JMicron Technology Corporation

PRODUCT BRIEF

JMS901
USB 3.1 Gen 1 to UFS/UHS-1 Bridge

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Revision History

Revision Number	Effective Date	Description of Revision		Author
		Reference	Description of the Change	
1.0	07/17/2018	-	Initial release	Kevin Liu

Table of Contents

Figure List

1 Introduction

The JMS901 is an innovative and cost-effective USB 3.1 Gen1 to UFS 2.1 and UHS-I bridge controller. It supports simultaneous data read/write to dual kinds of flash memory cards, SD and UFS card, respectively with up to 5Gb/s data transportation rate to the host. It also supports Crystal-less to reduce BOM cost.

The JMS901 has USB Type-C™ connectivity built into the controller that any device using the JMS901 can have a Type-C connector without adding any additional peripheral part. It can save costs to buy parts, and efforts to build inventory, and it can reduce printed circuit board area for the system designs.

The JMS901 supports TRIM to the UFS and can transmit and receive data by both of USB Mass Storage Class Bulk-Only Transport (BOT), and USB Attached SCSI Protocol (UASP) to and from the host respectively. The data storage devices can achieve its summit of performance by taking advantage of these built-in unmatched features.

Owing to its USB Type-C connectivity, the JMS901 can work with some power management controllers to a USB Power Delivery (PD) enabled data storage device. The data storage devices having UFS of large capacity can accept the electrical power from sources of energy, such as hosts acting as a power provider of USB PD to supply sufficient electricity to the device after they negotiate with each other, without plugging in.

The JMS901 can perform various product applications and designs with its special pin assignment and allocation. It makes more friendly and intuitive operation to the product. With the superior power management control design, JMS901 can further reduce the total BOM of the product and also the lower power supply environment.

Owing to the superior performance and production quality, the JMS901 can assist the customer to save the most of design in efforts and quickly cut into the market.

Finally, the JMS901 is a new product that almost reaches USB3.1 G1 line bandwidth.

2 Features

- Supports TRIM to UFS
- Integrates with USB Type-C™ multiplexer & configuration channel (CC) logic
- Complies with USB 3.1 Gen 1 Specification, USB Mass Storage Class, Bulk-Only Transport Specification (Revision 1.0)
- Complies with USB Attached SCSI Protocol (UASP) Specification (Revision 4)
- Supports USB Super-Speed/High-Speed/Full-Speed Operation
- Supports USB2.0/USB 3.1 Gen 1 power saving mode
- Support UFS 2.1 HS-G1A~HS-G3B & Type-I PWM G1~G5 in LS PWM mode
- SDIO 3.1 (UHS-I, SDR104) with SD/SDHC/SDXC
- Supports external SPI NVRAM for Vendor VID/PID of USB2.0/USB 3.1 Gen 1 device controller
- Ten GPIOs for customization
- Provides hardware controlled PWMs
- Provides software utilities for downloading the upgraded firmware code under USB2.0/USB 3.1 Gen1
- Design for Windows 7, Windows 10 and MAC 10.10.5 or later version
- Supports 25MHz external crystal or built-in clock generator (Crystal-less)
- Supports 1.2V/1.8V/3.3V I/O
- Embedded 5V to 1.2V voltage regulator
- Embedded 5V to 1.8V voltage regulator
- Embedded 5V to 3.3V linear voltage regulator (LDO)
- QFN56 6x6 package

3 Block diagram

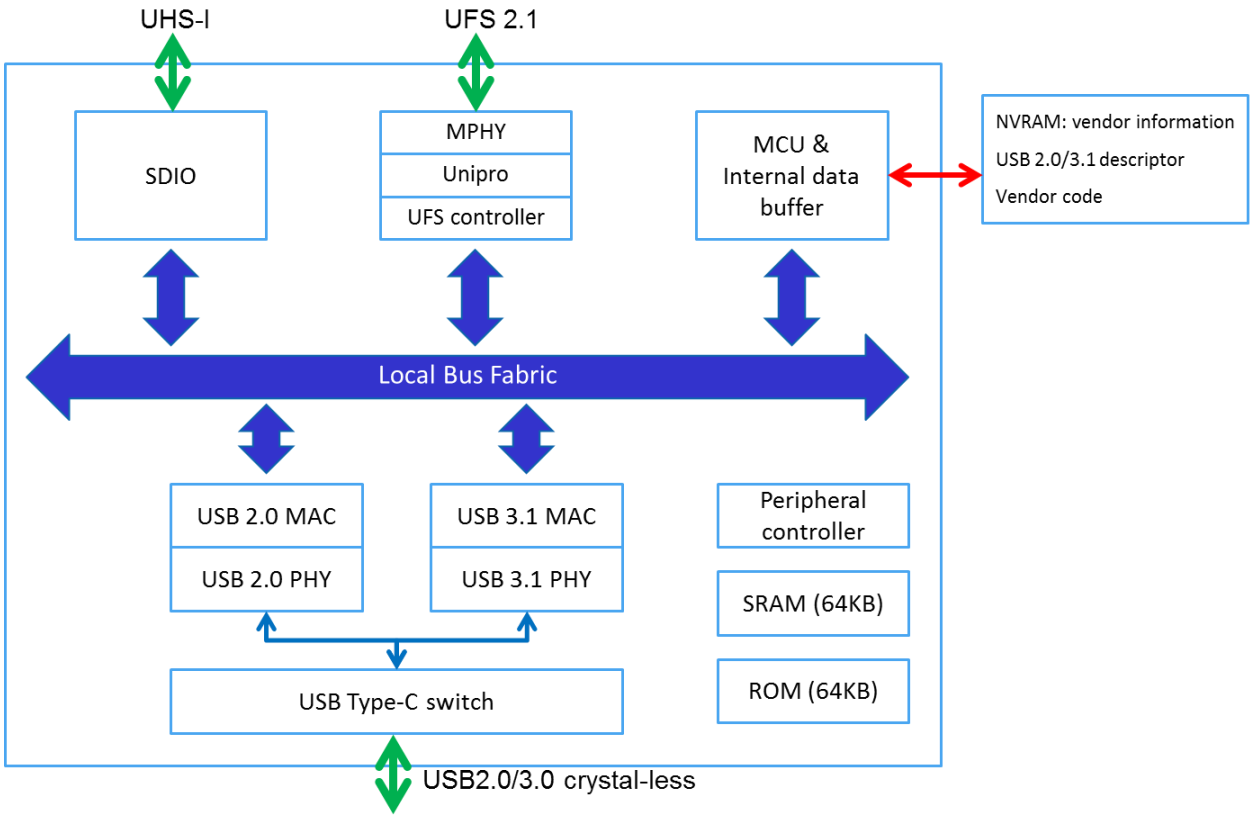
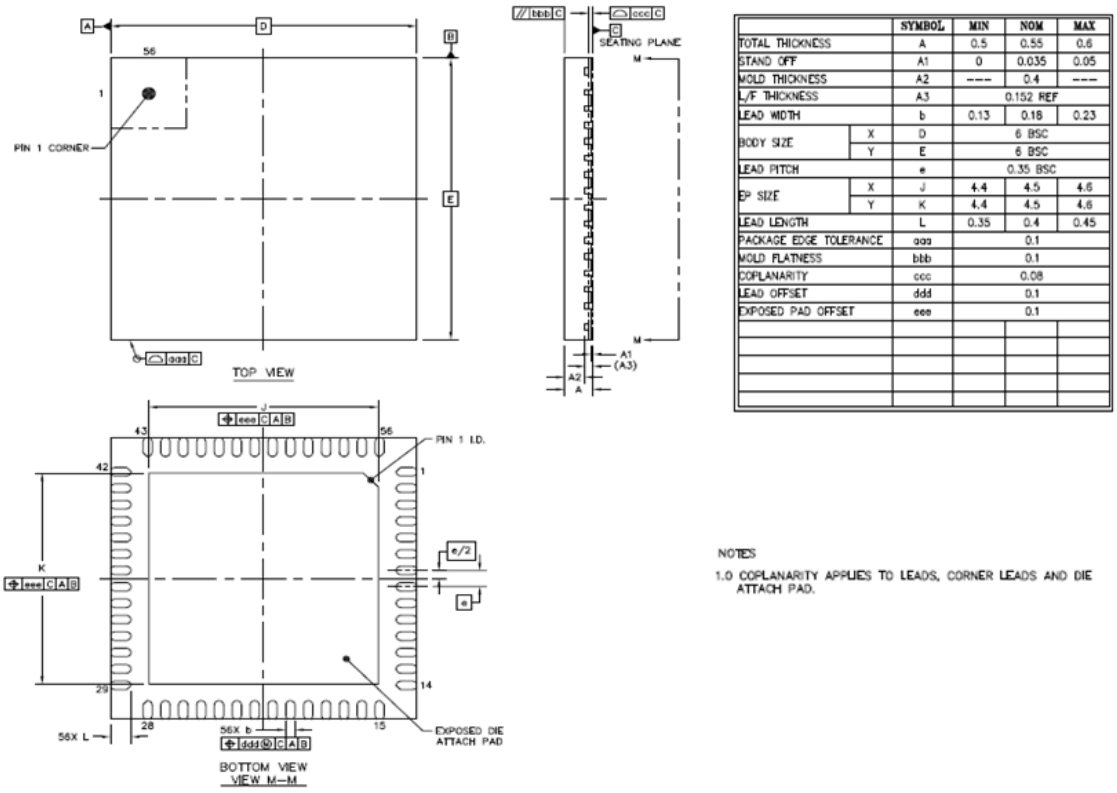


Figure 1 Block diagram

4 Package dimension



		SYMBOL	MIN	NOM	MAX
TOTAL THICKNESS		A	0.5	0.55	0.6
STAND OFF		A1	0	0.035	0.05
MOLD THICKNESS		A2	---	0.4	---
L/F THICKNESS		A3		0.152 REF	
LEAD WIDTH		b	0.13	0.18	0.23
BODY SIZE	X	D		6 BSC	
	Y	E		6 BSC	
LEAD PITCH		e		0.35 BSC	
EP SIZE	X	J	4.4	4.5	4.6
	Y	K	4.4	4.5	4.6
LEAD LENGTH		L	0.35	0.4	0.45
PACKAGE EDGE TOLERANCE		aaa		0.1	
MOLD FLATNESS		bbb		0.1	
COPLANARITY		ccc		0.08	
LEAD OFFSET		ddd		0.1	
EXPOSED PAD OFFSET		eee		0.1	

Figure 2 Package outline drawing of QFN56 6x6