科昇科技有限公司 Global WIN
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5F,NO.31,ALLEY 66,JUI-KUANG RD.,NEI-HU,TAIPEI,TAIWAN.R.O.C.
TEL:886-2-2795-6311 FAX:886-2-27955499

Product Sheets for Approval

Model No.
WDW76

1. Specification
2. Specification & Dimension

   Heat Sink / Fan
3. Test Reports

   Thermal Performance

Doc No.	:	Audited by	Checked by	Drafted by
Issued Date	: 23 NOV. 2001			
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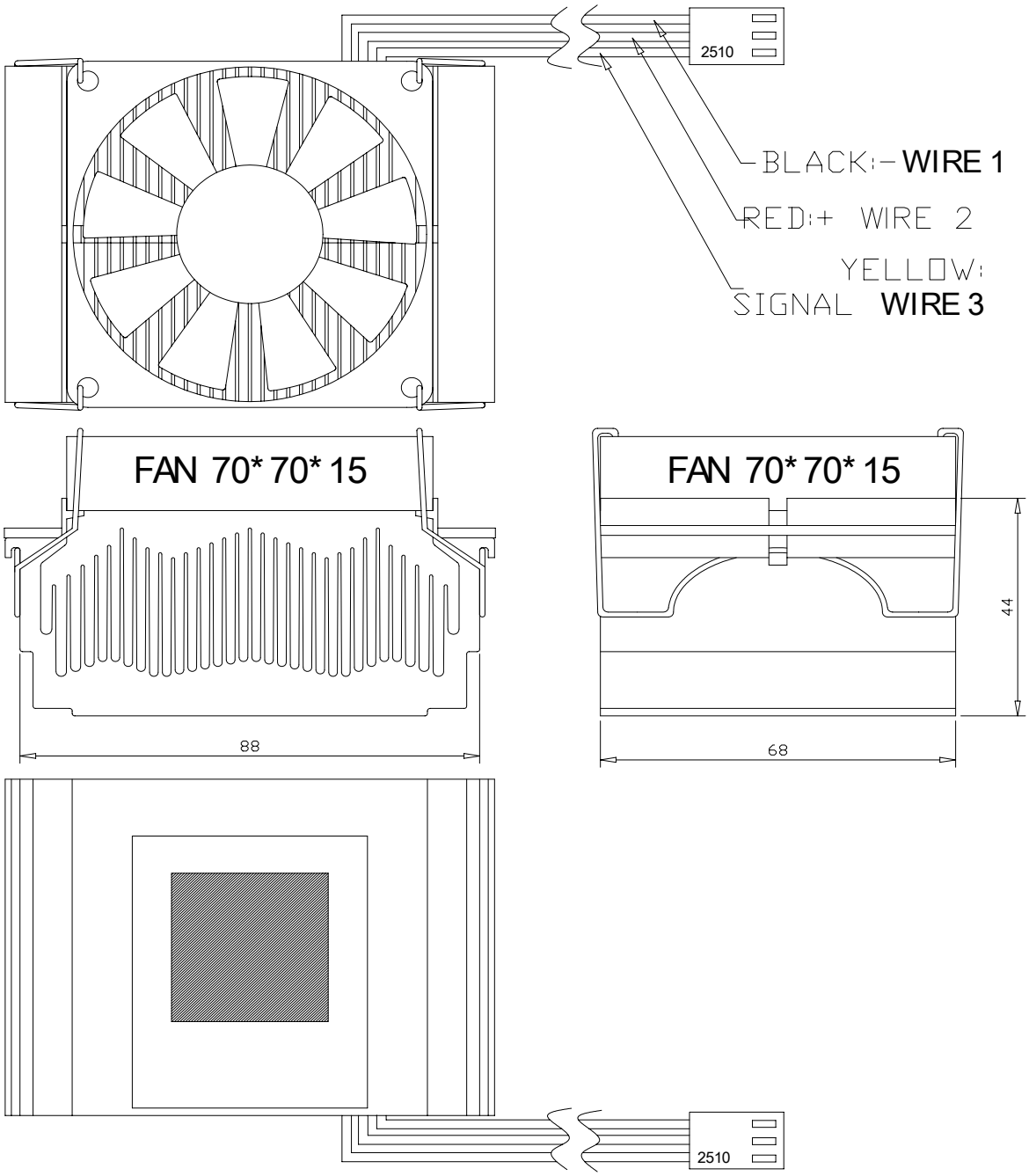
Specification

Part Number :	WDW76
Fan (Per Fan)	
Operation Voltage	DC 7V ~ 13.2 V
Rated Voltage	DC12 V
Input Current	0.19 A
Input Power	2.28 Watt
Bearing System	two ball bearing
Fan Speed	4300 ± 15 % RPM
Air Delivery	31.6 ± 15 % CFM
Noise Level	39 ± 2dBA
Fan Safety	UL Approved
Fan with RPM signal output	YES
Heatsink	
Dimension	88 * 68 * 44 mm
Material	Aluminum Alloy 6063T5
Mounting Kit	
Retention Clip	Lexan 3412
Thermal Interface	High thermal conductive interface
Material	GW101
Connector	Molex 2510 / 2695 3Pin
Total Weight	340 g

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DIMENSION DRAWING



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Specification & Dimension

HEAT SINK

Material : Aluminum Alloy 6063T5 H934

AL-BASE Global Calibration of Al Base 6063

Note : Chemisty Ingredient Criferion CNS 2068 H3021

Mechanical Characteristics :

Alloy No	Designation	Cutting Area Surface	Extension Rate
6063	T5	Over 15 kgf/mm2	7%

Chemistry Ingredient & Temper Designation :

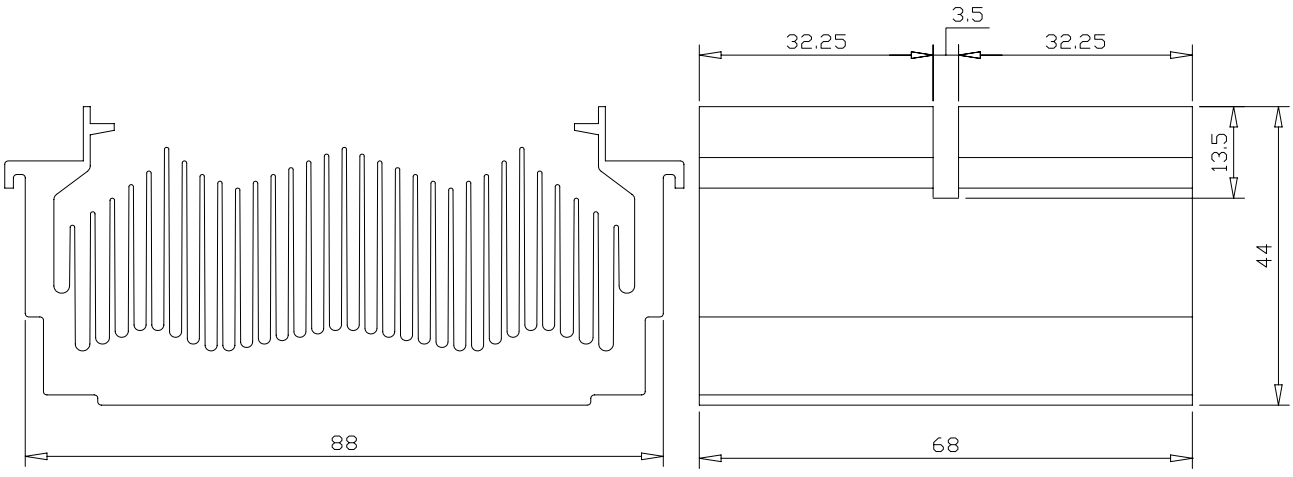
Value	Si	Fe	Cu	Mn	Cr	Mg	Zn	Ti
Specified Values	0,3928	0,2059	0.0030	0.0042	0.0022	0.4935	0.0001	0.0021

Value	Flatness	Hardness
Specified Values	0.04 mm ↓	74°

Physical Characteristics :

Melting Range	Specific Heat Between 0-100°C	ThermalConductivity at 25°C
615 ~ 655°C	879 j/kg.k	202 W/m.k

Electrical Resistivity at 25°C
0.033 μΩm



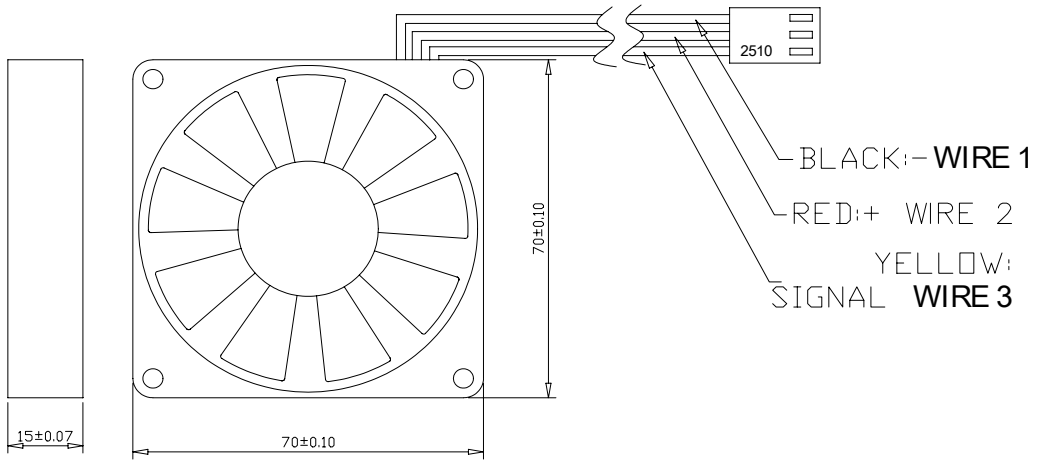
GENERAL DIMENSION TOLERANCES (UNIT : mm)			
0	——→	30	± 0.2
31	——→	60	± 0.3
61	——→	100	± 0.4
101	——→	OVER	± 0.5

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Specification & Dimension

FAN

Specification	Two ball bearing system	
Dimensions	70 * 70 * 15 mm	
Rated Speed	4300 ± 10 % RPM	
Air Flow	31.6 ± 10 % CFM	
Noise Level	39 ± 2 dBa	
Rated Voltage	DC12 V	
Operating Voltage Range	DC 7V ~ 13.2 V	
Housing / Fan Blade	Plastic PBT UL:94V-0 Rating+Fiber Glass	
Max Air-Pressure	4.4 ± 10 % mmH_2O	
Input Current	0.19 A	
Input Power	2.28 Watt	
Direction of Rotation	Clockwise viewed from front face	
Life Expectancy	80000 Hours at 30 degree C	
Weight	51 grams	
Lead wire	UL 1007-F-AWG#26	"+ POSITIVE-----RED" "- NEGATIVE-----BLACK" "SENSOR OUTPUT----YELLOW(3rd WIRE)"
Operating Temperature	-10 TO +70℃	



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Specification

THERMAL PAST

Model Type : SILICONE HEAT SINK PAST GW101

COLOR	WHITE
BULK PENETRATION	210 ~ 260
SPECIFIC GRAVITY	2.3 at 25℃
VOLATILE MATTER	after 4h/200℃ below 0.5℃
BLEED	after 4h/200℃ on vertical surface no bleeding
DIELECTRIC STRENGTH	1.2kv at 0.1mm , ASTM D-149
VOLUME RESISTIVITY	1 * 10 ohm-cm , ASTM D-257
THERMAL CONDUCTIVITY	0.0015 Kcal/cm/sec/℃ or 0.63 w/m/℃

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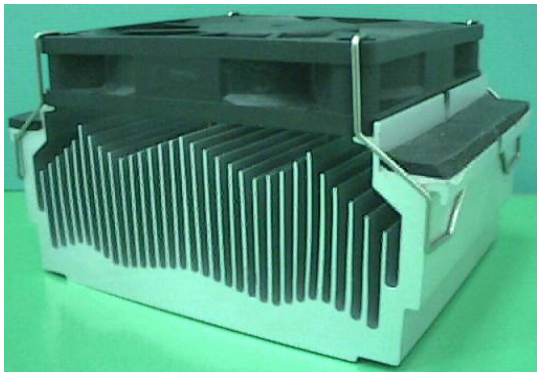
Test Report

Date :2004/04/16

MODEL ：**WDW 76 . Intel willamette P4.(478) 2.8GHZ (45℃-75℃)**

PART NUMBER	Fan 70*70*15	Heat Sink FP 46	Tape	*Temperature TJ/Ta/Td	(Q) Watts	* RJa(℃/W)
WDW 76	BS701512M 4200RPM	88*68*44 270g	GW101 30*30	70.1/45/25.1	68,4	0,367

Rja: Thermal Resistance From Junction To Ambient
Tj: simulate CPU junction temperature
Ta: Ambient temperature at inlet of fan
Td: Temperature Differnce (Td=Tj-Ta)
Heater: Heater To Simulate CPU
Space: Close
Time: 2H.



R&D 業務

總經理

WDW76 w/ 2 ball bearing fan
MTTF REPORT

SAMPLES P/N	FD127015MB(2F5)	TEST CONDITION	DOCUMENT NO		QA — MT —0406A
ELEC-SPEC	RPM=4300，A=0.19	· ■ TEMP : 80 ℃	TEST PERIOD	START	04– 06– 01 · 10：00
TESTED SAMPLES	100 PCS	· ■ VOLT : 12 V		FINISHED	04– 07– 21 · 10：00
TEST HRS/EA	1200 HRS	· □ ON : SEC	CONFIDENCE LEVEL		90%
TOTAL TEST HRS	120000 HRS	· □ OFF : SEC	FAILURES		0

PRODUCT SPECIFICATION &FAILURE DEFINITION	TEST RESULT，(INCLUDING TIME TO FAILURE，DATUM，STATISTICS……..ETC.)
1. FAN NOT WORK。 2. RPM OVER 30% OF ORIGIN。 3. mA OVER 30% OF ORIGIN。	· TEST A.F= $e^{(\Delta H/K)\times(\frac{1}{273+Tl}-\frac{1}{273+Th})}$ · TOTAL TEST HRS= 120000 HRS。 · BY GEM TABLE MTTF= T/ T.R = 52115 HRS。 · TEMP/MTTF/L10/ λ：
TEST PROCEDURE，INTERPRETATION	
1. CHECK POINT AT THE HOURS OF 0，50，200，500 1000，1200 HRS。 2.r = 0 PCS。 3.	

r	TIME(HRS)	r	TIME(HRS)
r1		r7	
r2		r8	
r3		r9	
r4		r10	
r5		r11	
r6		r12	

TEMP	90% CONFIDENCE LEVEL MTTF	L10	λ
25℃	380785 HRS	155740	2.63×10^{-6}
30℃	308463 HRS	126161	3.24×10^{-6}
40℃	206546 HRS	84477	4.84×10^{-6}
50℃	141781 HRS	57988	7.05×10^{-6}
60℃	99548 HRS	40715	1.00×10^{-5}
70℃	71351 HRS	29182	1.40×10^{-5}

APPROVED BY：MENG-CHANG CHIANG	CHECKED BY：MENG-CHANG CHIANG	PREPARED BY：JANE-BING WU