



FlashOfGenius LLC

Memo

To: Manufacturing Design Teams
Date: 2009-03-30
From: Ralph Stirling
Subject: Flashlight Manufacturing

Summary

FlashOfGenius will be manufacturing a new single-cell flashlight in 2009. This flashlight will have an all-aluminum, sealed body, with a magnetic switch, a Cree XR-E light-emitting diode, and a 3.6v rechargeable LiFePO4 battery. The components of the body will be produced on a Mori Seiki DuraTurn 2050 CNC turning center, and the flashlight will be assembled using a custom automation system.

Criteria

1. Components are:
 - * 18650 size battery
 - * Carclo 10199 lens and 10425 holder
 - * Cree XR-E LED mounted to a custom printed circuit board and heatsink
 - * Magnet to activate Hall switch (4mm x 4mm x 1mm magnet)
2. Flashlight body will consist of three parts.
 - * Nose, with lens, lens holder, and LED module
 - * Tail, with battery
 - * Ring with magnet
3. The lens will fit into the nose with a gasket to seal it. The nose and tail pieces thread together, with O-ring seals. The magnet ring rotates around the nose/tail joint to activate the Hall switch.
4. The nose, tail, magnet ring, lens, LED module, battery, and seals are to be automatically assembled.

Additional criteria may be issued as the design is finalized.

	AA Portable Power Corp	VER : A
		DATE : 06. 10. 26

1. Scope

This specification is applied to LFP18650 Manufactured by AA Portable Power Corp.

2. Product Specification

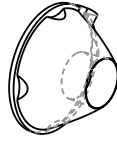
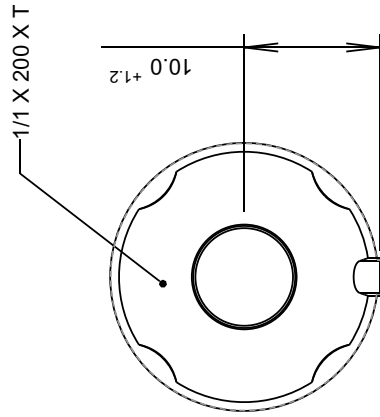
Table 1

No.	Item	Rated Performance		Remark
		Typical		
1	Rated Capacity	Typical	1350mAh	Standard discharge (0.2C C ₅ A) after Standard charge
		Minimum	1250mAh	
2	Nominal Voltage	3.0V		Mean Operation Voltage During Standard Discharge After Standard Charge
3	Voltage at end of Discharge	2.5V		Discharge Cut-off Voltage
4	Charging Voltage	3.8±0.03V		
5	AC (1KHz) Impedance New Cell Max.(mΩ)	≤80m Ω		
6	Standard charge	Constant Current 0.5C ₅ A Constant Voltage 3.8V 0.01 C ₅ A cut-off		Charge time : Approx 4.0h
7	Standard discharge	Constant current 0.2 C ₅ A end voltage2.5V		
8	Fast charge	Constant Current 1C ₅ A Constant Voltage 3.8V 0.01 C ₅ A cut-off		Charge time : Approx 2.5h
9	Fast discharge	Constant current 1 C ₅ A end voltage2.5V		
10	Maximum Continuous Charge Current	1 C ₅ A		
11	Maximum Continuous Discharge Current	10C ₅ A		
12	Operation Temperature Range	Charge: 0~45°C		60±25%R.H. Bare Cell
		Discharge: -20~60°C		
13	Storage Temperature Range	Less than 1 year: -20~25°C		60±25%R.H. at the shipment state
		less than 3 months: -20~40°C		
14	Weight	Approx: 36±2 g		Bare Cell
15	Cell Dimension	Diameter: Φ 18.3±0.2		Initial Dimension
		Height:64.5±0.5		

ISS.	DATE	E.C.N.	DESCRIPTION
1	17-Aug-06		FIRST ISSUE
2	31-Oct-06		EJECTOR PIN CUT OUTS ENLARGED

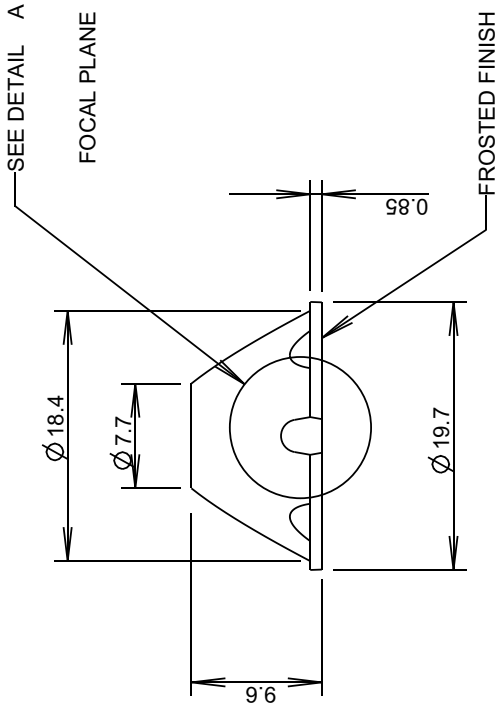
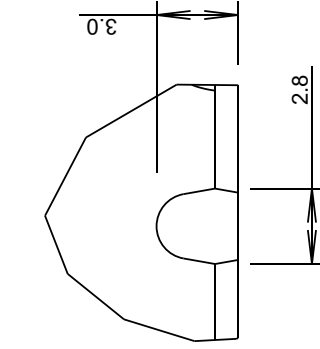
© 2007 CARCLO
ALL DIMENSIONS IN mm

CUSTOMER DRAWING



3D VIEW
SCALE 1:1

DETAIL A
SCALE 4:1



NOTES:
1. MATERIAL - UV STABILISED POLYCARBONATE
2. INCLUSIONS SPECIFIED TO BS4301



CARCLO TECHNICAL PLASTICS (SLOUGH)
111 BUCKINGHAM AVE, SLOUGH
SL1 4PF, ENGLAND
TEL: +44 1753 575011 FAX: +44 1753 811359
e-mail: design@carclo-optics.com

GENERAL TOLERANCES (UNLESS STATED)

LINEAR	ANGULAR
X +/- 0.25	X +/- 1°
X.X +/- 0.1	X.X +/- 0.5°
X.XX +/- 0.05	X.XX +/- 0.1°

CUSTOMER

CARCLO

TITLE

1.4MM OFFSET FOCUS
20 MM DIA OPTIC

DRAWN

AJD DATE 17-Aug-06

CHK'D

DATE

APP'D

DATE

SCALE

2:1

CARCLO PART No.

SEE TABLE

SIZE

A4

CARCLO DRG. No.

60434

SHEET

1 OF 1

ISS.	DATE	E.C.N.	DESCRIPTION
1	20-Oct-06		FIRST ISSUE
<p>© 2006 CARCLO ALL DIMENSIONS IN mm</p>			
<p>GENERAL TOLERANCES (UNLESS STATED)</p> <p>LINEAR X ±0.25 X.XX ±0.05 X.XXX ±0.01</p> <p>ANGULAR X ±1° X.X ±0.5° X.XX ±0.1°</p>			
<p>CUSTOMER CARCLO</p> <p>TITLE CREE HOLDER FOR 20MM OPTIC WITH 1.4MM OFFSET FOCUS</p> <p>DRAWN MKI DATE 20-Oct-06</p> <p>CHK'D DATE</p> <p>APP'D DATE</p> <p>SCALE CARCLO PART NO.</p>			
<p>4:1 SEE TABLE</p>			
<p>SIZE A3 60435 1 OF 1</p>			
<p>PART No. DESCRIPTION</p> <p>10205 BLACK POLYCARBONATE</p> <p>10206 CLEAR POLYCARBONATE</p> <p>10207 WHITE POLYCARBONATE</p>			
<p>NOTES:-</p> <p>1. MATERIAL: SEE TABLE</p> <p>2. FINISH: GOOD POLISH ALL OVER</p> <p>3. GEN. WALL THK. 1mm</p> <p>4. GEN DRAFT ANGLE 2 DEG.</p>			
<p>⚠ DENOTES CRITICAL DIMENSION FOR INSPECTION</p>			