客戶承認書
SPECIFICATION FOR APPROVAL

CUSTOMER: STD

DESCRIPTION: DC FAN

CUSTOMER P/N: REV:

DELTA MODEL: KSB0505HA-G303 REV: 00

SAMPLE ISSUE DATE: 07/11/2013

QUANTITY:

PLEASE SIGN BACK ONE COPY OF THIS SPECIFICATION AFTER COMPLETION OF APPROVAL

APPROVED BY:

DATE:

DELTA ELECTRONICS COMPONENTS (WUJIANG) LTD.
FAN/MOTOR PLANT
No.1688 Jiangxing East Road,WuJiang Economy Development Zone
Wujiang City JiangSu Province, P.R.C.

TEL:86-512-63406008
FAX:86-512-63015608

No.1688 Jiangxing East Road
WuJiang Economy Development Zone
Wujiang City Jiang Su Province,P.R.C.

TEL : 86-512-63406008
FAX : 86-512-63015608

STATEMENT OF DEVIATION

****

[V] NONE

[ ] DESCRIPTION :

No.1688 Jiangxing East Road
WuJiang Economy Development Zone
Wujiang City Jiang Su Province,P.R.C.
TEL : 86-512-63406008
FAX : 86-512-63015608

SPECIFICATION FOR APPROVAL

****

Customer:	STD		
Description:	DC FAN		
Customer P/N:		REV:	
Delta Model NO.:	KSB0505HA-G303	Delta Safety Model NO:	KSB0505HA
Sample Rev:	00	Issue NO:	
Sample Issue Date:	JUL-11-2013	Quantity:	

1. SCOPE:

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

2. CHARACTERS:

(CONDITION: 25°C, 5 VDC, 1 ATM)

ITEM		DESCRIPTION
RATED VOLTAGE		5 VDC
OPERATION VOLTAGE		2.5~5.5 VDC
MIN. START VOLTAGE		2.5 VDC MAX.
INPUT CURRENT		0.17 (MAX. 0.32) A (SAFETY CURRENT 0.32 A)
INPUT POWER		0.85 (MAX. 1.75) W
SPEED		3350 ±8% R.P.M.
MAX. AIR PRESSURE (AT ZERO AIRFLOW AND BYPASS IS SEALED)		7.462 (MIN. 5.320) mm-H 0
MAX. AIR FLOW @ RATED VOLTAGE. (AT ZERO STATIC PRESSURE IN MODULE)	@ OUTLET A (OUTLET B OPENED)	4.197 (MIN. 3.663) CFM
	@ OUTLET B (OUTLET A OPENED)	2.542 (MIN. 2.008) CFM
VIBRATION LEVEL		< 2.0 m/s^2
ACOUSTICAL NOISE (@50cm)		32.2 dBA (MAX. 35.0dBA)
INSULATION TYPE		UL: CLASS A
FAN TYPE		DISH FAN
ROTATION(TOP SIDE VIEW)		CLOCKWISE

Customer P/N:

Delta Model NO: KSB0505HA-G303

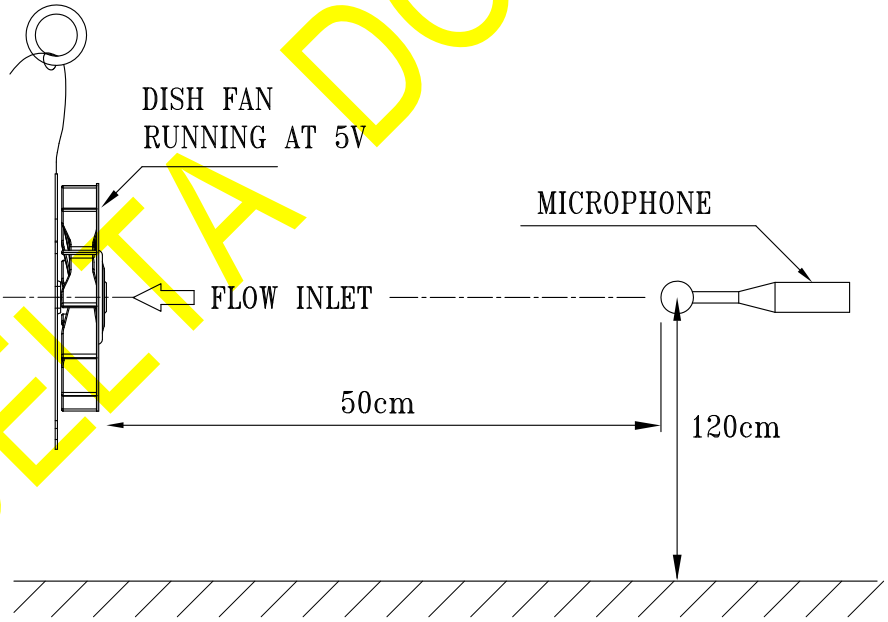
INSULATION STRENGTH	10 MEG OHM MIN. AT 500 VDC (BETWEEN FRAME AND (+) TERMINAL)
DIELECTRIC STRENGTH	5 mA MAX. AT 500 VAC 60 Hz 3 SECONDS, (BETWEEN FRAME AND (+) TERMINAL)
LIFE EXPECTANCE (L10) (AT LABEL VOLTAGE)	30,000 HOURS AT 50 °C WITH 15 ~ 65 %RH
OVER CURRENT SHUT DOWN	THE CURRENT WILL SHUT DOWN WHEN LOCKING ROTOR

NOTES: a. ALL READINGS ARE MEASURED AFTER STABLY WARMING UP THROUGH 10 MINUTES.

b. STANDARD AIR PROPERTY IS AIR AT (Td) 25°C TEMPERATURE, (RH) 65% RELATIVE HUMIDITY, AND (Pb) 760 mmHg BAROMETRIC PRESSURE.

c. THE VALUES WRITTEN IN PARENS , ( ), ARE LIMITED SPEC.

d. ACOUSTICAL NOISE MEASURING CONDITION:

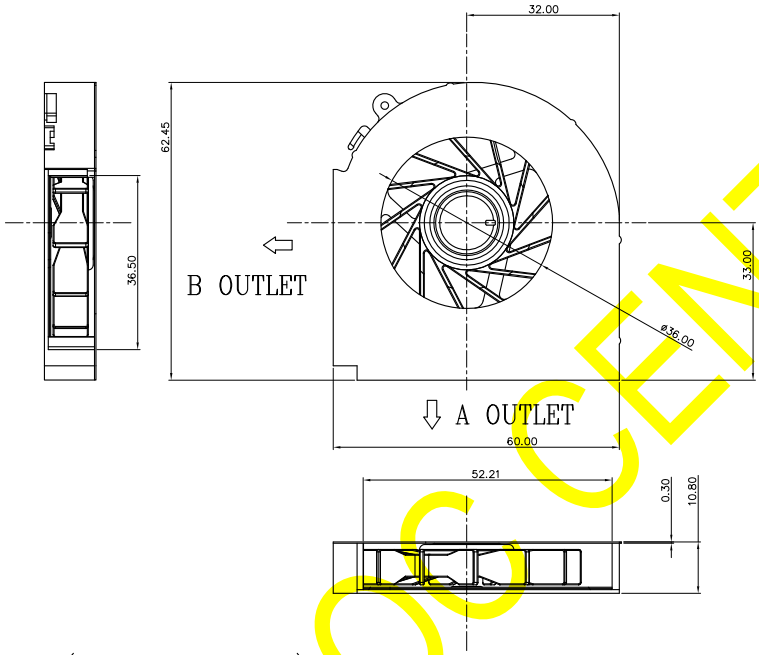


NOISE IS MEASURED AT RATED VOLTAGE IN FREE AIR OF SEMI-ANECHOIC CHAMBER WITH G.R.A.S. MICROPHONE AND SQlabII ANALYSIS SYSTEM, AMBIENT NOISE SHALL BE LESS THAN 18dBA.

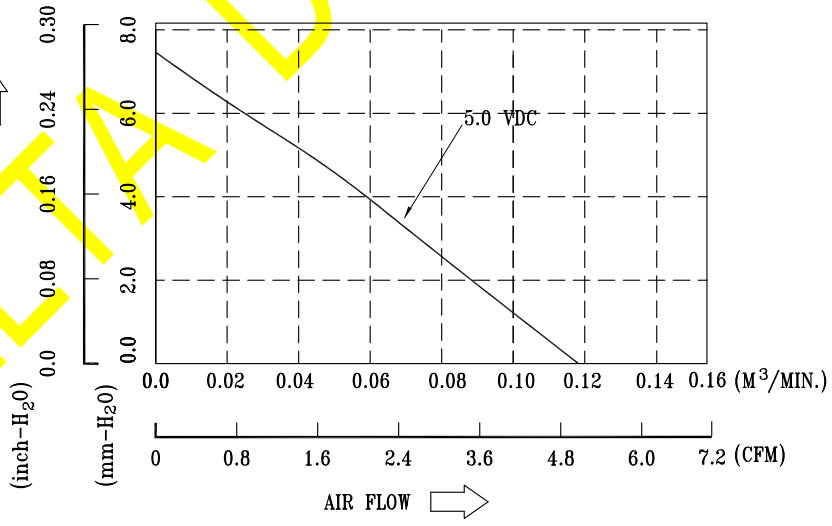
Customer P/N:

Delta Model NO: KSB0505HA-G303

d. P-Q TEST FIXTURE:



e. P-Q CURVE (TOTAL OUTLETS):



* TEST CONDITION: INPUT VOLTAGE ------ OPERATION VOLTAGE
TEMPERATURE ------- ROOM TEMPERATURE
HUMIDITY ---------- 65%RH
TEST HOUSING------SEE DIMENSIONS DRAWING

3. MECHANICAL:

3-1. DIMENSIONS ---------- REFER TO PAGE 7.

3-2. HOUSING ---------- SECC

3-3. IMPELLER ---------- PLASTIC UL: 94V-0

3-4. BEARING SYSTEM ---------- SUPERFLOW

3-5. WEIGHT ---------- 16.5±2.0g

4. ENVIRONMENTAL:

4-1. OPERATING TEMPERATURE ---------- 0 TO +70 DEGREE C

4-2. STORAGE TEMPERATURE ---------- -10 TO +75 DEGREE C

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

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

5. PROTECTION:

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. DROP TEST

IN MINIMUM PACKAGING CONDITION BLOWER WITHSTANDS EACH ONE DROP OF THREE FACES FROM 30 CM DISTANCE HEIGHT ONTO 10 MM THICKNESS OF WOODEN BOARD.

6. RE OZONE DEPLETING SUBSTANCES:

6-1. NO CONTAINING PBBs, PBBOs, CFCs, PBBEs, PBDPEs AND HCFCs.

7. LEAD-FREE DECLARATION:

7-1. THE FAN IS A LEAD-FREE PRODUCT.

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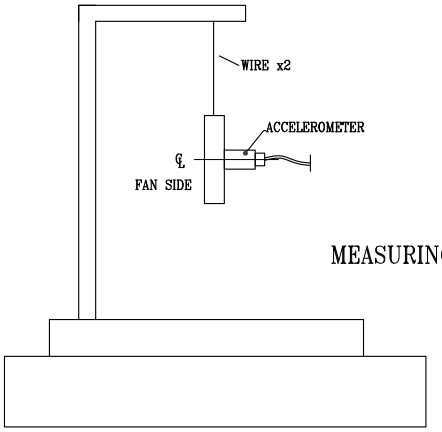
Delta Model NO: KSB0505HA-G303

8. VIBRATION LEVEL CONDITION:
VIBRATION TEST AT 3800 RPM
FREQUENCY RANGE: 20Hz~100Hz.



MEASURING INSTRUMENTS:

9. SAFETY NOTICE:

9-1. PLEASE DON'T USE THIS PRODUCT BEYOND THIS SPECIFICATION RANGE, IT MAY CAUSE PRODUCT'S BREAKDOWN.

9-2. BE CAREFUL WITH INSTALLING PRODUCT IN YOUR MACHINE, HIT, DROP, SHAKE MAY CAUSE PRODUCE'S MACHANISM PROBLEM.

9-3. MAKE SURE THAT V(+) AND GND ARE CONNECTED CORRECTLY, OTHERWISE FAN WILL NOT START UP.

9-4. TOUCH IMPELLER WHEN ROTATING WILL CAUSE INJURE OR FAN'S FAILURE, MAKE SURE FAN IS OPERATING AT AN ENVIRONMENT WITHOUT LOCKING POSSIBILITY.

9-5. AVOID PULLING CABLE WHEN HANDLING FANS, IT MAY CAUSE ELECTRIC FAILURE.

Customer P/N:

Delta Model NO: KSB0505HA-G303

10. BASIC RELIABILITY REQUIREMENT:

10-1. THERMAL SHOCK
LOW TEMPERATURE: -40°C
HIGH TEMPERATURE: +85°C
SOAK TIME: 30 MINUTES
TRANSITION TIME < 5 MINUTES
DUTY CYCLES: 10

10-2. HUMIDITY EXPOSURE
TEMPERATURE: +60°C
HUMIDITY: 90%-98% RH
POWER: 3PCS OPERATING
3PCS NON-OPERATING
TEST TIME: 240 HOURS

10-3. VIBRATION
TEMPERATURE: +25°C
ORIENTATION: X, Y, Z
POWER: NON-OPERATING
VIBRATION LEVEL: OVERALL gRMS=3.2

FREQUENCY(Hz)	PSD(G^2/Hz)
10	0.040
20	0.100
40	0.100
800	0.002
1000	0.002

TEST TIME: 2 HOURS ON EACH ORIENTATION

10-4. MECHANICAL SHOCK
TEMPERATURE: +25°C
ORIENTATION: X, Y, Z
POWER: NON-OPERATING
ACCELERATION: 50 G MIN.
PULSE: 11 ms HALF-SINE WAVE
NUMBER OF SHOCKS: 3 SHOCKS FOR EACH DIRECTION

TESTING RESULT: THERE IS NO FAN FAILED OR OUT OF CHARACTERS OF ITEM 2. AFTER RELIABILITY TESTING.

11. LIFE EXPECTANCE
ACCELERATING HIGH TEMPERATURE TEST:
FAN QUANTITY: 56 PCS.
CONDITION: OPERATION AT +70°C WITH 7% RH.
DURATION: 2000 HOURS MIN.

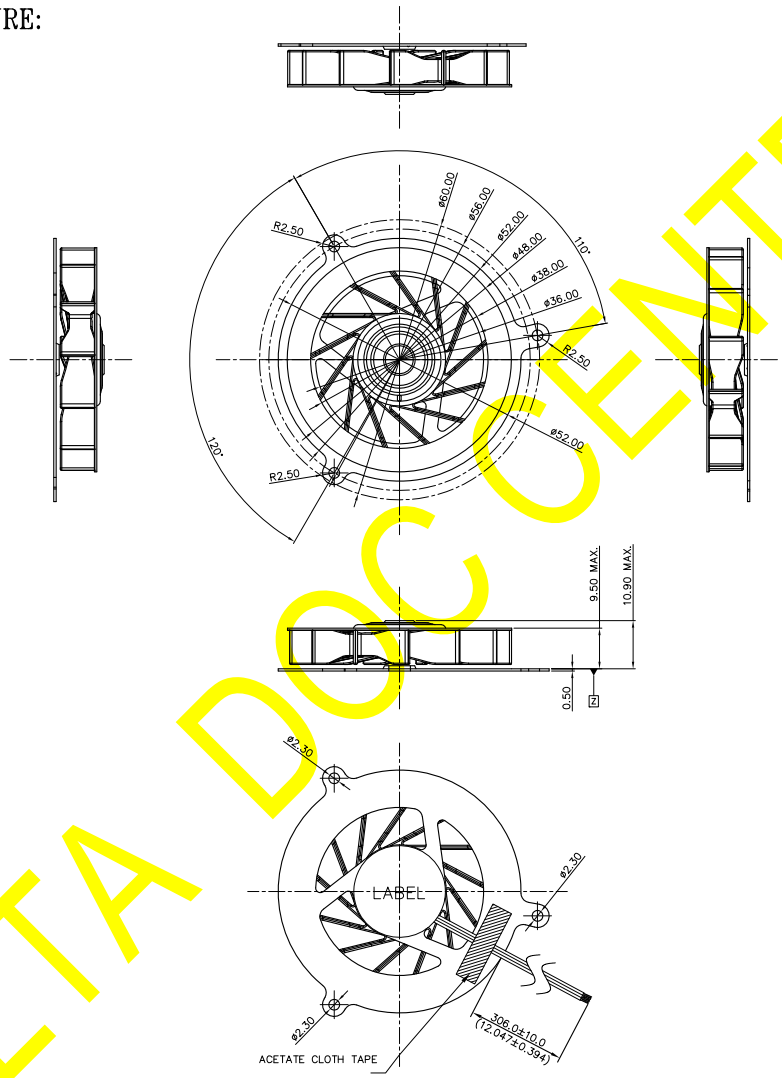
TESTING RESULT:
FAN PERMISSION CRITERIA FOR THE MEASUREMENT AFTER TEST:
1. SPEED CANNOT DROP OF ≧ 15% BELOW THE ORIGINAL MEASURED rpm.
2. CURRENT CANNOT INCREASE > 15% OF ORIGINAL MEASURED CURRENT.
3. NOISE CANNOT > 3 dB(A) OVER THE ORIGINAL MEASURED NOISE.
4. NO MECHANICAL AND ELECTRICAL DAMAGE.

Customer P/N:

Delta Model NO: KSB0505HA-G303

12. DIMENSION:

A. FAN FIGURE:



TOLERANCES			
HOLES : ±0.15		ANGLES : ±2.0°	
<1.0	:±0.10	THIRD ANGLE PROJECTION	
1.0~10	:±0.20		
10~50	:±0.30		
ABOVE 50	:±0.40		
SCALE	---	UNIT	mm

LEAD WIRE UL:1571 AWG#28
RED WIRE ----(+)
BLACK WIRE ----(-)
BIUE WIRE ---- (FOO)

B. LABEL TYPE AND DATE CODE DEFINITION:

1. DATE CODE NUMBER REFER TO BELOW LIST:

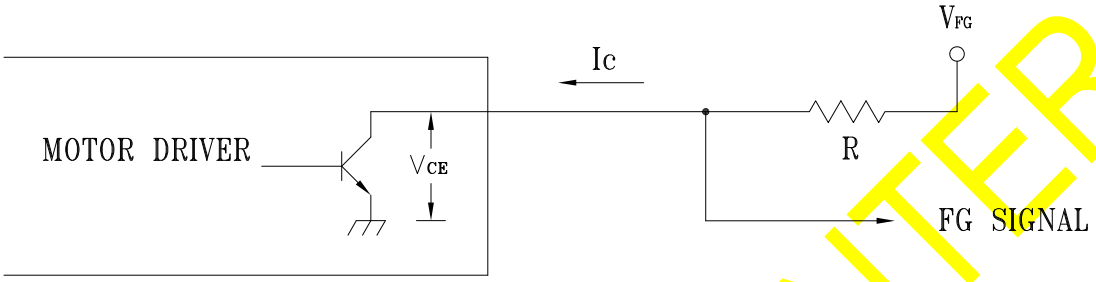
THE FORMAT FOR THE 6 DIGIT DATE CODE		
Y	YEAR	"0" 2010, "1" FOR 2011, ET AL.
M	MONTH	1-9 IS JAN-SEPT, X IS OCT, Y IS NOV, Z IS DEC
DD	DATE	01-31 MEANS DATE OF MONTH
XX	PRODUCTION LINE	"F1" MEANS NO.F1 PRODUCTION LINE, "F2" MEANS NO.F2 PRODUCTION LINE, ET AL.
R	RoHS	"R" MEANS THE FAN CONFORM TO RoHS COMPLIANCE.

2. PRODUCTION LOCATION

"MADE IN CHINA" MEANS "MADE IN CHINA(DONGGUAN)";
"MADE IN CHINA(WF)" MEANS "MADE IN CHINA(WUJIANG)".

13. FREQUENCY GENERATOR (FG) SIGNAL:

13-1. OUTPUT CIRCUIT - OPEN COLLECTOR MODE:



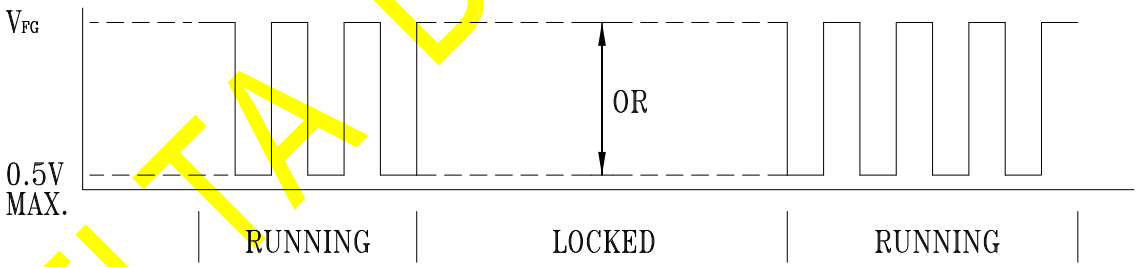
CAUTION:
THE LEAD WIRE OF FG SIGNAL CAN NOT TOUCH
THE LEAD WIRE OF POSITIVE OR NEGATIVE.

13-2. SPECIFICATION:

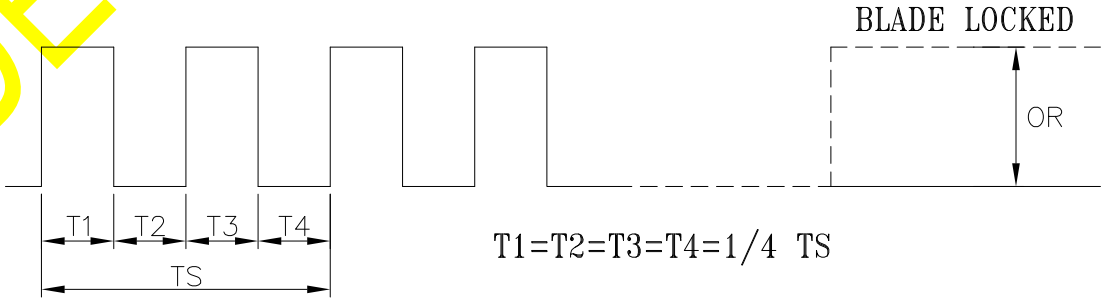
V_{CE} (sat)=0.5V MAX. V_{FG} =5.5VDC MAX.

I_C =5mA MAX. $R \geq V_{FG}/I_C$

13-3. FREQUENCY GENERATOR WAVEFORM:



FAN RUNNING FOR 4 POLES



T1=T2=T3=T4=1/4 TS

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

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.

UL International, L.L.C.
Taiwan Branch

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NOTICE OF AUTHORIZATION TO APPLY THE UL MARK

August 7, 2006

Ms. Celine Liao
Delta Electronics Inc.
31-1 Shien Pan Rd.
Kuei San Industrial Zone
Taoyuan Hsien, 33370
Taiwan

Fax: 886-3-359-1991
E-mail: celine.liao@delta.com.tw

Reference: File E132003 Project 06CA37797
Products: USR - UL Investigation: DC Component Fans, Models KSB0505HA(Y) series, where (Y) may be xxxxx, where x may be A through Z, 0 through 9, "-" or blank.

Dear Ms. Liao,

Any information and documentation provided to you involving UL Mark services are provided on behalf of Underwriters Laboratories Inc.

UL's investigation of your products has been completed under the above project number and the subject products were determined to comply with the applicable requirements.

This letter temporarily supplements the UL Follow-Up Services Procedure and serves as authorization to apply the UL Recognized Marking and/or Recognized Component Mark only at the factory under UL's Follow-Up Service Program to the subject products, which are constructed as described below:

Identical to the subject models, which were submitted to UL for this investigation. The UL Records covering the products will be in the Follow-Up Services Procedure, File E132003, Volume 1.

To provide the manufacturer with the intended authorization to use the UL Marks, the addressee must send a copy of this Notice and all attached material to each manufacturing location as currently authorized in File E132003, Volume 1.

This authorization is effective from the date of this Notice and only for products at the indicated manufacturing locations. Records in the Follow-Up Services Procedure covering the products are now being prepared and will be sent to the indicated manufacturing locations in the near future. Please note that Follow-Up Services Procedures are sent to the manufacturers only unless the Applicant specifically requests this document.

Products that bear the UL Mark shall be identical to those that were evaluated by UL and found to comply with UL' s requirements. If changes in construction are discovered, appropriate action will be taken for products not in conformance with UL' s requirements and continued use of the UL Mark may be withdrawn.

Sincerely,

Anson Wang
Engineer
UL International, L.L.C., Taiwan Branch
Tel: 886-2-2896-7790, Ext. 62102
Fax: 886-2-2890-7441
E-mail: Anson.Wang@tw.ul.com

Reviewed by:

Jack Chang
Project Engineer
UL International, L.L.C., Taiwan Branch
E-mail: Jack.Chang@tw.ul.com

DELTA ELECTRONICS, INC.

Statement of Compliance

Report No.: LR 91949C-317
Project No: LR 91949C–317
Date: July.21, 2006

Issued from: Delta Electronics, Inc.
Address: No. 31-1, Shien Pam Road, Kuei Shan Ind. Zone, Taoyuan, Taiwan, R.O.C.

Subject: Components DC Fan KSB0505HA
(Optional suffixes A-Z, 0-9, & blank may be added)

The subject equipment has been evaluated in accordance with CSA's Category Certification program and has been found to comply with the following requirements.

C22.2 No. 0-M91 – General Requirements – Canadian Electronical Code, Part II
CSA Standard C22.2 No. 113-M1984 – Fan and Ventilators
Technical Information Letter G-37C

By the authority of CSA, this equipment is immediately to bear the CSA mark.

In accordance with the Category Certification Procedure, the evaluation and testing of this equipment is subject to final validation by CSA.

Issued by

Celine Liao

Celine Liao
Safety Engineer
CPBG QE

cc: CSA Pacific/Central/Easten Region Office

Name und Sitz des Genehmigungs-Inhabers / *Name and registered seat of the Certificate holder*
Delta Electronics Inc., 186 Ruey Kuang Road, NEIHU TAIPEI (114), TAIWAN

Aktenzeichen / *File ref.*
1164100-2611-0011 / 83134 / FG13 / BWL

letzte Änderung / *updated* 2006-12-14

Datum / *Date* 2006-01-09

Dieses Blatt gilt nur in Verbindung mit Blatt 1 des Gutachtens mit Fertigungsüberwachung Nr. 40016423.
This supplement is only valid in conjunction with page 1 of the Certificate of Conformity with factory surveillance No. 40016423.

NFB0712LD/MD/HD/HHD/VHD	**DC 12V (Appendix No.34)**
EFC1548DG-5K06	**DC 48V (Appendix No.35)**
BDB05405HB	**DC 5V (Appendix No.36)**
NUB0712M	**DC 12V (Appendix No.37)**
NFB0712M-SM	**DC 12V (Appendix No.37)**
BFB0612HB-SM [new version]	**DC 12V (Appendix No.38)**
BFB0712HHD-SM06	**DC 12V (Appendix No.39)**
BFB0812H-SM05	**DC 12V (Appendix No.40)**
AFB0812SHE/EHE/GHE	**DC 12V (Appendix No.41)**
AFC0812DE	**DC 12V (Appendix No.41)**
AFB0824SHE/EHE/GHE	**DC 24V (Appendix No.41)**
KSB0505HA	**DC 5V (Appendix No.42)**
KHB2548HHU	**DC 48V (Appendix No.43)**
BFB04505L/M/H/HHA-A	**DC 5V (Appendix No.43)**
BFB0505L/M/H/HHA-A	**DC 5V (Appendix No.43)**
KHB2348HHU	**DC 48V (Appendix No.44)**
KHB2348HHV	**DC 48V (Appendix No.44)**
KFB0505HA	**DC 5V (Appendix No.45)**
DSB0612LB/MB/HB/HHB	**DC 12V (Appendix No.46)**
PFC1212DE-6C1M	**DC 12V (Appendix No.47)**
QFR1224EHE/GHE	**DC 24V (Appendix No.48)**
QFR1248EHE/GHE	**DC 48V (Appendix No.48)**
KSB0405HA	**DC 5V (Appendix No.49)**
AFC0712DE-5J76 (D27550-001)	**DC 12V (Appendix No.50)**
NFB1212L/M/H	**DC 12V (Appendix No.51)**
BSB0412HA-SM02	**DC 12V (Appendix No.52)**
AFB0648VH-5C2C	**DC 48V (Appendix No.53)**
BFB0305L/M/H/HHA-A	**DC 5V (Appendix No.54)**
BFB03505L/M/H/HHA-A	**DC 5V (Appendix No.55)**
BFB0405L/M/H/HHA-A	**DC 5V (Appendix No.56)**
BSB0712HD	**DC 12V (Appendix No.57)**
AFB08512LD/MD/HD/HHD/VHD	**DC 12V (Appendix No.58)**
AFC08512DD	**DC 12V (Appendix No.58)**
BUB0524MB/HB/HHB	**DC 24V (Appendix No.59)**
QFR0924EHE/GHE/UHE	**DC 24V (Appendix No.60)**
QFR0948EHE/GHE/UHE	**DC 48V (Appendix No.60)**
BFB0712L-A/M-A/H-A/HH-A	**DC 12V (Appendix No.61)**
ASB03505LB-6C18	**DC 5V (Appendix No.62)**
PFC1548DG	**DC 48V (Appendix No.63)**
FFB0412VHN-A/SHN-A	**DC 12V (Appendix No.64)**
AFB1212LE/ME/HE/HHE/VHE [new version]	**DC 12V (Appendix No.65)**

Fortsetzung siehe Blatt 4 /
continued on page 4