



7×17(Max.)

Dot Matrix LED Driver

BD26502GUL

●Description

BD26502GUL is “Dot matrix LED Driver”.

It can control 7×17(119 dot) LED Matrix by internal 7-channel PMOS SWs and 17-channel LED drivers.

It can control the luminance and firefly lighting of the LED matrix by the setting of the internal register.

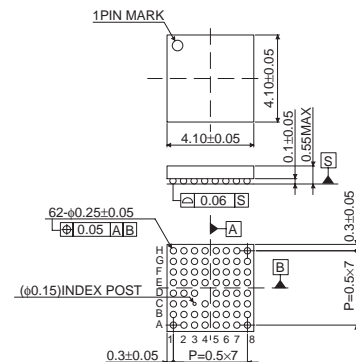
It supports SPI and I²C interface.

VCSP50L4 (4.1mm×4.1mm, 0.55mm height max.), small and thin type chip size package.

●Features

- 1) LED Matrix driver (7×17)
7-channel PMOS SWs and 17-channel current drivers
- 2) Automatic Slope function
- 3) 8-direction automatic scroll function
- 4) Interface SPI and I²C BUS FS mode(max. 400kHz) Compatibility
- 5) Small and thin type chip size package (4.1mm×4.1mm, 0.55mm height max.)

●Package (Unit: mm)



VCSP50L4

●Applications

Mobile phone, Portable device, Home appliance, consumer electronics, OA electronics and etc.
All electronics that has the LED lighting.

●Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Ratings	Unit
Maximum voltage (note2)	VMAX	7	V
Maximum voltage (note1)	VIOMAX	4.5	V
Power Dissipation (note3)	Pd	1550	mW
Operating Temperature Range	Topr	-40 to +85	°C
Storage Temperature Range	Tstg	-55 to +150	°C

note1) VIO, RESETB, CE, SDA, SCL, IFMODE, SYNC, CLKIN, CLKOUT, TEST1, TEST2, TEST3, TEST0, DO terminal

note2) Except the above

note3) Power dissipation deleting is 12.4mW/°C, when it's used in over 25°C.
(50mm×58mm×1.75mm glass-epoxy board has been mounted.)

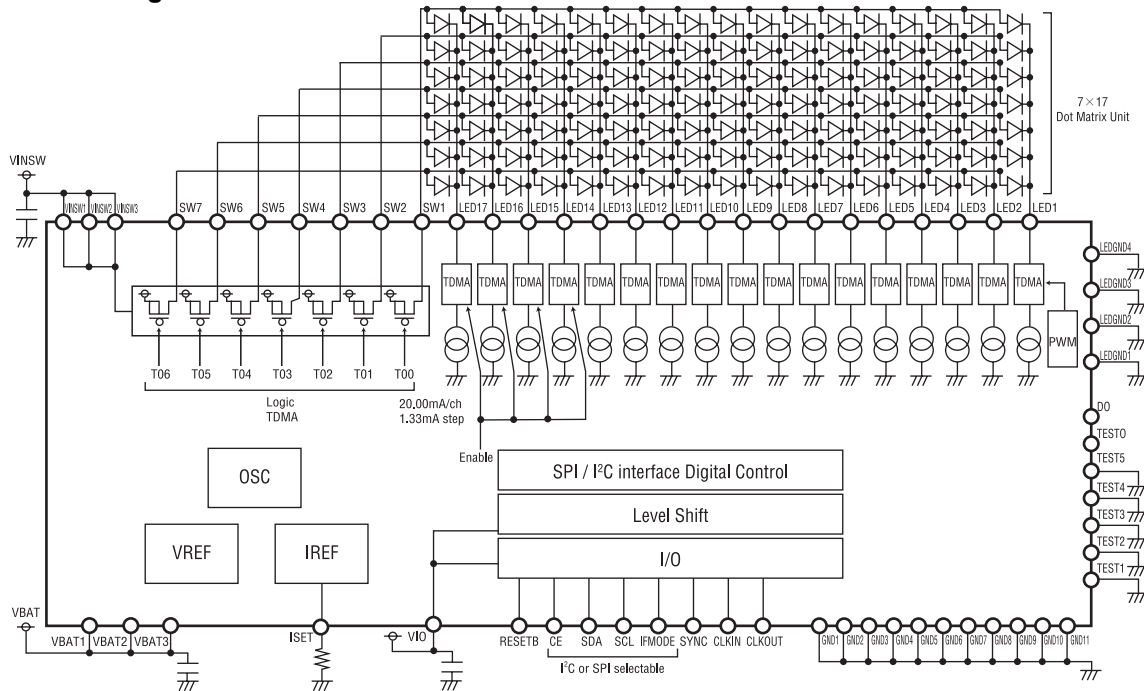
●Operating Conditions (VBAT≥VIO, VINSW≥VBAT, Ta=-40 to +85°C)

Parameter	Symbol	Limits	Unit
VBAT input voltage	VBAT	2.7 to 5.5	V
VINSW input voltage	VINSW	2.7 to 5.5	V
VIO pin voltage	VIO	1.65 to 3.3	V

● **Electrical Characteristics** (Unless otherwise specified, Ta=25°C, VBAT=3.6V, VINSW=3.6V, VIO=1.8V)

Parameter	Symbol	Limit			Unit	Condition
		Min.	Typ.	Max.		
[Circuit Current]						
VBAT Circuit current 1	IBAT1	-	0	3.0	μA	RESETB=0V, VIO=0V
VBAT Circuit current 2	IBAT2	-	0.8	5.0	μA	RESETB=0V, VIO=1.8V
VBAT Circuit current 3	IBAT3	-	2.0	3.5	mA	When LED1-17ch are active with default settings.
[UVLO]						
UVLO Threshold	VUVLO	-	2.1	2.5	V	VBAT falling
UVLO Hysteresis	VHYUVLO	50	-	-	mV	
[LED Driver] (LED1-17)						
Maximum output current	ILEDMax	-	20.00	-	mA	LED1-17ch, ISET=100kΩ
Output current	ILED	-7.0%	10.67	+7.0%	mA	I=10.67mA setting, VLED=1V
LED current Matching	ILEDMT	-	-	5	%	$ILEDMT = \frac{ILEDMax - ILEDMin}{ILEDMax + ILEDMin}$ I=10.67mA setting, VLED=1V
Driver pin voltage range	VLED	0.2	-	VBAT- 1.4	V	
LED OFF Leak current	ILKLED	-	-	1.0	μA	
[PMOS switch]						
Leak current at OFF	I LEAKP	-	-	1.0	μA	
Resistor at ON	RonP	-	1.0	-	Ω	Isw=170mA, VINSW=4.5V
[OSC]						
OSC frequency	fosc	0.96	1.2	1.44	MHz	

● **Block Diagram**



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