

DC FAN LIFE EXPERIMENT REPORT

Available for these models with lower speed and same	AFB0812SH	AFB0812VH	AFB0812HH	AFB0812H	AFB0812M	
physical structure. All model may be followed by Rxx or Fxx						
series suffixes. This test report applies to AFB 80x80x25 mm	AFB0824SH	AFB0824VH	AFB0824HH	AFB0824H	AFB0824M	
series as the right table	AFB0824L					
Representative Test P/N: AFB0812SH						
Instruments used: 1.Oven: F00-5, E24-T060 2. DC Source: GW GPC-3060D On/Off Cycles: Every 500 hours						

 \bigcirc L₁₀ Expectancy: 70,000 hours minimum @ fan rated voltage and the temperature of 40°C According to the equation for Weibull distribution, MTTF \rightleftharpoons 7×L10 = 490,000 hours And we rely on a zero failure Weibull test strategy and accelerated testing technique, to determine the total test time (t) for verifying the above life estimation by the equations,

$$t = 1.036 \times MTTF \times [(B_{r;c}) \div n]^{0.91} \div A_F$$
, and $A_F = 2^{(Ts-Tu)/10}$

where, $(B_{r,c})$ is Poisson distribution factor with the failure number of r equal to 0 and the decimal confidence level of c equal to 0.90(90%), and

Stress/Elevated Temperature Ts (°C)	Unstress Temperature Tu (℃)	Acceleration Factor A _F	Quantity of Test Devices n (pcs)	$\begin{array}{c} Poisson \\ Distribution \\ Factor \\ B_{r;c} \end{array}$	Required test time with zero failure t (hours)	Actual test time with zero failure t (hours)	Verified MTTF (hours)	Verified L ₁₀ (hours)
80	40	16.00	20	2.303	4,438	5,019.0	554,150	79,164

Test Progress:

Date for Test	Date for Test	Current Test Status		Current Total Test	
Beginning	Termination (at least)			Time (hours)	
1997/6/29 10:00 AM	1997/12/31 7:59 AM	In process	In process (exceed requested)	✓ Termination	5019.0

Herewith, we could assume as right on the basis of above test result. Temperature for Acceleration Estimated L₁₀ **Estimated** MTTF Estimation Besides, if the actual test time exceed the required, it comes out that Factor MTTF (hours) (hours) (°C) A_F those fans' L_{10} expectancy and MTTF are greater than the warrant. (25 223,910 MTTF: means Mean Time To Failures, it should be used in a non-45.25 1,567,373 repairable system setting. Now we show the MTTF in our life report, 30 32.00 1,108,300 158,329 that's because we will not repair the failed fans during life experiment. MTBF: means Mean Time Between failures, it should be used in a 40 16.00 554,150 79,164 repairable system setting. Basically, MTBF is equal to MTTF, they use same formula to work out a life data.) 50 8.00 277,075 39,582 60 138,537 19,791 4.00 Fan permission criteria for the measurement after test: 70 2.00 69,269 9,896 1. For current, the limit is less than spec.(max.). 2. For speed, the allowable descrease is less than 15%. 75 1.41 48,980 6,997 13. For noise, the limit is less than spec.(max.). + 3 dB 80 1.00 34,634 4,948

QE File No.	Time-out for function test or others (hours)		Reported By	Approved By
A054	646.00	1998/2/20 11:00 AM	Bomico Chang	Poter Sur

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DC FAN FUNCTION TEST RECORD FOR LIFE EXPERIMENT

AFB0812SH AFB0812VH AFB0812HH AFB0812H AFB0812M Available for these models with lower speed and same physical AFB0812L structure. All model may be followed by Rxx or Fxx series suffixes. AFB0824SH AFB0824VH AFB0824HH AFB0824H AFB0824M This test report applies to AFB 80x80x25 mm series as the right table AFB0824L **Required Test Time Date for Test Current Total Test Date for Test** Sample Size **Failure Beginning Termination** Time (hrs) (hrs) (pcs): (pcs): 1997/6/29 10:00 AM 1997/12/31 7:59 AM 5019.0 4,438 20 () In process П **Current Test Status** presentative Test P/N: AFB0812SH (exceed requested) In process Termination Instruments used: 1.Oven: F00-5, E24-T060 2. DC Source: GW GPC-3060D On/Off Cycles: Every 500 hours **Test Data Between Initial Test and Final Test** Sample P/N: AFB0812SH Initial Test Final Test Initial Test Final Test Initial Test Final Test Deviation Deviation Sample Current Spec. Current Spec. Speed Spec. Speed Spec. Noise Spec. Noise Spec. Deviation No. (A) (A) (%)(RPM) (RPM) (%)(dBA) (dBA) % 0.51 Max. 0.51 Max. 4000 Ref. 4000-15% 43.0 Max. 46.0 Max. 0.33 0.34 4059 4056 40.0 41.3 3.2 3.0 0.1 1 41.3 2 0.33 0.33 0.0 4023 4058 0.9 39.5 4.6 0.33 0.33 0.0 4085 4020 1.6 40.0 41.1 2.8 3 0.34 2.9 4102 0.33 4082 0.5 39.6 41.4 4.5 4 0.35 4063 5 0.40 14.3 3605 11.3 40.1 38.8 3.2 0.33 0.33 0.0 4061 4052 39.5 41.3 6 0.2 4.6 7 0.35 0.37 5.7 4075 3832 6.0 39.7 40.9 3.0 0.35 0.34 2.9 4022 4040 39.7 41.2 8 0.4 3.8 0.35 4059 4162 41.9 9 0.37 5.7 2.5 40.1 4.5 0.34 0.33 4054 4140 40.2 41.7 10 2.9 3.7 2.1 0.32 4102 4102 40.2 11 0.32 0.0 0.0 41.5 3.2 0.33 0.32 4033 4121 2.2 40.1 41.6 12 3.0 3.7 13 0.34 0.32 5.9 4053 4109 40.0 41.6 4.0 1.4 4102 0.33 0.0 4023 2.0 40.1 41.5 3.5 0.33 14 0.33 4080 4127 40.0 15 0.33 0.0 41.7 4.3 1.2 0.33 0.38 15.2 4087 4052 0.9 40.0 41.3 3.2 16 1.2 17 0.34 0.0 4046 4096 40.0 41.5 0.34 3.8 3959 18 0.33 0.33 0.0 4012 1.3 39.9 41.1 3.0 0.33 0.34 4072 39.7 41.4 19 3.0 4051 0.5 4.3 0.34 0.31 4062 4043 39.8 41.2 20 8.8 0.5 3.5 X-Bar 0.336 0.340 4044 4055 40 41 0.009 0.023 32.837 123.883 0.222 0.628 Time-out for function Reported By QE File No. **Issued Date Approved By** test or others (hrs) Bomico Cherry A054 646.00 1998/2/20 11:00 AM