CUSTOMER: ________________________________
DESCRIPTION: _______ DC FAN ________________________________
CUSTOMER P/N: _______________ REV: ______
DELTA MODEL: ______ ASB02512VHA–A76N REV: 01
SAMPLE ISSUE DATE: 12/08/2016
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
STATEMENT OF DEVIATION

☑️ NONE

☐ DESCRIPTION: 
SPECIFICATION FOR APPROVAL

Customer:

Description: DC FAN

Customer P/N:  

Delta Model No.: ASB02512VHA-A76N  Delta Safety Model No.: ASB02512VHA-A

Sample Rev: 01  Issue NO:

Sample Issue Date: DEC-08-2016  Quantity:

1. SCOPE:

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

2. CHARACTERS:

<table>
<thead>
<tr>
<th>ITEM</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>RATED VOLTAGE</td>
<td>12 VDC</td>
</tr>
<tr>
<td>OPERATION VOLTAGE</td>
<td>4.75 – 13.8 VDC</td>
</tr>
<tr>
<td>INPUT CURRENT</td>
<td>0.05 (MAX. 0.12) A</td>
</tr>
<tr>
<td></td>
<td>(SAFETY CURRENT 0.12A)</td>
</tr>
<tr>
<td>INPUT POWER</td>
<td>0.60 (MAX. 1.44) W</td>
</tr>
<tr>
<td>SPEED</td>
<td>13000±20% R.P.M.</td>
</tr>
<tr>
<td>MAX. AIR FLOW (AT ZERO STATIC PRESSURE)</td>
<td>0.095 (MIN. 0.076) m³/MIN.</td>
</tr>
<tr>
<td></td>
<td>3.35 (MIN. 2.68) CFM</td>
</tr>
<tr>
<td>MAX. AIR PRESSURE (AT ZERO AIRFLOW)</td>
<td>5.43 (MIN. 3.48) mmH₂O</td>
</tr>
<tr>
<td></td>
<td>0.214 (MIN. 0.137) inchH₂O</td>
</tr>
<tr>
<td>ACOUSTICAL NOISE</td>
<td>27.0 (MAX. 32.0) dB–A</td>
</tr>
<tr>
<td></td>
<td>(Test conditions: 12.0V, Distance 1m)</td>
</tr>
<tr>
<td></td>
<td>MAX. 25.0 dB–A</td>
</tr>
<tr>
<td></td>
<td>(Test conditions: 5.0V, Distance 10cm)</td>
</tr>
<tr>
<td>INSULATION TYPE</td>
<td>UL: CLASS A</td>
</tr>
</tbody>
</table>

(continued)
<table>
<thead>
<tr>
<th>INSULATION STRENGTH</th>
<th>10 MEG OHM MIN. AT 500 VDC (BETWEEN FRAME AND (+) TERMINAL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>DIELECTRIC STRENGTH</td>
<td>5 mA MAX. AT 500 VAC 50/60 Hz ONE MINUTE, (BETWEEN FRAME AND (+) TERMINAL)</td>
</tr>
<tr>
<td>LIFE EXPECTANCE</td>
<td>AT 12.0V 30,000 HOURS CONTINUOUS OPERATION AT 40 ºC WITH 15 ~ 65 %RH.</td>
</tr>
<tr>
<td></td>
<td>AT 5.7V 30,000 HOURS CONTINUOUS OPERATION AT 55 ºC WITH 15 ~ 65 %RH.</td>
</tr>
<tr>
<td>ROTATION</td>
<td>CLOCKWISE VIEW FROM NAME PLATE SIDE</td>
</tr>
</tbody>
</table>

**NOTES:**

1. ALL READINGS ARE MEASURED AFTER STABLY WARMING UP THROUGH 10 MINUTES.
2. THE VALUES WRITTEN IN PARENS,( ), ARE LIMITED SPEC.
3. STANDARD AIR PROPERTY IS AIR AT (Td) 25ºC TEMPERATURE, (RH) 65% RELATIVE HUMIDITY, AND (Pb) 760 mmHg BAROMETRIC PRESSURE.
4. ACOUSTICAL NOISE MEASURING CONDITION:

**DC FAN**

**MICROPHONE**

AIR FLOW

1m

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

3-1. DIMENSIONS ------------------ SEE DIMENSIONS DRAWING
3-2. FRAME ----------------------- PLASTIC UL 94V-0
3-3. IMPELLER --------------------- PLASTIC UL 94V-0
3-4. BEARING SYSTEM --------------- SLEEVE BEARING
3-5. WEIGHT ----------------------- 6.0 GRAMS (REF.)

4. ENVIRONMENTAL:

4-1. OPERATING TEMPERATURE -------- -10 TO +75 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. POLARITY PROTECTION

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

6. RE OZONE DEPLETING SUBSTANCES:

6-1. NO CONTAINING PBBs, PBBEs, CFCs, PBDEs, PBDDs AND HCFCs.

7. PRODUCTION LOCATION

7-1. PRODUCTS WILL BE PRODUCED AT WUJIANG CITY OF CHINA:
DELTA ELECTRONICS COMPONENTS (WUJIANG) LTD
8. P & Q CURVE:

* TEST CONDITION: INPUT VOLTAGE ------ OPERATION VOLTAGE
  TEMPERATURE -------- ROOM TEMPERATURE
  HUMIDITY ----------- 65%RH
9. DIMENSION DRAWING:

NOTES:
1. LEAD WIRE UL10368 #28
   RED WIRE ------ (+)
   BLACK WIRE ------ (-)
   BLUE WIRE ------ (R00)
2. THIS PRODUCT IS ROHS COMPLIANT
**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.
DESCRIPTION

PRODUCT COVERED:

USR, CNR Component – DC Fans, Models see “ELECTRICAL RATINGS” for details.

USR indicates investigation to the Standard for Electric Fans, UL 507.


ELECTRICAL RATINGS:

<table>
<thead>
<tr>
<th>Model Nos.</th>
<th>Volts, DC</th>
<th>Amperes, A</th>
</tr>
</thead>
<tbody>
<tr>
<td>TDA1548AG(Y)</td>
<td>48</td>
<td>2.22</td>
</tr>
<tr>
<td>TDA1748AG(Y)</td>
<td>48</td>
<td>2.22</td>
</tr>
<tr>
<td>AFB1248DHE-6D21(Y)</td>
<td>48</td>
<td>0.21</td>
</tr>
<tr>
<td>ASB02512VHA-A(Y)</td>
<td>12</td>
<td>0.12</td>
</tr>
<tr>
<td>ASB02512HHA-A(Y)</td>
<td>12</td>
<td>0.10</td>
</tr>
<tr>
<td>FFC0412DN-D(Y)</td>
<td>12</td>
<td>0.75</td>
</tr>
<tr>
<td>FFB0412UHN-D(Y)</td>
<td>12</td>
<td>0.75</td>
</tr>
<tr>
<td>FFB0412EHN-D(Y)</td>
<td>12</td>
<td>0.40</td>
</tr>
</tbody>
</table>

Note: Above (Y) may be xxxxxx, each x may be A through Z, 0 through 9, “-” or blank.
Zertifikat

Zertifikat Nr. Certificate No. R 50156481
Blatt Page 0011

Ihr Zeichen Client Reference 86088000135
Unser Zeichen Our Reference ZTW2-HCY- 11016900 004
Ausstellungsdatum Date of Issue 21.07.2009
day/mo/yr

Genehmigungsinhaber License Holder
Delta Electronics, Inc.
252, Shang Ying Road
Kuei San, Taoyuan Hsien 333
Taiwan, R.O.C.

Fertigungsstätte Manufacturing Plant
Delta Electronics (Jiang Su), Ltd.
No. 1688, Jiangxing East Road
Wujiang Economic Development Zone
Wujiang City, Jiang Su 215200
P.R. China

Prüfzeichen Test Mark
GEPRÜFT GEAPPROVED

Geprüft nach Tested acc. to
IEC 60950-1:2005
EN 60950-1:2006+A11

Zertifiziertes Produkt (Geräteidentifikation)
Certified Product (Product Identification)

Ventilator (DC Brushless Fan)

Wie Blatt (As Page) 01
Ergänzung (Addition)

Bezeichnung (Type Designation)

a) ASB02512VHA-AZ 1
b) ASB02512HHA-AZ 1
c) FFB0412UHN-DZ 1
d) FFC0412DNN-DZ 1
e) FFB0412EHN-DZ 1
f) AF1248DHE-6D212 1

Z steht für 5 Kennzeichen. Jedes Kennzeichen entspricht
einem der folgenden Zeichen. (Z stands for 5 characters.
Each character stands for one of the following signs): 0-9, A-Z, - oder (or) freibleibend (blank) Nur zum Zwecke der Vermarktung (for marketing purpose only)

Fortsetzung auf Blatt (Continued on Page) 12

ANLAGE (Appendix): 1.3

Dem Zertifikat liegt unsere Prüf- und Zertifizierungsordnung zugrunde und es bestätigt die Konformität des Produktes mit den oben genannten Standards und Prüfgrundlagen. Zusätzliche Anforderungen in Ländern, in denen das Produkt in Verkehr gebracht werden soll, müssen zusätzlich betrachtet werden. Die Herstellung des zertifizierten Produktes wird überwacht. This certificate is based on our Testing and Certification Regulation and states the conformity of the product with the standards and testing requirements as indicated above. Any additional requirements in countries where the product is going to be marketed have to be considered additionally. The manufacturing of the certified product is subject to surveillance.

TÜV Rheinland Product Safety GmbH, Am Grauen Stein, D-51105 Köln
Tel.: (+49/221)8 06 - 13 71 e-mail: cert-validity@de.tuv.com
Fax: (+49/221)8 06 - 39 35 http://www.tuv.com/safety

Zertifizierungsstelle

Dipl.-Ing. B. Scheirer