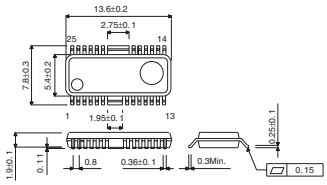
LED driver IC with built-in 16bit shift register

BD7851FP

●Description

The BD7851FP is a constant-current output LED driver that incorporates a shift register and latch circuit, which drives 16 LED lamps. Output value of the constant-current can be set from 1mA to 50mA (Max.) by a single external resistor.
In addition, this IC incorporates a thermal-shut-down circuit which detects the IC temperature rising and turns the constant-current output OFF.

●Dimension (Units : mm)



HSOP25

●Features

1) Drive capability: constant-current output 50mA (Max.)
2) Can set the constant-current output value by one external resistor.
3) 3 wire serial (Data, Clock, Latch) control from micro computer
4) With ENABLE pin
5) Power ON reset function
6) Built-in thermal-shut-down circuit
7) Low power consumption
8) Cascade connection
9) Allows multiple LED displays due to the dynamic operation.
10) Small power package HSOP25

●Applications

All sets having micro computers and LED displays

●Absolute Maximum Ratings (Ta=25˚C)

Parameter	Symbol	Limits	Unit
Power supply voltage	Vcc	0 ~ 7.0	V
Input voltage	V_I	–0.3 ~ Vcc+0.3	V
Output voltage	Vo	0 ~ 10	V
Power dissipation	PD	* 1450	W
Storage temperature range	Tstg	–55 ~ +150	˚C
Operating temperature range	Topr	–20 ~ +85	˚C

*Derating : –11.6mW/˚C for operation above Ta=25˚C PCB (70mm×70mm×1.6mm glass epoxy board)

●Recommended Operating Conditions (Ta=25˚C)

Parameter	Symbol	Min.	Typ.	Max.	Unit
Power supply voltage	V_{CC}	4.5	—	5.5	V
Input voltage "H" level	V_{IH}	0.8 × Vcc	—	Vcc	V
Input voltage "L" level	V_{IL}	GND	—	0.2 × Vcc	V

*This product is not designed for protection against radioactive rays.

●Electrical characteristics (Unless otherwise noted; Ta=25˚C, Vcc=5.0V)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Output voltage "H"	V_{OH}	Vcc–0.5	—	—	V	I_{OH}=1mA
Output voltage "L"	V_{OL}	—	—	0.5	V	I_{OH}=–1mA
Consumption current	Icc	—	0.7	1.0	mA	R=13kΩ, OUT1~OUT16:OFF
		—	1.8	3.0	mA	R=1.3kΩ, OUT1~OUT16:OFF
		—	4.0	6.5	mA	R=13kΩ, OUT1~OUT16:ON
		—	30	40	mA	R=1.3kΩ, OUT1~OUT16:ON
Constant-current output current (Including error between bits)	I_{OLC1}	48	55	62	mA	V_{OUT}=2.0V R=1.3kΩ
	I_{OLC2}	5.0	5.9	6.8	mA	V_{OUT}=2.0V R=13kΩ
Constant-current output current error between bits	ΔI_{OLC}	—	±1	±6	%	V_{OUT}=2.0V R=1.3kΩ (1bit ON mode)
Output current regulation against output voltage	$I\Delta V_{CC}$	—	±1	±6	%/V	V_{OUT}=2.0~3.0V R=1.3kΩ
Output leak current	I_{OH}	—	0.01	0.8	mA	V_{OUT}=10V

●Application Circuit