Specification for Approval

緯創料號

Wistron Part No. : 60.64W02.001

Description: ASSY FAN 60X60X56MM 50MM KNOX DELTA

廠商型號

Vendor Model No. : GFC0612DS-CB10

Description: ASSY FAN 60X60X56MM 50MM KNOX DELTA

Issued Date : 2015 / 1 / 9
Approved Date : 2015 / 1 / 12

Approved by (Wistron)	Approved by (vendor)	Prepared by (vendor)
Lentis.Pai (2015/1/12)	Bryant.Wu (2015/1/9) Eric.Wu (2015/1/9)	Harris.Chen (2015/1/9) Steven.Liang (2015/1/9)

SPECIFICATION FOR APPROVAL

Customer. WIWYNN

Description. DC FAN

Part No. 60.64W02.001 REV.

Delta Model No. GFC0612DS-CB10 REV. 09

Sample Issue No.

Sample Issue Date. JAN.09 2015

PLEASE SEND ONE COPY OF THIS SPECIFICATION BACK AFTER YOU SIGNED APPROVAL FOR PRODUCTION PRE-ARRANGMENT.

APPROVED BY:

DATE :

DELTA ELECTRONICS, INC.
TAOYUAN PLANT
252, SHANG YING ROAD, KUEI SAN INDUSTRIAL ZONE TAOYUAN SHIEN, TAIWAN, R.O.C.
TEL:886-(0)3-3591968
FAX:886-(0)3-3591991

DELTA ELECTRONICS, INC.
252, SHANG YING ROAD, KUEI SAN
TAOYUAN HSIEN 333, TAIWAN, R. O. C.
TEL : 886-(0)3-3591968
FAX : 886-(0)3-3591991

STATEMENT OF DEVIATION

****

■ NONE

□ DESCRIPTION :

DELTA ELECTRONICS, INC.
252, SHANG YING ROAD, KUEI SAN
TAOYUAN HSIEN 333, TAIWAN, R. O. C.
TEL : 886-(0)3-3591968
FAX : 886-(0)3-3591991

SPECIFICATION FOR APPROVAL

****

Customer: **WIWYNN**

Description: DC FAN

Customer P/N: **60.64W02.001** REV:

Delta Model NO.: **GFC0612DS-CB10** Delta safety model NO.: **GFC0612DS**

Sample Rev: **09** Issue NO:

Sample Issue Date: **JAN.09 2015** Quantity:

1. SCOPE:

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

2. CHARACTERS(FAN UNIT):

ITEM	DESCRIPTION
RATED VOLTAGE	12 VDC
OPERATION VOLTAGE	10.8 - 12.6 VDC
INPUT CURRENT (AVG.)	**1.60 (MAX. 1.92) A** **SAFETY CURRENT ON LABEL : 1.92A**
INPUT POWER (AVG.)	**19.20 (MAX. 23.04) W**
SPEED	**FRONT 10400/REAR 9500 RPM (REF.)**
MAX. AIR FLOW (AT ZERO STATIC PRESSURE)	**1.842(MIN. 1.657) M /MIN.** **65.03(MIN. 58.52) CFM**
MAX.AIR PRESSURE (AT ZERO AIR FLOW)	**50.98 (MIN. 41.29) mmH 0** **2.007(MIN. 1.625) inchH 0**
ACOUSTICAL NOISE (AVG.)	**67.0 (MAX. 71.0) dB-A**
INSULATION TYPE	UL: CLASS A

(continued)

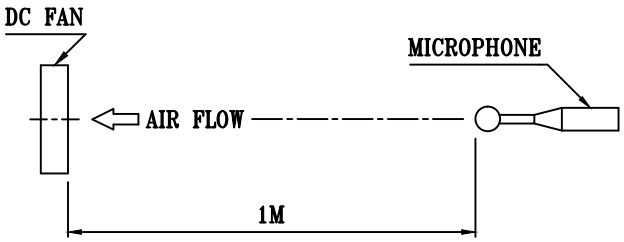
PART NO: 60.64W02.001

DELTA MODEL: GFC0612DS-CB10

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)
LIFE EXPECTANCE (AT LABEL VOLTAGE)	50,000 HOURS CONTINUOUS OPERATION AT 40 °C WITH 15 ~ 65 %RH.
ROTATION	TWO FANS ROTATE IN COUNTER DIRECTIONS SHOWED IN THE NAME PLATE SIDE
OVER CURRENT SHUT DOWN	THE CURRENT WILL SHUT DOWN, WHEN ROTOR LOCKED AND FIXED

NOTES:

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

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 —— 163 GRAMS

4. ENVIRONMENTAL:

4-1. OPERATING TEMPERATURE —— -10 TO +60 DEGREE C

4-2. STORAGE TEMPERATURE —— -40 TO +70 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.

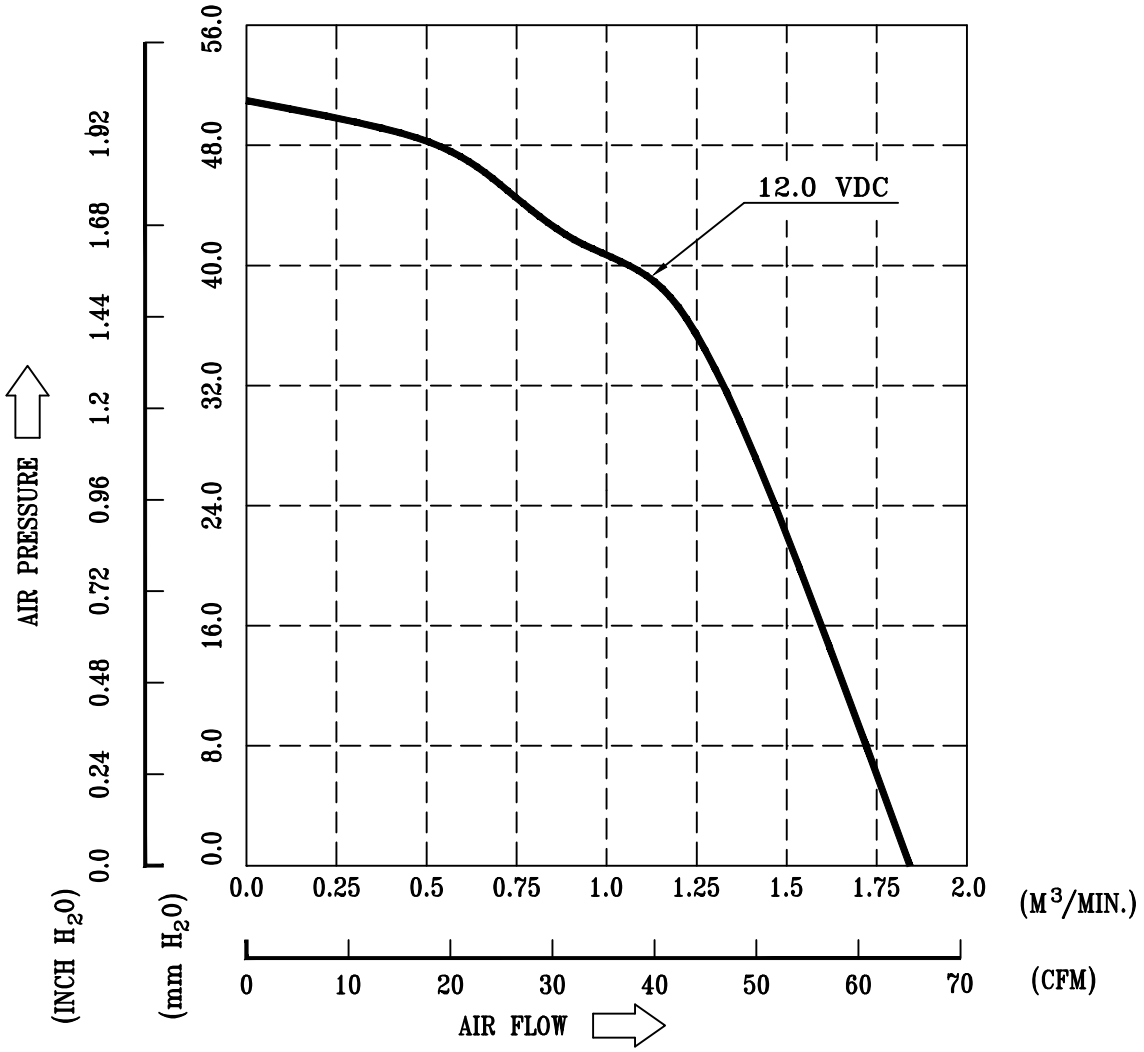
7. PRODUCTION LOCATION

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

PART NO: 60.64W02.001

DELTA MODEL: GFC0612DS-CB10

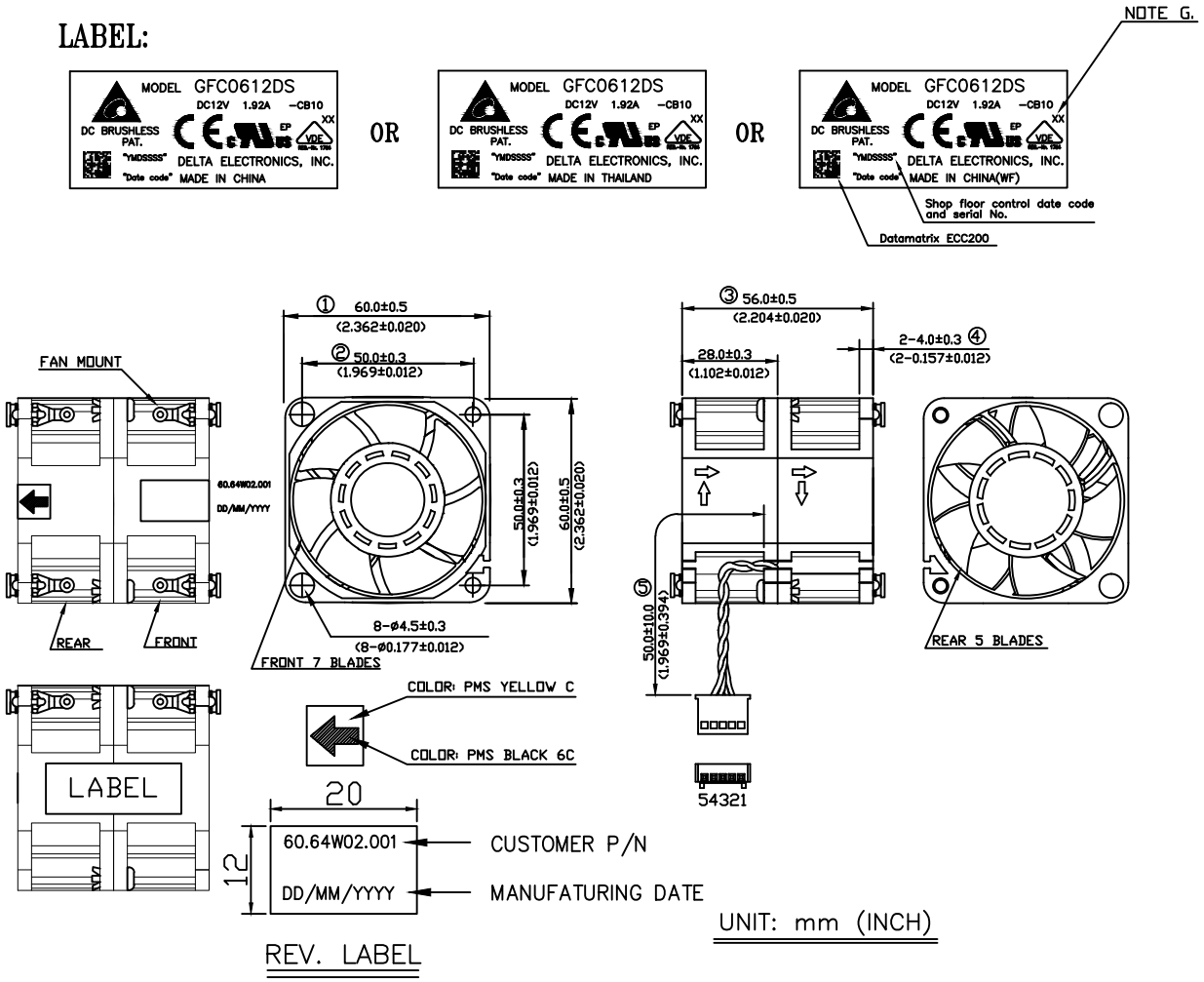
8. P & Q CURVE:



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

9. DIMENSION DRAWING:

LABEL:

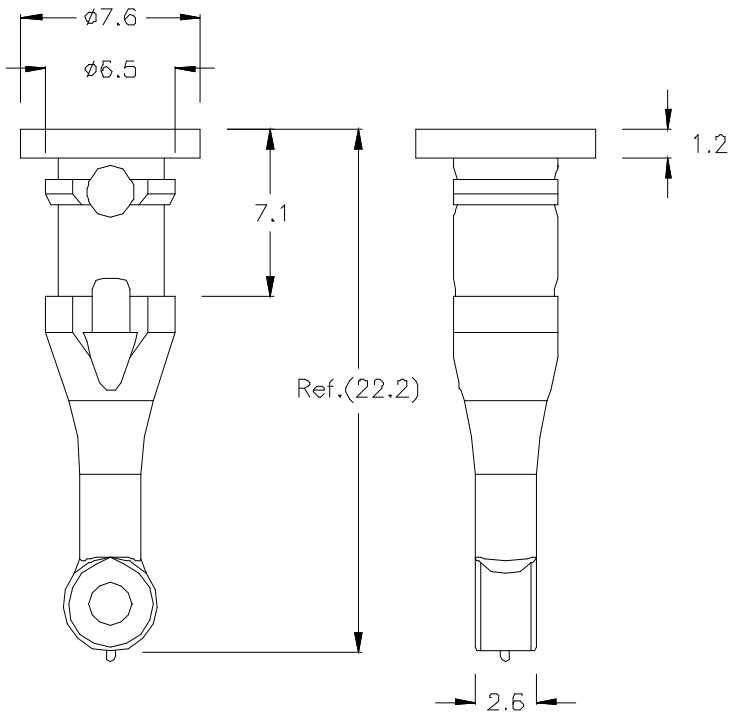


Note:

A. HOUSING: JWT A2509H00-5P OR EQUIVALENT
B. TERMINAL: JWT A2509TOP-2 OR EQUIVALENT
C. LEAD WIRE: UL1061#28
   PIN1: BLACK/BROWN WIRE ----(-)
   PIN2: RED/ORANGE WIRE ----(+)
   PIN3: GREEN WIRE ----(F00)---REAR FAN
   PIN4: YELLOW/WHITE WIRE ----(PWM CONTROL)
   PIN5: BLUE WIRE ----(F00)---FRONT FAN
D. FAN MOUNT: PINGOOD SR-22A-TMB
E. AIR FLOW LABEL: 10*10 mm
F. THIS PRODUCT IS RoHS COMPLIANT
G. LETTERS "XX" IS LABEL VENDER IDENTIFICATION, WHERE X MAY BE A~Z, 0~9, "." OR BLANK.

Barcode type: 20x20 row/column Datamatrix ECC200 symbol per ISO/IEC 16022 Data Matrix Specification;
Encode: "Model name" + "date code" + "serial No."
Date code : "YMD"
Y : 4 = 2014, 5 = 2015, ...
M : 8 =Aug, 9 = Sep, A for =Oct, B = Nov, ...
D : 1=1, 2=2,... A=10, B=11,..., Z=31,LESS I,J,O,Q
Serial No. : "SSSS", from 0001 to 9999
EX : GFC0612DS-CB104CX9999
Printed words on label: "YMDSSSS"

9-1. DIMENSION DRAWING OF RIVET :

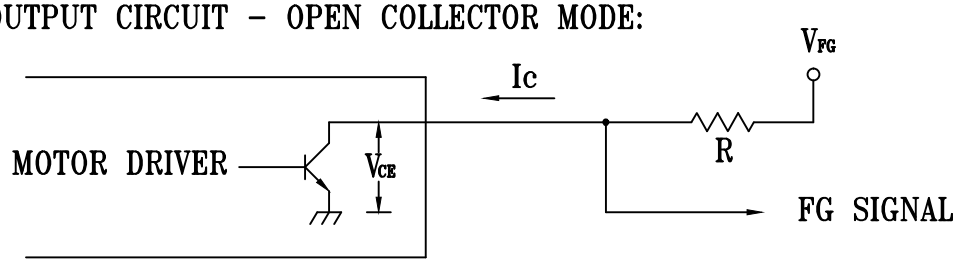


NOTES:
1. MATERIAL: TPE
2. COLOR: BLACK
3. TOLERANCE:

L≤10	±0.2
10<L≤30	±0.3
30<L≤50	±0.5
50<L≤100	±0.7
100<L≤250	±1.2
ABOVE 250	±1.5

10. FREQUENCY GENERATOR (FG) SIGNAL:

10-1. OUTPUT CIRCUIT - OPEN COLLECTOR MODE:



CAUTION:

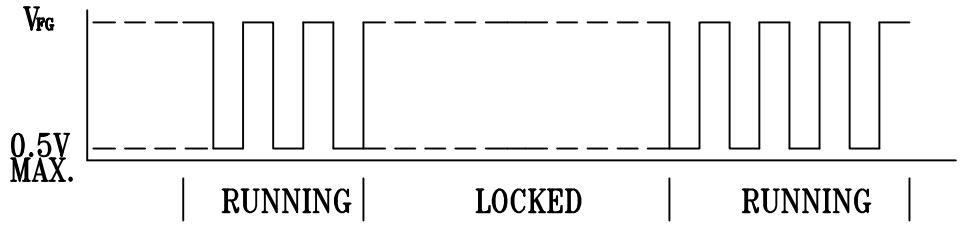
THE LEAD WIRE OF FG SIGNAL CAN NOT TOUCH
THE LEAD WIRE OF POSITIVE OR NEGATIVE.

10-2. SPECIFICATION:

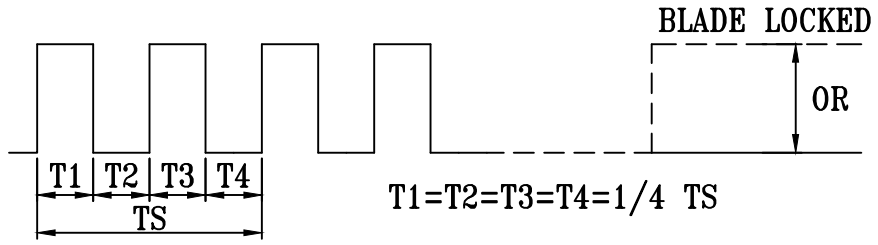
V_{CE} (sat)=0.5V MAX. V_{FG} =13.2VDC MAX.

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

10-3. FREQUENCY GENERATOR WAVEFORM:



FAN RUNNING FOR 4 POLES

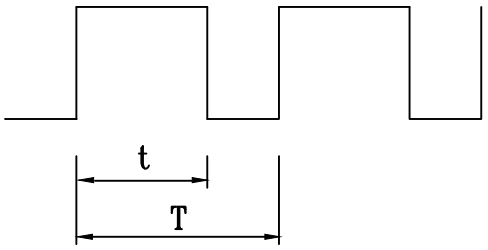


T1=T2=T3=T4=1/4 TS

N=R.P.M
TS=60/N(SEC)
*VOLTAGE LEVEL AFTER BLADE LOCKED
*4 POLES

11. PWM CONTROL SIGNAL:

SIGNAL VOLTAGE RANGE: 0~15VDC



---- HIGH SIGNAL: 15 VDC MAX. 2.8 VDC MIN.

---- LOW SIGNAL: 0.8 VDC MAX. 0 VDC MIN.

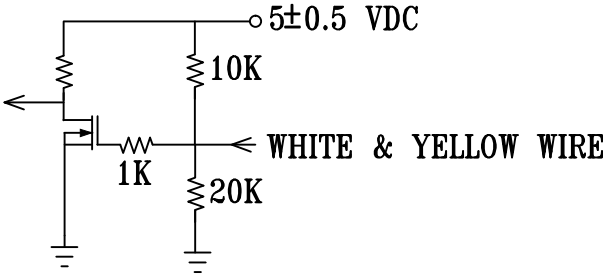
DUTY CYCLE= $\frac{t}{T}$ *100(%)

- THE PREFERRED OPERATING POINT FOR THE FAN IS 25KHZ.
- AT 100% DUTY CYCLE,THE ROTOR WILL SPIN AT MAXIMUM SPEED.
- AT 0% DUTY CYCLE,THE ROTOR WILL SPIN AT MINMUM SPEED.
- WITH CONTROL SIGNAL LEAD DISCONNECTED,THE FAN WILL SPIN AT MAXIMUM SPEED.
- AT 25KHZ 30% DUTY CYCLE ,THE FAN WILL BE ABLE TO START FROM A DEAD STOP .

12. SPEED VS PWM CONTROL SIGNAL:
(AT RATED VOLTAGE & PWM FREQUENCY=25KHZ)

DUTY CYCLE (%)	SPEED R.P.M. (REF.)		CURRENT (A) TYP.
	FRONT	REAR	TOTAL
100	10400±10%	9500±10%	1.60
0~17	$2500^{+20\%}_{-15\%}$	$2000^{+20\%}_{-15\%}$	0.11

13. PWM CONTROL LEAD WIRE INPUT IMPEDANCE:



13-1. THE FAN SPEED WILL DEFAULT TO MAXIMUM WHEN THE SPEED CONTROL INPUT IS LEFT UNCONNECTED.

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.

EC Declaration of Conformity

Issuer's name and address:

Delta Electronics Inc.
6F, No. 186, Ruey Kuang Road
11491 NEIHU, TAIPEI
TAIWAN

Product: Fan for building-in, IT-equipment

Type designation:

FFB1224EHE-7H64; KSB06105HB; KFB1348HE; KFC1348DE; EFB0405HA-T6AC; ASB0424HA-A/HHA-A/VHA-A; AUB0712HHE; AUC0712DE; AFC0712DE-7H55; DTC-BCE; KSB06205HA; KSB0505HA-A; FFB0612UHE-A/DHE-A; FFC0612DE-A; AFB0405HHA-8A44; AUC0812D-A; ASB0412LA-6H54; ASB03505LA/MA/HA; FFB0412UHN-C; ASB02512MA/HA; NFB0712H; NUB0712H; KSB0705HA; BDB05405HHB; BFB1712EHT; AFB0748SH-SP; PFB1248GHE-6L29; BUB0724L/M/H/HH; KUB04512LA/MA/HA; AFB1548VH-C/SH-C/EH-C; KDB0412HB; KDB04112HB; KDB04105HB; AFB0512EHN; BSB04512LA / MA / HA; AFC1212D-8B30; AFB1212M-8B42; TFA0948AE; FFB0412EH/GHN-C; BFB1012M-7M2B; FFB0824SH; FFB0848SH; BUB0312HB-A; ASB0305LA/MA/HA-C; ASB0312LA/MA/HA-C; GFC0612DS; BSB04505LK/MK/HK; KFB1224EHS/GHS; PFB0812XHE; BUB0812DD-SM00; BUB0712HH-BF00; AFC0912DE-8C1P; AFC0912D-8D26; DTC-CAX; NFB08512L/M/H/HH; DSB0405LD; KSB0505HB; FFB0612EHE-SP06; FFB0612EHE-4M04; BFB0712HHD-SX00; GFB0912GHW/UHW/DHW; GFB0812SHS; BFB1024VH-A/HH-A; AUB0412LD/MD/HD; GFB0812GHW/UHW/DHW; GFC0812DW; KFB1948SHT/EHT; KFC1948DT; PFB0648SHE/EHE/GHE; PFC0612DE-M; FFB0612EHE-SP05; FFB0612EHE-6A46; TAA0412AD/BD/CD; AFC0812D-A; PFC0912DE-A; AFB1448HE; GFC0612DW-A; FFR0612DHE; FFR0912DHE; BUB1012L-8S29; BSB0412HA-SM05; GFB0412SHS-D/EHS-D; GFC0412DS-D; AUC0912DF; EFB1248HHF-6C94; EFB1248HHF-SE; QUR0812HH/VH/SH; QUR0912VH; BUB0712HHD-HM; FFB0848SH-SX; FFB0848HH-SX; FFB0848HH-7L58; EFB1248HF-8H55/EFB1248HF-SX; KSB0605HC; KSB05105HC; AFB0912EHE-SX; FFB0812VH-HM; BFB1712EHT; KSB0505HB; GFB0812SHS; GFB 0412SHS-D; GFB 0412EHS-D; GFC 0412DS-D; FFB0412UHN(Y)

The designated product is in conformity with the European Directive:

2006/95/EC

"Council Directive on the harmonization of the laws of the Member States relating to electrical equipment designed for use within certain voltage limits".

The technical documentation and full compliance with the standards listed below proves the conformity of the product with the requirements of the above-mentioned EC Directive:

DIN EN 60950-1 (VDE 0805-1):2014-08; EN 60950-1:2006 + A11 + A1 + A12 + AC + A2:2013
IEC 60950-1(ed.2);am1;am2

The VDE Testing and Certification Institute (EU Identification No.0366), Merianstr. 28, 63069 Offenbach (Germany), has tested and certified the product.

Last two digits of the year in which the CE marking was affixed:

Certificate No. 40023247
File Reference 1164100-2611-0013 / 202694 / AS3 / CNGD-SXU

GUTACHTEN MIT FERTIGUNGSÜBERWACHUNG

CERTIFICATE OF CONFORMITY WITH FACTORY SURVEILLANCE

Delta Electronics Inc.
6F, No. 186, Ruey Kuang Road
11491 NEIHU, TAIPEI
TAIWAN

ist berechtigt, für ihr Produkt /
is authorized to use for their product

Einbauventilator für IT-Geräte
Fan for building-in, IT-equipment

die hier abgebildeten markenrechtlich geschützten Zeichen
für die ab Blatt 2 aufgeführten Typen zu benutzen /
the legally protected Marks as shown below for the types referred to on page 2 ff.

VDE REG.-Nr. 1764 oder/or VDE oder/or VDE-REG.-Nr. 1764
REG.-Nr. 1764

Geprüft und zertifiziert nach /
Tested and certified according to

DIN EN 60950-1 (VDE 0805-1):2014-08; EN 60950-1:2006 + A11 + A1 + A12 + AC + A2:2013
IEC 60950-1(ed.2);am1;am2

Aktenzeichen: 1164100-2611-0013 / 202694
File ref.:
Ausweis-Nr. 40023247 Blatt 1
Certificate No. *Page*
Weitere Bedingungen siehe Rückseite und Folgeblätter /
further conditions see overleaf and following pages

VDE Prüf- und Zertifizierungsinstitut GmbH
VDE Testing and Certification Institute
Zertifizierungsstelle / *Certification*

Offenbach, 2008-01-25
(letzte Änderung / updated 2014-09-12)

Name und Sitz des Genehmigungs-Inhabers / *Name and registered seat of the Certificate holder*
Delta Electronics Inc., 6F, No. 186, Ruey Kuang Road, 11491 NEIHU, TAIPEI, TAIWAN

Aktenzeichen / *File ref.*
1164100-2611-0013 / 202694 / AS3 / CNGD-SXU

letzte Änderung / *updated* 2014-09-12

Datum / *Date* 2008-01-25

Dieses Blatt gilt nur in Verbindung mit Blatt 1 des Gutachtens mit Fertigungsüberwachung Nr. 40023247.
This supplement is only valid in conjunction with page 1 of the Certificate of Conformity with factory surveillance No. 40023247.

Einbauventilator für IT-Geräte
Fan for building-in, IT-equipment

Typ(en) / *Type(s)*

FFB1224EHE-7H64	**DC 24V (Appendix No.1)**
KSB06105HB	**DC 5V (Appendix No.2)**
KFB1348HE	**DC 48V (Appendix No.3)**
KFC1348DE	**DC 48V (Appendix No.3)**
EFB0405HA-T6AC	**DC 3.3V (Appendix No.4)**
ASB0424HA-A/HHA-A/VHA-A	**DC 24V (Appendix No.5)**
KSB06205HA	**DC 5V (Appendix No.6)**
AUB0712HHE	**DC 12V (Appendix No.7)**
AUC0712DE	**DC 12V (Appendix No.7)**
AFC0712DE-7H55	**DC 12V (Appendix No.8)**
DTC-BCE	**DC 12V (Appendix No.8)**
KSB0505HA-A	**DC 5V (Appendix No.9)**
FFB0612UHE-A/DHE-A	**DC 12V (Appendix No.10)**
FFC0612DE-A	**DC 12V (Appendix No.10)**
AFB0405HHA-8A44	**DC 3.3V (Appendix No.11)**
AUC0812D-A	**DC 12V (Appendix No.12)**
ASB0412LA-6H54	**DC 14V (Appendix No.13)**
ASB03505LA/MA/HA	**DC 5V (Appendix No.14)**
FFB0412UHN-C	**DC 12V (Appendix No.15)**
ASB02512MA/HA	**DC 12V (Appendix No.16)**
NFB0712H	**DC 12V (Appendix No.17)**
NUB0712H	**DC 12V (Appendix No.17)**
KSB0705HA	**DC 5V (Appendix No.18)**
BDB05405HHB	**DC 5V (Appendix No.19)**
BFB1712EHT	**DC 12V (Appendix No.20)**
BFB1712EHT	**DC 12V (App. No.79 alternate trace layout)**
AFB0748SH-SP	**DC 48V (Appendix No.21)**
PFB1248GHE-6L29	**DC 12V (Appendix No.22)**
BUB0724L/M/H/HH	**DC 24V (Appendix No.23)**
KUB04512LA/MA/HA	**DC 12V (Appendix No.24)**

Fortsetzung siehe Blatt 3 /
continued on page 3

Name und Sitz des Genehmigungs-Inhabers / *Name and registered seat of the Certificate holder*
Delta Electronics Inc., 6F, No. 186, Ruey Kuang Road, 11491 NEIHU, TAIPEI, TAIWAN

Aktenzeichen / *File ref.*
1164100-2611-0013 / 202694 / AS3 / CNGD-SXU

letzte Änderung / *updated* 2014-09-12

Datum / *Date* 2008-01-25

Dieses Blatt gilt nur in Verbindung mit Blatt 1 des Gutachtens mit Fertigungsüberwachung Nr. 40023247.
This supplement is only valid in conjunction with page 1 of the Certificate of Conformity with factory surveillance No. 40023247.

Einbauventilator für IT-Geräte
Fan for building-in, IT-equipment

Typ(en) / *Type(s)*

AFB1548VH-C/SH-C/EH-C	**DC 48V (Appendix No.25)**
KDB0412HB	**DC 12V (Appendix No.26)**
KDB04112HB	**DC 12V (Appendix No.27)**
KDB04105HB	**DC 5V (Appendix No.28)**
AFB0512EHN	**DC 12V (Appendix No.28)**
BSB04512LA / MA / HA	**DC 12V (Appendix No.29)**
AFC1212D-8B30	**DC 12V (Appendix No.30)**
AFB1212M-8B42	**DC 12V (Appendix No.30)**
TFA0948AE	**DC 48V (Appendix No.31)**
FFB0412EH/GHN-C	**DC 12V (Appendix No.32)**
BFB1012M-7M2B	**DC 12V (Appendix No.33)**
FFB0824SH	**DC 24V (Appendix No.34)**
FFB0848SH	**DC 48V (Appendix No.34)**
BUB0312HB-A	**DC 12V (Appendix No.35)**
ASB0305LA/MA/HA-C	**DC 5V (Appendix No.36)**
ASB0312LA/MA/HA-C	**DC 12V (Appendix No.36)**
GFC0612DS	**DC 12V (Appendix No.37)**
BSB04505LK/MK/HK	**DC 5V (Appendix No.38)**
KFB1224EHS/GHS	**DC 24V (Appendix No.39)**
AFC0912DE-8C1P	**DC 12V (Appendix No.40)**
AFC0912D-8D26	**DC 12V (Appendix No.41)**
DTC-CAX	**DC 12V (Appendix No.41)**
NFB08512L/M/H/HH	**DC 12V (Appendix No.42)**
PFB0812XHE	**DC 12V (Appendix No.43)**
BUB0812DD-SM00	**DC 12V (Appendix No.44)**
BUB0712HH-BF00	**DC 12V (Appendix No.45)**
DSB0405LD	**DC 5V (Appendix No.46)**
KSB0505HB	**DC 5V (Appendix No.47)**
KSB0505HB	**DC 5V (Appendix No.80 alternate IC)**
FFB0612EHE-SP06	**DC 12V (Appendix No.48)**

Fortsetzung siehe Blatt 4 /
continued on page 4

Name und Sitz des Genehmigungs-Inhabers / *Name and registered seat of the Certificate holder*
Delta Electronics Inc., 6F, No. 186, Ruey Kuang Road, 11491 NEIHU, TAIPEI, TAIWAN

Aktenzeichen / *File ref.*
1164100-2611-0013 / 202694 / AS3 / CNGD-SXU

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This supplement is only valid in conjunction with page 1 of the Certificate of Conformity with factory surveillance No. 40023247.

Einbauventilator für IT-Geräte
Fan for building-in, IT-equipment

Typ(en) / *Type(s)*

FFB0612EHE-4M04	**DC 12V (Appendix No.48)**
BFB0712HHD-SX00	**DC 12V (Appendix No.49)**
GFB0812SHS	**DC 12V (Appendix No.50)**
GFB0812SHS	**DC 12V (Appendix No. 81 alternate IC)**
GFB0912GHW/UHW/DHW	**DC 12V (Appendix No.51)**
AUB0412LD/MD/HD	**DC 12V (Appendix No.52)**
BFB1024VH-A/HH-A	**DC 24V (Appendix No.53)**
GFB0812GHW/UHW/DHW	**DC 12V (Appendix No.54)**
GFC0812DW	**DC 12V (Appendix No.54)**
KFB1948SHT/EHT	**DC 48V (Appendix No.55)**
KFC1948DT	**DC 48V (Appendix No.55)**
PFB0648SHE/EHE/GHE	**DC 48V (Appendix No.56)**
PFC0612DE-M	**DC 12V (Appendix No.57)**
FFB0612EHE-SP05	**DC 12V (Appendix No.58)**
FFB0612EHE-6A46	**DC 12V (Appendix No.58)**
TAA0412AD/BD/CD	**DC 12V (Appendix No.59)**
AFC0812D-A	**DC 12V (Appendix No.60)**
PFC0912DE-A	**DC 12V (Appendix No.61)**
AFB1448HE	**DC 48V (Appendix No.62)**
GFC0612DW-A	**DC 12V (Appendix No.63)**
FFR0612DHE	**DC 12V (Appendix No.64)**
FFR0912DHE	**DC 12V (Appendix No.65)**
BUB1012L-8S29	**DC 12V (Appendix No.66)**
BSB0412HA-SM05	**DC 12V (Appendix No.67)**
GFB0412SHS-D/EHS-D	**DC 12V (Appendix No.68)**
GFB 0412SHS-D	**(Appendix No. 82 alternate frame)**
GFB 0412EHS-D	**(Appendix No. 82 alternate frame)**
GFC0412DS-D	**DC 12V (Appendix No.68)**
GFC 0412DS-D	**(Appendix No. 82 alternate frame)**
AUC0912DF	**DC 12V (Appendix No.69)**

Fortsetzung siehe Blatt 5 /
continued on page 5

Name und Sitz des Genehmigungs-Inhabers / *Name and registered seat of the Certificate holder*
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Aktenzeichen / *File ref.*
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Einbauventilator für IT-Geräte
Fan for building-in, IT-equipment

Typ(en) / *Type(s)*

EFB1248HHF-6C94	**DC 48V (Appendix No.70)**
EFB1248HHF-SE	**DC 48V (Appendix No.70)**
QUR0812HH/VH/SH	**DC 12V (Appendix No.71)**
QUR0912VH	**DC 12V (Appendix No.72)**
BUB0712HHD-HM	**DC 12V (Appendix No.73)**
FFB0848SH-SX	**DC 12V (Appendix No.74)**
FFB0848HH-SX	**DC 12V (Appendix No.74)**
FFB0848HH-7L58	**DC 12V (Appendix No.74)**
EFB1248HF-8H55/EFB1248HF-SX	**DC 12V (Appendix No.75)**
KSB0605HC	**DC 5V (Appendix No.76)**
KSB05105HC	**DC 5V (Appendix No.76)**
AFB0912EHE-SX	**DC 12V (Appendix No.77)**
FFB0812VH-HM	**DC 12V (Appendix No.78)**
FFB0412UHN(Y)	**DC 12V (Appendix No.79)**

Zusatz zur Typenbezeichnung *Addition for type designation*	Optional - Anhang 0 bis 9 oder A bis Z kann hinzugefügt sein für optionale Signal-Ausgänge *Optional - Suffix 0 to 9 or A to Z* *may be added denoting optional signal leads*
Nennspannung *Rated voltage*	min. DC 3.3 V - max. DC 48 V (SELV)
Nennstrom *Rated current*	siehe Anlagen / see Appendices
Umgebungstemperatur *Ambient temperature*	siehe Anlagen / see Appendices
Schutzklasse *Class*	III
Schutzart *Degree of protection*	Einbaulüfter (für IT-Geräte) *Fan for building-in (for IT equipment)*

Fortsetzung siehe Blatt 6 /
continued on page 6

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Name und Sitz des Genehmigungs-Inhabers / *Name and registered seat of the Certificate holder*
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Aktenzeichen / *File ref.*	letzte Änderung / *updated*	Datum / *Date*
1164100-2611-0013 / 202694 / AS3 / CNGD-SXU	2014-09-12	2008-01-25

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Einbaubedingungen	Beim Einbau des genehmigten Erzeugnisses, der entsprechend der zugehörigen Installations-anleitung zu erfolgen hat, ist darauf zu achten, dass alle Anforderungen gemäss der oben genannten Bestimmung(en) eingehalten sind.
Built-in requirements	*For the installation of the certified equipment, which has to be carried out according to the respective installation manual, all requirements of the standard(s) mentioned above have to be fulfilled.*

Die Ventilatoren entsprechen dem Abschnitt 4.4.5.1c. Im End-system sollten entsprechende Schutzmaßnahmen getroffen werden, die das Berühren der beweglichen Teile des Ventilators durch den Benützer verhindern. Ein Warnsymbol oder ein Text in Übereinstimmung mit Abschnitt 4.4.5.2 sollen im Endgerät angebracht werden.
The fans are classified in accordance with clause 4.4.5.1c. Proper protection shall be provided in the end-system so that the possibility of contact by user with the moving parts of the fan is unlikely. A warning symbol or a warning statement in accordance with clause 4.4.5.2 shall be provided in the end-system.

Weitere Angaben *Further information*	siehe Anlagen / see Appendices

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Dieser Zeichengenehmigungs-Ausweis bildet eine Grundlage für die EG-Konformitätserklärung und CE-Kennzeichnung durch den Hersteller oder dessen Bevollmächtigten und bescheinigt die Konformität mit den grundlegenden Schutzanforderungen der **EG-Niederspannungsrichtlinie 2006/95/EG** mit ihren Änderungen.
*This Marks Approval is a basis for the EC Declaration of Conformity and the CE Marking by the manufacturer or his agent and proves the conformity with the essential safety requirements of the **EC Low-Voltage Directive 2006/95/EC** including amendments.*

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VDE Testing and Certification Institute
Fachgebiet AS3
Section AS3

VDE Prüf- und Zertifizierungsinstitut
Gutachten mit Fertigungsüberwachung

Ausweis-Nr. / *Certificate No.* 40023247

Beiblatt / *Supplement*

Name und Sitz des Genehmigungs-Inhabers / *Name and registered seat of the Certificate holder*
Delta Electronics Inc., 6F, No. 186, Ruey Kuang Road, 11491 NEIHU, TAIPEI, TAIWAN

Aktenzeichen / *File ref.*	letzte Änderung / *updated*	Datum / *Date*
1164100-2611-0013 / 202694 / AS3 / CNGD-SXU	2014-09-12	2008-01-25

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This supplement is part of the Certificate of Conformity with factory surveillance No. 40023247.

Einbauventilator für IT-Geräte
Fan for building-in, IT-equipment

Fertigungsstätte(n)
Place(s) of manufacture

Referenz/*Reference* **30013236**	Delta Electronics (Thailand) Public Co., Ltd. 111 Moo.9 Wellgrow Industrial Estate Bangna-Trad Road, Tambon Bangwa TH-24180 AMPHUR BANGPAKONG Chachoengsao
Referenz/*Reference* **30009495**	Delta Electronics (Dongguan) Co., Ltd. Hetianxia village 523300 SHIJIE TOWN, DONGGUAN CITY Guangdong CHINA
Referenz/*Reference* **30011790**	Delta Electronics (Jiang Su) Ltd. No. 1688 Jiangxing East Road Wujiang Economy Developm. Zone 215200 WUJIANG CITY, SUZHOU CITY Jiangsu CHINA

VDE Prüf- und Zertifizierungsinstitut GmbH
VDE Testing and Certification Institute
Fachgebiet AS3
Section AS3

VDE Prüf- und Zertifizierungsinstitut
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Ausweis-Nr. / *Certificate No.* 40023247

Infoblatt / *Info sheet*

Name und Sitz des Genehmigungs-Inhabers / *Name and registered seat of the Certificate holder*
Delta Electronics Inc., 6F, No. 186, Ruey Kuang Road, 11491 NEIHU, TAIPEI, TAIWAN

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Products containing the biocide dimethylfumarate (DMF) may not be marketed or made available on the EC market according to the Commission Decision 2009/251/EC.
The approval is solely signed on the first page.

File E132003
Project 08CA36678

July 29, 2008

REPORT

on

COMPONENT - FANS, ELECTRIC

Delta Electronics Inc.
Taoyuan Hsien, Taiwan

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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.

CNR indicates investigation to the Canadian Standard for Fans and Ventilators, CSA C22.2 No. 113-M1984 & T.I.L. (Technical Information Letter) No. G-37C.

ELECTRICAL RATINGS:

Model No(s).	V dc	A
GFC0612DS(Y)	12	1.92

Note: Above (Y) may be xxxxx, where x may be A through Z, 0 through 9, "-" or blank.

TECHNICAL CONSIDERATIONS (NOT FOR FIELD REPRESENTATIVE'S USE):

These fan described in this report are provided with a solid state control circuitry that incorporates a current limiting, current shutdown circuit for locked rotor conditions.

Conditions of Acceptability -

For use only in products where the acceptability of the combination is determined by Underwriters Laboratories Inc.

The following items are limitations to be considered during the end-use investigation:

1. This investigation was established to cover a Class A insulating system for all fans described in this Report.

2. The suitability of these fans when operating under normal or abnormal conditions, within an appliance or enclosure, shall be determined for each application.

3. The suitability of these fans for use when exposed to water, oil, freon, chemicals, X-rays, ultraviolet rays, and the like, has not been determined by this investigation.

4. The suitability of the leads shall be determined for each application with regard to size, temperature limitations, and any other elements that might be required in the end-use product.

5. The thermoplastic enclosure of these fans have not been subjected to the Mold Stress Distortion and Ball Impact (5 ft-lbs) Tests as described in Standard UL 746C during this investigation.

6. The solid state control circuitry provided with these fan were subjected to an Abnormal Operation Locked Rotor Test. If coil temperatures exceeded Normal Temperature Test limits, the locked rotor test was continued for 18 days in accordance with UL 2111, Standard for Overheating Protection for Motors. Suitability of the motors locked rotor protection shall be determined in the end-product investigation.

7. These fans have not been evaluated for use with solid state speed control devices. Suitability for such usage shall be evaluated in the end-use product.

8. The Temperature Test conducted on these fans described in this Report was done in an average ambient temperature of 25°C. The suitability of these fans when they are intended to operate in a higher ambient temperature shall be evaluated during the end-use investigation.

9. These fans shall be mounted and enclosed in accordance with the frames and enclosure requirements of end product. Suitable enclosures or guards shall be provided for these fan blades to reduce the risk of injury to persons. These fans may be provided with a finger guard. Suitability of the finger guard shall be determined in the end-use investigation.

10. The minimum flammability rating of the plastic used for these fans frames and impellers of these fans described in this Report is V-0.

11. The minimum flammability rating of the bobbin of these fans described in this Report is V-0 (at min. 1.6 mm thick).

12. These fans described in this Report have not been evaluated to the requirements for over-surface and through-air spacings described in Section 24 of the Standard for Electric Fans, UL 507. These spacings have been waived on the basis that these fans will be connected to an isolated secondary circuit rated maximum 30 V rms (42.2 V peak) or 60 V dc and are subjected to a 500 V dielectric strength test.

13. The minimum flammability rating of the printed wiring boards used in these fans described in this Report is V-0.

14. These fans described in this report may be mounted to an external heatsink, mounting bracket, chassis, shroud, or the like. The above mounted parts have not been evaluated with these fans. Suitability of the above parts shall be evaluated in combination with these fans during the end-product investigation and described in the end-product report.

15. Models GFC0612DS(Y) are provided with an external lead that is intended for connection to an external speed control (PWM) circuit. This lead was not connected during the component fan investigation.

16. The suitability of the lead terminations and connectors shall be determined during the end-product investigation.

17. Wiring leads are tack soldered to the printed wiring board. Suitability of the lead securement and routing shall be evaluated in the end-product.

2014/09/23

(Place, Date)

Nancy Cheng

(Legally binding signature of the issuer)