. THE FAN WILL SPIN AT 10200PM WHEN THE DUTY CYCLE IS 0~5%.
6. THE FAN SPEED WILL SPIN AT 0~17000 RPM WHEN THE DUTY CYCLE IS 10~100%.
7. THE FAN SPEED WILL SPIN AT 10200RPM WHEN THE LEAD WIRE OF PWM SIGNAL DISCONNECTED.
8. THE FAN WILL BE ABLE TO START WHEN THE DUTY CYCLE IS 15% .

8-3. PWM CONTROL LEAD WIRE INPUT IMPEDANCE



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

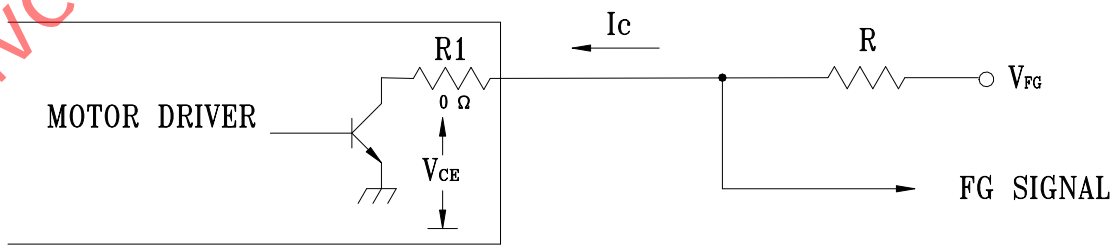
DUTY CYCLE (%)	R.P.M (REF)	TYPICAL CURRENT(A)	MAX CURRENT(A)
0~5	10200±5%	2.61	3.14
10	0	0.03	0.05
15	2550±300	0.18	0.27
25	4250±300	0.37	0.56
50	8500±5%	1.65	1.98
75	12750±5%	4.73	5.68
100	$17000^{+2\%}_{-5\%}$	10.70	12.84



Customer No.:	DAPA1290B8FY004
AVC Model:	DAPA1290B8FY004

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

V_{FG} MAXIMUM VOLTAGE =60.0V

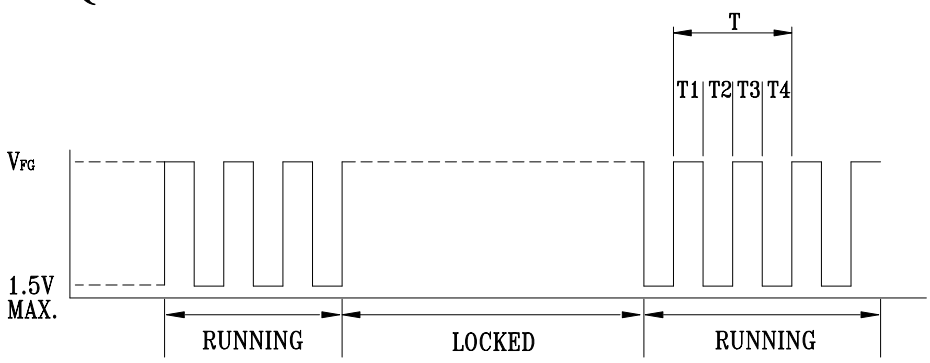
V_{FG} MINIMUM VOLTAGE = 2.8V

I_C MAXIMUM CURRENT =5mA

LOW LEVEL VOLTAGE = 0.7V MAX.

$R \geq V_{FG} / I_C$

9-3. FREQUENCY GENERATOR WAVEFORM:



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