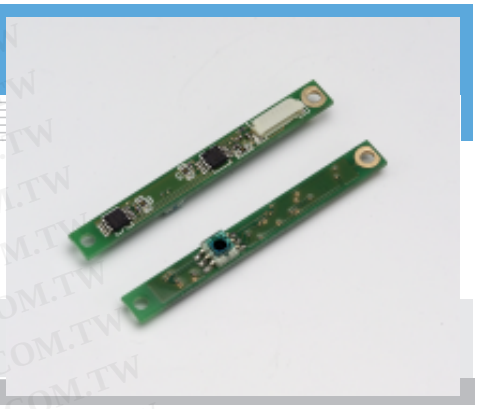
NEW

MODULE

Color sensor module
C9303-03

RGB-LED backlight monitor for TFT-LCD (Liquid Crystal Display)



Recently, RGB-LEDs have been in the focus of attention as the backlight for TFT-LCD (liquid crystal display) since LEDs are mercury-free unlike conventional cold cathode fluorescent lamps. Hamamatsu C9303-03 color sensor module has been specifically developed for the power monitor of RGB-LEDs. We welcome requests for custom shapes and RGB gain. Feel free to contact our sales office.

Features

- Built-in RGB color sensor
  Sensitivity matches wavelengths of RGB-LED backlight for TFT-LCD.
- 3 ch current-to-voltage amplifiers
  Simultaneous output of 3 ch RGB photocurrent
- Configuration and size suitable for side mounting to TFT-LCD
- Suitable for lead-free solder
- Same gain and pin assignment to the conventional type C9303
- Low current consumption: 1/3 than the conventional type

Applications

- RGB-LED backlight monitor for TFT-LCD

■ Absolute maximum ratings (Ta=25 °C)

Parameter	Symbol	Value	Unit
Supply voltage	Vcc	+5.5	V
Reference voltage	VREF	Vcc - 0.4	V
Operating temperature	Topr	-20 to +85	°C
Storage temperature	Tstg	-20 to +85	°C

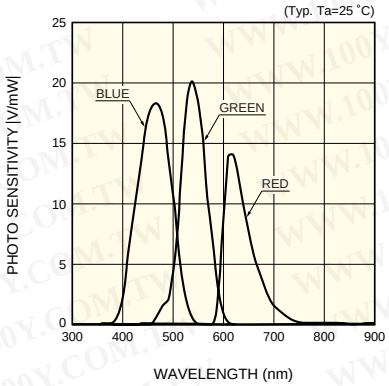
■ Electrical and optical characteristics (Ta=25 °C, Vcc=5.0 V, VREF=3.000 V)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Photo sensitivity	SR	λp=620 nm	-10	-14	-	V/mW
	SG	λp=540 nm	-16	-20	-	
	SB	λp=460 nm	-13	-18	-	
Trans-impedance	ZtR	Red	-	91	-	kΩ
	ZtG	Green	-	91	-	
	ZtB	Blue	-	100	-	
Output offset voltage	Vos	Dark state	VREF-5	-	VREF+5	mV
Output voltage range	Vout		0.4	-	Vos	V
Output signal polarity *	Vout		Negative			
Output noise voltage swing	Vn	Dark state, within frequency bandwidth	-	5	-	mVp-p
Rise time	tr	10 to 90 %	-	22	-	μs
Cut-off frequency	fc	-3 dB	-	16	-	kHz
Current consumption	Icc	Dark state	-	0.4	1.5	mA
Operating supply voltage range	Vcc		+2.7	+5	+5.5	V

* See next page graph ■ Output voltage vs. input light

SOLID STATE DIVISION

■ Spectral response



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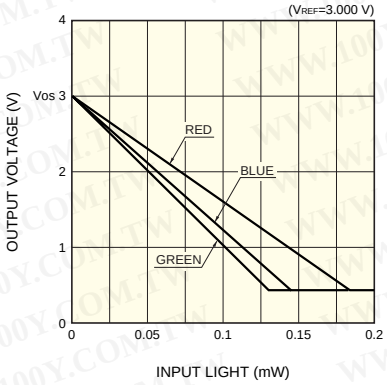
■ Output voltage vs. input light



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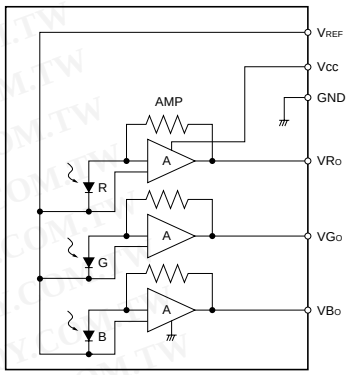
■ Block diagram



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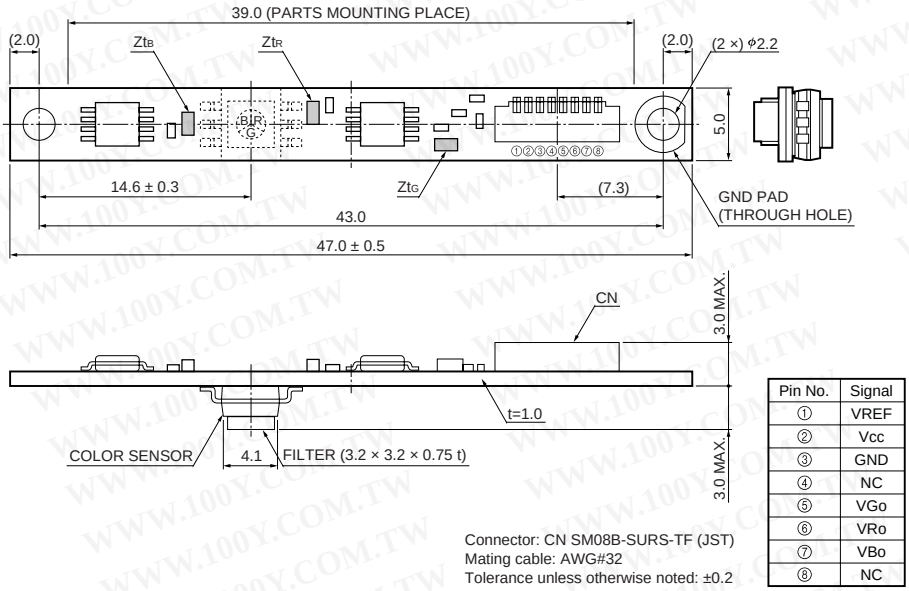
■ Dimensional outline (unit: mm)



Pin No.	Signal
①	VREF
②	Vcc
③	GND
④	NC
⑤	VGo
⑥	VRo
⑦	VBo
⑧	NC

Connector: CN SM08B-SURS-TF (JST)
Mating cable: AWG#32
Tolerance unless otherwise noted: ±0.2

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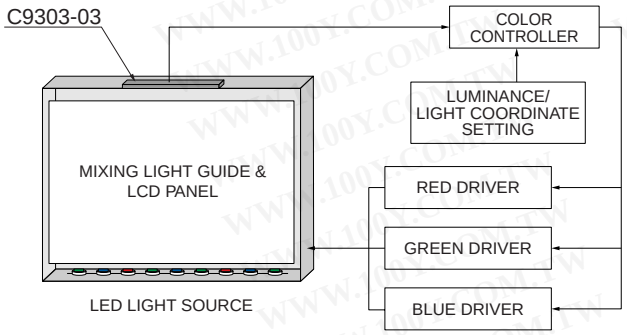
■ Application example

Optical feedback of backlight for TFT-LCD



LED: Made by Lumileds (LUXEON), http://www.lumileds.com/

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■ Accessory

Dedicated cable with connector

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Cat. No. KACC1112E03
Jul. 2005 DN