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# **RT5953**

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**Built-in Swift Register Dual-channel PMOS with Anti-ghosting Control  
Function**

2020/06

Version: 0.9

## Description

RT5953 is an integrated dual-channel PMOS outputs for high refresh rate LED display applications to eliminate the LED ghosting phenomena. By controlling the BK signal timeslot (LED discharge), the RT5953 is not only to prevent LED cascading blink which caused by a LED open and short damage, but also to avoid the over reverse voltage to damage LEDs. The RT5953 gives a very simple control model to let controller determined the turn-on, discharge, and row blank timing. Built-in the 2 bits shift register, RT5953 makes the data transfer by serial connection without decoding components on board, this helps on small pitch LED display PCB layout.

## Features

- Built-in anti-ghosting function for small pitch LED display
- Eliminated the LED cascading blink by LED short
- Eliminated the LED cross blink by LED open (alternative)
- Data serial connection transfer for simplified PCB layout
- Extra low standby supply current:66uA(Typ.)
- Wipe off 138 decoder
- Extra low RDS(ON)  
RDS(ON), Vgs @-5.0V, Ids@-1.5A 90mΩ(Typ.)  
RDS(ON), Vgs @-5.0V, Ids@-2.5A 150mΩ(Typ.)

## Application

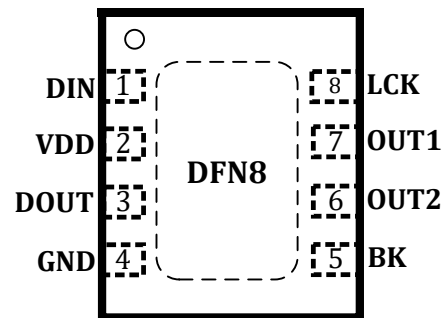
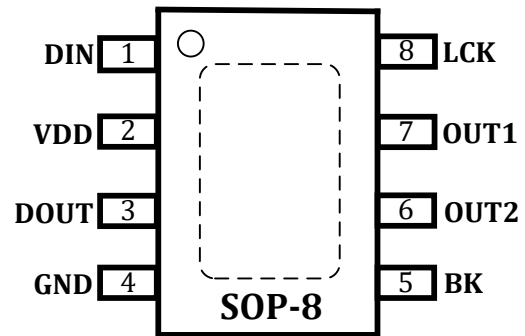
Outdoor and indoor LED full color display

## Order Information

No.	Part No.	Package
1	RT5953SB	SOP8-1.27mm
2	RT5953DB	DFN8-2mm*2mm

\* Please ask for common package information.

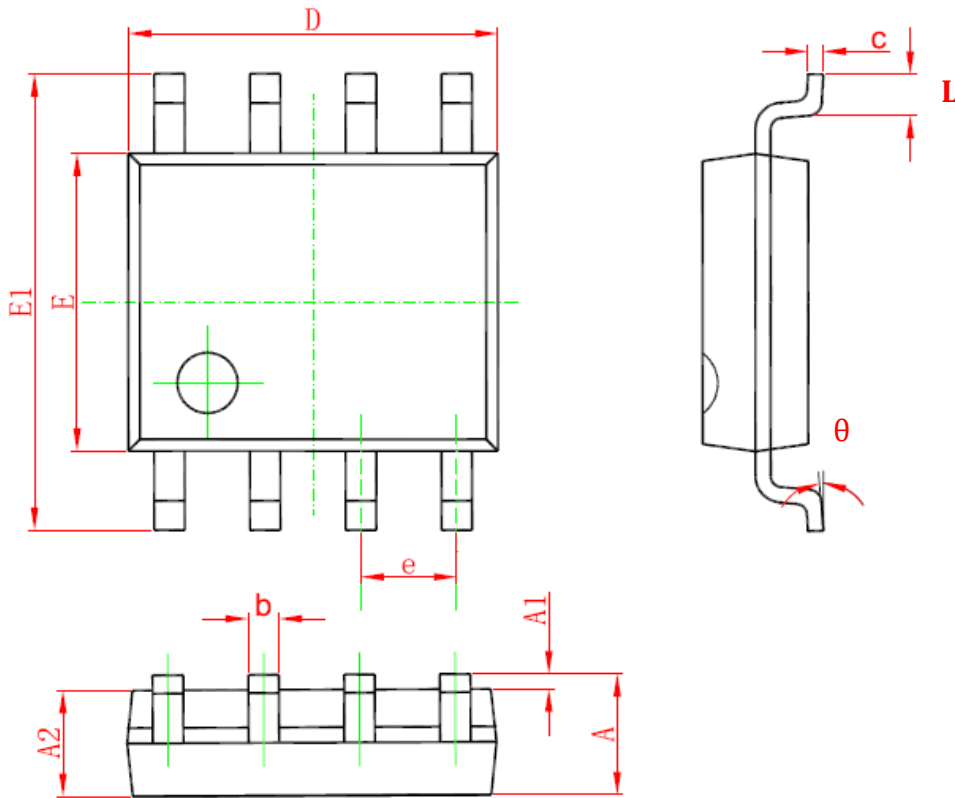
## Pin Assignment



Pin No.	Pin Name	Description
1	DIN	Serial data input
2	VDD	Power supply
3	DOUT	Serial data output
4	GND	Ground
5	BK	Discharge enable control
6	OUT2	Current output 2
7	OUT1	Current output 1
8	LCK	Serial data strobe input
Thermal pad of DFN		Floating or connect to GND

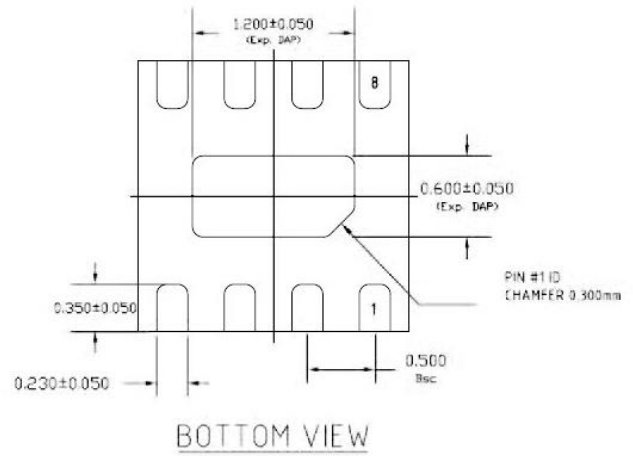
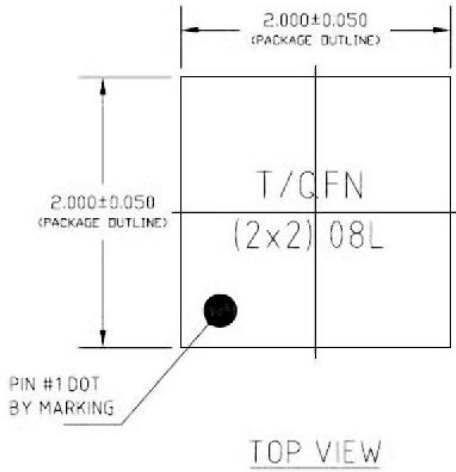
## Package Outline Drawing

SOP8 Dimension ( 236 mil-1.27 mm )

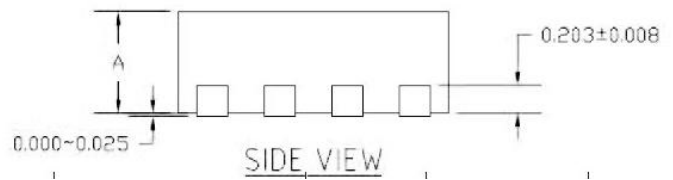


Symbol	Millimeter ( mm )		Inch ( in )	
	Min.	Max.	Min.	Max.
A	1.350	1.750	0.053	0.069
A1	0.100	0.250	0.004	0.010
A2	1.350	1.550	0.053	0.061
b	0.330	0.510	0.013	0.020
c	0.170	0.250	0.006	0.010
D	4.700	5.100	0.185	0.200
E	3.800	4.000	0.150	0.157
E1	5.800	6.200	0.228	0.244
e	1.270 (BSC)		0.500 (BSC)	
L	0.400	1.270	0.016	0.050
θ	0°	8°	0°	8°

**DFN8 Dimension ( 2\*2 mm )**



**NOTE:**  
All dimensions are in mm unless otherwise specified.



Symbol	Millimeters (mm)		
	Min.	Nom.	Max.
A	0.7	0.75	0.8

## Note

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