

SPECIFICATION FOR APPROVAL

Customer STD		
Description DC BLOWER		
Part No. R E V .		
Delta Model No. BFB0512VHD-SP01 REV. 00		
Sample Issue No.		
Sample Issue Date JUL.13.2009		
'		
PLEASE SEND ONE COPY OF THIS SPECIFICAITON BACK AFTER YOU SIGNED APPROVAL FOR PRODUCTION PRE-ARRANGMENT.		
APPROVED BY:		
DATE :		

DELTA ELECTRONICS, INC.
TAOYUAN PLANT
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SPECIFICATION FOR APPROVAL ********

Customer:	STD	
Description:	DC BLOWER	
Customer P/N:		REV:
Delta Model NO.:	BFB0512VHD-SP01	
Sample Rev:	00	Issue NO:
Sample Issue Date	: JUL.13.2009	Quantity:

1. SCOPE:

THIS SPECIFICATION DEFINES THE ELECTRICAL AND MECHANICAL CHARACTERISTICS OF THE DC BRUSHLESS BLOWER. THE BLOWER MOTOR IS WITH SINGLE PHASE AND FOUR POLES.

2. CHARACTERS:

ITEM	DESCRIPTION
RATED VOLTAGE	12 VDC
OPERATION VOLTAGE	10.8 - 12.8 VDC
INPUT CURRENT	0.20 (MAX. 0.28)A
INPUT POWER	2.40 (MAX. 3.36)W
SPEED	5500±10% R.P.M.
MAX. AIR FLOW (AT ZERO STATIC PRESSURE)	0.157 (MIN. 0.142) M 3 /MIN. 6.12 (MIN. 4.97) CFM
MAX.AIR PRESSURE (AT ZERO AIRFLOW)	15.30 (MIN. 12.39) mmH ₂ 0 0.647 (MIN. 0.524) inchH ₂ 0
ACOUSTICAL NOISE (AVG.)	32.0 (MAX. 37.0) dB-A
INSULATION TYPE	UL: CLASS A

(continued)

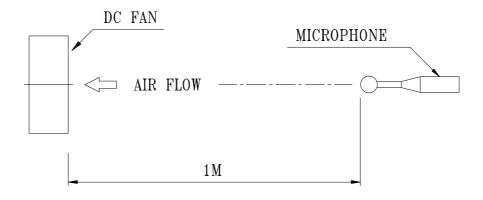
page: 1 A00

PART NO:	
DELTA MODEL:	BFB0512VHD-SP01

	,
INSULATION STRENGTH	10 MEG OHM MIN. AT 500 VDC (BETWEEN FRAME AND (+) TERMINAL)
DIELECTRIC STRENGTH	5 mA MAX. AT 500 VAC 50/60 Hz ONE MINUTE, (BETWEEN FRAME AND (+) TERMINAL)
EXTERNAL COVER	OPEN TYPE
LIFE EXPECTANCE	50,000 HOURS CONTINOUS OPERATION AT 40 °C WITH 15 ~ 65 %RH.
ROTATION	CLOCKWISE VIEW FROM NAME PLATE SIDE
OVER CURRENT SHUT DOWN	THE CURRENT WILL SHUT DOWN WHEN LOCKING ROTOR
INSULATION TYPE	UL: CLASS A
LEAD WIRE	UL 1571 -F- AWG #28 BLACK WIRE: POSITIVE(-) RED WIRE: NEGATIVE(+) BLUE WIRE: TACHOMETER OUTPUT(F00) YELLOW WIRE: SPEED CONTROL(PWM)

NOTES:

- 1. ALL READINGS ARE MEASURED AFTER STABLY WARMING UP THROUGH 10 MINUTES.
- 2. THE VALUES WRITTEN IN PARENS, (), ARE LIMITED SPEC.
- 3. ACOUSTICAL NOISE MEASURING CONDITION:



NOISE IS MEASURED AT RATED VOLTAGE IN FREE AIR IN ANECHOIC CHAMBER WITH B & K SOUND LEVEL METER WITH MICROPHONE AT A DISTANCE OF ONE METER FROM THE FAN INTAKE.

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PART NO:		
DELTA MODEL:		
3. MECHANICAL:		
3-1. DIMENSIONS		SEE DIMENSIONS DRAWING
3-2. FRAME		PLASTIC UL: 94V-0
3-3. IMPELLER		PLASTIC UL: 94V-0
3-4. COVER		SECC
3-5. BEARING SYSTI	EM	TWO BALL BEARING
3-6. WEIGHT		25.2 GRAMS
4. ENVIRONMENTAL:		
4−1. OPERATING TE	MPERATURE	10 TO +70 DEGREE C
4-2. STORAGE TEMP	ERATURE	40 TO +75 DEGREE C
4-3. OPERATING HU	MIDITY	5 TO 90 % RH
4-4. STORAGE HUMI	DITY	5 TO 95 % RH
5. PROTECTION:		
5-1. LOCKED ROTOR		PROTECTS MOTOR FROM FIRE IN QG

- 5-1. LOCKED ROTOR PROTECTION

 IMPEDANCE OF MOTOR WINDING PROTECTS MOTOR FROM FIRE IN 96
 HOURS OF LOCKED ROTOR CONDITION AT THE RATED VOLTAGE.
- 5-2. POLARITY PROTECTION

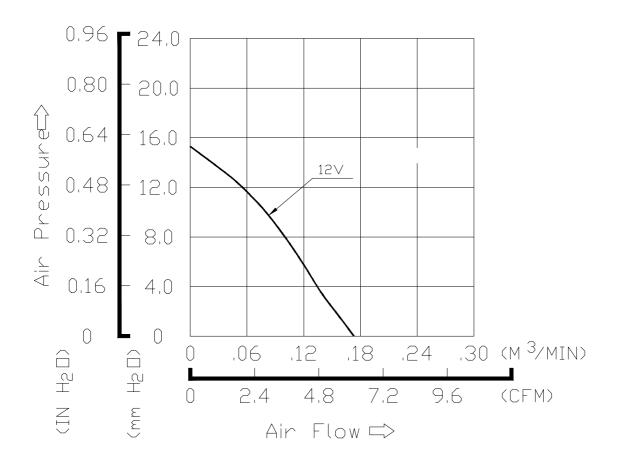
 BE CAPABLE OF WITHSTANDING IF REVERSE CONNECTION FOR POSITIVE AND NEGATIVE LEADS.
- 6. RE OZONE DEPLETING SUBSTANCES:
 - 6-1. NO CONTAINING PBBs, PBBos, CFCs, PBBEs, PBDPEs AND HCFCs.
- 7. PRODUCTION LOCATION
 - 7-1. PRODUCTS WILL BE PRODUCED IN CHINA OR THAILAND OR TAIWAN.

page: 3 A00

PART NO:

DELTA MODEL: BFB0512VHD-SP01

8. P & Q CURVE:



* TEST CONDITION: INPUT VOLTAGE ---- OPERATION VOLTAGE TEMPERATURE ---- ROOM TEMPERATURE HUMIDITY ----- 65%RH

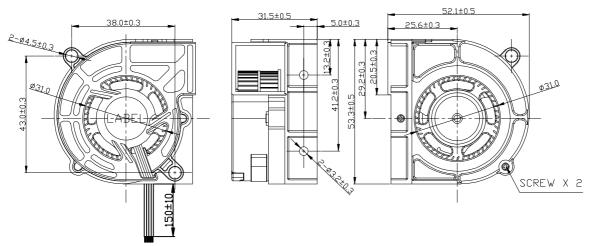
page: 4 A00

PART NO:
DELTA MODEL:
BFB0512VHD-SP01

9. DIMENSION DRAWING:

LABEL:





UNIT: $\underline{\mathbf{m}}\underline{\mathbf{m}}$

NOTES:

1. LEAD WIRE: UL 1571 -F- AWG #28

BLACK WIRE: NEGATIVE (-) RED WIRE: POSITIVE (+)

BLUE WIRE: TACHOMETER OUTPUT (F00) YELLOW WIRE: SPEED CONTROL (PWM)

2. THIS PRODUCT IS ROHS COMPLIANT

page: 5 A00

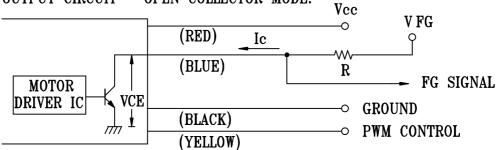
PART NO:

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BFB0512VHD-SP01

10. FERUENCY GENERATOR (FG) SIGNAL:

1. OUTPUT CIRCUIT - OPEN COLLECTOR MODE:



CAUTION: THE FG SIGNAL LEAD WIRE MUST BE KEPT AWAY FROM "+" LEAD WIRE & "-" LEAD WIRE.

2. SPECIFICATION:

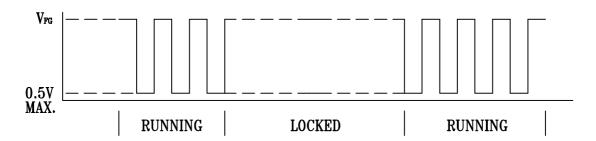
Vce (sat)=0.5V MAX.

 $V_{FG} = 5.0V$ TYP. (Vcc MAX.)

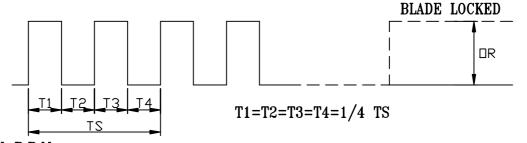
 $I_c = 5mA MAX.$

 $R \ge V_{FG} / I_{C}$

3. FREQUENCY GENERATOR WAVEFORM:



FAN RUNNING FOR 4 POLES



N=R.P.M TS=60/N(SEC)

*VOLTAGE LEVEL AFTER BLADE LOCKED

*4 POLES

page: 6

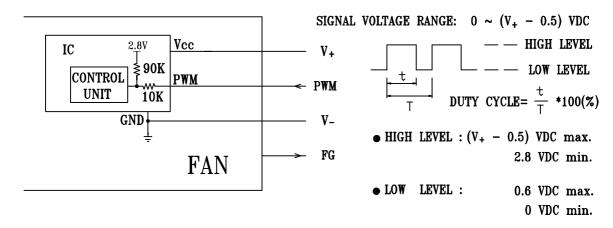
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PART NO:

DELTA MODEL: BFB0512VHD-SP01

11. PWM CONTROL FUNCTION

11-1 PWM CONTROL INTERFACE

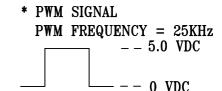


- THE PREFERRED OPERATING FREQUENCY OF PWM SIGNAL IS 25K Hz.
- AT 100% DUTY CYCLE, THE ROTOR WILL SPIN AT MAXIMUM SPEED.
- AT 0% DUTY CYCLE, THE ROTOR WILL STOP TO SPIN.
- WHEN THE PWM CONTROL LEAD WIRE IS DISCONNECTED, THE ROTOR WILL SPIN AT MAXIMUM SPEED.

11-2 FAN CHARACTERISTICS

TEST CONDITION: AT 25°C, V+ = 12.0VDC & PWM SIGNAL AS FOLLOW

DUTY CYCLE (%)	SPEED R.P.M.	CURRENT (A) TYP.
100	5500±10%	0.20
0	0	0.01



• MIN. STARTED DUTY CYCLE: 35% (MAX.)
WHEN DUTY CYCLE IS SET FOR MORE THAN 35%, THE FAN WILL BE ABLE TO START FROM A DEAD STOP.

page: 7



Application Notice

- 1. Delta will not guarantee the performance of the products if the application condition falls outside the parameters set forth in the specification.
- 2. A written request should be submitted to Delta prior to approval if deviation from this specification is required.
- 3. Please exercise caution when handling fans. Damage may be caused when pressure is applied to the impeller, if the fans are handled by the lead wires, or if the fan was hard-dropped to the production floor.
- 4. 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 caused by the introduction of powder, droplets of water or encroachment of insect into the hub.
- 5. The above-mentioned conditions are representative of some unique examples and viewed as the first point of reference prior to all other information.
- 6. It is very important to establish the correct polarity before connecting the fan to the power source. Positive (+) and Negative (-). Damage may be caused 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.
- 7. Delta fans without special protection are not suitable where any corrosive fluids are introduced to their environment.
- 8. Please ensure all fans are stored according to the storage temperature limits specified. Do not store fans in a high humidity environment. We highly recommend performance testing is conducted before shipping, if the fans have been stored over 6 months.
- 9. Not all fans are provided with the Lock Rotor Protection feature. If you impair the rotation of the impeller for the fans that do not have this function, the performance of those fans will lead to failure.
- 10. Please be cautious when mounting the fan. Incorrect mounting of fans may cause excess resonance, vibration and subsequent noise.
- 11. It is important to consider safety when testing the fans. A suitable fan guard should be fitted to the fan to guard against any potential for personal injury.
- 12. Except where specifically stated, all tests are carried out at room (ambient) temperature and relative humidity conditions of 25°C, 65% RH. The test value is only for fan performance itself.
- 13. Be certain to connect an "4.7µF or greater" capacitor to the fan externally when the application calls for using multiple fans in parallel, to avoid any unstable power.

Doc. No: FMBG-ES Form 001 Rev. 0001 Date: June 24, 2009