TEXAS INSTRUMENTS
DLP301S
DLPS218 – JULY 2021

DLP301S 0.3-Inch 3.6-Megapixel DMD for TI DLP® 3D Printers

1 Features

- 0.3-Inch (7.93-mm) diagonal micromirror array
  - 1280 × 720 array of aluminum micrometer-sized mirrors, in an orthogonal layout
  - 5.4 micron micromirror pitch
  - ±17° micromirror tilt (relative to flat surface)
  - Side illumination for optimal efficiency and optical engine size
  - Polarization independent aluminum micromirror surface
- 8-Bit SubLVDS input data bus
- Dedicated DLPC1438 3D print controller and DLPA200x or DLPA300x PMIC/LED driver for reliable operation

2 Applications

- TI DLP® 3D Printer
  - Additive manufacturing
  - Vat polymerization
  - Masked stereolithography (mSLA 3D printer)
- Dental DLP 3D printer
- Light exposure: programmable spatial and temporal light exposure

3 Description

The DLP301S digital micromirror device (DMD) is a digitally controlled micro-opto-electromechanical system (MOEMS) spatial light modulator (SLM). When coupled to an appropriate optical system, the DMD displays a very crisp and high quality image. This DMD is a component of the chipset comprising the DLP301S DMD, DLPC1438 3D Print controller, and DLPA200x/DLPA300x PMIC/LED driver. The compact physical size of this DMD coupled with the controller and the PMIC/LED driver provides a complete system solution that enables high output optical engines for fast, high resolution, reliable DLP 3D printers.

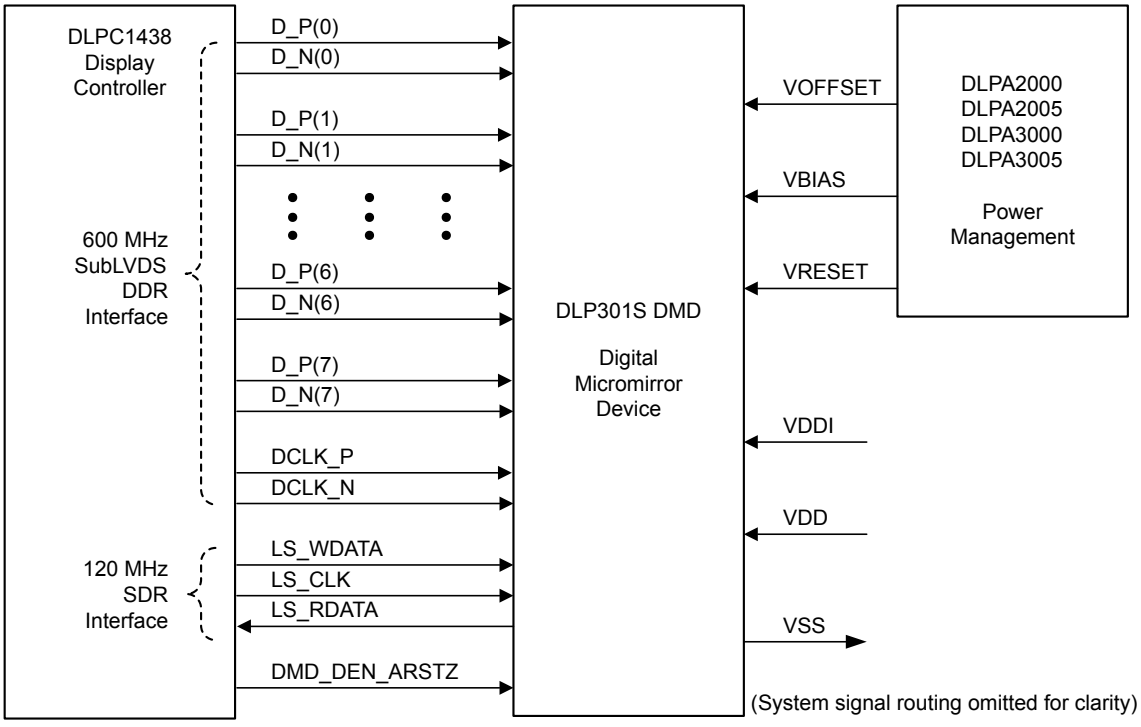
Get started with TI DLP® light-control technology page to learn how to get started with the DLP300S.

The DLP advanced light control resources on ti.com accelerate time to market, which include reference designs, optical modules manufactures, and DLP design network partners.

Device Information(1)

PART NUMBER	PACKAGE	BODY SIZE (NOM)
DLP301S	FQS (99)	19.25-mm × 7.20-mm

(1) For all available packages, see the orderable addendum at the end of the data sheet.



Simplified Application

ADVANCE INFORMATION

Table of Contents

4 Revision History

NOTE: Page numbers for previous revisions may differ from page numbers in the current version.

DATE	REVISION	NOTES
July 2021	*	Initial release.

ADVANCE INFORMATION

5 Device and Documentation Support

5.1 Device Support

5.1.1 Device Nomenclature

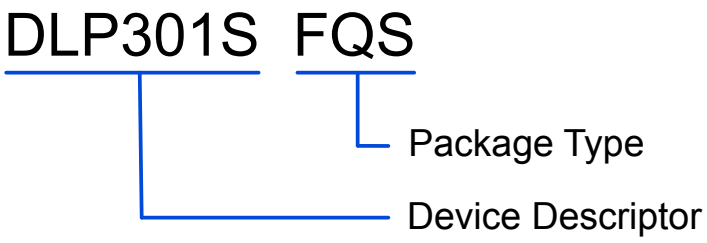


Figure 5-1. Part Number Description

5.1.2 Device Markings

The device marking includes the legible character string GHJJJJK DLP301SFQS. GHJJJJK is the lot trace code. DLP301SFQS is the orderable device number.

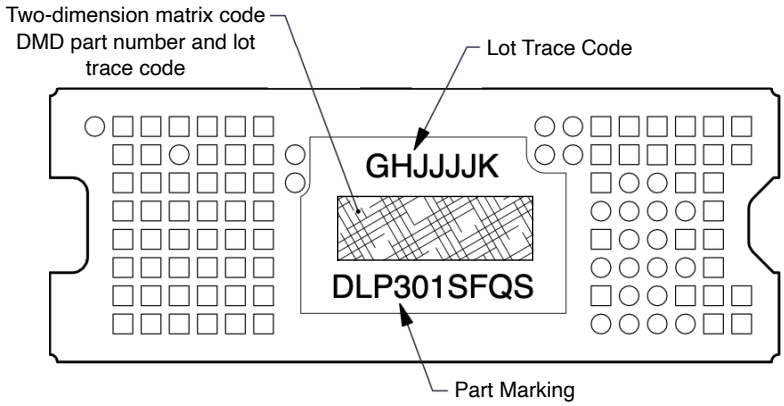


Figure 5-2. DMD Marking

5.2 Receiving Notification of Documentation Updates

To receive notification of documentation updates, navigate to the device product folder on ti.com. Click on *Subscribe to updates* to register and receive a weekly digest of any product information that has changed. For change details, review the revision history included in any revised document.

5.3 Related Links

Table 5-1 lists quick access links. Categories include technical documents, support and community resources, tools and software, and quick access to sample or buy.

Table 5-1. Related Links

PARTS	PRODUCT FOLDER	SAMPLE & BUY	TECHNICAL DOCUMENTS	TOOLS & SOFTWARE	SUPPORT & COMMUNITY
DLP301S	Click here	Click here	Click here	Click here	Click here
DLPC1438	Click here	Click here	Click here	Click here	Click here
DLPA2000	Click here	Click here	Click here	Click here	Click here
DLPA2005	Click here	Click here	Click here	Click here	Click here
DLPA3000	Click here	Click here	Click here	Click here	Click here
DLPA3005	Click here	Click here	Click here	Click here	Click here

ADVANCE INFORMATION

5.4 Support Resources

TI E2E™ support forums are an engineer's go-to source for fast, verified answers and design help — straight from the experts. Search existing answers or ask your own question to get the quick design help you need.

Linked content is provided "AS IS" by the respective contributors. They do not constitute TI specifications and do not necessarily reflect TI's views; see TI's Terms of Use.

5.5 Trademarks

TI E2E™ is a trademark of Texas Instruments.
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5.6 Electrostatic Discharge Caution

This integrated circuit can be damaged by ESD. Texas Instruments recommends that all integrated circuits be handled with appropriate precautions. Failure to observe proper handling and installation procedures can cause damage.

ESD damage can range from subtle performance degradation to complete device failure. Precision integrated circuits may be more susceptible to damage because very small parametric changes could cause the device not to meet its published specifications.

5.7 Glossary

TI Glossary	This glossary lists and explains terms, acronyms, and definitions.

6 Mechanical, Packaging, and Orderable Information

The following pages include mechanical, packaging, and orderable information. This information is the most current data available for the designated devices. This data is subject to change without notice and revision of this document. For browser-based versions of this data sheet, refer to the left-hand navigation.

ADVANCE INFORMATION

PACKAGING INFORMATION

Orderable Device	Status (1)	Package Type	Package Drawing	Pins	Package Qty	Eco Plan (2)	Lead finish/ Ball material (6)	MSL Peak Temp (3)	Op Temp (°C)	Device Marking (4/5)	Samples
XDLP301SFQS	ACTIVE	CLGA	FQS	99	1	TBD	Call TI	Call TI	0 to 40		Samples

(1) The marketing status values are defined as follows:
ACTIVE: Product device recommended for new designs.
LIFEBUY: TI has announced that the device will be discontinued, and a lifetime-buy period is in effect.
NRND: Not recommended for new designs. Device is in production to support existing customers, but TI does not recommend using this part in a new design.
PREVIEW: Device has been announced but is not in production. Samples may or may not be available.
OBSOLETE: TI has discontinued the production of the device.

(2) **RoHS:** TI defines "RoHS" to mean semiconductor products that are compliant with the current EU RoHS requirements for all 10 RoHS substances, including the requirement that RoHS substance do not exceed 0.1% by weight in homogeneous materials. Where designed to be soldered at high temperatures, "RoHS" products are suitable for use in specified lead-free processes. TI may reference these types of products as "Pb-Free".
RoHS Exempt: TI defines "RoHS Exempt" to mean products that contain lead but are compliant with EU RoHS pursuant to a specific EU RoHS exemption.
Green: TI defines "Green" to mean the content of Chlorine (Cl) and Bromine (Br) based flame retardants meet JS709B low halogen requirements of <=1000ppm threshold. Antimony trioxide based flame retardants must also meet the <=1000ppm threshold requirement.

(3) MSL, Peak Temp. - The Moisture Sensitivity Level rating according to the JEDEC industry standard classifications, and peak solder temperature.

(4) There may be additional marking, which relates to the logo, the lot trace code information, or the environmental category on the device.

(5) Multiple Device Markings will be inside parentheses. Only one Device Marking contained in parentheses and separated by a "~" will appear on a device. If a line is indented then it is a continuation of the previous line and the two combined represent the entire Device Marking for that device.

(6) Lead finish/Ball material - Orderable Devices may have multiple material finish options. Finish options are separated by a vertical ruled line. Lead finish/Ball material values may wrap to two lines if the finish value exceeds the maximum column width.

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