DLP3030-Q1 0.3 WVGA S450 DMD

1 Features

- Automotive Qualified
- • 0.3-in (7.62-mm) Diagonal Micromirror Array
  - 7.6-µm Micromirror Pitch
  - +/–12° Micromirror Tilt Angle (Relative to Flat State)
  - Side Illumination for Optimized Efficiency
- WVGA (854 × 480) Resolution
- Polarization Independent Spatial Light Modulator
  - Compatible With LED or Laser Light Sources
  - Image Viewable With Polarized Glasses
- Low-Power Consumption: 105-mW (Typical)
- Operating Temperature Range: –40°C to 105°C
- Hermetic Package With 2.5°C/W Thermal Efficiency
- JTAG Boundary Scan to Allow In-System Validation
- Compatible With the DLPC120-Q1 Automotive DMD Controller

2 Applications

- Wide Field of View and Augmented Reality Head-Up Display (HUD)
- High Resolution Headlight
- Interior Projection Display and Lighting

3 Description

The DLP3030-Q1 Automotive DMD is primarily targeted for automotive head-up display (HUD) applications with very large field of view or augmented reality capability requiring long focal distances. This chipset can be coupled with LEDs or lasers to create deep saturated colors with over 125% NTSC color gamut with support for 24-bit RGB video input. In addition, the chipset enables high brightness (15,000-cd/m^2 typical) HUD systems with wide dynamic range, and fast switching speeds that do not vary with temperature. As used in the TI reference design, very high dynamic range over 5000:1 can be achieved to meet the operating range of an automotive HUD system for bright daylight and dark night time driving conditions.

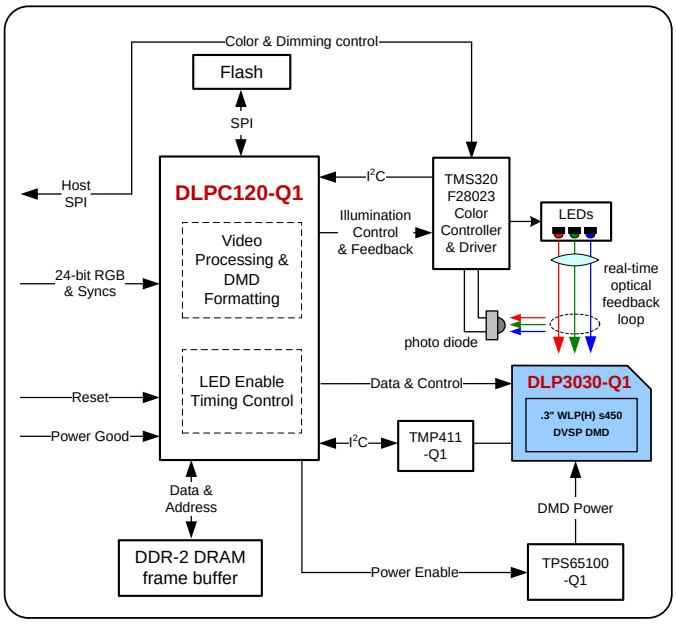
Device Information(1)

PART NUMBER	PACKAGE	BODY SIZE (NOM)
DLP3030-Q1	CPGA (149)	22.30 mm × 32.20 mm

(1) For all available packages, see the orderable addendum at the end of the data sheet. CPGA is an abbreviation for Ceramic Pin Grid Array.

ADVANCE INFORMATION

DLP® DLP3030-Q1 Block System Diagram



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4 Revision History

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

DATE	REVISION	NOTES
November 2017	*	Initial release.

ADVANCE INFORMATION

5 Device and Documentation Support

5.1 Device Support

5.1.1 Device Nomenclature

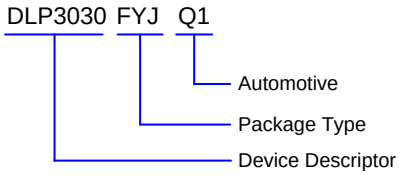

Figure 1. Part Number Description

5.1.2 Device Markings

The device marking is shown below. The marking will include both human-readable information and a 2-dimensional matrix code.

The human-readable information is described in below. The 2-dimensional matrix code is an alpha-numeric character string that contains the DMD part number, part 1 of serial number, and part 2 of serial number.

The first character of the DMD serial number (part 1) is the manufacturing year. The second character of the DMD serial number (part 1) is the manufacturing month. The last character of the DMD serial number (part 2) is the bias voltage bin letter.

The preproduction part number is X6860-3230BA1 (C sample).

Example: *DLP3030FYJ GHXXXXX LLLLLLM

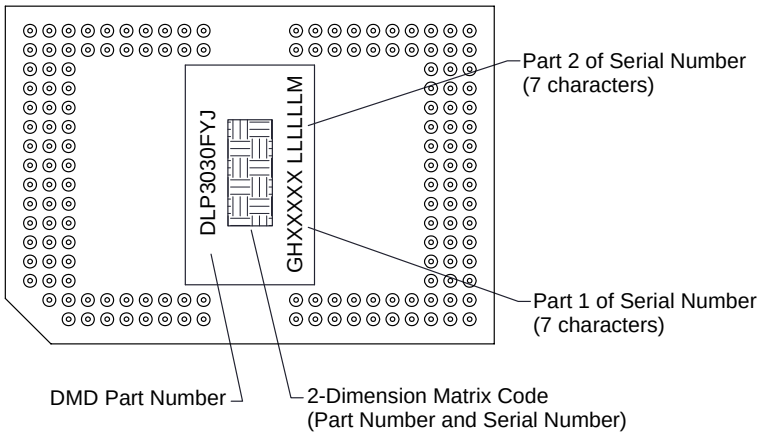

Figure 2. DMD Marking

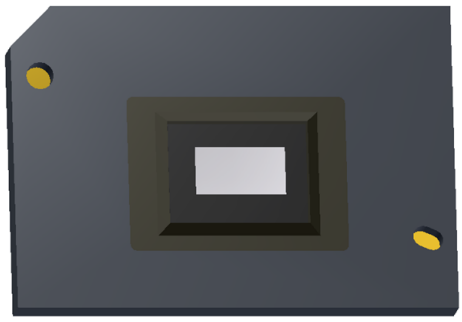

Figure 3. DLP3030-Q1 DMD

ADVANCE INFORMATION

5.2 Documentation Support

5.2.1 Related Documentation

For related documentation see the following:

- DLPC120-Q1 product folder for the *DLPC120-Q1 Data Sheet*
- *TMS320F2802x Piccolo™ Microcontrollers*
- *TMP411-Q1 ±1°C Remote and Local Temperature Sensor With N-Factor and Series Resistance Correction*

5.3 Receiving Notification of Documentation Updates

To receive notification of documentation updates, navigate to the device product folder on ti.com. In the upper right corner, click on *Alert me* 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.

5.4 Community Resources

The following links connect to TI community resources. Linked contents are 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.

TI E2E™ Online Community ***TI's Engineer-to-Engineer (E2E) Community.*** Created to foster collaboration among engineers. At e2e.ti.com, you can ask questions, share knowledge, explore ideas and help solve problems with fellow engineers.

Design Support ***TI's Design Support*** Quickly find helpful E2E forums along with design support tools and contact information for technical support.

5.5 Trademarks

E2E is a trademark of Texas Instruments.
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5.6 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.

5.7 Glossary

SLYZ022 — *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.

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
DLP3030AFYJQ1	PREVIEW	CPGA	FYJ	149	90	RoHS & Green			-40 to 105		
X6860-3230BA1	PREVIEW	CPGA	FYJ	149	1	RoHS (In Work) & Green (In Work)			-40 to 105		

(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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