Ordering number : ENN*6282

LC99350

2/5-Inch Frame Transfer CCD 1.1M Pixel Color Image Sensor

Preliminary

Overview

The LC99350 is a low-cost frame transfer CCD (charge-coupled device) solid-state imaging element that features 1.1M pixels in a 2/5-inch optical size. It supports both progressive scan readout of all 1296 × 846 pixels as well as a real-time monitor mode with data compressed by 1/3.

Applications

PC cameras, TV telephones, image input units, and digital still cameras

Features

- Progressive scan readout
- Real-time compressed-data monitor mode
- Variable speed electronic shutter
- Horizontal dual readout adopted (Since the even and odd pixels on a single horizontal line are read out in two operations, a line memory is required for signal processing.)

Image Sensor Element Structure

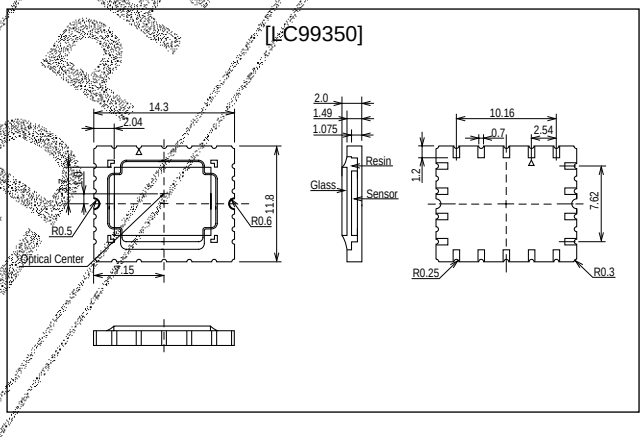
- Effective pixels [Total pixels]: 1296 × 864 [1392 × 888] (H×V)
- Number of optical blacks:
  Horizontal: 84 at the front, 12 at the rear
  Vertical direction: 12 at the top, 12 at the bottom
- Dummy bits: Horizontal: 6 pixels
- Unit cell size: 4.5 µm × 4.5 µm (H×V)
- Primary color mosaic filters (RGB)
- Parallel gate CCD sensor
- Consists of a 1392 × 888-pixel imaging block and a 1392 × 296-pixel storage block
- Three-phase drive used for the imaging and storage blocks, and 2-phase drive for the horizontal transfer block
- Built-in high-sensitivity output amplifier

Package Dimensions

unit: mm

3250

[LC99350]



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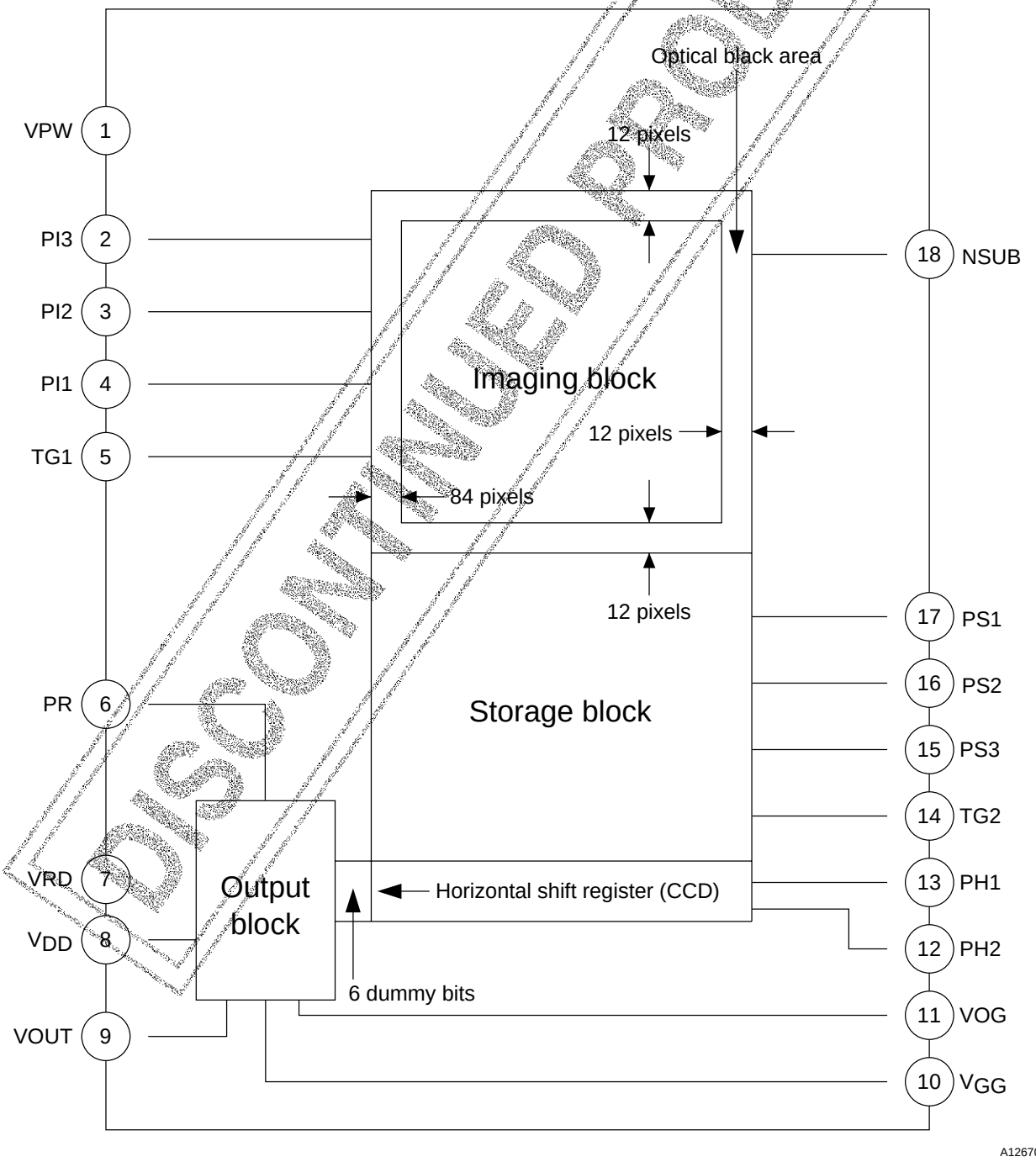
Specifications

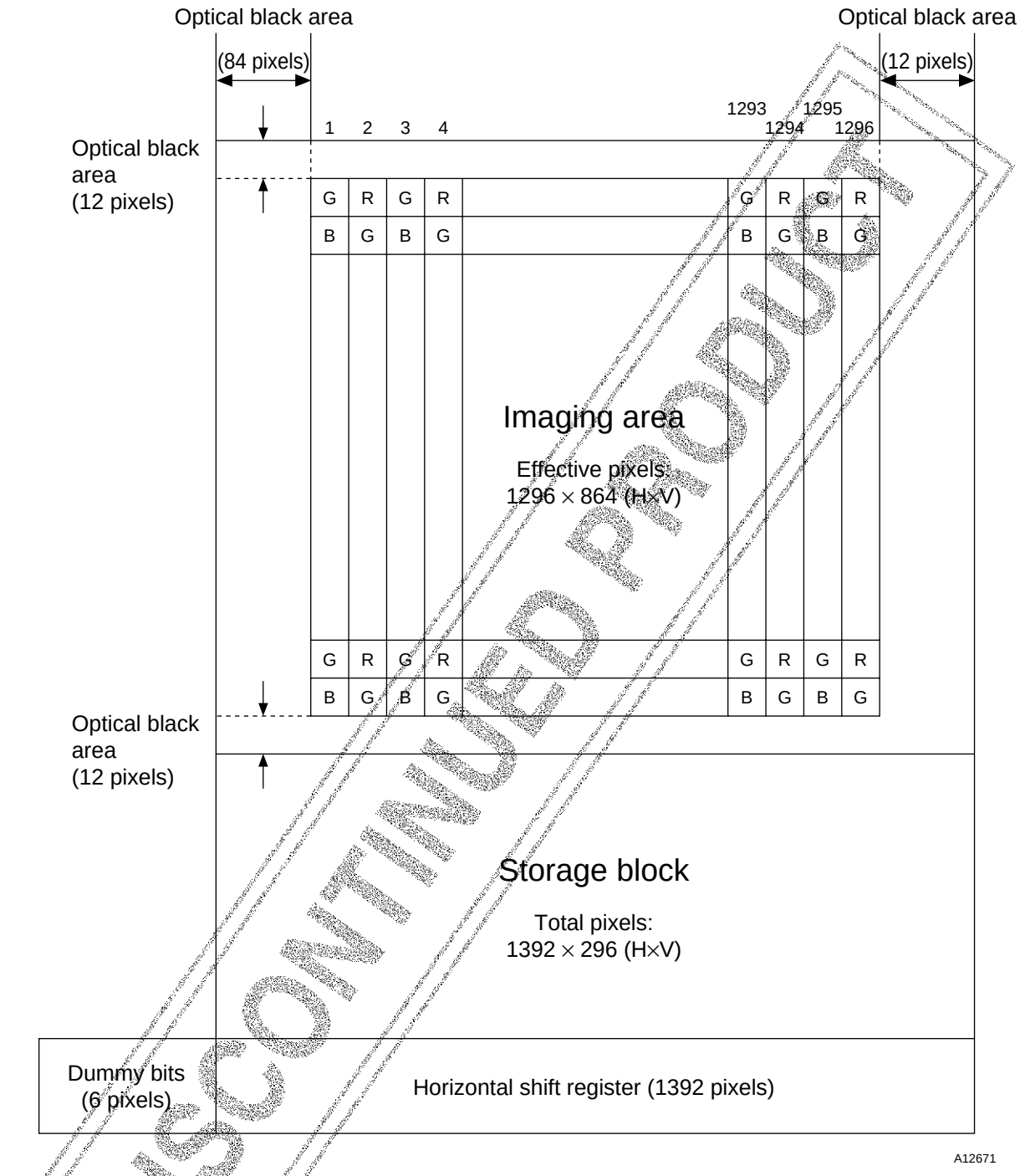
Absolute Maximum Ratings at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Supply voltage	V_{DD}, V_{RD}	V_{PW} = 0 V	–0.3 to +15	V
Load gate voltage	V_{GG}	V_{PW} = 0 V	–0.3 to +3	V
N substrate p-well voltage		NSUB–PW: V_{PW} = 0 V	–0.3 to +35	V
N substrate imaging and storage block voltage		NSUB–PI1 to PI3, PS1 to PS3: V_{PW} = 0 V	–0.3 to +35	V
Horizontal block clock and reset gate voltage		Horizontal clock pin and PR: V_{PW} = 0	–0.3 to +15	V
Clock voltage		Clock pins other that the above: V_{PW} = 0	–15 to +15	V
Pin voltage		Pins other than the above	–0.3 to +10	V
Operating temperature	Topr		–10 to +60	°C
Storage temperature	Tstg		–30 to +80	°C

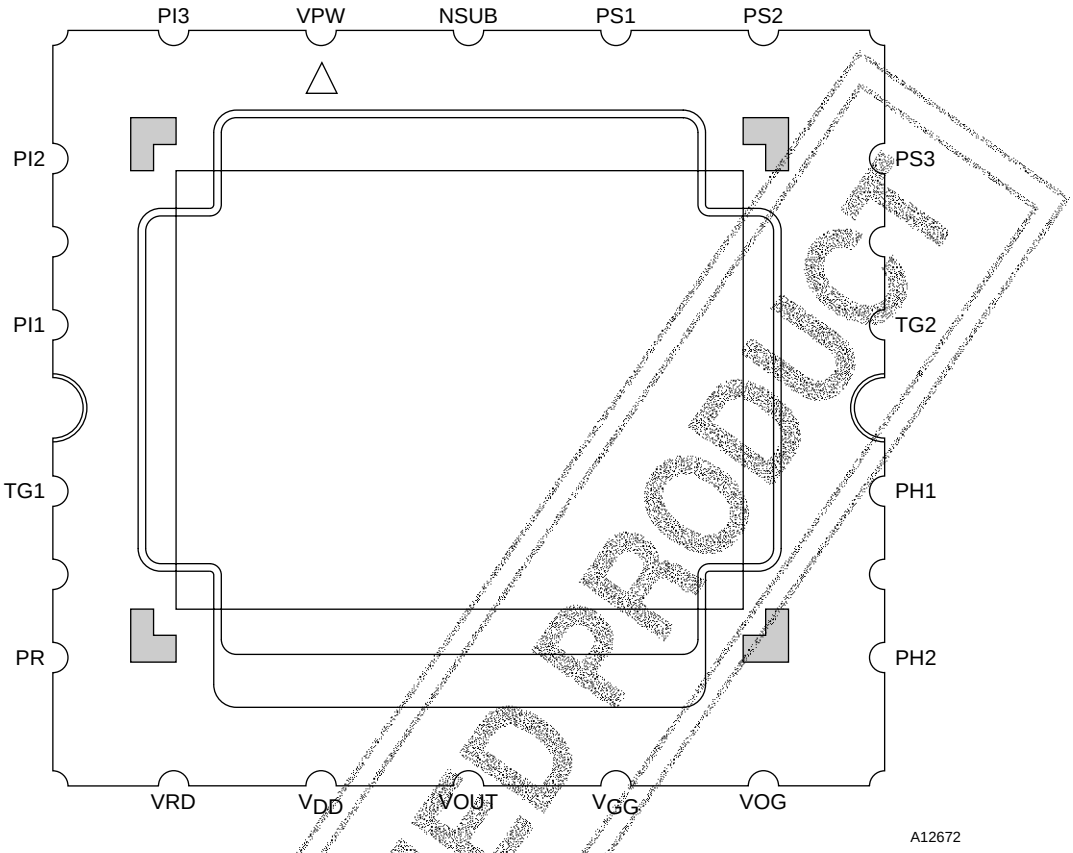
Block diagram



Pixel Arrangement



Pin Arrangement



Pin Functions

Pin No.	Symbol	Function	Pin No.	Symbol	Function
1	VPW	P-well	18	NSUB	N substrate
2	PI3	Imaging block clock	17	PS1	Storage block clock
3	PI2		16	PS2	
4	PI1		15	PS3	
5	TG1	Transfer gate	14	TG2	Transfer gate
6	PR	Reset gate	13	PH1	Horizontal block clock
7	VRD	Reset drain	12	PH2	
8	V_{DD}	Supply voltage	11	V_{OG}	CCD output gate
9	V_{OUT}	CCD output	10	V_{GG}	Load gate

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