



GOODRAM Industrial

USB 3.0 stick

DATASHEET



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GOODRAM Industrial USB stick

REVISION HISTORY

VERSION	CHANGES	DATE
1.0	Initial release	25.09.2019



TABLE OF CONTENTS

REVISION HISTORY	3
PRODUCT OVERVIEW	5
PRODUCT DETAILS.....	6
GENERAL DESCRIPTION.....	6
ELECTRICAL SPECIFICATIONS.....	7
TEMPERATURE SPECIFICATION	7
PRODUCT ORDERING INFORMATION.....	7
PHYSICAL DIMENSION.....	7
STANDARDS & REFERENCES	8
SAFETY PRECAUTIONS	8
NOTES ON USAGE	9

PRODUCT OVERVIEW

- | | |
|---|---|
| <ul style="list-style-type: none">• Capacity:<ul style="list-style-type: none">◦ 8GB• USB connector<ul style="list-style-type: none">◦ USB 3.0• Controller<ul style="list-style-type: none">◦ PS2251-11• Flash Type<ul style="list-style-type: none">◦ 3D TLC• Compatibility<ul style="list-style-type: none">◦ Backwards compatible with USB 1.1/2.0• Power Consumption<ul style="list-style-type: none">◦ Max R/W: 160/100 mA• Endurance<ul style="list-style-type: none">◦ 3000 erase/program cycles in whole capacity• Speed of the 1.1, 2.0 and 3.0 interface<ul style="list-style-type: none">◦ Super speed up to 5Gbit/sec for USB 3.0◦ High speed up to 480Mbits/sec for USB 2.0◦ Full speed up to 12Mbits/sec for USB 1.1 | <ul style="list-style-type: none">• Supported OS<ul style="list-style-type: none">◦ Support current main Windows version including Windows 2000/XP/Vista/7/8/10◦ Support current main MAC OS◦ Linux Kernel 2.4.0 or above• Operating Voltage range<ul style="list-style-type: none">◦ 4.5 – 5.5 V• Temperature Range<ul style="list-style-type: none">◦ Operation: 0°C ~ +70°C◦ Storage: -25°C ~ +85°C• Humidity: 20% to 90%• RoHS compliant• MTBF<ul style="list-style-type: none">◦ More than 7 500 000 hours• TBW<ul style="list-style-type: none">◦ 24TBW (based on sequential pattern)• Advanced Flash Management<ul style="list-style-type: none">◦ Wear Levelling◦ Bad Block Management◦ ECC◦ SMART |
|---|---|



PRODUCT DETAILS

GENERAL DESCRIPTION

The USP USB stick removable flash disk drive with USB 3.0 connector (compatible with USB 2.0 and 1.1) and can support various storage capacities. The USB stick is a plug and play device, simply plug it into any USB port and it will automatically get detected by the computer as a removable drive. The USB stick doesn't require any battery, cables or software drivers. It is compatible with any desktop or notebook computers with USB port.

FLASH MANAGEMENT

GOODRAM USP USB utilizes all the state of art technologies to ensure full reliability until the specified NAND Flash program/erase cycles parameter is reached. These technologies include but are not limited to:

Error Correction Code (ECC)

Flash memory cells will deteriorate with use, which may generate random bit errors in the stored data. To ensure the highest reliability, GOODRAM USB applies the BCH ECC Algorithm, which can detect and correct errors that occur during read process, to ensure data is read correctly, as well as protected from corruption.

Wear Levelling

Storage devices based on NAND flash memory, can only undergo a limited number of program/erase cycles, and due to various usage scenarios, data may not be distributed evenly between NAND flash chips. If a certain area gets updated more frequently than others, the lifetime of the device will be reduced significantly. Wear Leveling technique is applied to extend the lifespan of NAND Flash by evenly distributing write and erase cycles across the whole storage area. Moreover, by utilizing both dynamic and static Wear Leveling algorithms, the life expectancy of the NAND flash is greatly improved.

Bad Block Management

Bad blocks are blocks that include one or more invalid bits, and their reliability is not guaranteed. Blocks that are identified and marked as bad by the manufacturer are referred to as "Initial Bad Blocks". Bad blocks that are developed during the lifespan of the flash are named "Later Bad Blocks". GOODRAM USP USB uses an efficient bad block management algorithm to detect all types of bad blocks, which further prevents data being stored into them and improves the data reliability.

ELECTRICAL SPECIFICATIONS

Power Consumption (mA)			
Read	Write	Idle	StandBy
153.45	90.98	39.44	0.98

The above values are for reference only, it may change according to the flash memory used.

PARAMETER	RATING
Operating voltage	4.5 – 5.5 V

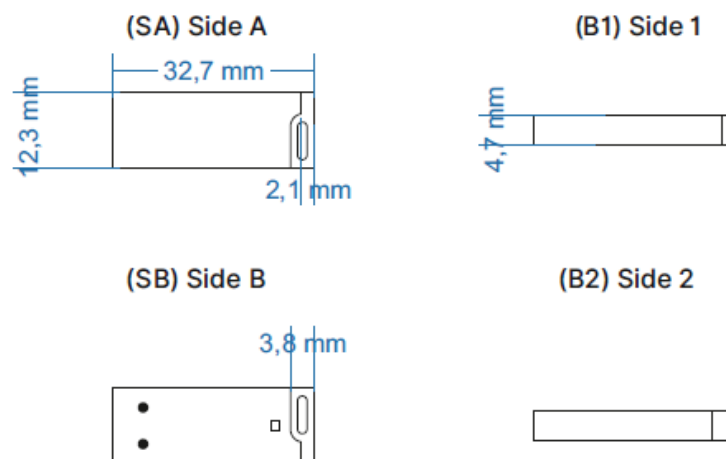
TEMPERATURE SPECIFICATION

SYMBOL	PARAMETER	MIN.	MAX.	UNIT
T _a	Operating Temperature	0	+70	°C
T _{st}	Storage Temperature	-25	+85	°C

PRODUCT ORDERING INFORMATION

PN	Type	Capacity	Technology	Temp. range	Grade
USP3-0080K0BBB-ICTJD	uCOB	8GB	3D TLC	0-70°C	commercial

PHYSICAL DIMENSION





STANDARDS & REFERENCES

The following table is to list out the standards that have been adopted for designing the product.

STANDARD USED	ACRONYM/SOURCE
RoHS	Restriction of Hazardous Substances Directive.
CE	Consumer electronics certification; please contact us for further information.

SAFETY PRECAUTIONS

Do not bend, crush, drop, or place heavy objects on top of the Product. Do not use tweezers, pliers or similar items that could damage the Product. Take particular care when inserting or removing the Product. Stop using the Product when the Product does not work properly. Failure to follow these instructions could result in fire, damage to the Product and/or other property and/or personal injury including burns and electric shock.

Keep out of reach of small children. Accidental swallowing may cause suffocation or injury. Contact a doctor immediately if you suspect a child has swallowed the Product.

Do not directly touch the interface pins, put them in contact with metal, strike them with hard objects or cause them to short. Do not expose to static electricity.

Do not disassemble or modify the Product. This may cause electric shock, damage to the Product or fire.



NOTES ON USAGE

The Product contains nonvolatile semiconductor memory. Do not use the Product in accordance with a method of usage other than that written in the manual. This may cause the destruction or loss of data.

To protect against accidental data loss, you should back up your data frequently on more than one type of storage media. Wilk Elektronik S.A. assumes no liability for destruction or loss of data recorded on the Card for any reason.

When used over a long period of time or repeatedly, the reading, writing and deleting capabilities of the Product will eventually fail, and the performance speed of the Product may decrease below the original speed specific to the Product's applicable class.

If the Product is to be transferred or destroyed, note that the data it contained may still be recoverable unless it is permanently deleted by third-party deletion software or similar means beforehand.

Product is intended for use in general electronics applications and selected industrial applications and any other specific applications as expressly stated in this document. Product is neither intended nor warranted for use in equipment or systems where failure may cause loss of human life, bodily injury, serious property damage or serious public impact ("Unintended Use"). Unintended Use includes, without limitation, equipment used in nuclear facilities, equipment used in the aerospace industry, medical equipment or equipment used to control combustions or explosions. Do not use Product for Unintended Use unless specifically permitted in this document.

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