Industrial USB 2.0 X-Mask Series (MLC)

Version 1.0

TABLE OF CONTENTS

1. GENERAL DESCRIPTION

1.1 Introduction

FLEXXON X-Mask USB Pen Drive is compliant with Universal Serial Bus Specification Revision 2.0 and provides excellent performance, good reliability and wide compatibility. User could mask the entire USB Pen Drive by special AP to prevent unauthorized access.

FLEXXON X-Mask USB Pen Drive provides security function to prevent the stored data from being stolen, tampered or modified by others. The stored data can only be access if the legitimate user can authenticate using the correct password.

FLEXXON X-Mask USB Pen Drive is suitable for users who want to store their private and valuable data in a flash storage without the risk of having it being read by unintended people.

The mask function is an additional feature, which will not affect the standard product specification.

1.2 Product Overview

◆ **Flash** MLC	◆ **USB 2.0 Type A**
◆ **Capacity** 8GB to 32GB	◆ **Support Auto Read Refreshment**
◆ **Support Data Crypto**	◆ **Adaptive wear leveling**
◆ **Read disturbance management**	◆ **SMART function support**
◆ **Support management of sudden power fails**	◆ **High Random 4KB IOPS and reliability**
◆ **Temperature Range** Operation (Diamond): -40°C ~ 85°C ◆ Storage: -50°C ~ 95°C	

1.3 Workflow

FLEXXON X-Mask USB is a normal mode by default. User could set the password to enable mask mode. User is required to eject and re-insert the after set the password.

User could access the data by the legal host with security tool and enter correct password. When user power off the host or reinsert the USB, the Pen drive will return to masked mode.

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```
              ( Power On )
                   │
                   ▼
         [ Default Normal Mode ]
                   │
                   ▼
      [ User use AP to set password ]
                   │
                   ▼
   [ Power Off/ unplug and plug in the USB ]
                   │
                   ▼
          [ Masked Mode ]◄──────┐
                   │            │
                   ▼         No │
            < Legal Host? >─────┘
                   │ Yes
                   ▼
          [ Enter Password ]
                   │
                   ▼
         < Correct Password? >──── No ──┐
                   │ Yes               │
                   ▼                   │
           [ Normal Mode ]             │
                   │                   │
                   ▼                   │
   [ Read/Write is possible,           │
     Data Written is encrypted         │
     and security controlled ]         │
                   │                   │
                   ▼                   │
            ( Power Off )──────────────┘
```
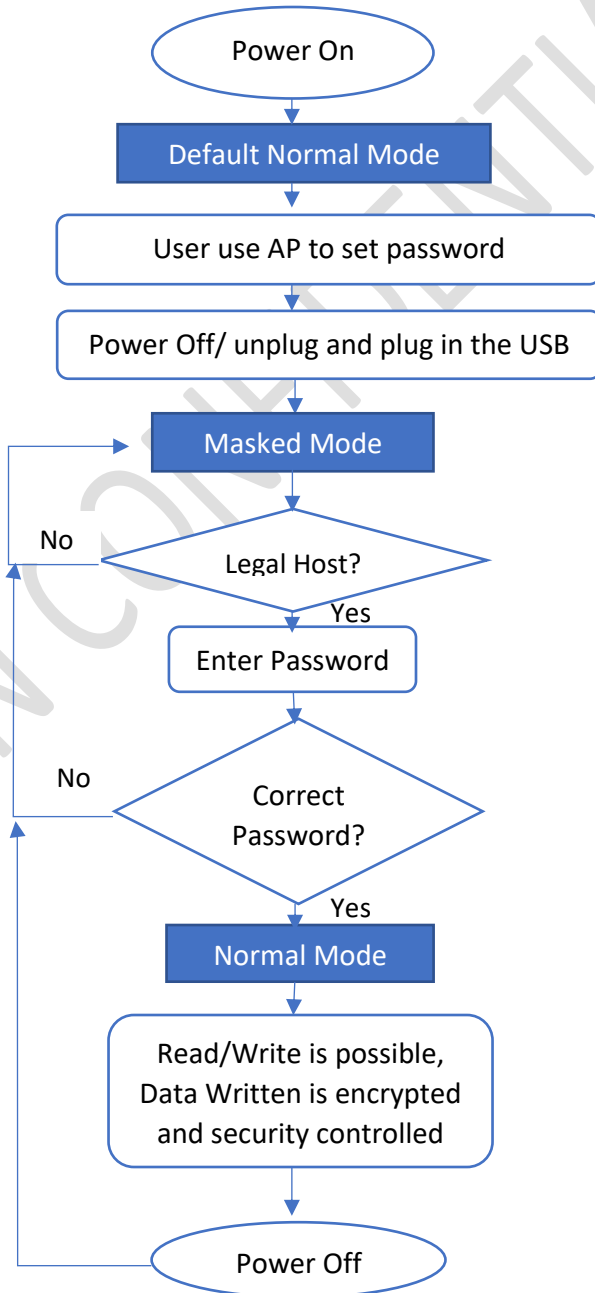
2. PRODUCT SPECIFICATIONS

2.1 Performance

Capacity	Sequential	
	Max Read (MB/s)	Max Write (MB/s)
8GB	27.3	20.6
16GB	27.3	20.6
32GB	27.3	20.6

Table 2-1 Performance of X-Mask USB Pen Drive

NOTES:

1. The performance is obtained from TestMetrix
2. Performance may vary from flash configuration and platform.

2.2 Power

| Capacity	Max Read (mA)	Max Write (mA)	Max Standby (MA)
8GB	165	160	60
16GB	165	160	60
32GB	165	160	60

Table 2-2 Typical Power Consumption of X-Mask USB Pen Drive

2.3 MTBF

MTBF, an acronym for Mean Time Between Failures, is a measure of a device's reliability. Its value represents the average time between a repair and the next failure. The higher the MTBF value, the higher the reliability of the device. The predicted result of X-Mask USB Pen Drive is more than 3,000,000 hours.

3. Pin Assignments

Pin No.	Pin Name	Function
1	VCC	USB power input
2	USB D-	USB differential signal
3	USB D+	The pair are used to transmit Data/Address/Command
4	VSS	Ground
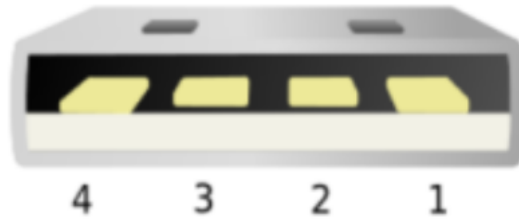
# 4. Electrical Characteristics

4.1 Absolute Maximum Ratings

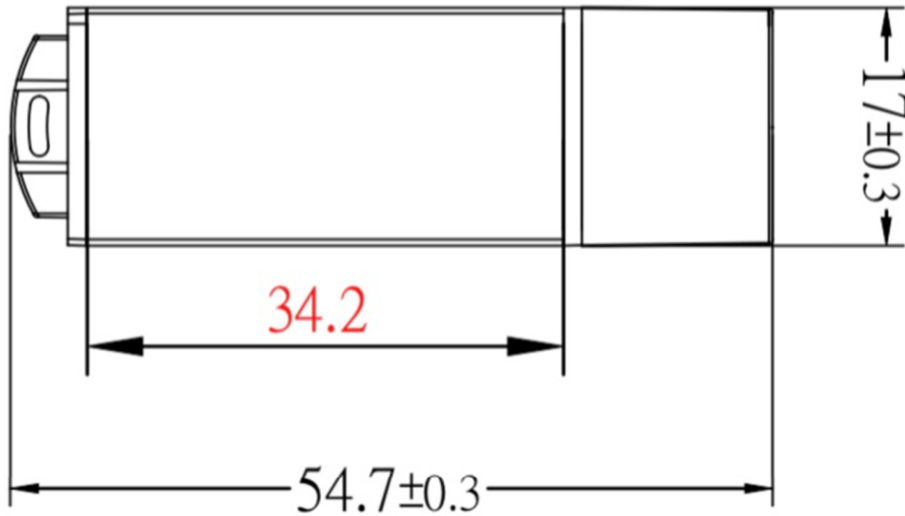| Parameter	Rating
Vcc with respect to GND	-0.5V to +5.5V
Operating Temperature	-40℃~ +85℃

4.2 DC Characteristics

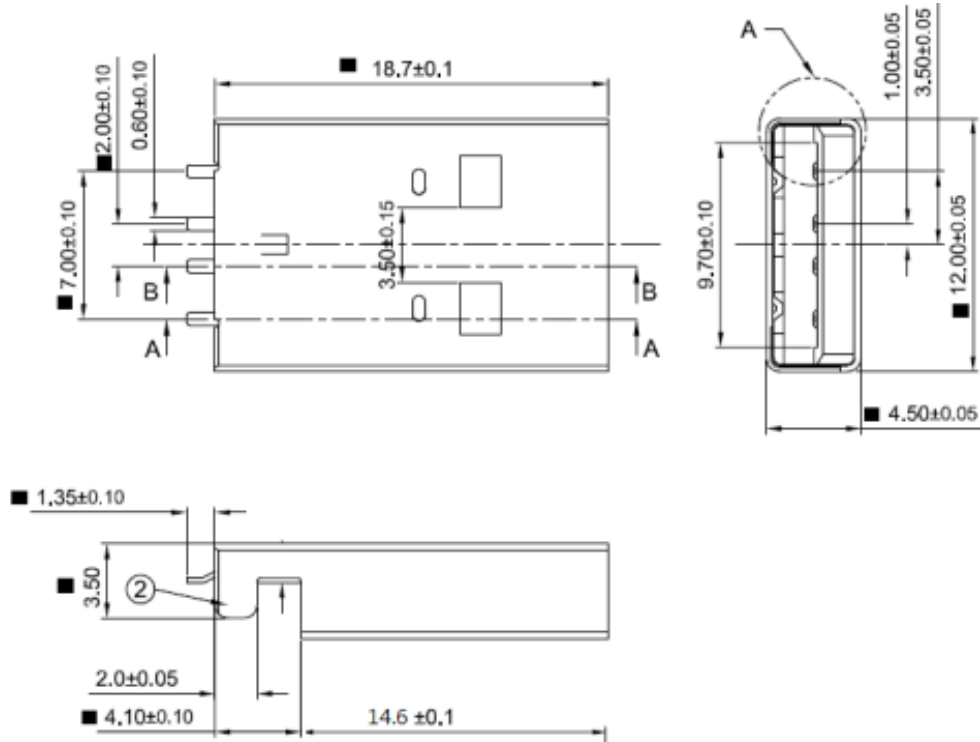| Symbol	Parameter	Min	Typ	Max	Unit
V_{DD}	Supply Voltage	4.5	5	5.5	V
V_{IH}	Input Voltage High	2			V
V_{IL}	Input Voltage Low			0.8	V
V_{OH}	Output Voltage High	85%*V_{DD}			V
V_{OL}	Output Voltage Low			0.4	V

5. PHYSICAL DIMENSION

Dimension: 54.7mm(L) ± 0.3mm x 17.0mm(W)± 0.3mm x 8.0mm(H) ± 0.3mm
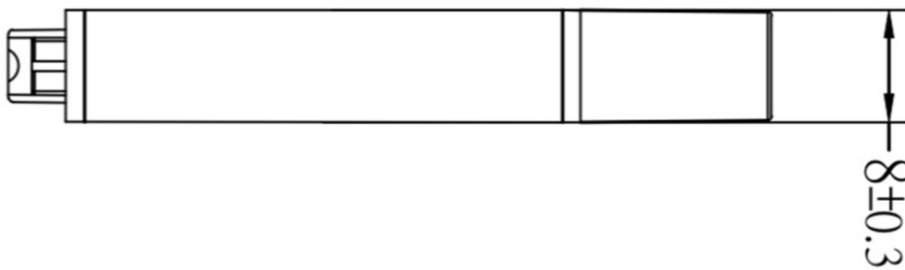
5.1   USB Connector Dimension

6. ORDERING INFORMATION

Capacity	MPN (Diamond Grade)
8GB	FUUP008GME-XS00
16GB	FUUP016GME-XS00
32GB	FUUP032GME-XS00

REVISION HISTORY

Revision	Date	History
1.0	2021/08	First Release