DELTA ELECTRONICS, INC.
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TAOYUAN HSIEN 333, TAIWAN, R. O. C.
TEL : 886-(0)3-3591968
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SPECIFICATION FOR APPROVAL
****

Customer:

Description: DC FAN

Customer P/N: REV:

Delta Model NO.: AFB0624HHB

Sample Rev: 00 Issue NO:

Sample Issue Date: JAN.18.2005 Quantity:

1. SCOPE:

THIS SPECIFICATION DEFINES THE ELECTRICAL AND MECHANICAL CHARACTERISTICS OF THE DC BRUSHLESS AXIAL FLOW FAN. THE FAN MOTOR IS WITH TWO PHASES AND FOUR POLES.

2. CHARACTERS:

ITEM	DESCRIPTION
RATED VOLTAGE	24 VDC
OPERATION VOLTAGE	14.0 - 27.6 VDC
INPUT CURRENT	0.10 (MAX. 0.15) A
INPUT POWER	2.40 (MAX. 3.60) W
SPEED	4500 R.P.M. (REF.)
MAX. AIR FLOW (AT ZERO STATIC PRESSURE)	0.490 (MIN. 0.450) M^3/MIN. 17.30 (MIN. 15.89) CFM
MAX. AIR PRESSURE (AT ZERO AIRFLOW)	4.97 (MIN. 4.20) mmH_2O 0.195 (MIN. 0.165) $inchH_2O$
ACOUSTICAL NOISE (AVG.)	35.0 (MAX. 38.0) dB-A
INSULATION TYPE	UL: CLASS A

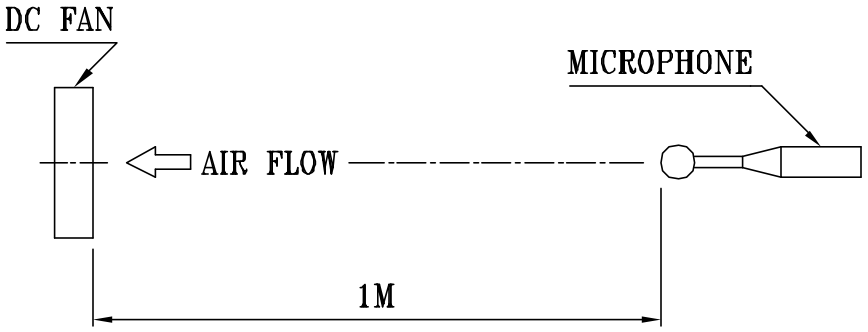
(continued)

PART NO:

DELTA MODEL: AFB0624HHB

INSULATION STRENGTH	10 MEG OHM MIN. AT 500 VDC (BETWEEN FRAME AND (+) TERMINAL)
DIELECTRIC STRENGTH	5 mA MAX. AT 500 VAC 60 Hz ONE MINUTE, (BETWEEN FRAME AND (+) TERMINAL)
EXTERNAL COVER	OPEN TYPE
LIFE EXPECTANCE	70,000 HOURS CONTINUOUS 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
LEAD WIRE	UL 1007 -F- AWG #24 BLACK WIRE NEGATIVE(-) RED WIRE POSITIVE(+)

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.

A00

PART NO:

DELTA MODEL: AFB0624HHB

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 ---------- TWO BALL BEARINGS

3-5. WEIGHT ---------- 44 GRAMS

4. ENVIRONMENTAL:

4-1. OPERATING TEMPERATURE ---------- -10 TO +70 DEGREE C

4-2. STORAGE TEMPERATURE ---------- -40 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, PBBOs, CFCs, PBBEs, PBDPEs AND HCFCs.

7. PRODUCTION LOCATION

7-1. PRODUCTS WILL BE PRODUCED IN CHINA OR THAILAND OR TAIWAN.

PART NO:

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8. BASIC RELIABILITY REQUIREMENT:

8-1. THERMAL CYCLING
LOW TEMPERATURE: -40°C
HIGH TEMPERATURE: +80°C
SOAK TIME: 30 MINUTES
TRANSITION TIME < 5 MINUTES
DUTY CYCLES: 5

8-2. HUMIDITY EXPOSURE
TEMPERATURE: +25°C ~ +65°C
HUMIDITY: 90-98% RH @ +65°C
FOR 4 HOURS/CYCLE
POWER: NON-OPERATING
TEST TIME: 168 HOURS

8-3. 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

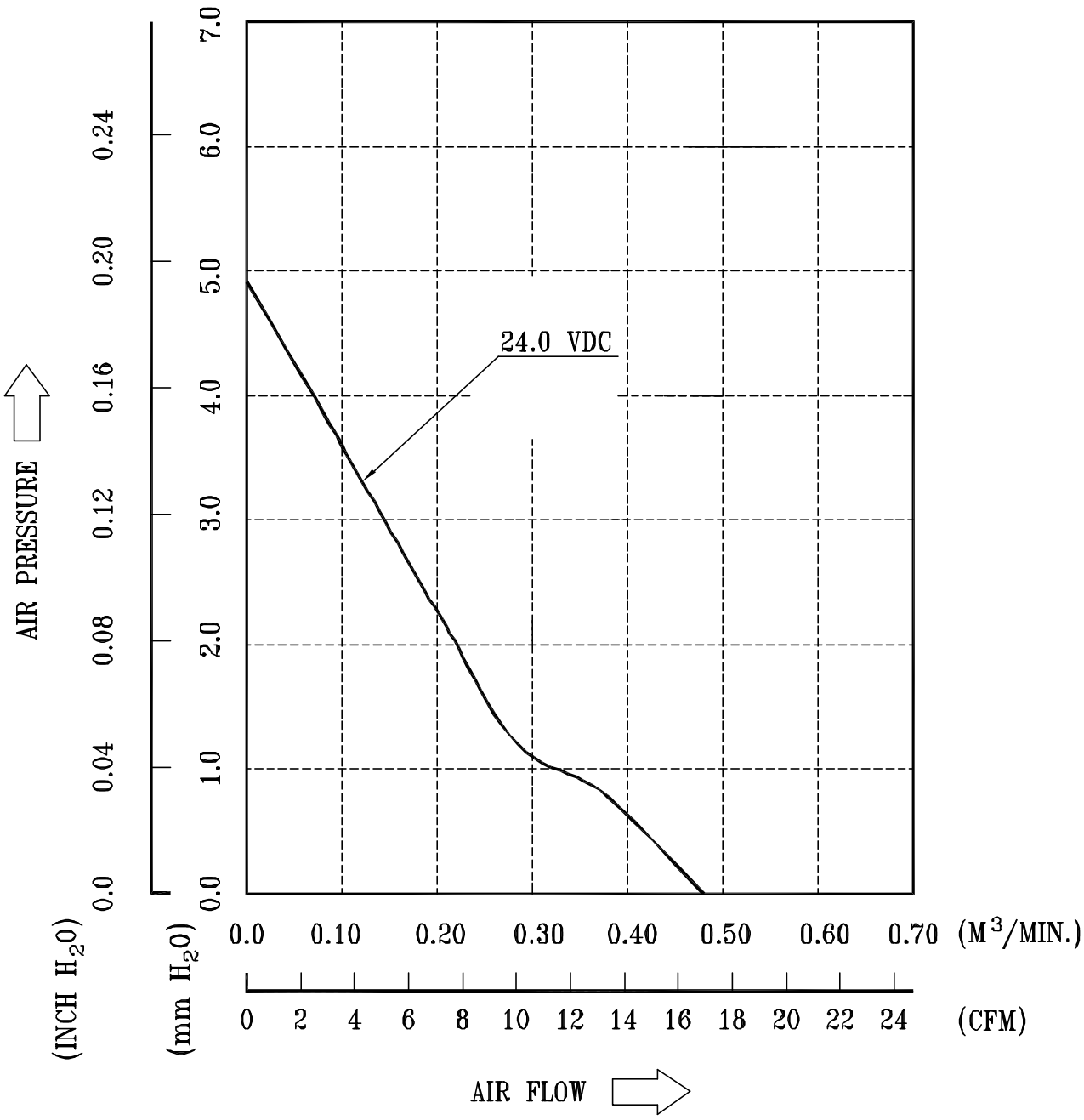
8-4. MECHANICAL SHOCK
TEMPERATURE: +20°C
ORIENTATION: X, Y, Z
POWER: NON-OPERATING
ACCELERATION: 20 G MIN.
PULSE: 11 ms HALF-SINE WAVE
NUMBER OF SHOCKS: 5 SHOCKS
FOR EACH DIRECTION

8-5. LIFE
TEMPERATURE: MAX , OPERATING TEMPERATURE
POWER: OPERATING
DURATION: 1000 HOURS MIN.

PART NO:

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9. P & Q CURVE:



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

A00

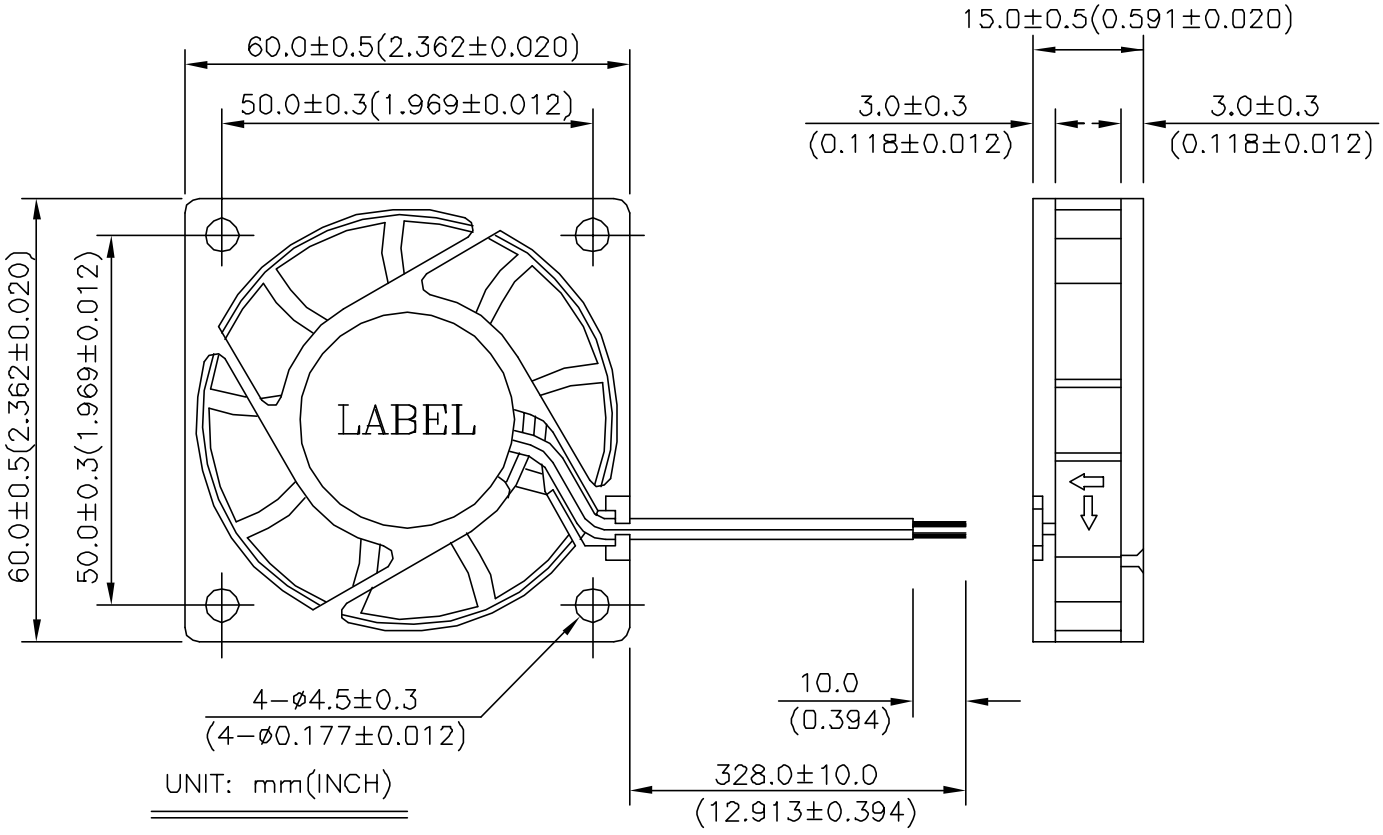
PART NO:

DELTA MODEL: AFB0624HHB

10. DIMENSION DRAWING:

LABEL:





Descriptions:

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 fans are 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, as there is no foolproof method to protect against such error.**

7. **Delta fans 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 relative (ambient) temperature and humidity conditions of 25°C, 65%. The test value is only for fan performance itself.**

13. **Be certain to connect an "over 4.7μF" capacitor to the fan externally when the application calls for using multiple fans in parallel, to avoid any unstable power.**

Underwriters Laboratories Inc.®

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DELTA ELECTRONICS INC
MR R LU
31-1 SHIEN PAN RD
KUEI SHAN INDUSTRIAL ZONE
TAOYUAN HSIEN TAIWAN

RE: Project Number(s) - 03CA11031

Your most recent Certification is shown below. You may also view this information, or a portion of this information (depending on the product category), on UL's Online Certifications Directory at www.ul.com/database. Please review the text and contact the Conformity Assessment Services staff member who handled your project if revisions are required. For instructions on placing an order for this information in a 3 x 5-inch format, you may refer to the enclosed order form for UL Card Service.

GPWV2 **June 4, 2003**
Fans, Electric - Component

DELTA ELECTRONICS INC **E132003**
14TH FL 266 2ND WEN-HWA RD, SEC 1 LINKOU, TAIPEI HSIEN
244 TAIWAN

Model AFB followed by 0405, 0412, **followed by HA, HHA, LA or MA;** Model AFB followed by 0505, followed by HB, LB or MB; Model AFB followed by 0512, followed by HB, HHB, LB or MB; Model AFB followed by 0605, followed by H, L or M, followed by R00, R05, RR0 or RR05; Model AFB followed by 0605 or 0805, followed by H, L or M; Model AFB followed by 0612, 0624, followed by EH, SH VH; Model AFB0612LB; Model AFB followed by 0612, 0624, 0812, 0824, 0912 or 0924, followed by H, HB, HH, HHB, LB, LLB, MB, SHB or VHB; Models ASB0412MA, ASB0412LA, ASB0405MA; Model ASB followed by 0405, 0412, followed by HA, HHA, LA or MA; Model ASB followed by 0505, followed by HB, LB or MB; Model ASB followed by 0512, 0524, followed by HB, HHB, LB or MB; Model ASB followed by 0812, 0824, followed by HB, HHB, LB, LLB, MB, SHB or VHB; Model ASB followed by 0612 or 0624, followed by H, HH, L or M; Model ASB followed by 0812, followed by L or M; Model ASB followed by 0912 or 0924, followed by H, L or M; Model AUB followed by 0505, 0512 or 0524, followed by HB, HHB, LB or MB; Model AUB followed by 0612, 0624, followed by H, HH, L or M; Model AUB followed by 0912, 0924, followed by H, HH, L, M or VH; Model AUB followed by 0612 or 0624, followed by L, M, H or HH; Model AUB followed by 0812 or 0824, followed by HB, HHB, LB, LLB, MB, SHB or VHB; Model AUB followed by 0924, followed by L, M, H, HH or VH; Model BFB followed by 1212, followed by H, HH, L, LL, M or VH; Model BFB followed by 1224, followed by H, HH, L, LL, M or VH; Model BFB followed by 1248, followed by H, HH, L, LL, M; Model BFC followed by 1012, followed by A, B or C; Model DFB followed by 0405 or 0412, followed by H, L, LL, M; Model DFB followed by 0612, 0812, 0912, 0824 or 0924 followed by H, L or M; Model DFB followed by 0612, 0812, 0824, 0912 or 0924, followed by HH; Model DFB followed by 0424, followed by H, L, LL, M; Model DFB followed by 0612, 0624, followed by H, HH, L or M; Model DFC followed by 0612, 0812 or 0912, followed by "A" or "B"; Model DFD followed by 0612 or 0624, followed by H, HH, L or M; Model SB followed by 0412, followed by H, L, LL or M; Model SB followed by 0612, 0624, followed by HH; Model SB followed by 0612, 0624, 0812, 0824, followed by H, L or M; Model SB followed by 0612, 0624, followed by HD, LD or MD; Model SB followed by 0812, 0824, followed by HH; Model SB followed by 0812, followed by MSA or MSG.

Model AFB followed by 02505, followed by HA, HHA, LA or MA; Model AFB followed by 02512, followed by HA, HHA, LA or MA; Model AFB followed by 0305, followed by -HA, -LA, -LLA, MA; Model AFB followed by 0312, followed by -HA, LA, LLA, MA; Model AFB followed by 03505, followed by HA, LA, MA; Model AFB followed by 0405, followed by HD, LD or MD; Model AFB followed by 03512, followed by LA, MA or HA; Model AFB followed by 0405, 0412 or 0424, followed by HD, HHD, LD, MD; Model AFB followed by 0412 or 0424, followed by HD, HHD, LD or MD; Model AFB followed by 0505, 0512, followed by HA, LA or MA; Model AFB followed by 0524, followed by HB, HHB, LB or MB; Model AFB followed by 0605, followed by HB, HHB, HD, HHD, LB, LD, LLD, MB or MD; Model AFB followed by 0605, followed by HD, HHD, LD, LLD or MD; Model AFB followed by 0605, followed by HA, LA or MA; Model AFB followed by 0612, followed by HA, HB, HHB, LA, MA or MB; Model AFB followed by 0612 or 0624, followed by HD, HHD, LB, LD, LLD, MD, VHB or VHD; Model AFB followed by 0624, followed by HB, HHB, LB, MB or VHB; Model AFB followed by 0648, followed by EH, H, HH, L, M; SH or VH; Model AFB followed by 0705, followed by H, L or M; Model AFB followed by 0712 or 0724, followed by H, HA, HH, HHA, L, LA, M, MA, VH or VHA; Model AFB followed by 0748, followed by H, HH, L or MM; Model AFB followed by 0805, followed by H, L, LL or M; Model AFB followed by 0805, 0812 or 0824, followed by LL; Model AFB followed by 0812 or 0824, followed by H, L, LL, M, SH or VH; Model AFB followed by 0812 or 0824, followed by HB, HHB, LB, LLB, MB, SHB or VHB; Model AFB followed by 0848, followed by H, HH, L or M; Model AFB followed by 0912 or 0924, followed by H, HH, L, M or VH; Model AFB followed by 0948, followed by H, HH, L or M; Model WFB followed by 1212, followed by ME-RDA; Model WFB followed by 1212, followed by ME; Model WFB followed by 1212, 1224 or

AFB0612EHE	12	1680	STD, R00, F00
*AFB0612VHB	12	240	STD R00 F00 R05 F05
AFB0612VHE	12	1020	STD, R00, F00
AFB0612VHD	12	270	STD, R00, F00
*AFB0624HB	24	120	STD R00 F00 R05 F05
AFB0624HD	24	80	-
AFB0624HE	24	300	STD, R00, F00
*AFB0624HHB	24	150	STD R00 F00 R05 F05
AFB0624HHD	24	110	STD, F00, R00
AFB0624HHE	24	460	STD, R00, F00
AFB0624LE	24	160	STD, R00, F00
*AFB0624LB	24	60	STD R00 F00 R05 F05
AFB0624ME	24	220	STD, R00, F00
AFB0624LD	24	50	STD, R00, F00
AFB0624LLD	24	50	-
*AFB0624MB	24	100	STD R00 F00 R05 F05
AFB0624MD	24	60	-
*AFB0624VHB	24	160	STD R00 F00 R05 F05
AFB0624VHD	24	140	-
*AFB0648EH	48	210	STD R00 F00
AFB0648H	48	110	-
AFB0648HH	48	120	-
AFB0648L	48	60	-
AFB0648M	48	60	-
*AFB0648SH	48	170	STD R00 F00
*AFB0648VH	48	140	STD R00 F00
AFB0705H	5	600	STD R00 F00
AFB0705L	5	230	STD R00 F00
AFB0705M	5	330	STD R00 F00

VDE Prüf- und Zertifizierungsinstitut
Gutachten mit Fertigungsüberwachung

Name und Sitz des Genehmigungs-Inhabers / *Name and registered seat of the Licence holder*

Delta Electronics Inc.
186 Ruey Kuang Road
NEIHU TAIPEI (114), Taiwan

Aktenzeichen / *File ref.*	letzte Änderung / *updated*	Datum / *Date*
11641-2611-0001 / 32Y3F F13 / SFK	2001-06-05	1994-06-08

Dieses Blatt gilt nur in Verbindung mit Blatt 1 des Gutachtens mit Fertigungsüberwachung Nr. 001764 ÜG.
This supplement is only valid in conjunction with page 1 of the Licence No. 001764 ÜG.

		Jahresgebühren-Einheiten / *Annual fee units*
WFB1212HH	DC 12 V	2,00
WFB1224HH	DC 24 V	2,00
DFB0405H/M	DC 5 V	2,00
DFB0405L/LL	DC 5 V	2,00
BFB0712H/L/M	DC 12 V	3,00
BFB0724H/L/M	DC 24 V	3,00
AFB0405LA/MA/HA/HHA	DC 5 V	4,00
AFB0412LA/MA/HA/HHA	DC 12 V	4,00
ASB0405LA/MA/HA/HHA	DC 5 V	4,00
ASB0412LA/MA/HA/HHA	DC 12 V	4,00
AFB0612LB	DC 12 V	2,00
AFB0612MB	DC 12 V	1,00
AFB0612HB	DC 12 V	1,00
AFB0612HHB	DC 12 V	1,00
AFB0624LB	DC 24 V	2,00
AFB0624MB	DC 24 V	1,00
AFB0624HB	DC 24 V	1,00
AFB0624HHB	DC 24 V	1,00
ASB0605L	DC 5 V	2,00
ASB0605M	DC 5 V	1,00
ASB0605H	DC 5 V	1,00
WFB1248HHE/VHE	DC 48 V	2,00
WFB1212VHE	DC 12 V	2,00
WFB1224VHE	DC 24 V	2,00
DSB0812L/M/H	DC 12 V	3,00
AFC0812A/B	DC 12 V	2,00
AFC0912A/B	DC 12 V	2,00
BFC1212A/B	DC 12 V	2,00
BFB1212LL/L/M/H/HH/VH	DC 12 V	6,00
BFB1224LL/L/M/H/HH/VH	DC 24 V	6,00
AFB0405LD/MD/HD	DC 5 V	3,00
AFB0412LD/MD/HD/HHD	DC 12 V	4,00
AFB0424LD/MD/HD/HHD	DC 24 V	4,00
AFB0612LA/MA/HA	DC 12 V	3,00
ASB0812LL/L/M/H/HH	DC 12 V	5,00
ASB0912L/M/H/HH	DC 12 V	4,00
ASB0824LL/L/M/H/HH	DC 24 V	5,00
ASB0924L/M/H/HH	DC 24 V	4,00
AFB0705L/M/H	DC 5 V	3,00
AFB0712L/M/H/HH/VH	DC 12 V	5,00

Fortsetzung siehe Blatt 6 /

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DELTA Electronics:

02BEEG3H AFB0624VH-A DSOL-1341-12 PFB1224UHEP0 PMT-48V75W2BA 06AN2 S24SP05012PDFA PMC-24V075W1AA DTC1000C PL01S4805A ACS3-CNTB0600 AFB0724VH-AF00 ASB02505SHA-AY6B CTA4100A FFB0912HHE FFB1224SHE SK-1015-STD 15GENG3E FFB0824SHE-F00 06BEEG3G PJT-12V40WBAA PM05S050A 03GEEG3E AFL12AUHE-C BFB1248GH-A DSOL-0844-24 M55339/14-00306 MDS-400APB24AA 30DPGS5C AFB0524HHD