Product Specification

Product Name : ESC

Product Model: STONE 80A-M

Version : V2.0

Date : 2024-12-13

I. PURPOSE

This product specification for the product in the production, testing and sales of the chain of norms to follow.

II. Scope of application

ESC, Used for input voltage: 20-61V DC.

III. Technical parameters

Item	Requirements	Remarks
Support lithium battery	6-14S(Above 65V prohibits startup)	Factory Inspection Items
Continuous operating current	80A	Specific thermal conditions
Instantaneous operating current (less than 3 seconds)	130A	
BEC Output Voltage	none	
Operating temperature	-20~+65℃	
Operating humidity	15%~85%RH	
preservation temperature	-10~+40℃	
Preservation of humidity	15%~65%RH	
waterproof rating	IP55	
Standby power consumption	≤10mA@60V	Factory Inspection Items
Throttle travel range	1000-2000us(default value)	calibratable
Throttle calibration range	maximum throttle(1.6-2.4ms), minimum throttle(0.6-1.4ms)	
Maximum supported speed	125,000 turn(Electrical RPM)	Mechanical RPM=Electrical RPM/polar logarithm
Throttle Refresh Frequency	50-500Hz(suggestion100-400Hz)	PWM low level>0.2ms
Starting Throttle Point	6.7%	
*Throttle Response Time	200ms(Default, customizable)	Throttle from idle to max
temperature protection point	125℃	
Input Signal Level	3.3-5V	
ESC weights	95g	±2g
Product Size	78*35*17mm	±0.1mm

* Throttle Response Time: ESC When 10% to 100% step throttle is received, the throttle reaches its maximum value within the specified time, but usually the motor speed lags the throttle 100~150ms。

* Performance parameters can be customized according to customer needs, Including but not limited to protection temperature, response time, etc.

Ⅳ. Main material/part specifications

Item	Requirements	Remarks
Power cord specifications	12AWG	Factory Inspection Items
Power cord length	150 ± 5mm	
Power cord color	Red (Positive) Black (Negative)	
Output phase line specifications	14AWG	
Output phase line length	100 ± 5mm	
Signal Cable Specifications	UL1533-24AWG-gray	
Signal line length	550 ± 5mm	
Data Feedback Cable Specifications	PVC cable-30 芯-black, red and white	
Data Feedback Line Length	80 ± 5mm	
Shell material	Aviation aluminum alloy Surface anodized	

Ⅴ. Load test data(test condition：environmental temperature30℃，Supply Voltage48V，Data for reference only)

Load current	thermal condition	beta Time	starting temperature	Test results
40A	Shell uncovered, frontal wind speed 10.3m/s	7min	33℃	Normal operation, MOS temperature 89℃, no more temperature rise in 4 '36
50A	Shell uncovered, frontal wind speed 13.2m/s	7min	32℃	Normal operation, MOS temperature 98℃, no more temperature rise in 5 '10
60A	Shell uncovered, frontal wind speed 14.0m/s	7min	33℃	Normal operation, MOS temperature 107℃, no more temperature rise in 5'37
70A	Shell without cover, frontal wind speed 14.6m/s	7min	29℃	Normal operation, MOS temperature 116℃, no more temperature rise in 6'30
80A	Shell without cover, frontal wind speed 15.8m/s	1'53	33℃	Working normally, MOS temperature 114℃, still warming up
40A	In a carton box (15*15*5cm), no wind	2'13	34℃	Overheat protection, power reduction, MOS temperature 125° C
50A		1'44	31℃	
60A		1'16	29℃	
70A		1'14	34℃	
80A		57s	34℃	

*Specific heat dissipation conditions (low ambient temperature, blowing air, auxiliary cooling surface, feedback MOS temperature below 125 ℃), can run continuously 80A, continuous high temperature work will reduce the ESC service life, it is recommended to keep the feedback MOS temperature below 105℃ in practical applications.

VI. Structural dimensional drawings