



SPECIFICATION FOR APPROVAL

Customer : STD

Description : DC FAN

Customer Part No. _____

REV. : _____

Delta Model No. : GFC0648SS-00E49

REV. : 02

Sample Issue No. : _____

Sample Issue Date : MAY.15. 2020

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

APPROVED BY:

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STATEMENT OF DEVIATION

NONE

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Specification For Approval

Customer : STD

Description : DC FAN

Customer P/N :

rev. :

Delta model no. : GFC0648SS-00E49

Delta Safety Model No.: GFC0648SS-00

Sample revision. : 02

Issue no.:

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Quantity :

1. SCOPE:

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

2. CHARACTERS:

ITEM	DESCRIPTION
RATED VOLTAGE	48V
OPERATION VOLTAGE	36 - 60 VDC
INPUT CURRENT(AVG.)★ (AT RATED VOLTAGE, FREE AIR)	1.1 (MAX. 1.8) A (Safety Current on label: 1.8A)
INPUT POWER(AVG.)★ (AT RATED VOLTAGE, FREE AIR)	52.8 (MAX. 86.4) W
SPEED(AT FREE-AIR CONDITION)	FRONT 22300 ± 10% R.P.M. REAR 24300 ± 10% R.P.M.
MAX. AIR FLOW (AT ZERO STATIC PRESSURE)	2.18 (MIN. 1.962) M ³ /MIN. 76.97 (MIN. 69.273) CFM
MAX. AIR PRESSURE (AT ZERO AIRFLOW)	196.34 (MIN. 159.03) mmH ₂ O 7.73 (MIN. 6.261) inchH ₂ O
ACOUSTICAL NOISE (AVG.)	82.0 (MAX. 86.0)dB-A
INSULATION TYPE	UL: CLASS A

★AVG. IS THE AVERAGE VALUE DURING STEADY OPERATION, AND MAX. IS MAXIMUM AVERAGE VALUE INCLUDED
 RODUCTION TOLERANCES. THE PEAK VALUE NEED TO BE MEASURED BY OSCILLOSCOPE.

(continued)

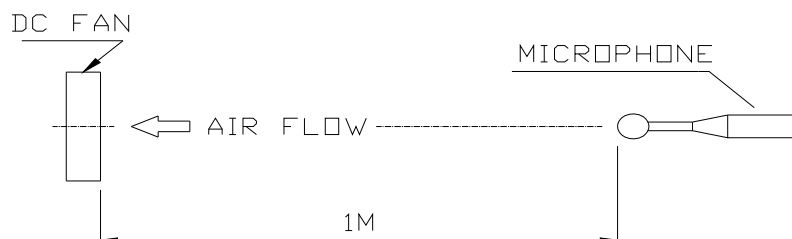
PART NO:

DELTA MODEL: GFC0648SS-00E49

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 (L10) (AT LABEL VOLTAGE)	70,000 HOURS CONTINUOUS OPERATION AT 40 °C WITH 15 ~ 65 %RH.
ROTATION	COUNTERCLOCKWISE DIRECTION VIEW BOTH FROM INLET SIDE AND OUTLET 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. THE CHARACTERS SHOWED IN PAGE 1 IS THE CONDITION OF BOTH FANS RUN.
5. 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----- PLASTIC UL: 94V-0
- 3-3. IMPELLER----- PLASTIC UL: 94V-0
- 3-4. BEARING SYSTEM----- TWO BALL BEARINGS
- 3-5. WEIGHT-----210 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.

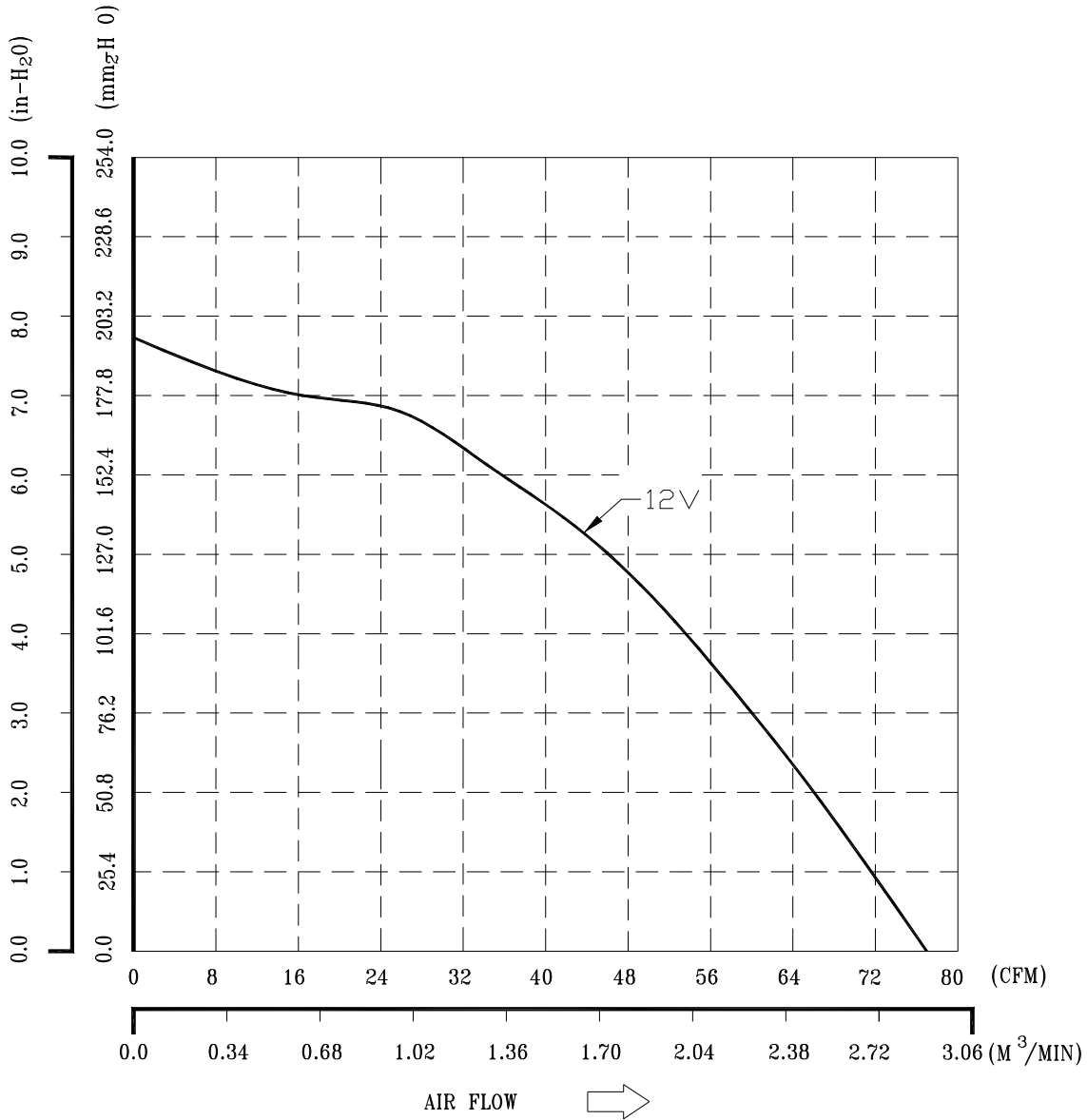
7. PRODUCTION LOCATION

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

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8. P & Q CURVE:



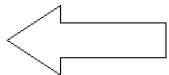
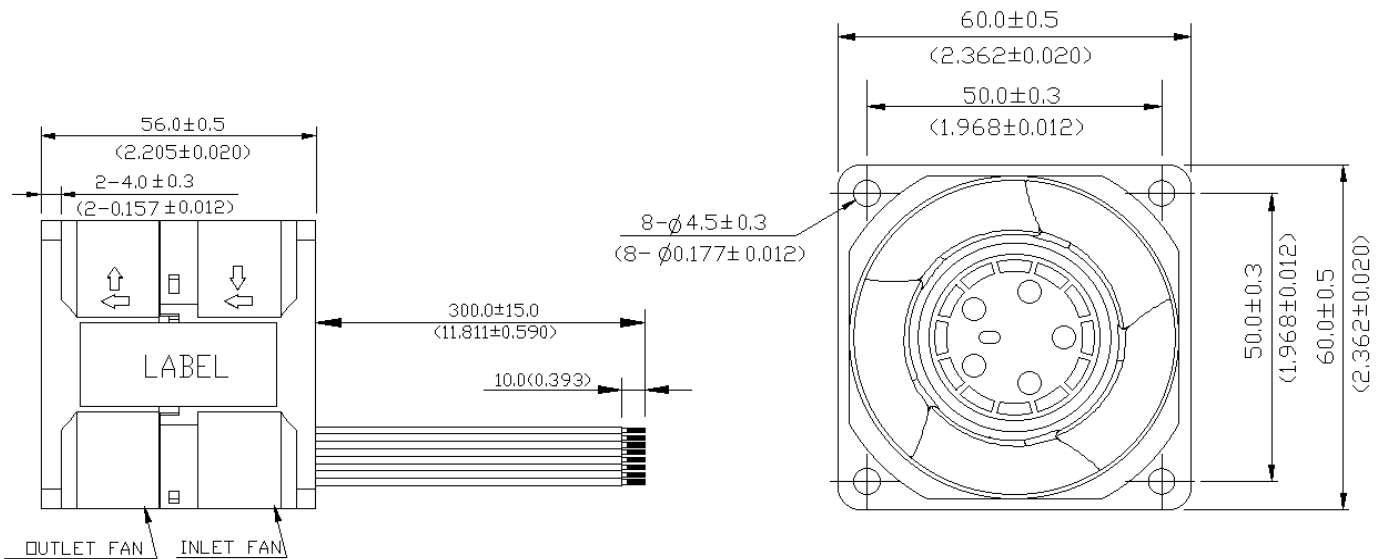
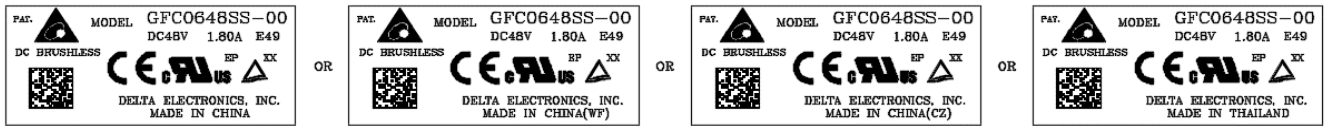
*TEST CONDITION: INPUT VOLTAGE-----OPERATION VOLTAGE
TEMPERATURE-----ROOM TEMPERATURE
HUMIDITY-----65%RH

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9. DIMENSION DRAWING:

LABEL:



AIRFLOW DIRECTION

UNIT: mm(INCH)

NOTE:

1. LEAD WIRE: UL10368 (FLAMMABILITY VW-1)
BLACK WIRE.....FRONT(-).....AWG#24
RED WIRE.....FRONT(+),.....AWG#24
YELLOW WIRE.....FRONT(F00).....AWG#26
BLUE WIRE.....FRONT(PWM),.....AWG#26
GRAY WIRE.....REAR(-).....AWG#24
ORANGE WIRE.....REAR(+),.....AWG#24
WHITE WIRE.....REAR(F00).....AWG#26
GREEN WIRE.....REAR(PWM),.....AWG#26

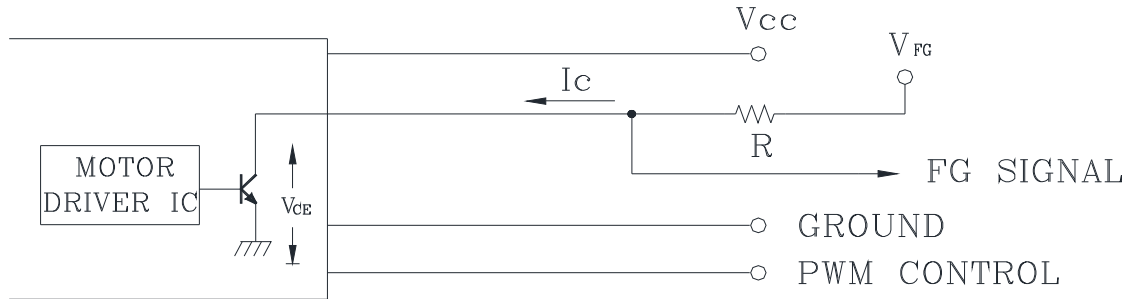
2. THIS PRODUCT IS RoHS COMPLIANT

PART NO:

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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:

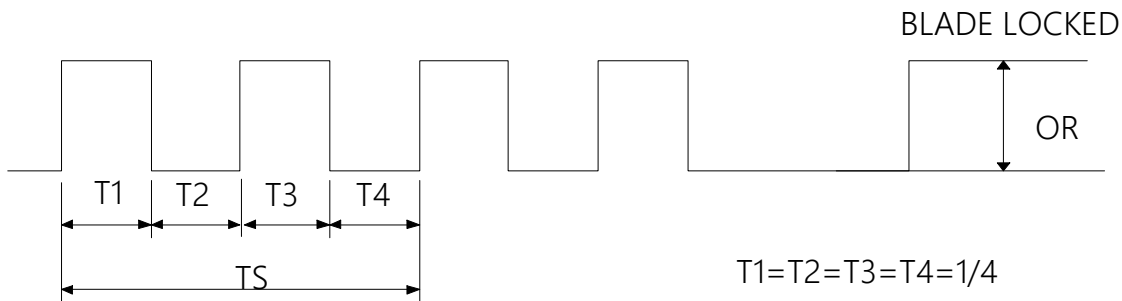
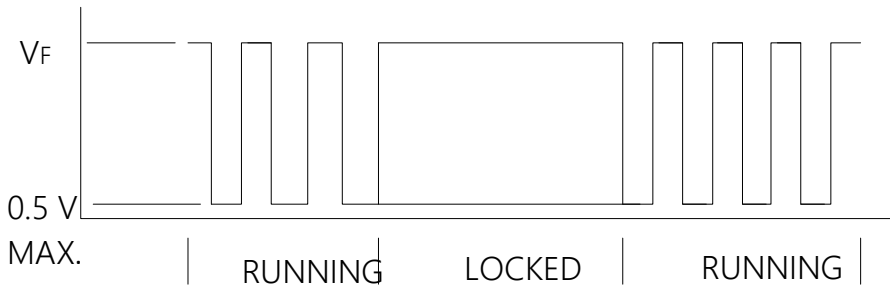
$$V_{FG} = 60\text{VDC MAX}$$

$$I_c = 5\text{mA MAX.}$$

$$V_{CE(sat)} = 0.5\text{V MAX.}$$

$$R \geq V_{FG} / I_c$$

10-3. FREQUENCY GENERATOR WAVEFORM:



$$N = \text{R.P.M}$$

$$TS = 60/N(\text{SEC})$$

*VOLTAGE LEVEL AFTER BLADE LOCKED

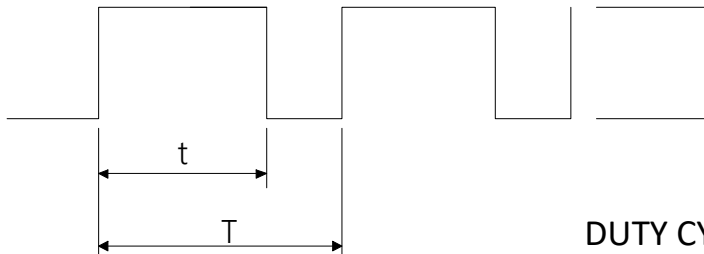
*4 POLES

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11.PWM CONTROL SIGNAL:

SIGNAL VOLTAGE RANGE: 0~15.0 VDC



HIGH SIGNAL: 15.0 VDC MAX.
2.8 VDC MIN.

LOW SIGNAL: 0.8 VDC MAX.
0 VDC MIN.

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

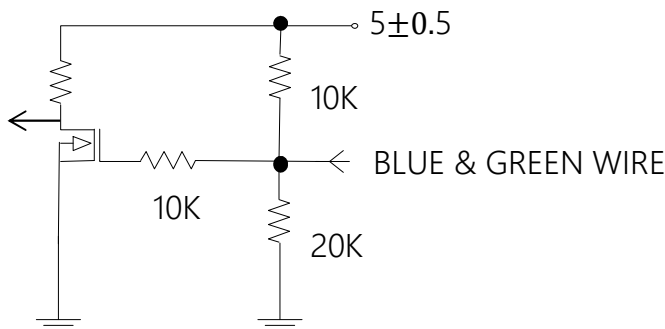
- *THE PREFERRED OPERATING POINT FOR THE FAN IS 25K HZ.
- *AT 100% DUTY CYCLE,THE ROTOR WILL SPIN AT MAXIMUM SPEED.
- *AT 0% DUTY CYCLE,THE ROTOR WILL SPIN AT MINIMUM SPEED.
- *WITH CONTROL SIGNAL LEAD DISCONNECTED,THE FAN WILL SPIN AT MAXIMUM SPEED.
- *THIS FAN WILL BE ABLE TO START-UP FROM STILL STATE WHEN INPUT DUTY IS HIGH THAN 30%.

12. SPEED VS PWM CONTROL SIGNAL:

(AT RATED VOLTAGE & PWM FREQUENCY=25KHZ & 25 DEGREE C)

DUTY CYCLE (%)	SPEED (R.P.M.)		CURRENT (A) TYP. (AVG.)★
	FRONT	REAR	TOTAL
100	22300 ± 10%	24300 ± 10%	1.10A
50	12350 ± 10%	13420 ± 10%	0.30A
0	2230 ± 250	2430 ± 250	0.10A

13. PWM CONTROL LEAD WIRE INPUT IMPEDANCE:



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