

File E132003
Project 90SCO5787

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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.

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OBSOLETE MODELS:

Models AFB0412HHA/HA/MA/LA, DFB1212M/L, DFB1224M/L, SB0924H/M/L and AFB0605H/M/L are obsolete and their descriptions are contained in this Report for reference only.

MODEL REFERENCES:

New Model Numbers replace original model numbers as below tables for details. All references are identical to the original models.

<u>New Model Nos.</u>	<u>Original Model Nos.</u>
AFB0405LA (Y)	AFB0405LA
AFB0405MA (Y)	AFB0405MA
AFB0405HA (Y)	AFB0405HA
AFB0405HHA (Y)	AFB0405HHA
AFB0412LA (Y)	AFB0412LA
AFB0412MA (Y)	AFB0412MA
AFB0412HA (Y)	AFB0412HA
AFB0412HHA (Y)	AFB0412HHA
AFB0805H (Y)	AFB0805H
AFB0805M (Y)	AFB0805M
AFB0805L (Y)	AFB0805L
AFB0612H (Y)	AFB0612H
AFB0612L (Y)	AFB0612L
AFB0612LB (Y)	AFB0612LB
AFB0612HH (Y)	AFB0612HH
AFB0612M (Y)	AFB0612M
AFB0612VH (Y)	AFB0612VH
AFB0612SH (Y)	AFB0612SH
AFB0612EH (Y)	AFB0612EH
AFB0812H (Y)	AFB0812H
AFB0812L (Y)	AFB0812L
AFB0812M (Y)	AFB0812M
AFB0812HH (Y)	AFB0812HH

New Model Nos.Original Model Nos.

AFB0912H (Y)	AFB0912H
AFB0912M (Y)	AFB0912M
AFB0912L (Y)	AFB0912L
AFB0912HH (Y)	AFB0912HH
AFB0624VH (Y)	AFB0624VH
AFB0624SH (Y)	AFB0624SH
AFB0624EH (Y)	AFB0624EH
AFB0624H (Y)	AFB0624H
AFB0624L (Y)	AFB0624L
AFB0624M (Y)	AFB0624M
AFB0624HH (Y)	AFB0624HH
AFB0824H (Y)	AFB0824H
AFB0824M (Y)	AFB0824M
AFB0824L (Y)	AFB0824L
AFB0824HH (Y)	AFB0824HH
AFB0924H (Y)	AFB0924H
AFB0924M (Y)	AFB0924M
AFB0924L (Y)	AFB0924L
AFB0924HH (Y)	AFB0924HH
ASB0612H (Y)	ASB0612H
ASB0612L (Y)	ASB0612L
ASB0612M (Y)	ASB0612M
ASB0612HH (Y)	ASB0612HH
ASB0624H (Y)	ASB0624H
ASB0624L (Y)	ASB0624L
ASB0624M (Y)	ASB0624M
ASB0624HH (Y)	ASB0624HH
ASB0812L (Y)	ASB0812L
ASB0812M (Y)	ASB0812M
ASB0912H (Y)	ASB0912H
ASB0912M (Y)	ASB0912M
ASB0912L (Y)	ASB0912L
ASB0824H (Y)	ASB0824H
ASB0824L (Y)	ASB0824L
ASB0824M (Y)	ASB0824M
ASB0824HH (Y)	ASB0824HH
ASB0924H (Y)	ASB0924H
ASB0924M (Y)	ASB0924M
ASB0924L (Y)	ASB0924L

New Model Nos.Original Model Nos.

DFB0405LL (Y)	DFB0405LL
DFB0405L (Y)	DFB0405L
DFB0405M (Y)	DFB0405M
DFB0405H (Y)	DFB0405H
DFB0412H (Y)	DFB0412H
DFB0412M (Y)	DFB0412M
DFB0412L (Y)	DFB0412L
DFB0412LL (Y)	DFB0412LL
DFB0612H (Y)	DFB0612H
DFB0612L (Y)	DFB0612L
DFB0612HH (Y)	DFB0612HH
DFB0612M (Y)	DFB0612M
DFB0812H (Y)	DFB0812H
DFB0812L (Y)	DFB0812L
DFB0812M (Y)	DFB0812M
DFB0812HH (Y)	DFB0812HH
DFB0912H (Y)	DFB0912H
DFB0912M (Y)	DFB0912M
DFB0912L (Y)	DFB0912L
DFB0912HH (Y)	DFB0912HH
DFB0424H (Y)	DFB0424H
DFB0424M (Y)	DFB0424M
DFB0424L (Y)	DFB0424L
DFB0424LL (Y)	DFB0424LL
DFB0624H (Y)	DFB0624H
DFB0624L (Y)	DFB0624L
DFB0624M (Y)	DFB0624M
DFB0624HH (Y)	DFB0624HH
DFB0824H (Y)	DFB0824H
DFB0824M (Y)	DFB0824M
DFB0824L (Y)	DFB0824L
DFB0824HH (Y)	DFB0824HH
DFB0924H (Y)	DFB0924H
DFB0924M (Y)	DFB0924M
DFB0924L (Y)	DFB0924L
DFB0924HH (Y)	DFB0924HH
DFC0612B, -A (Y)	DFC0612B, -A
DFC0812B, -A (Y)	DFC0812B, -A
DFC0912B, -A (Y)	DFC0912B, -A
DFD0612H (Y)	DFD0612H
DFD0612M (Y)	DFD0612M
DFD0612L (Y)	DFD0612L
DFD0612HH (Y)	DFD0612HH
DFD0624H (Y)	DFD0624H
DFD0624M (Y)	DFD0624M
DFD0624L (Y)	DFD0624L

New Model Nos.Original Model Nos.

DFD0624HH (Y)	DFD0624HH
SB0412H (Y)	SB0412H
SB0412L (Y)	SB0412L
SB0412M (Y)	SB0412M
SB0412LL (Y)	SB0412LL
SB0612H (Y)	SB0612H
SB0612L (Y)	SB0612L
SB0612M (Y)	SB0612M
SB0612HH (Y)	SB0612HH
SB0812H (Y)	SB0812H
SB0812L (Y)	SB0812L
SB0812M (Y)	SB0812M
SB0812MSA (Y)	SB0812MSA
SB0812MSG (Y)	SB0812MSG
SB0812HH (Y)	SB0812HH
SB0624H (Y)	SB0624H
SB0624L (Y)	SB0624L
SB0624M (Y)	SB0624M
SB0624HH (Y)	SB0624HH
SB0824H (Y)	SB0824H
SB0824L (Y)	SB0824L
SB0824M (Y)	SB0824M
SB0824HH (Y)	SB0824HH
SB0612HD (Y)	SB0612HD
SB0612LD (Y)	SB0612LD
SB0612MD (Y)	SB0612MD
SB0614HD (Y)	SB0614HD
SB0624LD (Y)	SB0624LD
SB0624MD (Y)	SB0624MD
AFB0605HH (Y)	AFB0605HH
AUB0612L (Y)	AUB0612L
AUB0612M (Y)	AUB0612M
AUB0612H (Y)	AUB0612H
AUB0612HH (Y)	AUB0612HH
AUB0624L (Y)	AUB0624L
AUB0624M (Y)	AUB0624M
AUB0624H (Y)	AUB0624H
AUB0624HH (Y)	AUB0624HH
AUB0812LLB (Y)	AUB0812LLB
AUB0812LB (Y)	AUB0812LB
AUB0812MB (Y)	AUB0812MB
AUB0812HB (Y)	AUB0812HB
AUB0812HHB (Y)	AUB0812HHB
AUB0812VHB (Y)	AUB0812VHB
AUB0812SHB (Y)	AUB0812SHB

<u>New Model Nos.</u>	<u>Original Model Nos.</u>
AUB0824LLB (Y)	AUB0824LLB
AUB0824LB (Y)	AUB0824LB
AUB0824MB (Y)	AUB0824MB
AUB0824HB (Y)	AUB0824HB
AUB0824HHB (Y)	AUB0824HHB
AUB0824VHB (Y)	AUB0824VHB
AUB0824SHB (Y)	AUB0824SHB
AUB0912L (Y)	AUB0912L
AUB0912M (Y)	AUB0912M
AUB0912H (Y)	AUB0912H
AUB0912HH (Y)	AUB0912HH
AUB0912VH (Y)	AUB0912VH
AUB0924L (Y)	AUB0924L
AUB0924M (Y)	AUB0924M
AUB0924H (Y)	AUB0924H
AUB0924HH (Y)	AUB0924HH
AUB0924VH (Y)	AUB0924VH
ASB0505LB (Y)	ASB0505LB
ASB0505MB (Y)	ASB0505MB
ASB0505HB (Y)	ASB0505HB
ASB0512LB (Y)	ASB0512LB
ASB0512MB (Y)	ASB0512MB
ASB0512HB (Y)	ASB0512HB
ASB0512HHB (Y)	ASB0512HHB
ASB0524LB (Y)	ASB0524LB
ASB0524MB (Y)	ASB0524MB
ASB0524HB (Y)	ASB0524HB
ASB0524HHB (Y)	ASB0524HHB
ASB0505LB (Y)	ASB0505LB
ASB0505MB (Y)	ASB0505MB
ASB0505HB (Y)	ASB0505HB
ASB0512LB (Y)	ASB0512LB
ASB0512MB (Y)	ASB0512MB
ASB0512HB (Y)	ASB0512HB
ASB0512HHB (Y)	ASB0512HHB
ASB0524LB (Y)	ASB0524LB
ASB0524MB (Y)	ASB0524MB
ASB0524HB (Y)	ASB0524HB
ASB0524HHB (Y)	ASB0524HHB

<u>New Model Nos.</u>	<u>Original Model Nos.</u>
AUB0812LLB (Y)	AUB0812LLB
AUB0812LB (Y)	AUB0812LB
AUB0812MB (Y)	AUB0812MB
AUB0812HB (Y)	AUB0812HB
AUB0812HHB (Y)	AUB0812HHB
AUB0812VHB (Y)	AUB0812VHB
AUB0812SHB (Y)	AUB0812SHB
AUB0824LLB (Y)	AUB0824LLB
AUB0824LB (Y)	AUB0824LB
AUB0824MB (Y)	AUB0824MB
AUB0824HB (Y)	AUB0824HB
AUB0824HHB (Y)	AUB0824HHB
AUB0824VHB (Y)	AUB0824VHB
AUB0824SHB (Y)	AUB0824SHB

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

ELECTRICAL RATINGS:

Model Nos.	Volt (dc)	Amps
AFB0405LA	5	0.10
AFB0405MA	5	0.15
AFB0405HA	5	0.24
AFB0405HHA	5	0.31
AFB0412LA	12	0.07
AFB0412MA	12	0.10
AFB0412HA	12	0.14
AFB0412HHA	12	0.20
AFB0805H	5	0.65
AFB0805M	5	0.55
AFB0805L	5	0.45
AFB0612H	12	0.15-0.17
AFB0612L	12	0.09-0.12
AFB0612LB	12	0.10
AFB0612HH	12	0.2-0.25
AFB0612M	12	0.12-0.16
AFB0612VH	12	0.28-0.30
AFB0612SH	12	0.32-0.38
AFB0612EH	12	0.48
AFC0612D(Y)	12	0.60
AFB0812H	12	0.18
AFB0812L	12	0.08
AFB0812M	12	0.12
AFB0812HH	12	0.50
AFB0912H	12	0.30
AFB0912M	12	0.20
AFB0912L	12	0.15
AFB0912HH	12	0.40
AFB0624VH	24	0.14-0.17
AFB0624SH	24	0.18-0.21
AFB0624EH	24	0.24-0.36
AFB0624H	24	0.10-0.12
AFB0624L	24	0.06-0.08
AFB0624M	24	0.07-0.09
AFB0624HH	24	0.11-0.14
AFB0824H	24	0.12
AFB0824M	24	0.09
AFB0824L	24	0.07
AFB0824HH	24	0.35
AFB0924H	24	0.20
AFB0924M	24	0.15
AFB0924L	24	0.10
AFB0924HH	24	0.25
ASB0405LA	5	0.14
ASB0405MA	5	0.18

Note: For Models with variety rated current may be marked with rated current between the variety rated current.

ELECTRICAL RATINGS:

Model	Volt (dc)	Amps
ASB0405HA	5	0.32
ASB0405HHA	5	0.45
ASB0412LA	12	0.08
ASB0412MA	12	0.11
ASB0412HA	12	0.18
ASB0412HHA	12	0.22
ASB0612H	12	0.34
ASB0612L	12	0.22
ASB0612M	12	0.24
ASB0612HH	12	0.50
ASB0624H	24	0.18
ASB0624L	24	0.14
ASB0624M	24	0.16
ASB0624HH	24	0.50
ASB0812L	12	0.10
ASB0812M	12	0.16
ASB0912H	12	0.30
ASB0912M	12	0.20
ASB0912L	12	0.28
ASB0824H	24	0.20
ASB0824L	24	0.12
ASB0824M	24	0.14
ASB0824HH	24	0.40
ASB0924H	24	0.20
ASB0924M	24	0.15
ASB0924L	24	0.10
DFB0405LL	5	0.08
DFB0405L	5	0.10
DFB0405M	5	0.20
DFB0405H	5	0.32
*DFB0412H	12	0.10
DFB0412M	12	0.08
DFB0412L	12	0.06
DFB0412LL	12	0.08
DFB0612H	12	0.15
DFB0612L	12	0.09
DFB0612HH	12	0.25
DFB0612M	12	0.12
DFB0812H	12	0.18
DFB0812L	12	0.08

ELECTRICAL RATINGS:

Model	Volt (dc)	Amps
DFB0812M	12	0.12
DFB0812HH	12	0.50
DFB0912H	12	0.30
DFB0912M	12	0.20
DFB0912L	12	0.15
DFB0912HH	12	0.60
DFB0424H	24	0.10
DFB0424M	24	0.08
DFB0424L	24	0.06
DFB0424LL	24	0.05
DFB0624H	24	0.11
DFB0624L	24	0.07
DFB0624M	24	0.09
DFB0624HH	24	0.14
DFB0824H	24	0.12
DFB0824M	24	0.09
DFB0824L	24	0.07
DFB0824HH	24	0.35
DFB0924H	24	0.14
DFB0924M	24	0.10
DFB0924L	24	0.08
DFB0924HH	24	0.35
DFC0612B, -A	12	0.18
DFC0812B, -A	12	0.13
DFC0912B, -A	12	0.33
DFD0612H	12	0.15
DFD0612M	12	0.12
DFD0612L	12	0.09
DFD0612HH	12	0.40
DFD0624H	24	0.11
DFD0624M	24	0.09
DFD0624L	24	0.07
DFD0624HH	24	0.30
SB0412H	12	0.18
SB0412L	12	0.14
SB0412M	12	0.16
SB0412LL	12	0.12
*SB0612H	12	0.30
*SB0612L	12	0.18
*SB0612M	12	0.20

Model	Volt (dc)	Amps
SB0612HH	12	0.50
SB0812H	12	0.23
SB0812L	12	0.10
SB0812M	12	0.14
SB0812MSA	12	0.14
SB0812MSG	12	0.15
SB0812HH	12	0.60
SB0624H	24	0.18
SB0624L	24	0.14
SB0624M	24	0.16
SB0624HH	24	0.50
SB0824H	24	0.20
SB0824L	24	0.12
SB0824M	24	0.14
SB0824HH	24	0.40
SB0612HD	12	0.24
SB0612LD	12	0.16
SB0612MD	12	0.20
SB0614HD	24	0.14
SB0624LD	24	0.09
SB0624MD	24	0.12
AFB0605HH	5	0.55
*AUB0612L	12	0.16
AUB0612M	12	0.22
AUB0612H	12	0.24
AUB0612HH	12	0.36
AUB0624L	24	0.14
AUB0624M	24	0.16
AUB0624H	24	0.18
AUB0624HH	24	0.22
AUB0812LLB	12	0.110
AUB0812LB	12	0.140
AUB0812MB	12	0.170
AUB0812HB	12	0.200
AUB0812HHB	12	0.240
AUB0812VHB	12	0.300
AUB0812SHB	12	0.400
AUB0824LLB	24	0.070
AUB0824LB	24	0.080
AUB0824MB	24	0.100
AUB0824HB	24	0.120
AUB0824HHB	24	0.150
AUB0824VHB	24	0.180
AUB0824SHB	24	0.260
AUB0912L	12	0.15
AUB0912M	12	0.20
AUB0912H	12	0.30
AUB0912HH	12	0.40

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AUB0912VH	12	0.60
AUB0924L	24	0.10
AUB0924M	24	0.15
AUB0924H	24	0.20
AUB0924HH	24	0.25
AUB0924VH	24	0.40

Model	Volt (dc)	Amps
AUB0505LB	5	0.23
AUB0505MB	5	0.33
AUB0505HB	5	0.45
AUB0512LB	12	0.09
AUB0512MB	12	0.12
AUB0512HB	12	0.15
AUB0512HHB	12	0.20
AUB0524LB	24	0.08
AUB0524MB	24	0.09
AUB0524HB	24	0.11
AUB0524HHB	24	0.12

ASB0505LB	5	0.23
ASB0505MB	5	0.33
ASB0505HB	5	0.45
ASB0512LB	12	0.09
ASB0512MB	12	0.12
ASB0512HB	12	0.15
ASB0512HHB	12	0.20
ASB0524LB	24	0.08
ASB0524MB	24	0.09
ASB0524HB	24	0.11
ASB0524HHB	24	0.12

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Model Nos.	Volts, DC	Amperes, A
AFB0612DH-8G33(Y), E47199(Y), E47159(Y), DTC-CDA(Y) and DTC- CDC(Y)	12	1.2
FFR1212DHE(Y)	12	6.3
FFR0812DHE(Y)	12	5.1
KFB0612HD-8K16(Y)	12	0.5
BFB0712HB-8A97(Y)	12	1.1
KUC1012D(Y)	12	0.75
TFA1424AG(Y), TFA1424AGL(Y)	24	0.84
TFA1448AG(Y), TFA1448AGL(Y)	48	0.53
TFA1448BG(Y)	48	0.69
TFA1448CG(Y)	48	0.87

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):

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.

Use - For use only in complete equipment where the acceptability of the combination is determined by Underwriters Laboratories Inc.

These fans are provided with solid state control circuitry that incorporates current limiting, current shut down circuitry which shuts the fan off under locked rotor condition.

Conditions of Acceptability - For use only in complete equipment where the acceptability of the combination is determined by Underwriters Laboratories Inc. The following are limitations to be considered.

1. This investigation was established to cover a Class A insulation system for all fan models.
2. The suitability of these fans when operating under normal or abnormal conditions, within an appliance or enclosure, should be determined for each application.
3. The acceptability of the motor leads of these fans should be determined for each application with regard to size, temperature limitation and any other aspect that might be required in the end-use product.
4. Suitability of the motors for use when exposed to water, oil, freon, chemical X-rays, ultra violet rays and the like, has been determined by this investigation.
5. These fans are intended to be supplied by a low voltage- limited energy source (Class 2) as defined by the National Electrical Code. The over-surface spacings of the printed wiring board do not comply with Table 24.3 of UL 507, seventh edition. In addition, leads are not mechanically secured to the printed wiring board before soldering. Consideration should be given to the printed wiring board spacings and lead securement if these fans are connected to other than a Class 2 source.

- 6.* Fan coil temperatures were measured on representative Model fans at rated voltage. Temperatures should be measured on fans operating at higher voltages or in elevated ambient.
- 7.* These fans shall be mounted and enclosed in accordance with the frame and enclosure requirements of the end product. Suitable enclosure or guards shall be provided for the fan blade to reduce the risk of injury to persons. The fan enclosure utilizes a minimum 94V-0 enclosure material.
8. Permanence of marking has not been determined and should be judged in the end use application.
9. The suitability of the solid state control circuitry has not been evaluated in regards to provided suitable locked rotor protection for these fans in accordance with the Standard for Electric Fans, UL 507. However, locked rotor testing was conducted with the electronic control circuitry intact in the fans for a period of not less than 7 hours. As noted in the Test Record of this report, the fan windings tested did not burn or present a risk of fire or electric shock.

There was no omission of flame or smoke and there was no deterioration of the insulation system during this test.

10. This fan has not been evaluated for use with solid-state speed controls. Suitability should be evaluated in the end use product.