



Q7

1U Active Air Cooler

PRODUCT SPECIFICATIONS

Rev 2.0 July 27, 2023

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Document History List

Rev 2.0, July 27 2023: Update thermal performance

Rev 1.0, Oct.06 2022: Update description of all lead wire color, page 4

Rev 0.0, Sep.30 2022: Initial release

Model Number: Q7

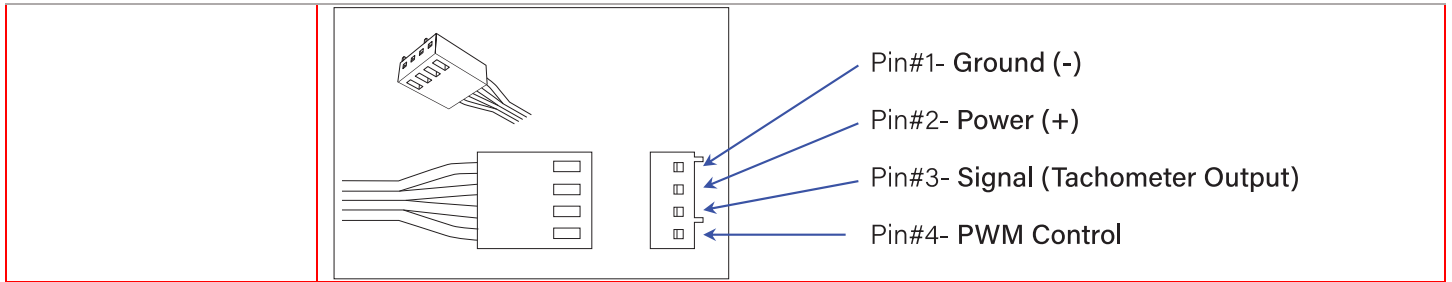
- Recommend for Intel® CPU as following
Intel® Alder Lake-S and Raptor-Lake Processor, Socket LGA1700
- Active Air Cooler for 1U Server and Up

Overall Specification

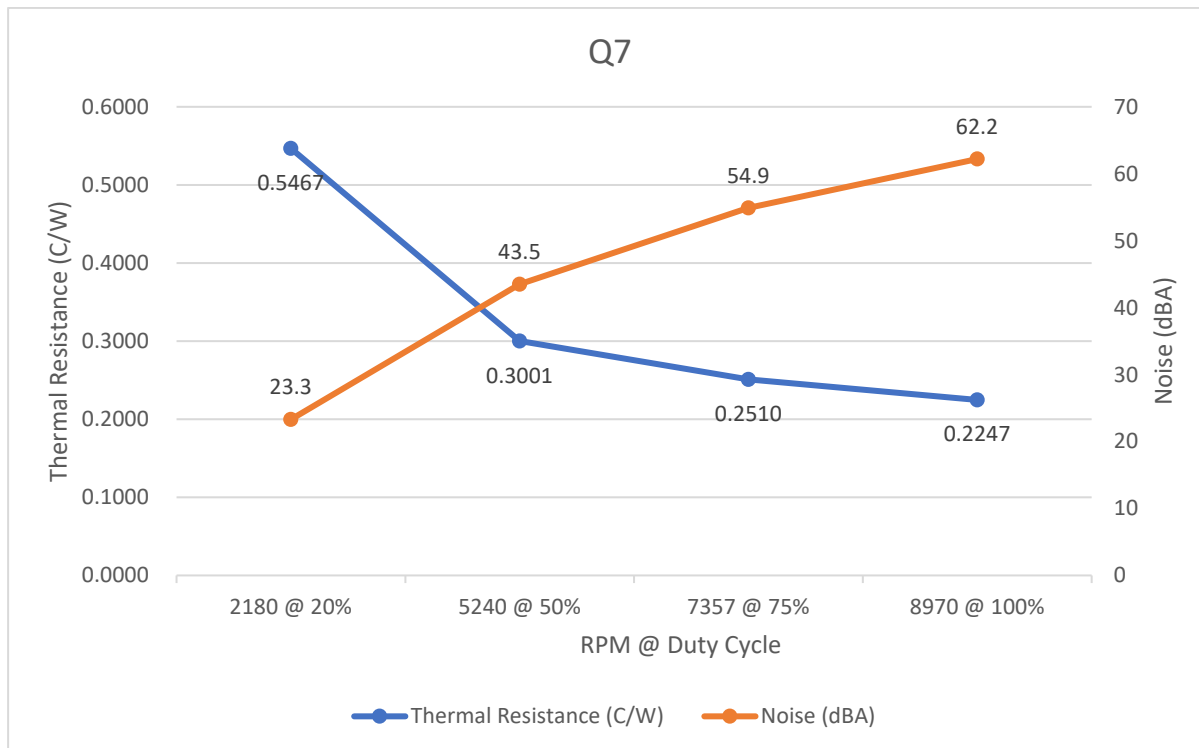
| | |
|----------------|--|
| Dimension | 95 x 94 x 28.2 mm LWH |
| Weight | 380 g |
| Material | Copper Vapor Chamber Heatsink with Stacked Fins |
| Thermal Grease | Shin-Etsu 7762 Pre-Printed |
| TDP | Support CPU 150W TDP and Overclocking heat dissipation |

Cooling Fan Specification

| | |
|-----------------------|--|
| Model Number | DB128013BU-PWM (Dual-Outlet) |
| Dimension | φ80 x 13 mm |
| Bearing | Double Ball |
| Rated Voltage | 12V |
| Rated Speed | At Duty Cycle 0~20%: 2000± 200 RPM At Duty Cycle 50%: 4900± 10% RPM At Duty Cycle 100%: 8700±10% RPM |
| Input Power | At Duty Cycle 0~20%: 1.08 W At Duty Cycle 50%: 4.7 W At Duty Cycle 100%: 26.4 W |
| Maximum Airflow | At Duty Cycle 0~20%: 6.41 CFM At Duty Cycle 50%: 15.26 CFM At Duty Cycle 100%: 26.25 CFM |
| Rated Static Pressure | At Duty Cycle 0~20%: 3.69 mm-H2O At Duty Cycle 50%: 25.28 mm-H2O At Duty Cycle 100%: 89.80 mm-H2O |
| Acoustical Noise | At Duty Cycle 0~20%: 23.3 dBA At Duty Cycle 50%: 43.5 dBA At Duty Cycle 100%: 62.2 dBA |
| Lead Wire Pin Out | Pin#1- Black (-) Pin#2- Black (+) Pin#3- Black (Tachometer/ Signal Output) Pin#4- Black (PWM) |

Q7 | Socket LGA1700


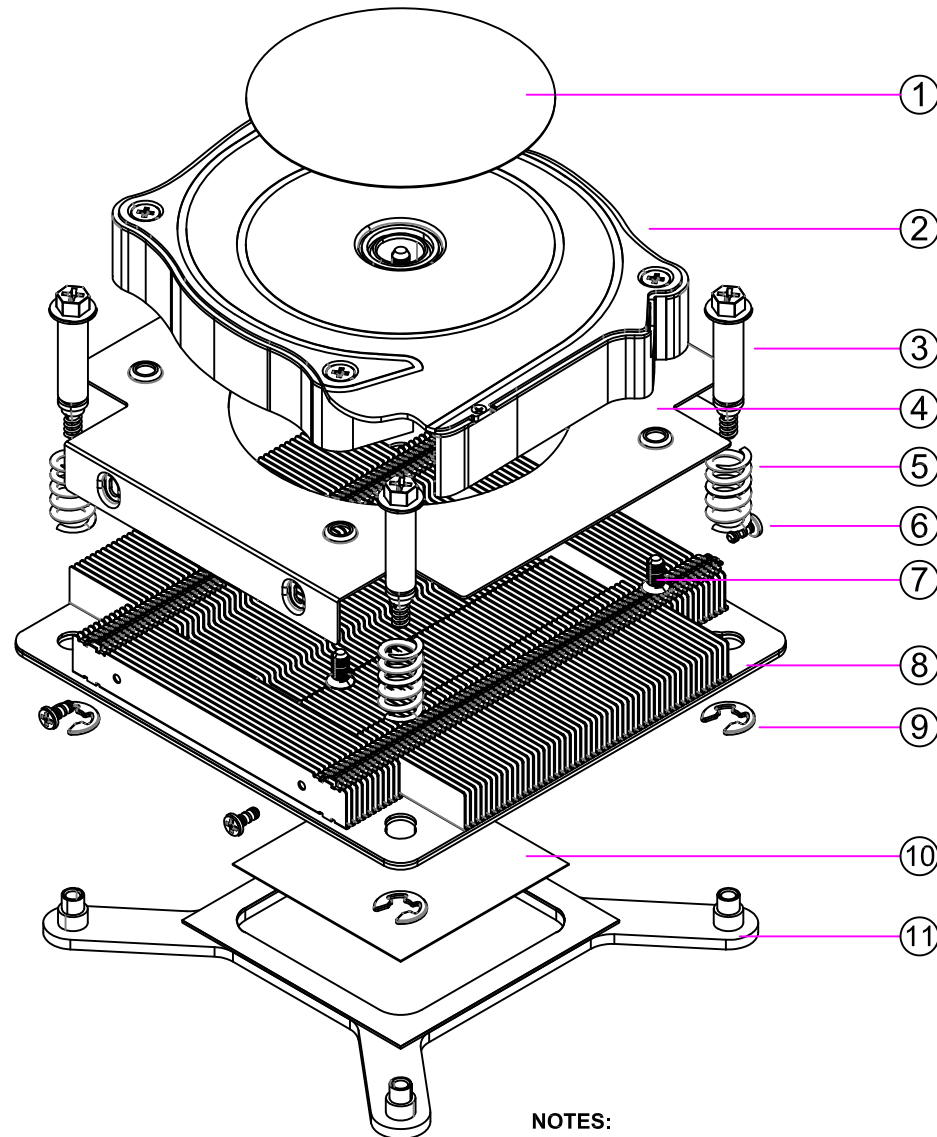
Performance Chart: Active Cooler Q7 Thermal Resistance Thermal Resistance vs. Fan Speed (Duty Cycle and RPM)



CONFIDENTIAL DOCUMENT

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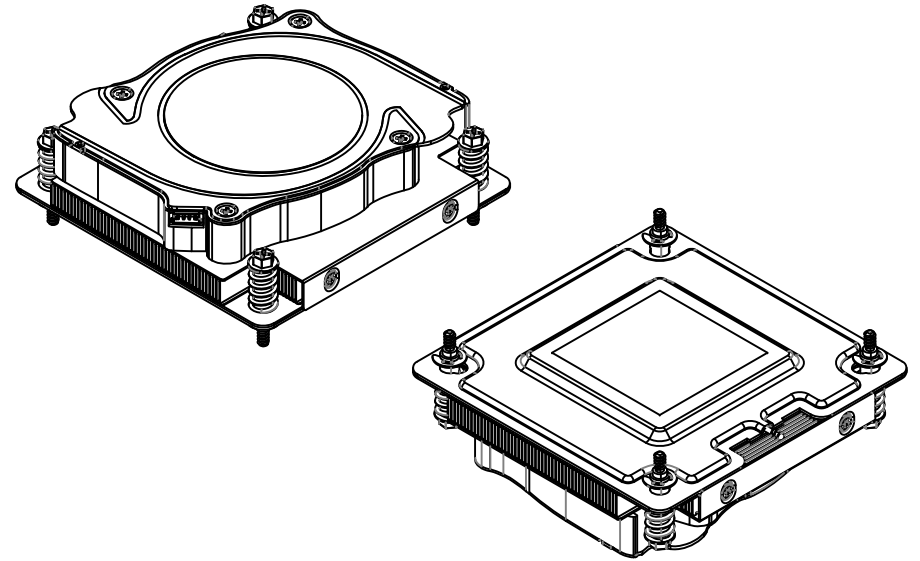
ASSEMBLY PARTS




NOTES:

1. THE FIGURE IS FOR REFERENCE ONLY, AND NOT FOR SCALE
2. OVERALL DIMENSION : 95 x 94 x 28.2 mm
3. OVERALL WEIGHT ESTIMATED : 380g

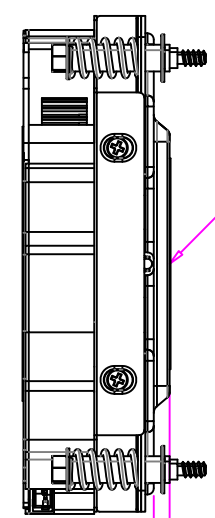
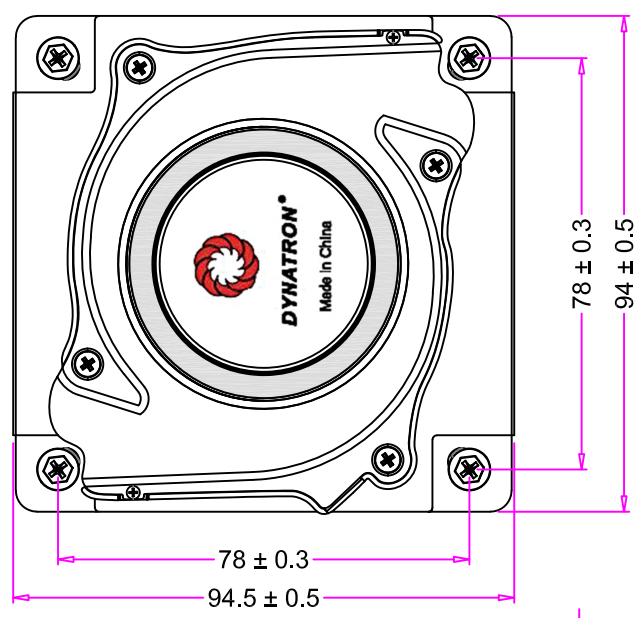
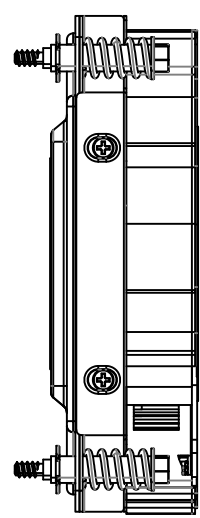
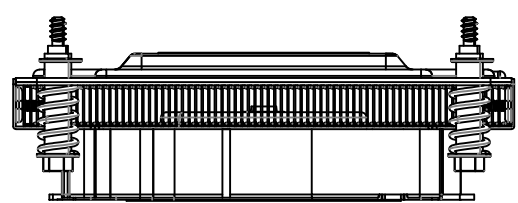
WHOLE SET OF HEATSINK



| ITEM# | DESCRIPTION | MATERIAL | QTY. |
|-------|---|----------------|------|
| 11 | BACKPLATE INSULATOR, W / ADHESIVE | SPCC PC | 1 |
| 10 | THERMAL GREASE, PRE-PRINTED | SHIN-ETSU 7762 | 1 |
| 9 | C-CLIP | STEEL | 4 |
| 8 | HEATSINK, VAPOR CHAMBER BASE STACKED FIN | COPPER 1100 | 1 |
| 7 | SCREW, BLOWER MOUNTING | STEEL | 4 |
| 6 | SCREW, TUNNEL COVER MOUNTING | STEEL | 4 |
| 5 | SPRING (0730) | STEEL | 4 |
| 4 | TUNNEL COVER | METAL | 1 |
| 3 | SCREW (1710) | STEEL | 4 |
| 2 | BLOWER, DUAL-OUTPUT DB128015BU-PWM, 8700 RPM | MOTOR SPCC | 1 |
| 1 | LABEL , BLOWER | PC | 1 |

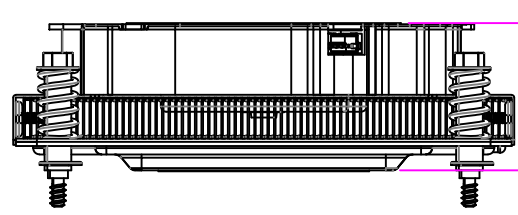
| DATE | NAME |  DYNATRON CORPORATION | |
|--------------------|------|--|--------------------------------|
| DRAWN 09/30/2022 | Engr | TITLE: 1U Active Cooler Model Q7 BOM & Exploded Assembly Drawing | |
| CHECKED 09/30/2022 | LANG | | |
| ENG. APPR. | | | |
| MFG. APPR. | | | |
| COMMENTS: | | DWG. No: | REV DYN-EP-Q7 0.0 |

| REV# | DESCRIPTION | CHECKER | DATE |
|------|-----------------|---------|------------|
| 0.0 | INITIAL RELEASE | LANG | 09/30/2022 |

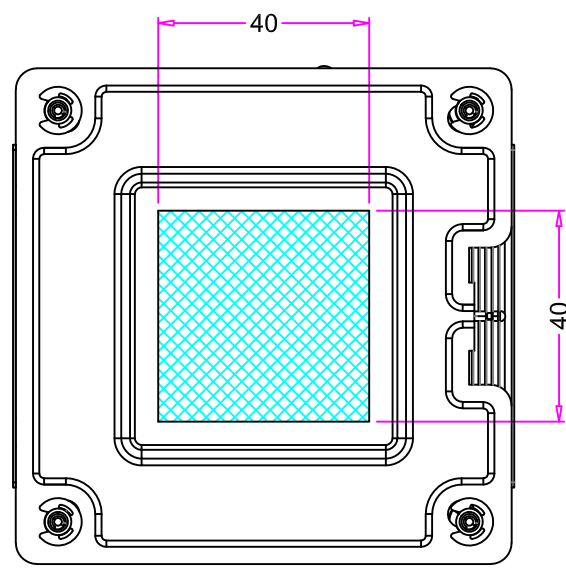


0.10
Ra < 1.2

3.0 +0.2/-0



28.2 ± 0.5



| | NAME | DATE |
|---------------|------|------------|
| DRAWN BY | ENGR | 09/30/2022 |
| CHECKED BY | LANG | 09/30/2022 |
| ENG. APPROVED | | |
| MFG. APPROVED | - | - |



DYNATRON CORPORATION

TOP MOTOR

TITLE: **1U Active Cooler Model Q7**
Overall Dimension Drawing

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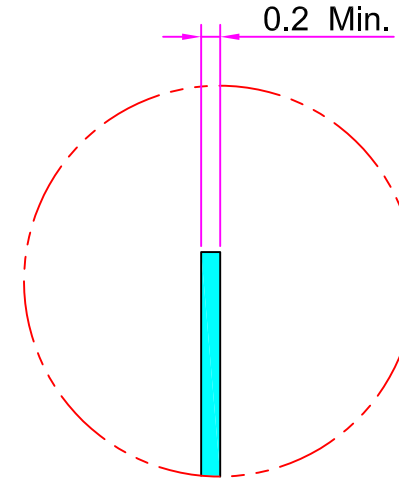
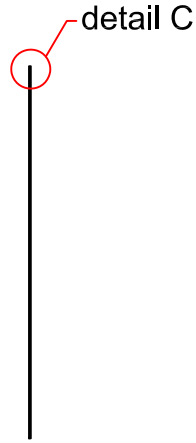
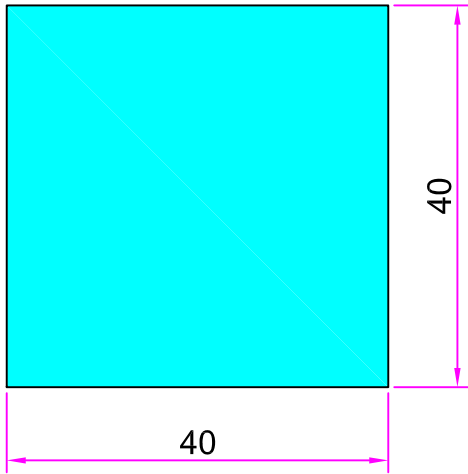
| | | |
|-------|----|------------------|
| VIEW | | DWG. No: |
| UNITS | MM | DYN-DM-Q7 |

| | |
|------|------------|
| REV. | 0.0 |
|------|------------|

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| REV # | DESCRIPTION | CHECKER | DATE |
|-------|-----------------|---------|------------|
| 0.0 | INITIAL RELEASE | LANG | 09/30/2022 |



detail C
scale 10 : 1

NOTES:

1. UNIT: MM
2. MATERIAL : SHIN-ETSU 7762 OR EQUIVALENT

| | | | | | |
|------------|------------|------|---|-----|-----|
| | DATE | NAME |  DYNATRON CORPORATION | | |
| DRAWN | 09/30/2022 | engr | | | |
| CHECKED | 09/30/2022 | lang | | | |
| ENG. APPR. | | | | | |
| MFG. APPR. | | | | | |
| G.A. | | | | | |
| COMMENTS: | | | TITLE: Thermal Grease Pre-printed Dimension Drawing | | |
| | | | DWG. No: <table border="1" style="float: right;"> <tr> <td>REV</td> <td>0.0</td> </tr> </table> | REV | 0.0 |
| REV | 0.0 | | | | |



DYNATRON CORPORATION

TOP MOTOR TECHNOLOGY (HUIZHOU) CO, LTD

Specification for Approval

| | | |
|---|---|---|
| Customer: | | |
| Model Number: | DB128013BU-PWM, DUAL-OUTPUT | |
| Part Number: | | |
| Issued Date: | Friday, August 19, 2022 | |
| Version: | A | |
| Customer Approval | | |
| Approval: | Check: | |
| | | |
| Corporate Headquarters Dynatron Corporation 33200 Western Avenue Union City, CA 94587 U.S.A. Tel: 510-498-8888 Fax: 510-498-8488 | Taipei Office <i>(Taiwan, R.O.C.)</i> 8F, No. 35, Lane:221 Gang Cian. Road, Taipei, Taiwan, R.O.C. Tel: 886-2-27995799 (Rep.) Fax: 886-2-2799-9577 | Manufactory TOP MOTOR TECHNOLOGY(HUI ZHOU)CO,LTD Baishi Village, QiuchangTown, Huiyang Dist, HuizhouCity, Guangdong Province, P.R.China Tel: 86-752-822-8000 (Rep.) Fax: 86-752-822-8999 |
| Approval: | Check: | Handler: |
| Guo xuan | | Xiao li |



DYNATRON CORPORATION

TOP MOTOR TECHNOLOGY (HUIZHOU) CO, LTD

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1. SCOPE

This specification defines the electrical and mechanical characteristics of the □ AC / ■ DC Brush less(□Liquid State / ■2-Balls Bearing)axial flow fan, which is carefully designed and manufactured for your special needs by Dynatron Corporation.

2. ELECTRICAL CHARACTERISTICS

| Items | | Description | | |
|-------|--|--|--|---|
| 1. | Rated Voltage | DC 12 V | | |
| 2. | Operating Voltage | 10.8V~13.2V | | |
| 3. | PWM Frequency 25KHz | Duty Cycle D=0-20% | Duty Cycle D=50% | Duty Cycle D=100% |
| 4. | Start Voltage | 7V | | |
| 5. | Air Flow – At rated voltage zero static pressure (minimal value) | 0.18 m ³ /z min (6.41CFM) | 0.43m ³ /z min (15.26CFM) | 0.735m ³ /z min (26.25CFM) |
| 6. | Static Pressure – At rated voltage At zero air flow | 3.69mm-H ₂ O (0.145inch-H ₂ O) | 25.28mm-H ₂ O (0.992inch-H ₂ O) | 89.80mm-H ₂ O (3.53inch-H ₂ O) |
| 7. | Input Current (Max.) | 0.09A | 0.5A | 2.2A |
| 8. | Speed | 2000RPM ±200 | 4900RPM ±10% | 8700RPM ±10% |
| 9. | Acoustical Noise | 23.3dBA | 43.5dBA | 62.2dBA |
| 10. | Input Power | 1.08W | 4.7W | 26.4W |
| 11. | Insulation Resistance – Between Frame and Terminal | 10 M ohm at DC 500 V | | |
| 12. | Dielectric Strength – Between Frame and Terminal | 5 mA (Max.) @ AC 500 V 60 Hz 1 min. | | |
| 13. | Life – Continuous operating under normal temperature (40 °C or 104 °F) | 70,000 hours | | |
| 14. | Rotation | Anticlockwise Air Discharged | | |
| 15. | Auto restart Time | 3-5sec | | |
| 16. | Lead Wires | UL 1061, awg 26 or Equivalent “-”: Black; “+”: Black; “S”: Black. “PWM”: Black. | | |



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3. MECHANICAL CHARACTERISTICS

| Items | | Description |
|-------|----------------|---------------------|
| 1. | Dimension | Display as Drawing |
| 2. | Frame | PPS UL94V-0 (Black) |
| 3. | Impeller | PBT UL94V-0 (Black) |
| 4. | Bearing System | Two balls Bearing |
| 5. | Weight | 6 0 grams |

4. ENVIRONMENTAL

| Items | | Description |
|-------|-----------------------|---|
| 1. | Operating Temperature | - 10 °C ~ + 65 °C (65 %RH) |
| 2. | Storage Temperature | - 30 °C ~ + 70 °C (65 %RH) |
| 3. | Vibration Test | Motor withstands 1000 rpm vibrating with 2 mm amplitude for 30 minutes up and down, right and left, back and forth directions. |
| 4. | Drop Test | Motor withstands one free body drop from 30 cm in high onto 10 mm thickness of wooden board for each of the three faces in minimum packing condition. |
| 5. | Acoustic Noise | 62.20dBA – Curve (Max62.70dBA) Measuring Condition – Under rated voltage in semi-anechoic chamber equipment sound level meter. (Figure A.) |

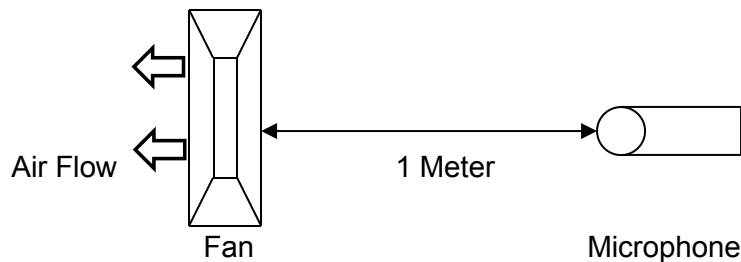


Figure A – Noise Level is measure at rated voltage in anechoic chamber in free air as above.



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5. PROTECTION

| Items | | Description |
|-------|---------------------|---|
| 1. | Polarity Protection | For polarity error connection to power, the circuit withstands reversed connection between positive and negative leads. |

6. ATTACHMENTS

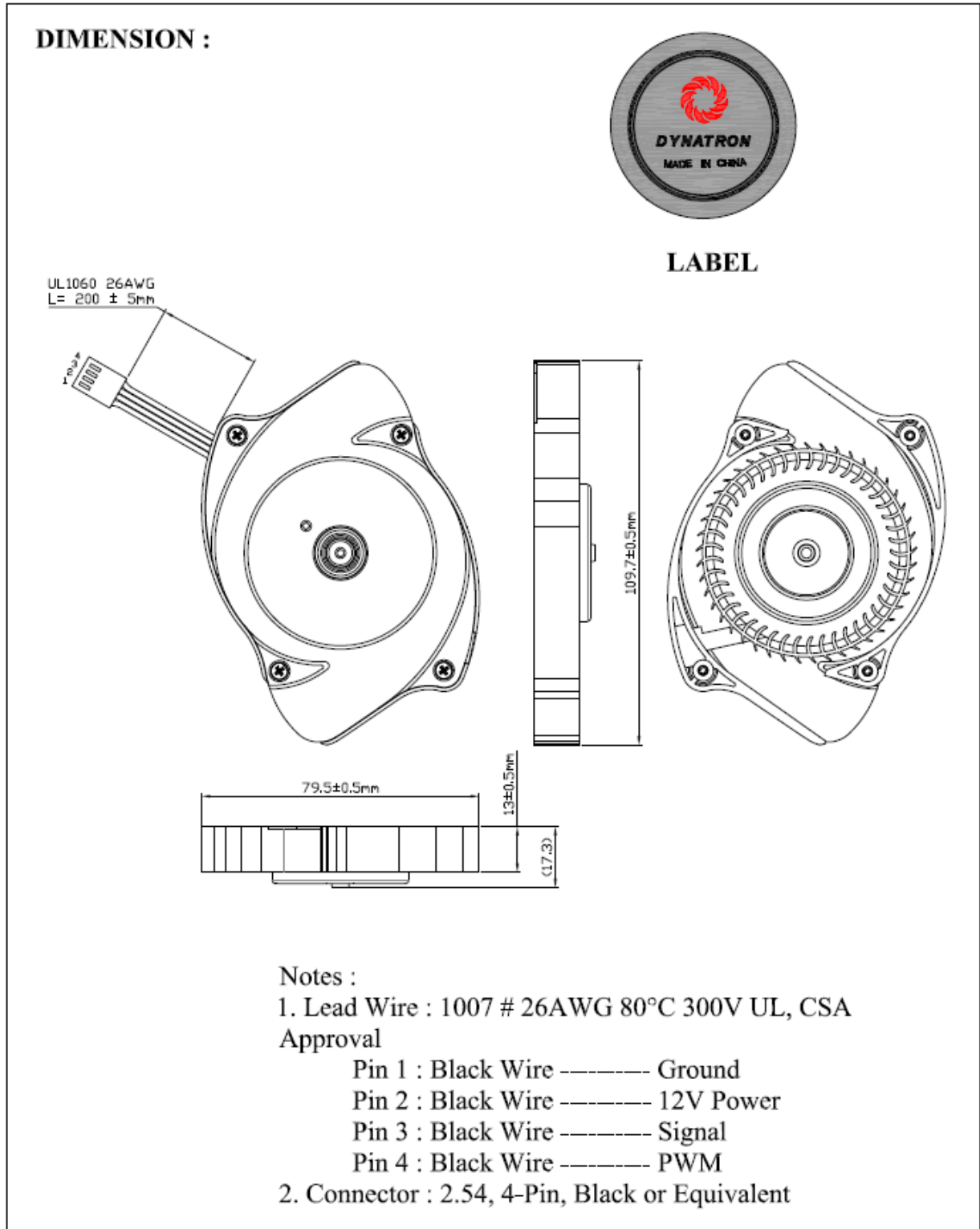
- 6.1. Assembly Parts
- 6.2. Product Dimension
- 6.3. Frequency Generator Output
- 6.4. Electrical specifications for pwm production



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6.1. Product Dimension





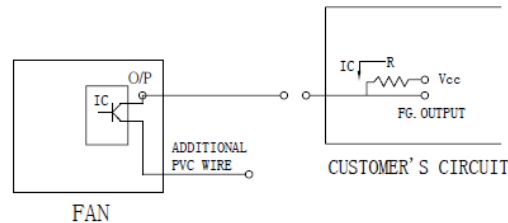
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6.2. Frequency Generator Output

FREQUENCY GENERATOR O/P:

Frequency generator function is activated by an internal IC for customer's application.
Electrical schematic:



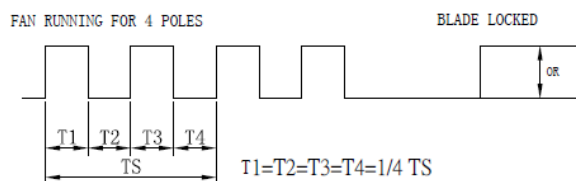
CUSTOMER'S CIRCUIT

V_{cc} = From +5 To +28 VDC (Generally using +12 or +24 VDC)

I_c = 5 mA max.

$R = V/I$ (Output "R" value calculation)

● SUPPLY A WAVEFORM:



$N = R.P.M.$ (Rotation speed will be different for various models

L/M/H/HH/VH/SH)

$TS = 60/N$ (Sec)

* Voltage level after blade locked

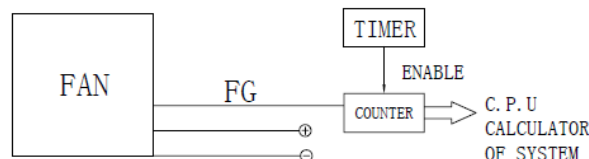
● OUTPUT LEVEL:

High = V_{cc} 10%

Low = 0~0.5V

I_c = 5 mA max.

● APPLICATION:



● FUNCTIONS:

- By means of waveform & customer's design, schematic can reach alarm function, either in the form of buzzing or LED flashing. Adjust rotation speed.
- When power supply output voltage level decreases, it will result in the lowering of fan rotation speed. The irregular situation will be controlled by using FG. O/P through P/S circuit to increase the output voltage and result in a stable rotation speed.



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6.3. TUV Certificate

Zertifikat

Certificate



Zertifikat Nr. Certificate No. R 50064443
Blatt Page 0002

Ihr Zeichen Client Reference PC/DTI
Unser Zeichen Our Reference ZTW1-TCC- 10013649 002
Ausstellungsdatum Date of Issue 11.11.2005 (day/mo/yr)

Genehmigungsinhaber License Holder
Dynacon Industrial Co., Ltd.
1st Fl., No. 362, Tanan Rd.
Taipei 111
Taiwan, R.O.C.

Fertigungsstätte Manufacturing Plant
Dynacon Ind. Co., Ltd.
Ta-Li Management Zone
Ching-Hsi, Dongguan
P.R. China

Prüfzeichen Test Mark
Geprüft nach Tested acc. to
EN 60950-1:2001+A11



Zertifiziertes Produkt (Geräteidentifikation)
Certified Product (Product Identification)

Lizenzentgelte - Einheit
License Fee - Unit

Ventilator (DC Fan)

wie Blatt (as page) 01

Ergänzung (Addition)

Bezeichnung : DF(X1)(X2)(X3)(X4)(X5)ZZZZ-(X6)
(Type Designation)
(X1) steht für (stands for) : 05, 12, 24
(X2) steht für (stands for) : 40, 50, 60, 70, 80
(X3) steht für (stands for) : 10, 15, 20
(X4) steht für (stands for) : S, B, P, Q
(X5) steht für (stands for) : U, H, M, L, E
Z steht für (stands for) : A-Z, 0-9 oder freibleibend
(or blank)
(X6) steht für (stands for) : A, B
Nennspannung : DC 5V (X1 = 05); DC 12V (X1 = 12)
(Rated Voltage) DC 24V (X1 = 24)
Nennstrom : siehe Aufbau-Übersicht
(Rated Current) (see constructional dataform)



ANLAGE (Appendix): 1.1

Dem Zertifikat liegt unsere Prüf- und Zertifizierungsordnung zugrunde.
Das Produkt entspricht den o.g. Anforderungen, die Herstellung wird überwacht.
This certificate is based on our Testing and Certification Regulation. The product fulfills above-mentioned-requirements, the production is subject to surveillance.

Zertifizierungsstelle

TÜV Rheinland Product Safety GmbH, Am Grauen Stein, D-51105 Köln

Tel.:(+49/221)8 06 - 13 71 Fax:(+49/221)8 06 - 39 35 e-mail: Althoff@de.tuv.com

Dipl.-Ing. F. Stöckel



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6.4. UL Certificate



ONLINE CERTIFICATIONS DIRECTORY

GPWV2.E157868 Fans, Electric - Component

[Page Bottom](#)

Fans, Electric - Component

[See General Information for Fans, Electric - Component](#)

DYNAEON INDUSTRIAL CO LTD
8TH FL 35 LANE 221 GANGCIAN RD
NEIHU DIST
TAIPEI, 114 TAIWAN

E157868

DC fans, Models D(F)1206(Z)(Y1)(X1), D(F)1207(Z)(Y1)(X1), where (F) may be F or C, (Z) may be SH, BH, BA, SM, BM, BB, SL, BL, BC, SD, BE, BF, SG, BI, BJ, SK, BN, BO, SP, BQ, BR, SS, BT, BU, SV, BW, BX, SY, BY or BZ, (Y1) may be "-", 0 through 9 or A through Z, (X1) may be 0 through 9 or A through Z.

Models DF248015(S)(X)(Y)(Z)(W), DF488015(S)(X)(Y)(Z)(W), where (S) may be S, B or P, (X) may be U, H, M or L, (Y) and (Z) may be any alphanumeric character, blank, "-" or any symbol, (W) may be seven any alphanumeric character, blank, "-" or any symbol.

Models DF121225(A)(B)(C), DF121225(A)E(C), DF241225(A)(B)(C), DF128015(A)U(C), DF128015(A)(B)(C), DF128025(A)U(C), DF128025(A)(B)(C), DF128025(A)E(C), DF248025(A)U(C), DF248025(A)(B)(C), DF129225(A)(B)(C), DF129225(A)E(C), DF249225(A)U(C), DF249225(A)(B)(C), DF126010(A)(B)(C), DF246025(A)U(C), DF246025(A)(B)(C), DF126025(A)U(C), DF126025(A)(B)(C), DF126025(A)E(C), DB126015BU(C), DB126015B(B)(C), DF123010(A)(B)(C), DF053010(A)(B)(C), DF127015(A)U(C), DF127015(A)(B)(C), DF245010(A)(B)(C), where (A) may be S, B, P or Q, (B) may be H, M or L, (C) may be xxxxxxxx, where x may be A through Z, 0 through 9, "-" or blank.

Models DF122510(X)(Y2)(Z)-(M), DF124020(X)(Y2)(Z)-(M), DF244020(X)(Y1)(Z)-(M), DF126025(X)(Y3)(Z)-(M), DF246025(X)(Y3)(Z)-(M), DF121225(X)(Y1)(Z)-(M), DF124028(X)(Y3)(Z)-(M), where (X) may be S, B, P, Q, (Y1) may be H, M or L, (Y2) may be U, H, M or L, (Y3) may be U, H, M, L or E, (Z) is alphanumeric combination of five digits and/or alphabets, may be A through Z, 0 through 9 or blank, (M) may be A or B.

Models DF054010(X)(Y2)(Z1)(Z2)-A, DF054010(X)L(Z1)(Z2)-B, DF124010(X)(Y2)(Z1)(Z2)-A, DF124010(X)L(Z1)(Z2)-B, DF244010(X)(Y2)(Z1)(Z2)-A, DF125015(X)(Y1)(Z1)(Z2)-A, DF125020(X)(Y3)(Z1)(Z2)-A, DF126015(X)(Y1)(Z1)(Z2)-A, DF246015(X)M(Z1)(Z2)-A, DF246015(X)L(Z1)(Z2)-A, DF128020(X)(Y1)(Z1)(Z2)-A, DF128020(X)L(Z1)(Z2)-B, DB127015(X)(Y2)(Z)-A series, where (X) may be S, B, P, Q, (Y1) may be H, M or L, (Y2) may be U, H, M or L, (Y3) may be H, M, L or E, (Z1) may be blank or 3, (Z2) is alphanumeric combination of four digits and/or alphabets, may be A through Z, 0 through 9 or blank, (Z) is alphanumeric combination of five digits and/or alphabets, may be A through Z, 0 through 9 or blank.

Models DF125010(X)(Y)(Z)-A, DF126020(X)(Y)(Z)-A, DF246020(X)(Y)(Z)-A, DF121525(X)(Y1)(Z)-A, DF121525(X)(Y2)(Z)-B series, Where (X) may be S, B, P or Q, (Y) may be H, M or L, (Y1) may be U, H or M, (Y2) may be L or E, (Z) is alphanumeric combination of five digits and/or alphabets, may be A through Z, 0 through 9 or blank.

Models DF128025(X)(a)(Y)-A, DF121225(X)(b)(Y)-C, DF121225(X)E(Y)-C, DF127720(X)(a)(Y)-A, DF121425(X)(c)(Y)-A, DF126010(X)E(Y)-A series, where (X) may be S, B, P, Q, (a) may be H, M, L or E, (b) may be M or L, (c) may be U, H, M, L or E, (Y) is alphanumeric combination of five digits and/or alphabets, may be A through Z, 0 through 9 or blank.

Models DF054010(X)(Y1)(Z1)(Z2)-C, DF124010(X)(Y2)(Z1)(Z2)-C, DF244010(X)(Y2)(Z1)(Z2)-C, DF124020BU(Z1)(Z2)-C, DF124020(X)(Y1)(Z1)(Z2)-C, DF124028BU(Z1)(Z2)-C, DF124028(X)(Y1)(Z1)(Z2)-C, DF126025BU(Z1)(Z2)-C, DF126025(X)(Y1)(Z1)(Z2)-C, DF127015BU(Z1)(Z2)-A, DF127015(X)(Y1)(Z1)(Z2)-A, DF128025BU(Z1)(Z2)-B, DF128025(X)(Y1)(Z1)(Z2)-B, DF129225BU(Z1)(Z2)-A, DF129225(X)(Y1)(Z1)(Z2)-A, DF121225BU(Z1)(Z2)-D, DF121225(X)(Y1)(Z1)(Z2)-D, DF121425(X)(Y1)(Z1)(Z2)-B, DB127015BU(Z1)(Z2)-B, DB127015(X)(Y1)(Z1)(Z2)-B, DB058015(X)(Y3)(Z1)(Z2)-A, where (X) may be S, B, P or Q, where (Y1) may be H, M, L or E, where (Y2) may be U, H, M, L or E, where (Y3) may be M or L, where (Z1) may be blank or 3, where (Z2) may be is alphanumeric combination of four digits and/or alphabets, may be A through Z, 0 through 9 or blank.

Models DB128015(X)(Y1)-(Z)-A, DF128038(X)(Y1)-(Z)-A, DB121225(X)(Y2)-(Z)-A, DF054010(X)(Y2)-(Z)-D, DF124010(X)(Y3)-(Z)-D, DF244010(X)(Y4)-(Z)-D, DF125010(X)(Y2)-(Z)-B, DF126010(X)(Y5)-(Z)-B series, where (X) may be S, B, P, Q, (Y1) may be U, H, M, L or E, (Y2) may be H, M or L, (Y3) may be U, M, L or E, (Y4) may be U, H, M or L, (Y5) may be H, M, L or E, (Z) is alphanumeric combination of five digits and/or alphabets, may be A through Z, 0 through 9 or blank.

Electric fans, Models DC0504, -1204, -1205, -1206, DF1204, -1208, -2408, -0504, -0505, -1205, -2406 followed by "S" or



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"B", followed by two alphanumeric characters.

Low voltage fans, Models DB1206, DF1209, -1212, -2409, DH1204 followed by B or S, followed by two alphanumeric characters.



Marking: Company name or trademark **TOP MOTOR**, model designation and Recognized Component Mark for Canada,



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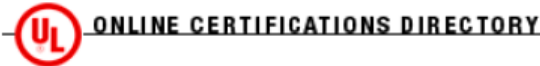
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DYNAEON INDUSTRIAL CO LTD
8TH FL 35 LANE 221 GANGCIAN RD
NEIHU DIST
TAIPEI, 114 TAIWAN

E157868

DC fans, Models D(F)1206(Z)(Y1)(X1), D(F)1207(Z)(Y1)(X1), where (F) may be F or C, (Z) may be SH, BH, BA, SM, BM, BB, SL, BL, BC, SD, BE, BF, SG, BI, BJ, SK, BN, BO, SP, BQ, BR, SS, BT, BU, SV, BW, BX, SY, BY or BZ, (Y1) may be "-", 0 through 9 or A through Z, (X1) may be 0 through 9 or A through Z.

Models DF248015(S)(X)(Y)(Z)(W), DF488015(S)(X)(Y)(Z)(W), where (S) may be S, B or P, (X) may be U, H, M or L, (Y) and (Z) may be any alphanumeric character, blank, "-" or any symbol, (W) may be seven any alphanumeric character, blank, "-" or any symbol.

Models DF121225(A)(B)(C), DF121225(A)E(C), DF241225(A)(B)(C), DF128015(A)U(C), DF128015(A)(B)(C), DF128025(A)U(C), DF128025(A)(B)(C), DF128025(A)E(C), DF248025(A)U(C), DF248025(A)(B)(C), DF129225(A)(B)(C), DF129225(A)E(C), DF249225(A)U(C), DF249225(A)(B)(C), DF126010(A)(B)(C), DF246025(A)U(C), DF246025(A)(B)(C), DF126025(A)U(C), DF126025(A)(B)(C), DF126025(A)E(C), DB126015BU(C), DB126015B(B)(C), DF123010(A)(B)(C), DF053010(A)(B)(C), DF127015(A)U(C), DF127015(A)(B)(C), DF245010(A)(B)(C), where (A) may be S, B, P or Q, (B) may be H, M or L, (C) may be xxxxxxxx, where x may be A through Z, 0 through 9, "-" or blank.

Models DF122510(X)(Y2)(Z)-(M), DF124020(X)(Y2)(Z)-(M), DF244020(X)(Y1)(Z)-(M), DF126025(X)(Y3)(Z)-(M), DF246025(X)(Y3)(Z)-(M), DF121225(X)(Y1)(Z)-(M), DF124028(X)(Y3)(Z)-(M), where (X) may be S, B, P, Q, (Y1) may be H, M or L, (Y2) may be U, H, M or L, (Y3) may be U, H, M, L or E, (Z) is alphanumeric combination of five digits and/or alphabets, may be A through Z, 0 through 9 or blank, (M) may be A or B.

Models DF054010(X)(Y2)(Z1)(Z2)-A, DF054010(X)L(Z1)(Z2)-B, DF124010(X)(Y2)(Z1)(Z2)-A, DF124010(X)L(Z1)(Z2)-B, DF244010(X)(Y2)(Z1)(Z2)-A, DF125015(X)(Y1)(Z1)(Z2)-A, DF125020(X)(Y3)(Z1)(Z2)-A, DF126015(X)(Y1)(Z1)(Z2)-A, DF246015(X)M(Z1)(Z2)-A, DF246015(X)L(Z1)(Z2)-A, DF128020(X)(Y1)(Z1)(Z2)-A, DF128020(X)L(Z1)(Z2)-B, DB127015(X)(Y2)(Z)-A series, where (X) may be S, B, P, Q, (Y1) may be H, M or L, (Y2) may be U, H, M or L, (Y3) may be H, M, L or E, (Z1) may be blank or 3, (Z2) is alphanumeric combination of four digits and/or alphabets, may be A through Z, 0 through 9 or blank, (Z) is alphanumeric combination of five digits and/or alphabets, may be A through Z, 0 through 9 or blank.

Models DF125010(X)(Y)(Z)-A, DF126020(X)(Y)(Z)-A, DF246020(X)(Y)(Z)-A, DF121525(X)(Y1)(Z)-A, DF121525(X)(Y2)(Z)-B series, Where (X) may be S, B, P or Q, (Y) may be H, M or L, (Y1) may be U, H or M, (Y2) may be L or E, (Z) is alphanumeric combination of five digits and/or alphabets, may be A through Z, 0 through 9 or blank.

Models DF128025(X)(a)(Y)-A, DF121225(X)(b)(Y)-C, DF121225(X)E(Y)-C, DF127720(X)(a)(Y)-A, DF121425(X)(c)(Y)-A, DF126010(X)E(Y)-A series, where (X) may be S, B, P, Q, (a) may be H, M, L or E, (b) may be M or L, (c) may be U, H, M, L or E, (Y) is alphanumeric combination of five digits and/or alphabets, may be A through Z, 0 through 9 or blank.

Models DF054010(X)(Y1)(Z1)(Z2)-C, DF124010(X)(Y2)(Z1)(Z2)-C, DF244010(X)(Y2)(Z1)(Z2)-C, DF124020BU(Z1)(Z2)-C, DF124020(X)(Y1)(Z1)(Z2)-C, DF124028BU(Z1)(Z2)-C, DF124028(X)(Y1)(Z1)(Z2)-C, DF126025BU(Z1)(Z2)-C, DF126025(X)(Y1)(Z1)(Z2)-C, DF127015BU(Z1)(Z2)-A, DF127015(X)(Y1)(Z1)(Z2)-A, DF128025BU(Z1)(Z2)-B, DF128025(X)(Y1)(Z1)(Z2)-B, DF129225BU(Z1)(Z2)-A, DF129225(X)(Y1)(Z1)(Z2)-A, DF121225BU(Z1)(Z2)-D, DF121225(X)(Y1)(Z1)(Z2)-D, DF121425(X)(Y1)(Z1)(Z2)-B, DB127015BU(Z1)(Z2)-B, DB127015(X)(Y1)(Z1)(Z2)-B, DB058015(X)(Y3)(Z1)(Z2)-A, where (X) may be S, B, P or Q, where (Y1) may be H, M, L or E, where (Y2) may be U, H, M, L or E, where (Y3) may be M or L, where (Z1) may be blank or 3, where (Z2) may be is alphanumeric combination of four digits and/or alphabets, may be A through Z, 0 through 9 or blank.

Models DB128015(X)(Y1)-(Z)-A, DF128038(X)(Y1)-(Z)-A, DB121225(X)(Y2)-(Z)-A, DF054010(X)(Y2)-(Z)-D, DF124010(X)(Y3)-(Z)-D, DF244010(X)(Y4)-(Z)-D, DF125010(X)(Y2)-(Z)-B, DF126010(X)(Y5)-(Z)-B series, where (X) may be S, B, P, Q, (Y1) may be U, H, M, L or E, (Y2) may be H, M or L, (Y3) may be U, M, L or E, (Y4) may be U, H, M or L, (Y5) may be H, M, L or E, (Z) is alphanumeric combination of five digits and/or alphabets, may be A through Z, 0 through 9 or blank.

Electric fans, Models DC0504, -1204, -1205, -1206, DF0504, -0505, -1204, -1205, -1208, -2406, -2408 followed by "S" or



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"B", followed by two alphanumeric characters.

Low voltage fans, Models DB1206, DF1209, -1212, -2409, DH1204 followed by B or S, followed by two alphanumeric characters.



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6.5. Electrical Specifications for pwm production

USA Dynatron Corp.

Electrical Specifications for PWM production

Voltage

Fan operating voltage shall be within the range 12V \pm 1.2V.

Current

Peak fan current draw during start-up operation(with 13.2V applied,with fan operating in the free stream condition)shall not exceed 2.0 A.

Fan current spike during start-up operation(with 13.2V applied with fan operating in the free stream condition)shall be allowed to exceed 1.0 A for a duration of no greater than 1.0 sec.

Tachometer Output Signal

Fan shall provide tachometer output signal with the following characteristics:

- * Two pulses per revolution
- * Open-collector or open-drain type output
- * Motherboard will have a pull up to 12V, maximum 13.2V

PWM Control Input Signal

The following requirements are measured at the PWM(control) pin of the fan cable

connector:PWM Frequency:Target frequency 25kHz,

acceptable operational range 21 kHz to 28 Khz

Maximum voltage for logic low:VIL=0.8V

Absolute maximum current sourced:Imax=5mA(short circuit current)

Absolute maximum voltage level:Vmax=5.25V(open circuit voltage)

Fan Speed Control

1.1Maximum Fan Speed Requirements

The maximum fan speed shall be specified for the fan model by the vendor and correspond to 100% duty cycle PWM signal input.

1.2 Minimum Fan Speed Requirements

The vendor shall specify the minimum RPM and the corresponding PWM duty cycle. This specified minimum RPM shall be 30% of maximum RPM or less.The fan shall be able to start and run at this RPM. To allow a lower specified minimum RPM,it is acceptable to provide a higher PWM duty cycle to the fan motor for a short period of time for startup conditions.This pulse should not exceed 30% maximum RPM and should last no longer than 2 seconds.



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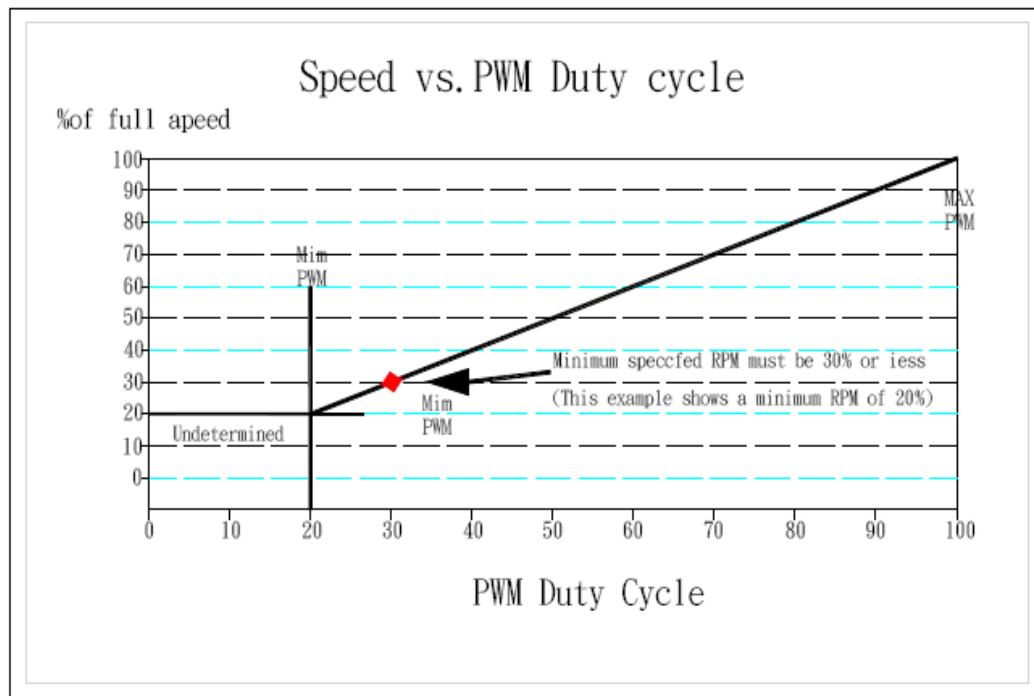
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1.3 Fan Speed Response PWM Control Input Signal

The PWM input shall be delivered to the fan through the control signal on Pin4. Fan speed response to this signal shall be a continuous and monotonic of the duty cycle of the signal, from 100% to the minimum specified RPM. The fan RPM (as a percentage of maximum RPM) should match the PWM duty cycle within $\pm 10\%$. If no control signal is present the fan shall operate at maximum RPM.

Figure 1 Fan speed Response to PWM Control input Signal



1.4 Operation Below Minimum RPM

For all duty cycles less than the minimum duty cycle, the RPM shall not be greater than the minimum RPM. The following graphs and definitions show three recommended solutions to handle PWM duty cycles that are less than the minimum operational PRM, as a percentage of maximum.

Reference resource by Intel's 4-wire PWM Fan controlled specification.



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| Product Model Number: 產品號碼: | Q7 |


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