DLP471TE .47 4K UHD DMD

1 Features

- 0.47-Inch diagonal micromirror array
  - 4K UHD (3840 × 2160) display resolution
  - 5.4-µm micromirror pitch
  - ±17° micromirror tilt (relative to flat surface)
  - Bottom illumination
- HSSI input data bus
- Supports 4K UHD at 60 Hz and full HD at 240 Hz
- Laser-phosphor, LED, RGB laser and lamp operation supported by DLPC7541 display controller, DLPA100 power management and motor driver IC

2 Applications

- Mobile smart TV
- Enterprise projector

3 Description

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The DLP471TE digital micromirror device (DMD) is a digitally controlled micro-electromechanical system (MEMS) spatial light modulator (SLM) that enables bright 4K UHD display systems. The DLP® 0.47” 4K UHD chipset is composed of the DMD, DLPC7541 display controller, and DLPA100 Power and motor driver. The compact physical size of the chipset provides a complete system solution that enables small form factor 4K UHD displays.

The DMD ecosystem includes established resources to help the user accelerate the design cycle, which include production ready optical modules, optical module manufacturers, and design houses.

Visit the Getting Started with TI DLP display technology page to learn more about how to start designing with the DMD.

Device Information[1]

PART NUMBER	PACKAGE	BODY SIZE (NOM)
DLP471TE	FYN (149)	32.2 mm × 22.3 mm

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

Simplified Application

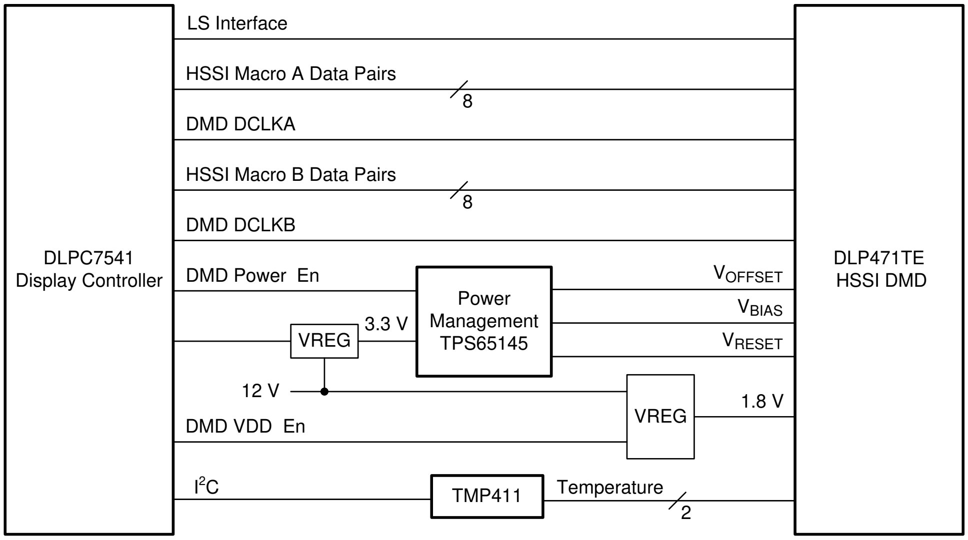

Table of Contents

4 Revision History

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

DATE	REVISION	NOTES
December 2019	*	Initial release.

5 Device and Documentation Support

5.1 Device Support

5.1.1 Device Nomenclature

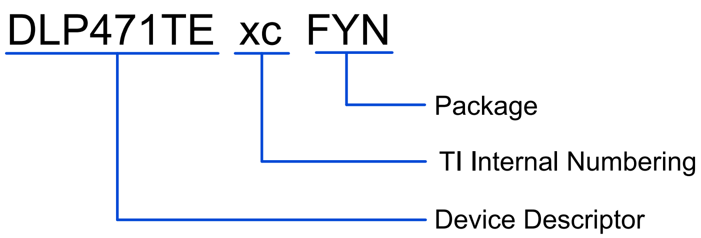

Figure 1. Part Number Description

5.1.2 Device Markings

The device marking includes both human-readable information and a 2-dimensional matrix code. The human-readable information is described in Figure 2. The 2-dimensional matrix code is an alpha-numeric string that contains the DMD part number, Part 1 and Part 2 of the serial number.

Example:

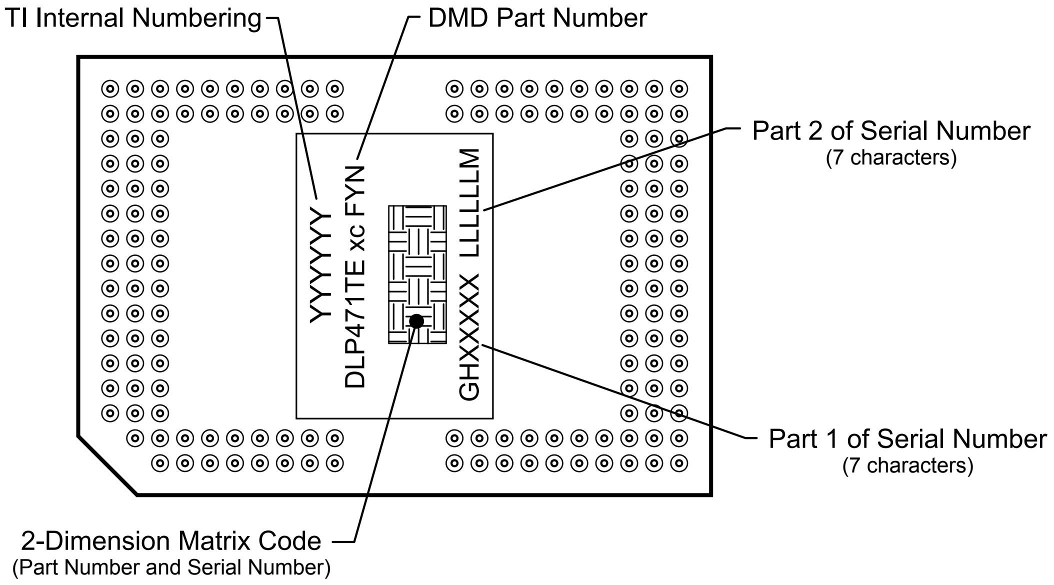

Figure 2. DMD Marking Locations

5.2 Documentation Support

5.2.1 Related Documentation

The following documents contain additional information related to the chipset components used with the DMD.

- DLPC7541 Display Controller Data Sheet
- TPS65145 Data Sheet
- DLPA100 Power and Motor Driver Data Sheet

5.3 Community 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.

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5.4 Trademarks

E2E is a trademark of Texas Instruments.
DLP is a registered trademark of Texas Instruments.

5.5 Electrostatic Discharge Caution

These devices have limited built-in ESD protection. The leads should be shorted together or the device placed in conductive foam during storage or handling to prevent electrostatic damage to the MOS gates.

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.

PACKAGING INFORMATION

Orderable Device	Status (1)	Package Type	Package Drawing	Pins	Package Qty	Eco Plan (2)	Lead/Ball Finish (6)	MSL Peak Temp (3)	Op Temp (°C)	Device Marking (4/5)	Samples
DLP471TEA0FYN	PREVIEW	CPGA	FYN	149	33	TBD	Call TI	Call TI	0 to 70		
XDLP471TEA0FYN	ACTIVE	CPGA	FYN	149		TBD	Call TI	Call TI	0 to 70		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/Ball Finish - Orderable Devices may have multiple material finish options. Finish options are separated by a vertical ruled line. Lead/Ball Finish values may wrap to two lines if the finish value exceeds the maximum column width.

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