

### The industry's first single-chip to feature focus, zoom and iris control functions

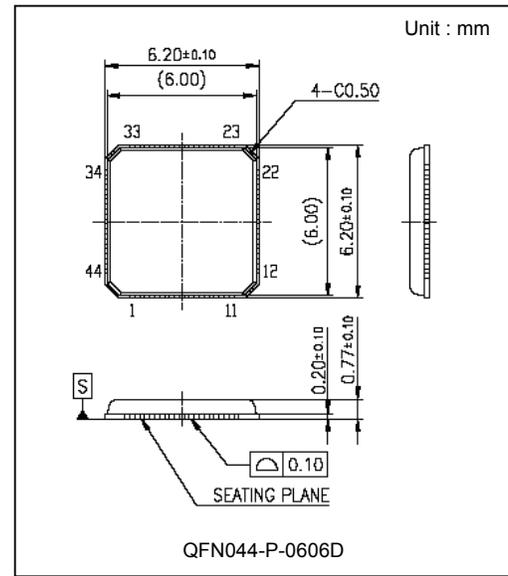
# AN41908A Lens Driver LSI for security-camera

#### ■ Overview

AN41908A is a lens driver IC featuring the functions of zoom, focus and iris control by a single-chip. Adopting this product allows low power consumption, miniaturization and low-cost operation with less parts number to control zoom, focus and iris function of network and security cameras.

#### ■ Feature

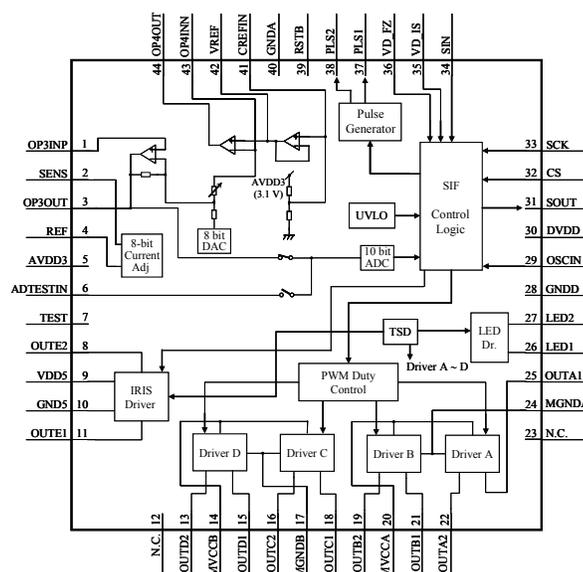
- Single-chip LSI reduces mounting area by dramatically cutting external components. Various control circuit characteristics can be adjusted by serial setting, and it dramatically reduces the man-hour of camera designing (compared to previous mounting area: 80 to 90 % cutdown)
- Realizing super low noise by adopting a microstep drive with correction circuit for zoom and focus (Noise -10dB)
- Iris drive realizes low power consumption by adopting the PWM (compared to existing models: reduced by 50%)



#### ■ Applications

Lens drivers for network and security cameras

#### ■ Block Diagram



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AL00001AE

Semiconductor Company, Panasonic Corporation

1 Kotari-yakemachi, Nagaokakyo, Kyoto 617-8520, Japan

Tel. +81-75-951-8151

http://panasonic.net/sc

## ■ Details of features

### 1. Single-chip LSI reduces mounting area by cutting external components dramatically. Various control circuit characteristics can be adjusted by serial setting, and it dramatically reduces the man-hour of camera designing.

This single-chip LSI features zoom, focus and iris functions, and dramatically reduces the package size and external parts, leading to the reduction of mounting area by 80%. Thus, this LSI achieves mounting board miniaturization and miniaturization of camera itself.

Especially for iris drive circuit, it used to require time and effort to adjust circuit characteristics. Because of the analog circuit with many external parts, the camera circuit designer had to exchange many resistance and capacitance to achieve desired iris operation. This LSI digitized the iris drive circuit to let the circuit characteristics adjustment to be done by serial settings, which allows efficient designing by software.

### 2. Realizing super low noise by adopting a microstep drive with correction circuit for zoom and focus

There are assembling variations of motors. Driving those variations may cause an unevenness of rotation speed and makes noise. This LSI cancels those variations by two types of built-in correction circuits to even a rotation speed and achieved the super-low noise drive (-10dB).

- Amplitude correction circuit: correct an imbalance of back EMF occurs at each coil by the current adjustment of each phase.
- Phase correction circuit: correct a phase difference between coils with the adjustment resolution of 0.7 degree

### 3. Iris drive realizes low power consumption by adopting the PWM

Existing linear drive system features low noise but requires a large power consumption. It is now possible to adopt PWM drive to iris drive which used to be linear drive, by the arrangement of circuit which removes the PWM noise.

As a result of this, we have achieved to reduce the low power consumption drive by 50% of existing models.

This LSI places an LPF of variable cutoff frequency and noise reduction circuit around PID circuits to dramatically reduce the influences of noise against various iris mechanical characteristics

## ■ Main specification

Function	Lens driver LSI for security cameras Single-chip control for zoom, focus and iris	
Motor drive voltage	5.5 V(max.)	
Zoom and focus control	Division number	256
	On-resistance	2.5 Ω(max.)
	Current capability	250 mA
	Drive system	PWM drive
Iris control	Control circuit	Built-in digital PID circuit / Built-in hall element bias circuit
	Drive system	PWM drive
Package	QFN (6.0 mm × 6.0 mm × 0.77 mm) 44pin	