

DLP3940S-Q1: Bringing Full-HD Resolution to Automotive Projection Displays



Introduction

The automotive industry is evolving quickly, with the increasing adoption of advanced display technologies that enhance driving experience. The DLP3940S-Q1 is a 0.39-inch diagonal optical array with a native resolution of 1920x1080 (Full-HD). This new device is specifically designed for high-resolution augmented reality heads-up displays (AR-HUD) and windshield projection displays. This device has additional variants that are optimized for dynamic ground projection (DGP), rear-seat entertainment (RSE), and other interior display applications.

The DLP3940S-Q1 boasts a range of features that make the device a great choice for automotive applications. The DLP3940S-Q1 small form factor and high resolution enables the creation of compact, high-performance display systems. The device is fully automotive qualified, capable of operating from -40°C to 105°C without derating, maintaining reliable performance in the harsh environments found in vehicles. Additionally, the DLP3940S-Q1 is functional safety quality managed (QM), allowing for ASIL level implementations on the system level, which is critical for safety-relevant applications.



Key Innovations and Features

One of the key innovations in the DLP3940S-Q1 is the use of a new 4.5 micrometer mirror pixel size, which enables higher resolutions in a smaller footprint. The pixel technology is also optimized for contrast and brightness, with an increased tilt angle and filled-mirror via, resulting in improved image quality. Furthermore, the device supports 4K resolutions using XPR, or pixel-shifting technology, which allows for even higher resolution and more detailed images.

Benefits and Applications

The benefits of higher resolution devices like the DLP3940S-Q1 are numerous. In AR-HUD applications, higher resolution enables the display of more detailed and realistic images, enhancing the driving experience and improving safety. In DGP applications, higher resolution allows for more precise and detailed projections, enabling clear vehicle-to-pedestrian communication, for both safety and personalization purposes. In RSE applications, higher resolution provides a more immersive and engaging entertainment experience for passengers.

As display technologies continue to evolve, we can expect to see even more innovative applications of high-resolution displays in vehicles. With the DLP3940S-Q1, Texas Instruments is at the forefront of this trend, providing a high-performance and reliable solution for automotive display systems.

For more information on the DLP3940S-Q1 and other TI DLP products, click [here](#).



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