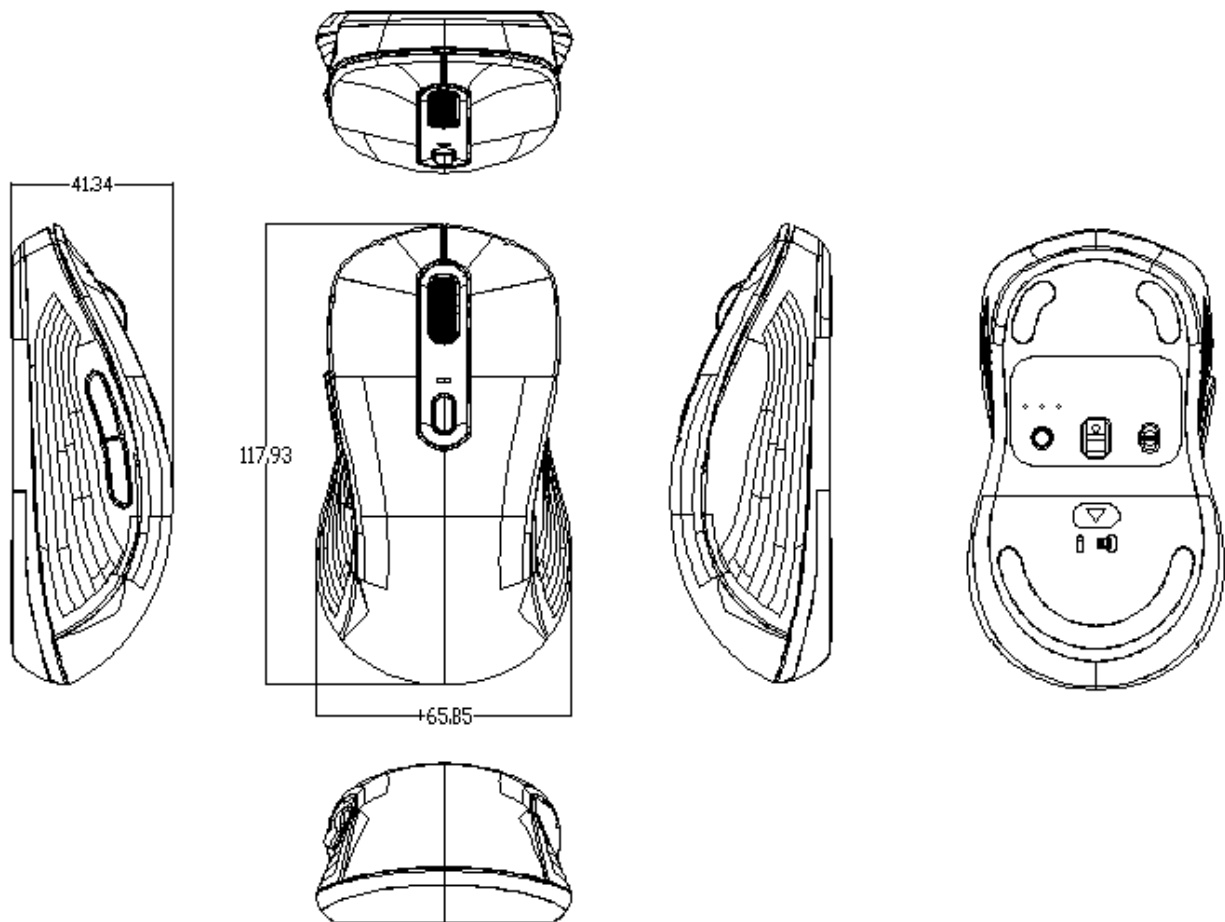


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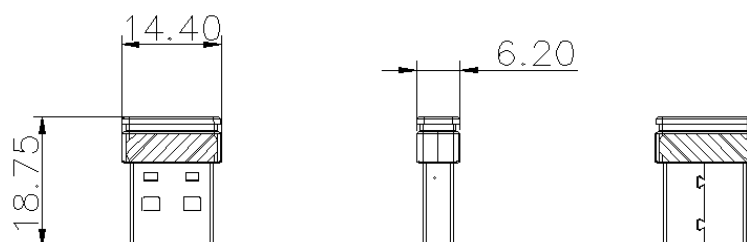
1 介绍 Introduction

本文为 TM279 光学鼠标的功能和性能具体规格

This document contains a functional and performance specification of the Optical TM279 Mouse.

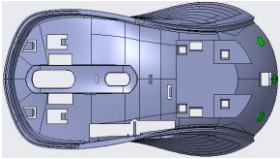
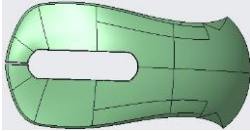
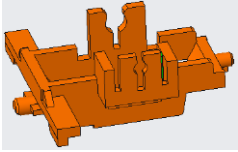
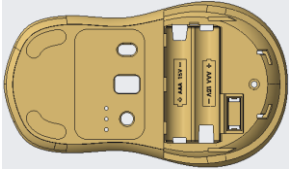
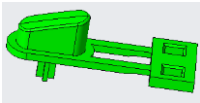
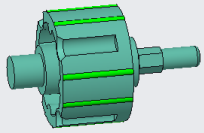
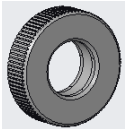
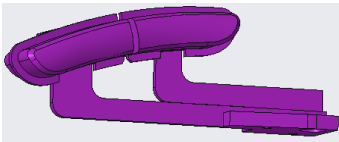


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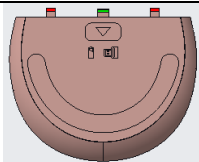
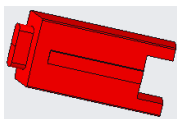
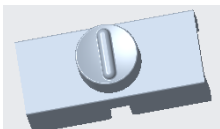


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各零件明细表如下： Mechanical Part

名称 Name	简图 Picture	规格 Spec
上盖 Upper Cover		材质：ABS Material:ABS 颜色：0D Colour: 0D
按键 Key		材质：ABS+PC Material:ABS+PC 颜色：0D Colour: 0D
摇摆支架 Swing support		材质：PC Material:PC 颜色：0D Colour: 0D
下盖 Bottom Cover		材质：ABS Material:ABS 颜色：0D Colour: 0D
DPI 按键 DPI Key		材质：ABS Material:ABS 颜色：0D Colour: 0D
滚轮轴 Track Roller		材质：PC Material:PC 颜色：0D Colour: 0D
手轮套 Roller Aprons		材质：五金 Material: hardware 颜色：金属色 Colour: metallic
侧键 Side Key		材质：ABS Material:ABS 颜色：0D Colour: 0D

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电池盖 battery cover		材质: ABS Material:ABS 颜色: OD Colour: OD
导光件 Light guide		材质: ABS Material:ABS 颜色: 透明 Colour: transparent
拨动开关 Toggle Switch		材质: ABS Material:ABS 颜色: OD Colour: OD
对码开关 Code Switch		材质: ABS Material:ABS 颜色: OD Colour: OD

2 物理规格 Physical Specification

- 鼠标 MOUSE 尺寸 Dimension:
高 Height: 41.34 ± 0.5 mm
长 Length: 117.93 ± 0.5 mm
宽 Width: 65.85 ± 0.5 mm
- 接收 RECEIVER 尺寸 Dimension:
高 Height: 6.20 ± 0.50 mm
长 Length: 18.75 ± 0.50 mm
宽 Width: 14.40 ± 0.5 mm
- 重量 Weight: 大约 79.5 ± 5 g(不含电池、接收器) ;
- 功能键: 左键、右键、中键、对码键、电源开关、 DPI 、侧键
- Buttons: Left、Right、Middle、Code Button、Power switch、DPI、Side key

3 机械特性 Mechanical Characteristics

- 开关操作压力 Operating force of switches: 50 ~ 80 gf. (仅开关 Switch Only);
- 鼠标按键操作力量 Mouse switches operating force: 70 ± 20 gf(左右键差异小于 15gf);
- 滚轮旋转力量 Scroll rotate force: 50 ± 30 gf-cm;
- 滚轮按键(中键)操作力量 Middle Button force: 200 ± 40 gf; 同批次出货相差不得超过 40gf.

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4 电气特性 Electrical Characteristics:

接收 receiver

- 系统介面: PC 可用的 USB 口 System interface: USB port available for PC
- 供电电压 Power supply voltage: 4.75~5.25V
- 电源消耗 Power consumption: <25mA
- IC: CX51661L

鼠标 MOUSE

- 2.4G 模式 mode: 工作电流<3mA; (3V, 白纸)。 待机电流 <1mA (停止工作 5 秒内), 休眠电流<0.1mA (停止工作 5s) Operating current <3mA;(3V, white paper) .standby current < 1mA (stop working for 0 to 5 s), resting current <0.1mA (stop working for 5s)
- 蓝牙模式 Bluetooth mode: 工作电流<2.7mA; (3V, 白纸)。 一级待机电流 <1.2mA (停止工作 5 秒内), 二级待机电流<0.5mA (停止工作 5s~30min), 休眠电流<0.1mA (停止工作 30min 后)。 Operating current <2.7mA;(3V, white paper) .Level 1 standby current < 1.2mA (stop working for 0 to 5 s), Level 2 standby current < 0.5mA (stop working for 5s to 30min) resting current <0.1mA (stop working for 30min).
- DPI: 800-1200-1600(default)-2400-3200-4800
- MCU&SENSOR: BK3632+P3212

5 使用说明 direction for use:

- 模式开关切换到 2.4G, 开启电源, 鼠标 2.4G 模式指示灯闪烁, 插入接收器, 即可使用 The mode switch is changed to 2.4G, turn on the power supply, the mouse 2.4G mode indicator light flashes, plug in the receiver, you can use
模式开关切换到蓝牙模式, 蓝牙回连成功, 通道指示灯熄灭, 即可使用。电压≤2.2V, 低压指示灯闪烁 The mode switch is switched to Bluetooth mode, the Bluetooth connection is successful, the channel indicator is off, and you can use it. If the voltage is less than or equal to 2.2V, the low-voltage indicator blinks
- 2.4G强制配对说明 2.4GDescription of forced pairing
- 切换到 2.4G 模式 Switch to 2.4G mode
- 同时长按左/中/右三键 (3 秒), 进入 2.4G 配对, LED 以 2HZ/秒闪烁 (配对时间 20 秒) At the same time, press the left/middle/right three keys (3 seconds) to enter 2.4G pairing, and the LED keep on (pairing time: 20 seconds)
- 在 20 秒内, 插入 USB Dongle In 20 seconds, insert the USB Dongle

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- 插入接收器,LED 熄灭 2.4G 配对成功 Insert receiver ,The LED will be goes out ,2.4G pair is successful
- 蓝牙配对说明Bluetooth pairing instructions
- 切换到蓝牙模式 Switch to Bluetooth mode
- 长按对码键（大于 3 秒）进入配对状态，LED 以 1HZ/秒闪烁（配对时间 2 分钟）Press the code pair key (more than 3 seconds) to enter the pairing state, and the LED flashes at 1HZ/ second (the pairing time is 2minutes)
- 电脑系统 设置 - 蓝牙 - ON（适配系统 Windows 8 及以上）Computer system Settings -- Bluetooth -- ON (for Windows 8 and above)
- 搜索到 BT3.0 MOUSE / BT5.0 MOUSE， 点击进入配对 Search BT3.0 MOUSE / BT5.0 MOUSE, click to enter the pairing
- 配对成功,LED 熄灭,显示已连接成功 The pairing is successful. The LED will turn off . The computer display successful connection

6 移动性能 move Spec

- 解析度 Resolution: 800-1200-1600(default)-2400-3200-4800 (X and Y);
- 最大的速度 Tracking Speed:30ips;
- 最大的加速度 Acceleration:10G;
- 回报率 Report Rate: 2.4G:250Hz/BT3.0: 90Hz/BT5.0:114Hz
- 使用距离 Use Distance 2.4G 模式: 10M(无遮挡,空旷), 蓝牙模式: 8M(无遮挡,空旷)2.4G mode: 10M(no shielding, open); Bluetooth mode: 8M (no shielding, open)

7 环境定义 Environment

7.1 温度 Temperature

使用温度范围 Operating Temperature : 0° C to 40° C;

使用湿度范围 Operating Humidity: ≤85%;

运输温度范围 Transportation Temperature: -15° C- 60° C;

运输湿度范围 Transportation Humidity: ≤85%;

7.2 环境实验 Environmental Test

7.2.1 高温试验 High Temperature Test

温度 Temperature: 65±2°C;

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时间 Time: 96 小时;
湿度 Humidity: 90% R.H.

7.2.2 低温试验 Low Temperature Test

温度 Temperature: -20±2°C;
时间 Time: 96 小时;

7.2.3 高温高湿测试 Moisture Test

温度 Temperature: 40±2°C;
湿度 Humidity: 90~95% R.H.;
测试时间 Time: 96 hours;

7.2.4 高低温测试 high-low temperature test

温度 Temperature: -40±2°C for 0.5 hour and then 70±2°C for 0.5 hour;
进行次数 Cycles: 12 cycles;

上述测试鼠标样品通过这个实验后要在室温下静置一个小时。

The test mouse sample was left to sit at room temperature for an hour after passing the test.

8 可靠性参数 Reliability Specifications

8.1 鼠标寿命测试 Mouse Life Test

负载 load: 100gf 垂直方向压力 Vertical force;
速度 Speed: 200 ±40 mm/sec;
行程 Travel: 最小 300 km 各向 Any direction;

8.2 开关寿命测试 Switch Life Test

速度 Speed:3 cycles/sec;
操作力度（左、右键）Operating Force of left &Right button: 90gf Max;
寿命次数 Operating Cycles: Left &Right 3,000,000 cycles, Other 1,000,000cycles

8.3 滚轮寿命测试 Scroll Wheel Life Test

转动速度 Operating Speed: 1 cycle/sec;
操作力量 Operating Force: 50 ±30 gf-cm;
操作次数 Operating Cycles: 300,000 cycles;

8.4 裸摔测试 Drop Test

次数 Number: 6 times;

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高度 Height: 70 cm;

方向 Direction: 6surface each one times;

表面 Floor surface: Plastic floor tile;

可靠性测试的判定：因为各项测试均为破坏性测试，每项测试均需独立取样。每项测试后的样品可正常工作即判定通过该项测试。Determination of reliability test: since each test is destructive, each test must be independently sampled. The sample after each test can work normally namely judge to pass this test.

9 认证 Certificates

- FCC
- CE
- ESD : 接触放电 contact discharge +/-4KV; 空气放电 air discharge +/-8KV

要求符合铭冠以下三大文件：The following three documents are required

a.《键盘类外观检验标准 T-WQ-007/鼠标类外观检验标准 TG-WQ-008/耳机类外观检验标准 TG-WQ-005》Keyboard appearance inspection standard TG-WQ-007 / mouse appearance inspection standard TG-WQ-008 / headset appearance inspection standard TG-WQ-005

b.《键盘&鼠标可靠性试验管理规范 TG-WQ-004/耳机可靠性试验管理规范 TG-WQ-006》Management specification for keyboard & mouse reliability test TG-WQ-004 / headset reliability test management TG-WQ-006

c.《TG-HSF-300 环保要求》Environmental Specification TG-HSF-30

10 电路图 Electronic Circuit:

