



## SPECIFICATION FOR APPROVAL

**CUSTOMER:** Chip

**EVERCOOL MODEL NO:** EC6015H12SP

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**DESCRIPTION:** DC12V FAN

APPROVED BY (AUTHORISED)	APPROVED
	<b>Alex</b>
	CHECKED
	<b>Guoruihua</b>
	DRAWN
	<b>Libingbing</b>
	SALES
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\* Please confirm your acceptance by return fax or mail.

SPEC NO	ISSUE DATE	EDITION	REVISED DATE
20151126A13	2015/11/26	A0	2015/11/26

THE PRODUCTION ACCORD WITH EUROPE UNION ROHS STANDARD

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## I. GENERAL SPECIFICATION

Item	Specification	
1.Part NO.	EC6015H12SP	
2.Outline Dimension	60*60*15	
3.Rated Voltage	12	VDC
4.Rated Current*	0.11	A(Max)
5.Rated Power Consumption*	1.32	W
6.Rated Speed*	1500RPM±25 % ~4500RPM±10 %	
7.Airflow**	7.54CFM(ft3/min)	18.12CFM(ft3/min)
8.Static Pressure**	0.03In-H2O	0.16In-H2O
9.Noise Level***	<18.2dB(A)	<32dB(A)
10.Life Expectancy	25000	hrs at 25°C
11.No of Polarity	4 Poles	
12.Direction of Rotation	Counter-Clockwise	

**Noted:**

**\*Input Current Speed Power Consumption**

Measured after continuous 30 minutes

operation at rated voltage in free air

at ambient temperature of 25 °C, 65 % relative humidity

**\*\*Performance**

Measured with use of double chamber. The value

are recorded when the fan speed is stabilized

at rated voltage.

**\*\*\*Noise Level**

Measured at rated voltage in a semi-anechoic chamber

with background noise below than 17 dB(A).

The measuring distance is in one meter from microphone  
to inlet of the fan.

## II. ELECTRICAL SPECIFICATION

Item		Specification
1.Polarity Protection	✓ YES	Be capable of endurance when Vcc & GRD are exchanged
	NO	
2.Auto restart	✓ YES	Locked motor protection
	NO	
3.Insulation Resistance		10MΩ/b/w unshielded wire and frame at 500 VDC/min
4.Dielectric Strength		5Ma Max./Measured b/w lead wire and frame at 500VAC/min

## III. MAIN MATERIALS / PARTS SPECIFICATION

Item		Specification				
1.Materials of Frame		Thermoplastic PBT of UL 94V-0(BK)				
2.Materials of Fan Blade						
3.Bobbin						
		Dual ball bearing				
		1 ball & 1 sleeve bearing				
	✓	Sleeve bearing				
		EL bearing				
5.Lead wire	✓	Red (+)	UL#	1571	28	AWG
	✓	Black (-)	UL#	1571	28	AWG
	✓	Yellow(FG)	UL#	1571	28	AWG
	✓	Blue(PWM)	UL#	1571	28	AWG
6.Connector		2510 4P				

## IV. ENVIRONMENT SPECIFICATION

Item	Specification
1.Operation Temperature	-10℃~+70℃/66%(RH), high / low temperature test for 24 hours, temperature change: 30℃/hours.
2.Storage Temperature	-40℃~+70℃/66%(RH), high / low temperature test for 24 hours, temperature change: 30℃/hours.

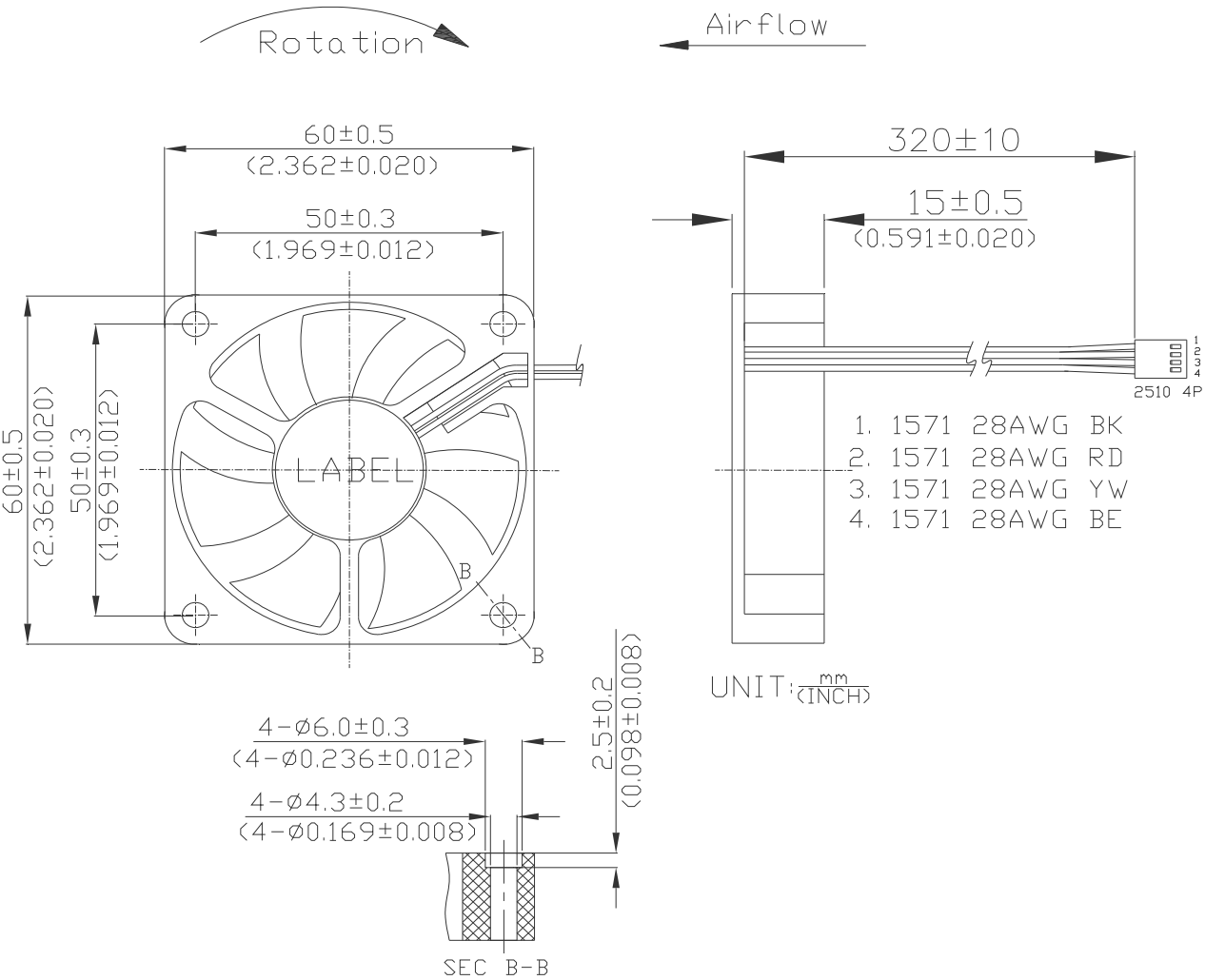
# V. DROPPING TEST

Prepared in minimum packing condition,fan will withstand one drop each on three surfaces from 30 cm height onto a 10mm thick hard wooden board.

# VI. LABEL MARKING

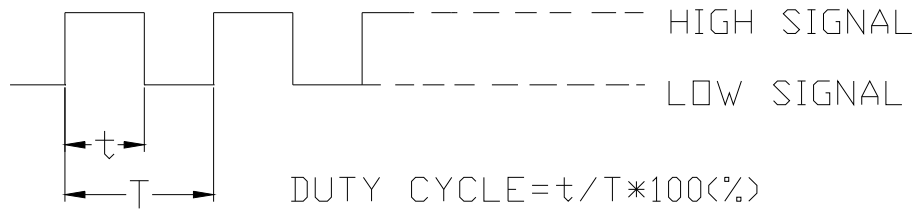


# VII. OUTLINE DIMENSION



### VIII.PWM CONTROL SIGNAL:

Signal Voltage Range:-0.8-20VDC.



.The frequency for control signal of the fan shall be able to accept a 18KHZ-32KHZ.

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 stop spin.

At 25KHZ 20% duty cycle ,The fan will be able to star from a dead stop.

### SPEED VS PWM CONTROL SIGNAL:

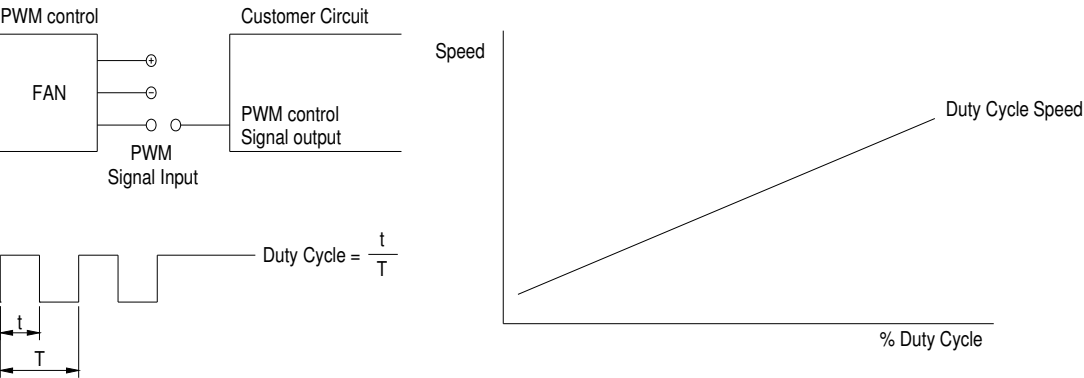
(AT RATED VOLTAGE & PWM FREQUENCY=25KHZ)

DUTY CYCLE(%)	SPEED.PWM(REF)	CURRENT(A)TYP
100	4500±10%	0.11
75	3500±10%	0.08
50	2500±15%	0.05
25	2000±20%	0.02
0	2000±25%	0.02

# IX. Sensor Curcuit System

## PWM CONTROL

In PWM speed control, a fixed frequency square wave is applied to the speed control lead wire of the fan. The ratio of the on time vs. the PWM period is proportional to the RPM.



## PWM INPUT VOLTAGE RANGE:

High level= 2.8 to 20 VDC  
Low level= 0 to 0.4 VDC

## PWM INPUT CURRENT (IPWM) RANGE:

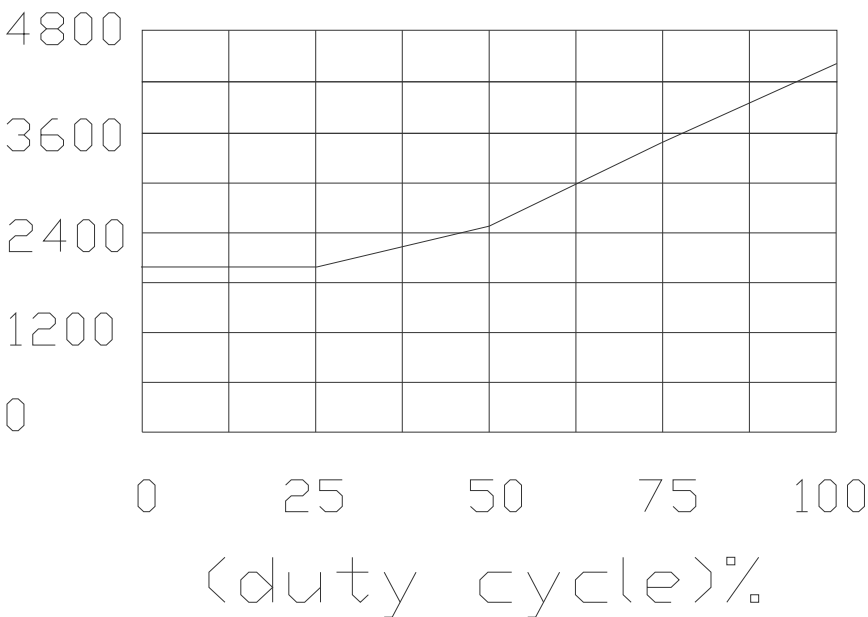
40uA to 20mA

To control signal line of the fan shall be able to accept a 30Hz to 30kHz.  
The preferred operating point for the fan is 0%~100% of duty cycle.

# X.Fan Duty Cycle Vs RPM Curve

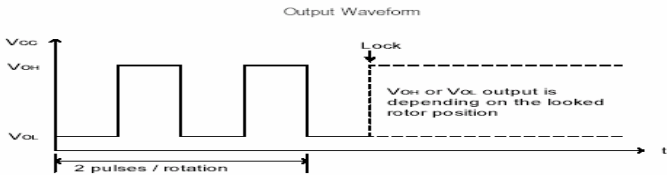
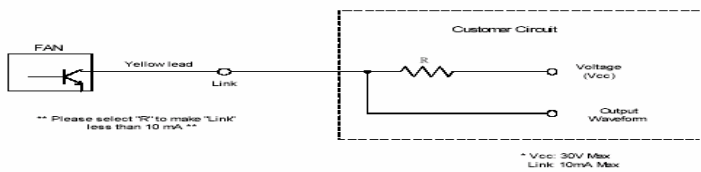
6015duty cycle vs rpm curve

RPM

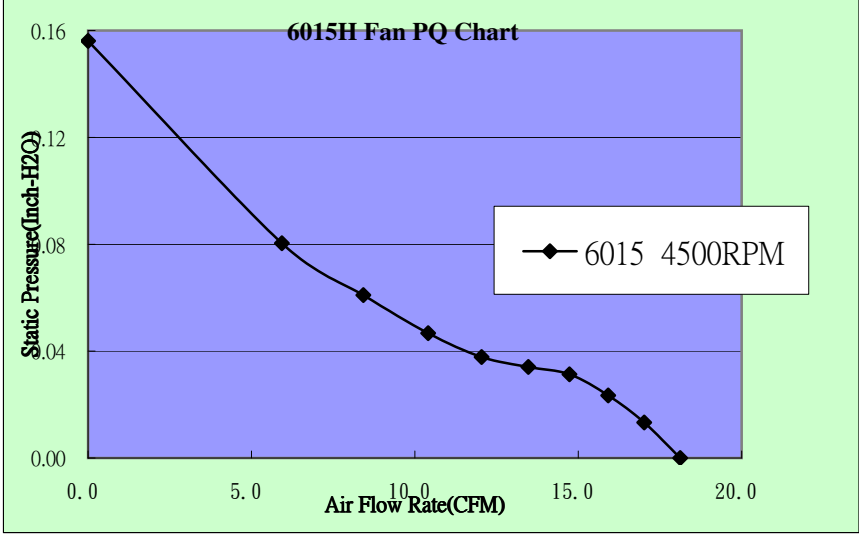


# VIII. Sensor Curcuit System

Speed Sensor / Tachometer ( FG/F )



# XI. P/Q Performance



	Q(cfm)	Ps(InchH2o)
1	0.000	0.156
2	5.932	0.080
3	8.422	0.061
4	10.406	0.047
5	12.040	0.038
6	13.473	0.034
7	14.729	0.031
8	15.914	0.023
9	17.019	0.013
10	18.117	0.000