



## SPECIFICATION FOR APPROVAL

**CUSTOMER:** Evercool USA

**EVERCOOL MODEL NO:** EC8025H12BP

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**DESCRIPTION:** DC12V FAN

<b>APPROVED BY (AUTHORISED)</b>	<b>APPROVED</b>
	<b>Xiongwei</b>
	<b>CHECKED</b>
	<b>Guoruihua</b>
	<b>DRAWN</b>
	<b>Qiaoshenghong</b>
	<b>SALES</b>
	<b>Lisa</b>

\* Please confirm your acceptance by return fax or mail.

<b>SPEC NO</b>	<b>ISSUE DATE</b>	<b>EDITION</b>	<b>REVISED DATE</b>
20100525005	2010-5-25	A0	2010-5-25

### **EVERCOOL THERMAL CO., LTD**

**NO. 123-8, HSING DE RD., SAN-CHUNG CITY,**

**TAIPEI HSIEN, TAIWAN, R.O.C.**

**TEL: 886-2-8512-2889 FAX: 886-2-8512-2890**

**[URL:www.evercool.com.tw](http://www.evercool.com.tw)**

**[EMAIL: coolest@ms14.hinet.net](mailto:coolest@ms14.hinet.net)**

# I. GENERAL SPECIFICATION

Item	Specification	
1.Part NO.	EC8025H12BP	
2.Outline Dimension	80*80*25	
3.Rated Voltage	12	VDC
4.Rated Current*	0.2	A(Max)
5.Rated Power Consumption*	2.4	W
6.Rated Speed*	Min	Max
	1000RPM±25%	3000RPM±10%
7.Airflow**	12.18CFM(ft3/min)	36.48CFM(ft3/min)
8.Static Pressure**	0.02In-H2O	0.14In-H2O
9.Noise Level***	<10dB(A)	<33dB(A)
10.Life Expectancy	50000 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.Lock Rotor Protection		No damage is made within 72 hours of locked rotor condition at rated voltage
2.Polarity Protection	✓ YES	Be capable of endurance when Vcc & GRD are exchanged
	NO	
3.Auto restart	✓ YES	Locked motor protection
	NO	
4.Insulation Resistance		10MΩ/b/w unshielded wire and frame at 500 VDC/min
5.Dielectric Strength		5Ma Max./Measured b/w lead wire and frame at 500VAC/min

## III. MAIN MATERIALS / PARTS SPECIFICATION

Item	Specification					
1.Frame	PBT E202G OR CCP PBT 4830BK UL 94V-0					
2.Impeller						
3.Bobbin						
	✓	Dual ball bearing				
		1 ball & 1 sleeve bearing				
		Sleeve bearing				
		EL bearing				
5.Lead wire	✓	Red (+)	UL#	1007	28	AWG
	✓	Black (-)	UL#	1007	28	AWG
	✓	Yellow(FG)	UL#	1007	28	AWG
	✓	Blue(PWM)	UL#	1007	28	AWG
6.Connector	2510 4P					

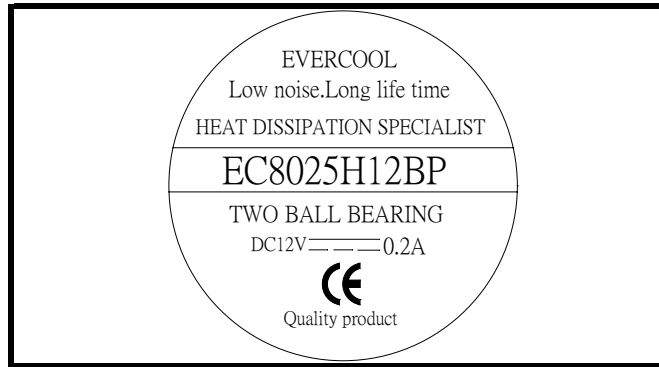
## IV. ENVIRONMENT SPECIFICATION

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.

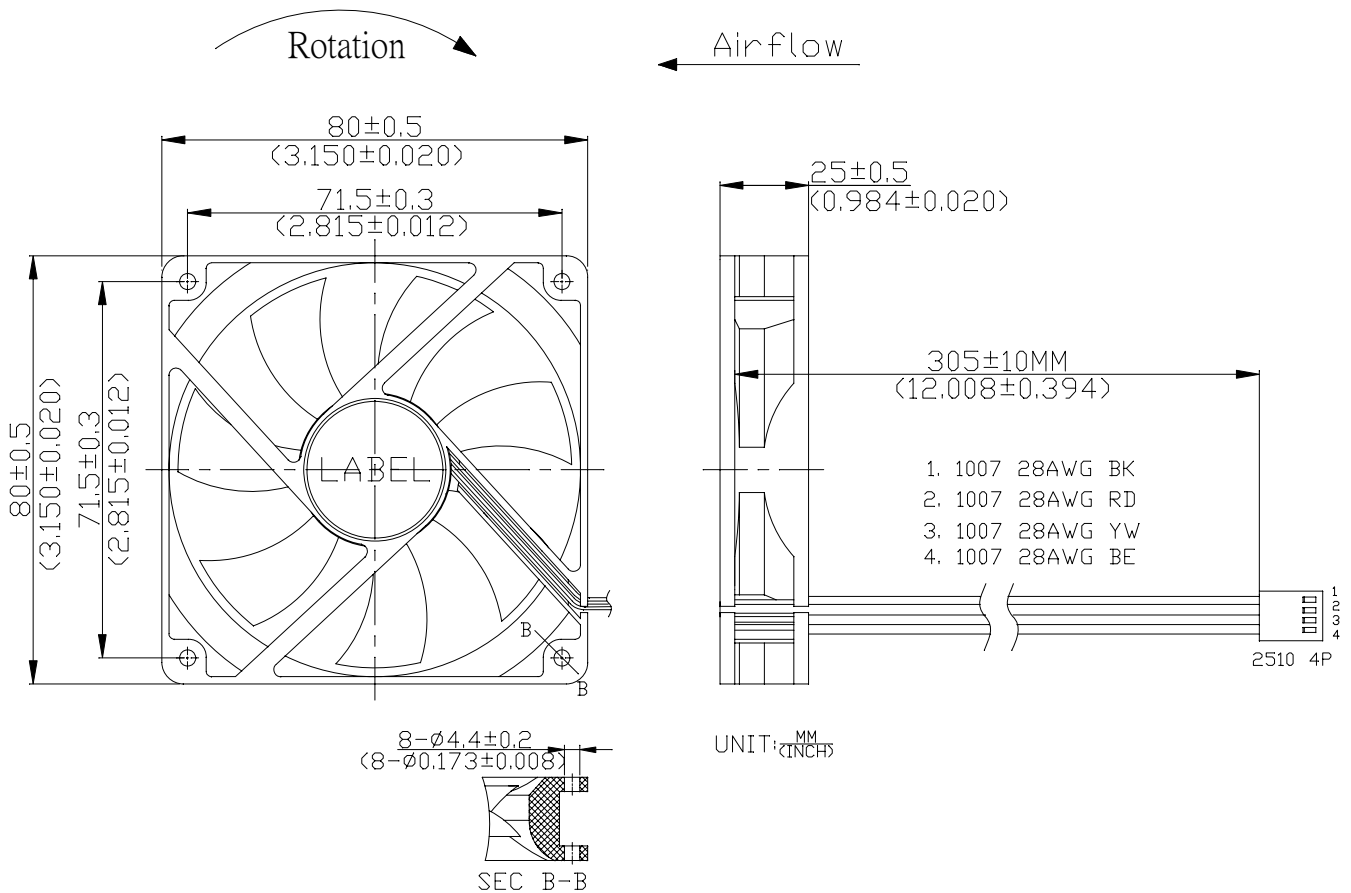
## V. DROPPING TEST

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

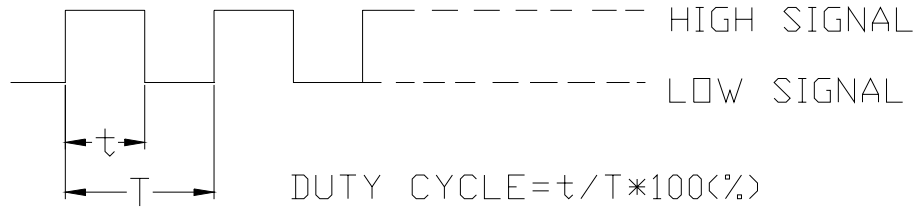


## VII. OUTLINE DIMENSION



## 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:

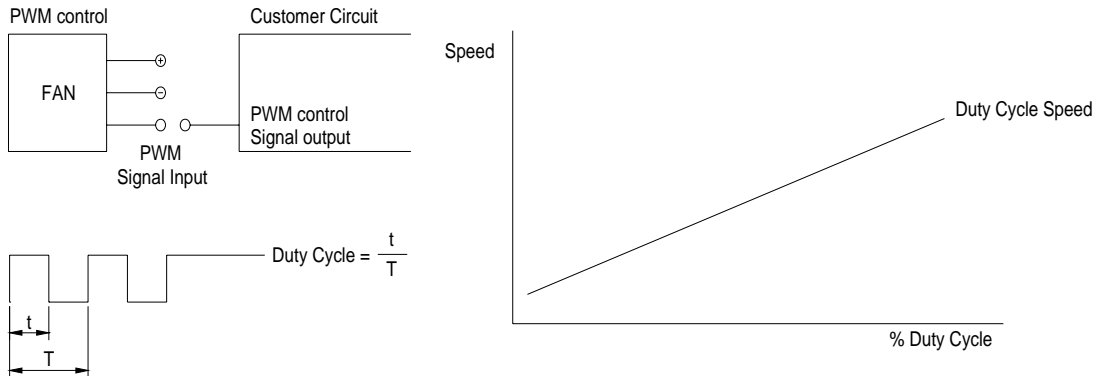
(AT RATED VOLTAGE & PWM FREQUENCY=25KHZ)

DUTY CYCLE(%)	SPEED.PWM(REF)	CURRENT(A)TYP
100	3000±10%	0.2
75	2800±10%	0.14
50	2300±15%	0.1
25	1700±20%	0.08
0	1000±25%	0.05

# IX. Sensor Circuit 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:

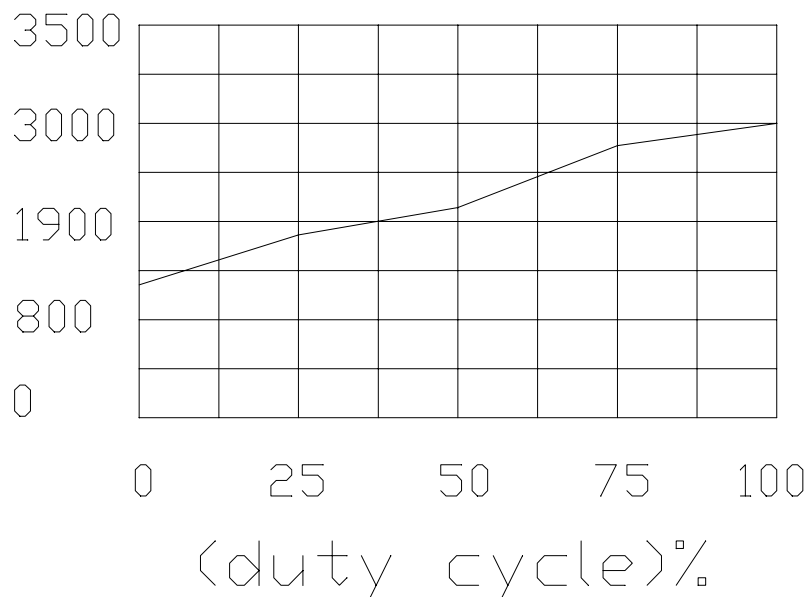
40uA to 20mA

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

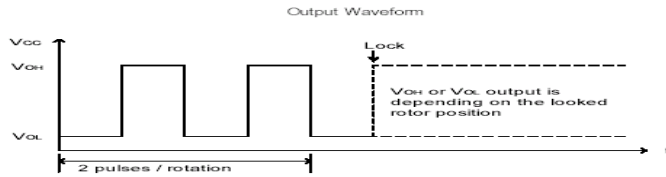
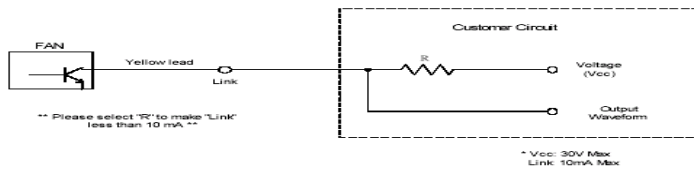
8025duty cycle vs rpm curve

RPM

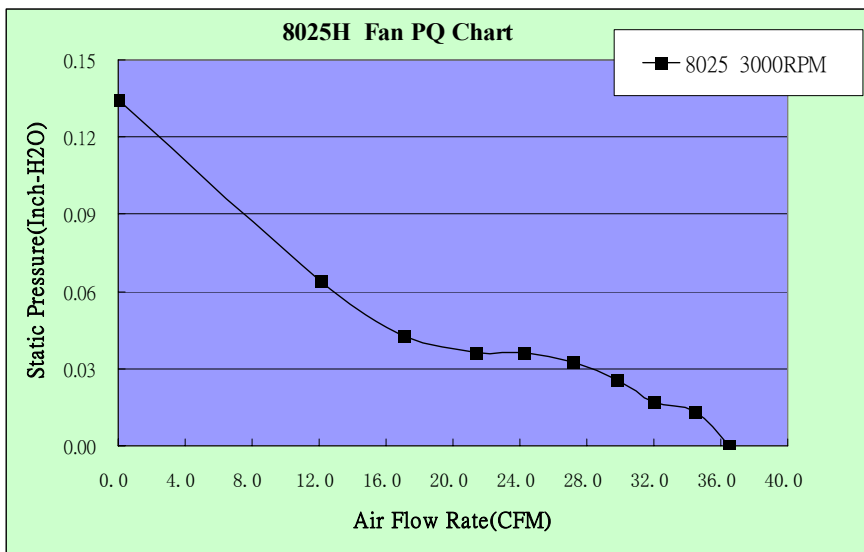


# VIII. Sensor Circuit System

Speed Sensor / Tachometer ( FG/F )



# XI. P/Q Performance



8025 3000RPM		
	Q(cfm)	Ps(InchH2o)
1	0	0.135
2	12.082	0.064
3	17.035	0.043
4	21.348	0.036
5	24.271	0.036
6	27.167	0.033
7	29.82	0.026
8	32.006	0.017
9	34.41	0.014
10	36.48	0