



Raffar
Technology Corp.

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RT5938

16 -channel Common-Cathode Dual-latch Constant Current LED Driver IC

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Version: 0.3

Description

RT5938 is a common-cathode constant current LED driver with dual-latch technology to raise the visual refresh of time-multiplexing LED display. The 16 constant current outputs of RT5938 are kept from influence of loading effect. The output current can be optimized by setting an external resistor and adjusted by 6-bit current gain.

With error detection, RT5938 can detect individual LED for both open- and short-circuit errors.

In addition, RT5938 also integrates circuit of eliminating ghost image and relieving LED cross bright line caused by LED defected.

Applications

Indoor and outdoor full color LED display

Package Information

No.	Part No.	Package
1	RT5938SS	SSOP24-150 mil-0.635 mm

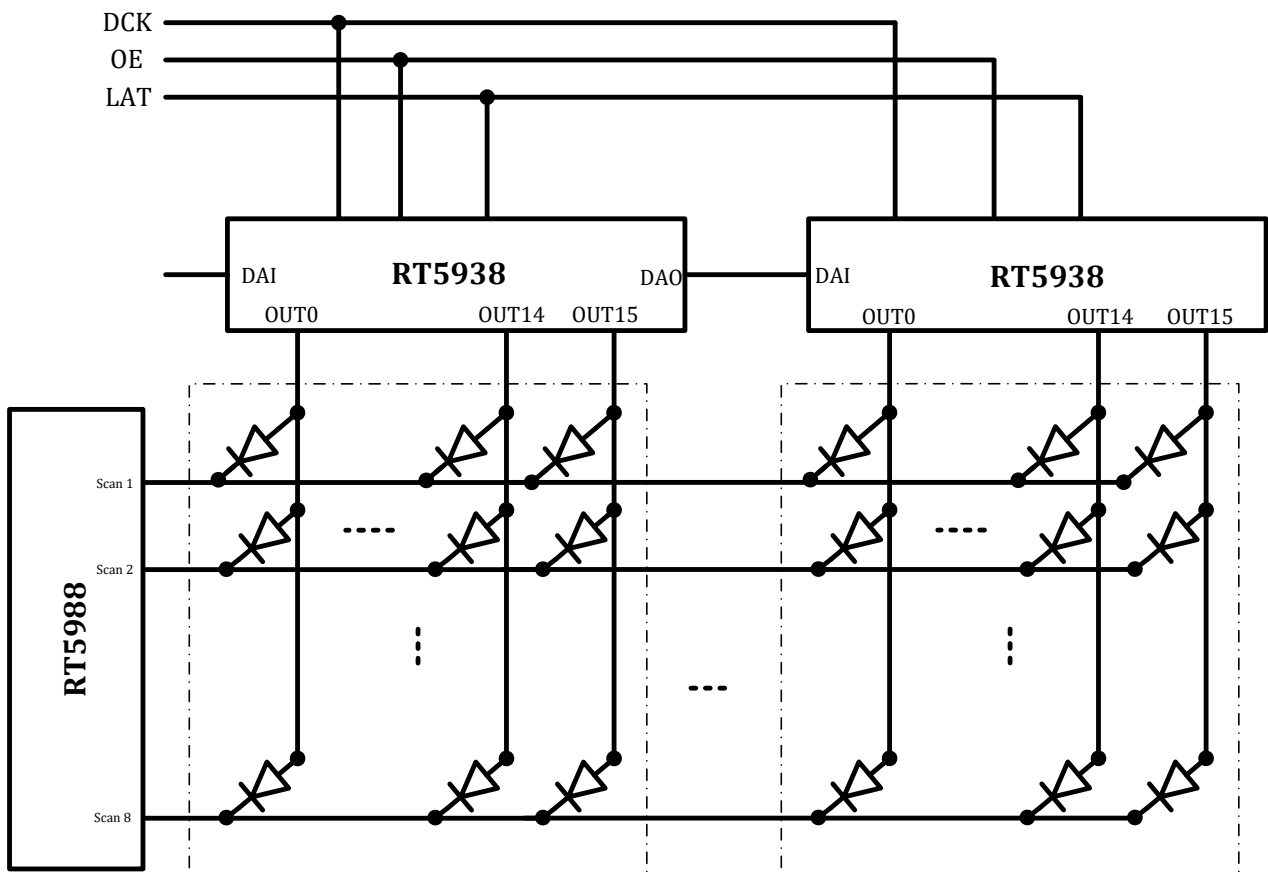
Features

- Supply voltage : 2.8V~ 3.8V
- 16 constant current outputs
- Constant current output range :
4~30mA @ 3.8V VDD
4~20mA @ 2.8V VDD
- 64 steps current gain adjustment
- Dual-latch technology to increase the visual refresh rate
- Anti-ghost circuit
- Eliminating bright line caused by defected LEDs
- LED open/short detections with threshold levels
- Power-saving technology
- Fast response of output current
- Accurate constant output current driving:
-Channel to channel: $\pm 1.0\%$ (Typ.)
-Chip to Chip: $\pm 1.0\%$ (Typ.)

The Design Structure of Common-Cathode LED Display

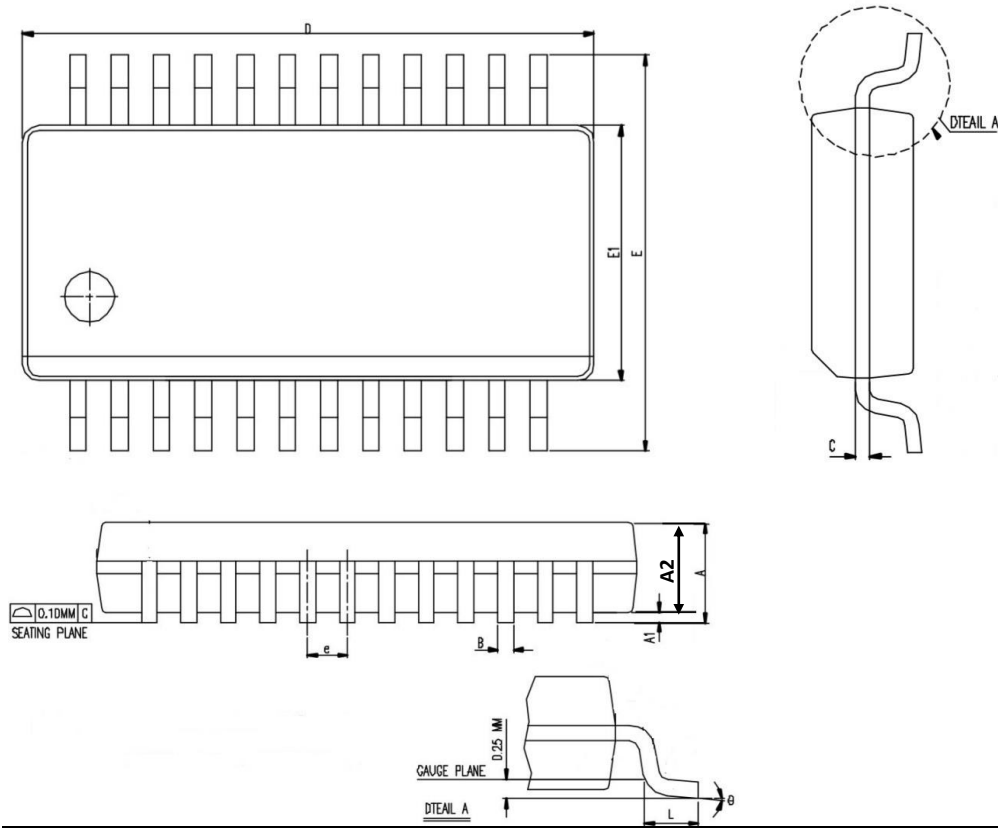
The structure below shows the N-row multiplexing common-cathode LED display application with RT5938. RT5938 is controlled by the command data composing of DCK and LAT as well as DAI and DAO for image data. In the meanwhile, OUT0~OUT15 switch to different scan by RT5988 for displaying the image data.

Note: The REXT resistor of RT5938 must be pulled down to GND



Package Outline Drawing

SSOP24 Dimension (150 mil-0.635 mm)



Symbol	Millimeters (mm)		Inches (in)	
	Min	Max	Min	Max
A	1.35	1.75	0.053	0.069
A1	0.10	0.25	0.004	0.010
A2	---	1.50	---	0.059
B	0.20	0.30	0.008	0.012
C	0.18	0.25	0.007	0.010
D	8.56	8.74	0.337	0.344
E	5.79	6.20	0.228	0.244
E1	3.81	3.99	0.150	0.157
e	0.635 (BSC)		0.025 (BSC)	
L	0.41	1.27	0.016	0.050
theta	0°	8°	0°	8°

Note

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