

# **SPECIFICATION FOR APPROVAL**

Customer : STD	
Description : DC FAN	
Customer Part No.	REV.:
Delta Model No. : EFB1524SHGP0	REV.: 02
Sample Issue No. :	
Sample Issue Date : JAN.21 2022	

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

APPROVED BY:

DATE :

DELTA ELECTRONICS, INC. TAOYUAN PLANT 252, SHANGYING ROAD, GUISHAN INDUSTRIAL ZONE, TAOYUAN CITY 33341, TAIWAN TEL:886-(0)3-3591968 FAX:886-(0)3-3591991

# \*\*\* SAMPLE HISTORY\*\*\*

CUSTOMER: <u>STD</u>

CUSTOMER P/N:

DELTA MODEL: <u>EFB1524SHGP0</u>

REV.	DESCRIPTION	DRAWN	CHECKED				ISSUE
			ME	EE	CE	AFFROVED	DATE
00	ISSUE SPEC	巫昶泰 8/26'19	巫昶泰 8/26'19	林諺鴻 8/26'19		吳俊男 8/26'19	09/03'19
01	UPDATED THE LABEL DIAGRAM.	陳權輝 10/13'20	陳權輝 10/13'20	林諺鴻 10/13'20		吳俊男 10/13'20	10/13'20
02	UPDATED THE LABEL DIAGRAM.	陳權輝 01/21'22	陳權輝 01/21'22	林諺鴻 01/21'22		吳俊男 01/21'22	01/21'22

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# **STATEMENT OF DEVIATION**

■ NONE

DESCRIPTION:

# DELTA ELECTRONICS, INC. 252, SHANGYING ROAD, GUISHAN INDUSTRIAL ZONE, TAOYUAN CITY 33341, TAIWAN

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# **Specification For Approval**

Customer : STD				
Description : DC FAN				
Customer P/N :	ustomer P/N : rev. :			
Delta model no. : EFB1524S	ta model no. : EFB1524SHGP0 Delta Safety Model No.: EFB1524SH			
Sample revision. : 02		Issue no.:		
Sample issue date : JAN.21 2022		Quantity :		
1. SCOPE: THIS SPECIFICATION DEFI CHARACTERISTICS OF TH 2. CHARACTERS:	NES THE ELECT E DC BRUSHLES	FRICAL AND MECHANICAL SS AXIAL FLOW FAN.		
ITEM		DESCRIPTION		
RATED VOLTAGE		24 VDC		
OPERATION VOLTAGE		21.6 - 26.4 VDC		
INPUT CURRENT(AVG.) (AT RATED VOLTAGE)		1.55 (MAX. 1.80) A SAFETY CURRENT ON LABEL: 2.10A		
INPUT POWER(AVG.) (AT RATED VOLTAGE)		37.2 (MAX. 43.2) W		
SPEED (AT RATED VOLTAGE)		4500 ± 10% RPM.		
MAX. AIR FLOW (AT ZERO STATIC PRESSU	IRE)	9.13 (MIN. 8.21) M <sup>3</sup> /MIN. 322.39 (MIN. 290.15) CFM		
MAX. AIR PRESSURE		32.14 (MIN. 26.03) mmH <sub>2</sub> O		
(AT ZERO AIRFLOW)		1.265 (MIN. 1.025) inchH <sub>2</sub> O		
ACOUSTICAL NOISE (AVG.)		62.0 (MAX. 66.0) dB-A		
INSULATION TYPE		UL: CLASS A		
INSULATION STRENGTH		10 MEG OHM MIN. AT 500 VDC (BETWEEN FRAME AND LEAD WIRES)		
DIELECTRIC STRENGTH		A MAX. AT 500 VAC 50/60 Hz ONE MINUTE, (BETWEEN FRAME AND LEAD WIRES)		

(continued)

# DELTA MODEL: EFB1524SHGP0

LIFE EXPECTANCE (L10) (AT LABEL VOLTAGE)	70,000 HOURS CONTINUOUS OPERATION AT 40 $^\circ$ C WITH 15 ~ 65 %RH.
ROTATION	COUNTERCLOCKWISE VIEW FROM NAME PLATE SIDE
LOCKED ROTOR PROTECTION	THE CURRENT WILL SHUT DOWN TO ZERO WHILE FAN's BLADE IS LOCKED.

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 SEMI-ANECHOIC CHAMBER WITH MICROPHONE AT A DISTANCE OF ONE METER FROM THE FAN INTAKE.

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#### 3.MECHANICAL:

3-1. DIMENSIONS	SEE DIMENSIONS DRAWING
3-2. FRAME	DIE-CAST ALUMINUM
3-3. IMPELLER	PLASTIC UL: 94V-0
3-4. BEARING SYSTEM	TWO BALL BEARINGS
3-5. WEIGHT	840 GRAMS(REF.)

#### 4. ENVIRONMENTAL:

4-1. OPERATING TEMPERATURE	10 TO +70 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 POSITIVEAND 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.

# DELTA MODEL: EFB1524SHGP0

#### 8. P & Q CURVE:





# DELTA MODEL: EFB1524SHGP0

# 9. DIMENSION DRAWING:

LABEL:





NOTES:

- 1. THIS PRODUCT IS RoHS COMPLIANT
- 2. LEAD WIRE UL1007 AWG #24 RED WIRE-----(+) BLACK WIRE-----(-) BLUE WIRE-----(F00) YELLOW WIRE-----(PWM)

## DELTA MODEL: EFB1524SHGP0

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:

 $\begin{array}{ll} \mbox{VFG= 5.0 TYP.(Vcc MAX.)} & \mbox{Ic = 5mA MAX.} \\ \mbox{VcE= 0.5V MAX.} & \mbox{R} \geqq \mbox{VFG} \mbox{/Ic} \end{array}$ 

10-3. FREQUENCY GENERATOR WAVEFORM:



### FAN RUNNING FOR 4 POLES





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

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11. PWM CONTROL SIGNAL: SIGNAL VOLTAGE RANGE: 0~15 VDC HIGH SIGNAL: 15 VDC MAX. 0.8 VDC MAX. 0 VDC MIN.0 VDC MIN.

- \* THE OPERATING FREQUENCY IS 25KHz.
- \* AT 100% DUTY CYCLE, THE FAN WILL SPIN AT MAXIMUM SPEED.
- \* AT 0% DUTY CYCLE, THE FAN WILL STOP SPINNING.

\* THE FAN WILL SPIN AT MAXIMUM SPEED WHILE CONTROL SIGNAL LEAD IS DISCONNECTED.

12. SPEED VS PWM CONTROL SIGNAL:

(AT 25°C, RATED VOLTAGE & PWM SIGNAL AS FOLLOW)

\*PWM SIGNAL PWM FREQUENCY = 25KHz

DUTY CYCLE	SPEED	CURRENT (A)
(%)	(R.P.M.)	(AVG.)
100	4500±10%	1.55
0	0	0.02

5.0VDC

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# 13. FAN CABLE ADDITIONAL PROCESS OUTSIDE DELTA

13-1. HANDLING :

13-1-1. DO NOT PRESS ROTOR OR PULL CABLE IN ANY PROCESS.



- 13-1-2. WEARING ELECTROSTATIC GLOVES BEFORE WORKING, MAKE SURE HOUSING ASSAMBLING MECHINE, WORKING TABLE WITH ELECTROSTATIC PROTECTION.
- 13-1-3. DO NOT WEAR OR DROP THE FAN DURING ALL PROCESS, PLEASE SCRAPE DROOPPED FAN TO AVOID BEARING DAMAGE.
- 13-2. TESTING :
- 13-2-1. MAKE SURE FAN SPEED AND FUNCTION WORKS WELL AFTER ASSAMBLY.





13-3. PACKING:

13-3-1. BE SURE OF FAN DERECTION AND HOUSING POSITION, CAN'T INTERFER CARTON OR POTTION OR OTHER MATERIAL.



13-3-2. MAKE SURE DESICCANT, QUANTITY AND P/N IS CORRECT BEFORE PACKING.







# **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.
- 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.