

## Introduction

The TC62D748CFG is a constant-current driver for LED and LED display lighting applications.

The output current from each of the 16 outputs is programmable via a single external resistor.

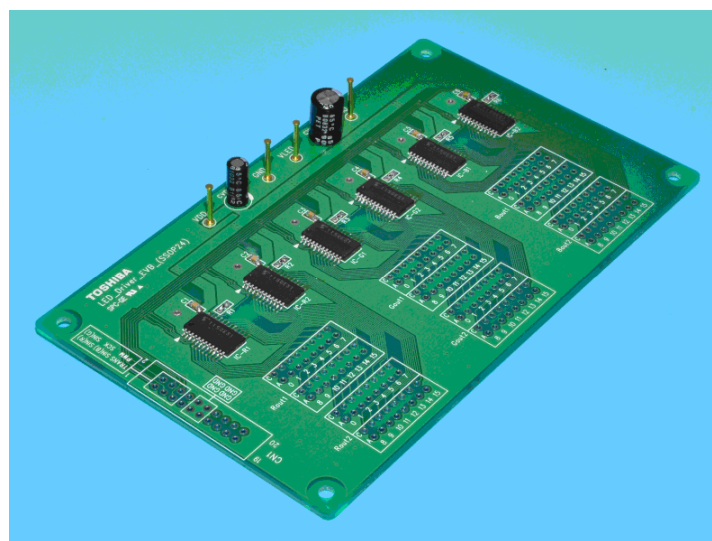
The TC62D748CFG contains a 16-channel shift register, a 16-channel latch, a 16-channel AND gate and a 16-channel constant-current output.

Fabricated with a CMOS process, the TC62D748CFG allows high-speed data transfer.

It operates with a 3.3- or 5-V power supply.

## Features

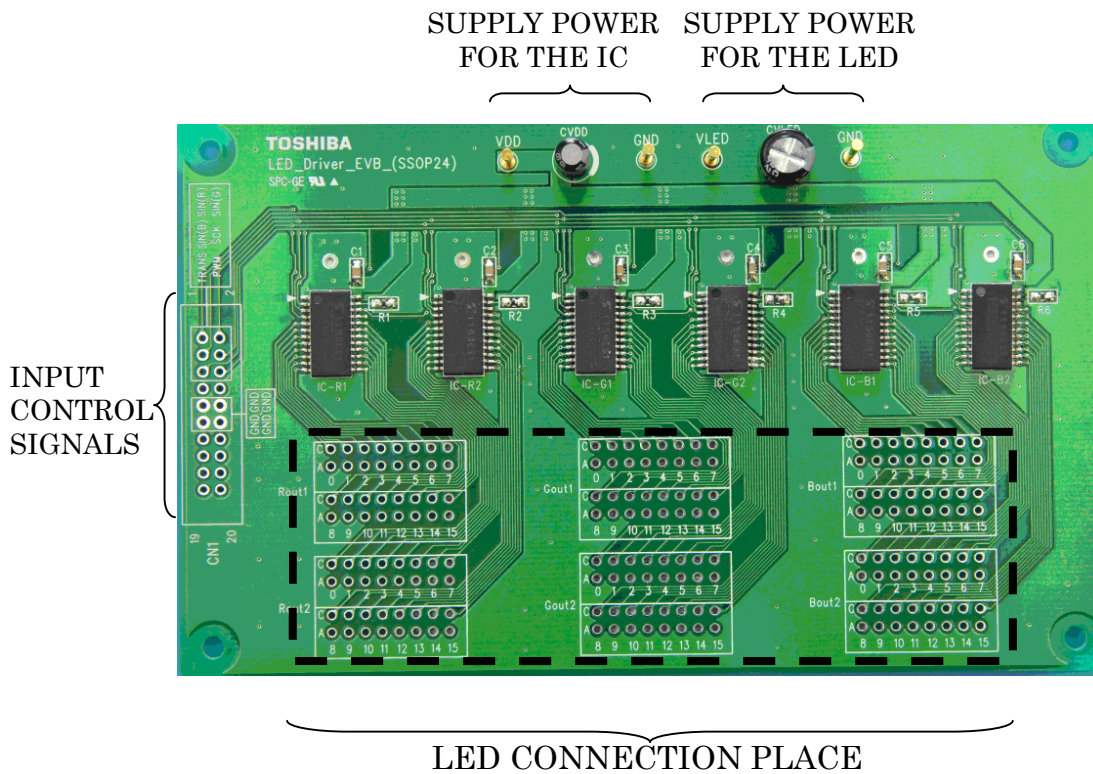
- Supply voltages : VDD = 3.0 V to 5.0 V
- 16-output built-in
- Output current setup range : IO<sub>UT</sub> = 1.5 to 90 mA
- Constant current output accuracy (@ R<sub>EXT</sub> = 1.2 kΩ, V<sub>OUT</sub> = 1.0 V, V<sub>DD</sub> = 3.3 V, 5.0 V)
  - : S rank ; between outputs ± 1.5 % (max)
  - : S rank ; between devices: ± 1.5 % (max)
  - : N rank ; between outputs ± 2.5 % (max)
  - : N rank ; between devices: ± 2.5 % (max)
- Output voltage : V<sub>OUT</sub> = 17 V (max)
- High-speed output switching : t<sub>wOE(L)</sub> = 25 ns (min), t<sub>or</sub> = 30ns (typ.), t<sub>of</sub> = 10ns (typ.)  
 There is TC62D749 as an output switching high-speed version of this product.
- I/O interface : CMOS interfaces (Schmitt trigger input)
- Data transfer frequency : f<sub>SCK</sub> = 25 MHz (max)
- Operation temperature range : T<sub>opr</sub> = -40 to 85 °C
- Power-on-reset function built-in. (When the power supply is turned on, internal data is reset)
- Package : SSOP24-P-300-1.00B



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# 1 How to use



(A: Please connect the anode side of LED, C: Please connect the cathode side of LED.)

## 1.1 Power supply

### 1.1.1 VDD

Please Supply the VDD to TC62D748CFG through VDD pin. TC62D748CFG uses a single VDD as its power supply. The operating supply voltage of VDD must be within the range between 3.0 V and 5.5 V.

### 1.1.2 VLED

VLED is used as a power supply for LED lighting. VLED recommends more than LED Vf + 1V @LED current 90mA condition.

### 1.1.3 Power On/Off Sequence

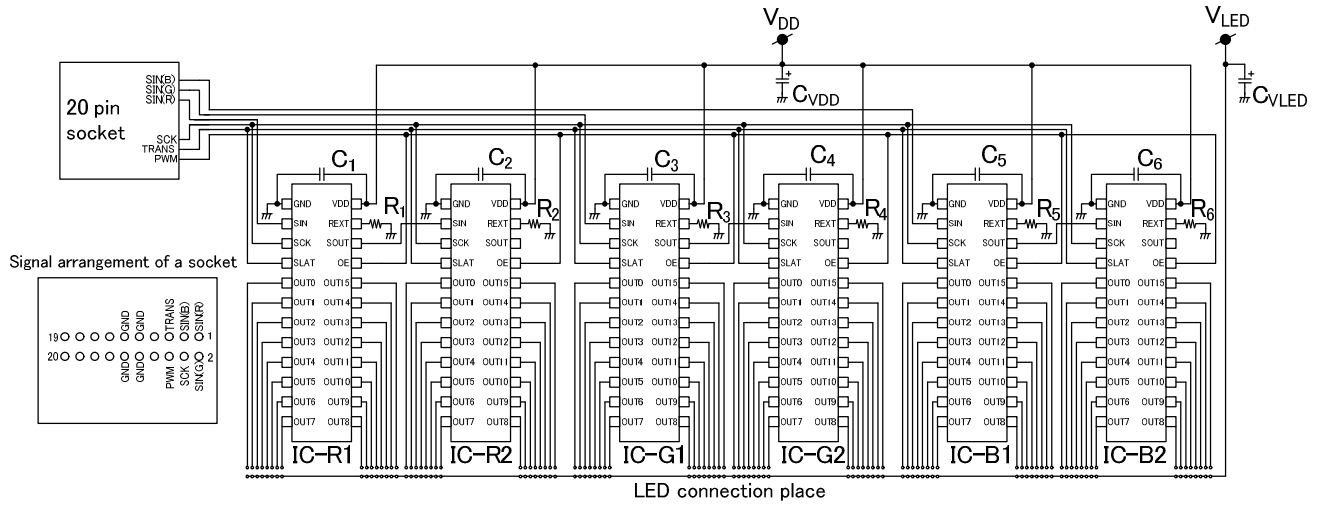
- Please input a power supply by the following sequence.
- Step 1 : VDD input
- Step 2 : VLED input
- Step 3 : Control signals input

## 1.2 Control inputs

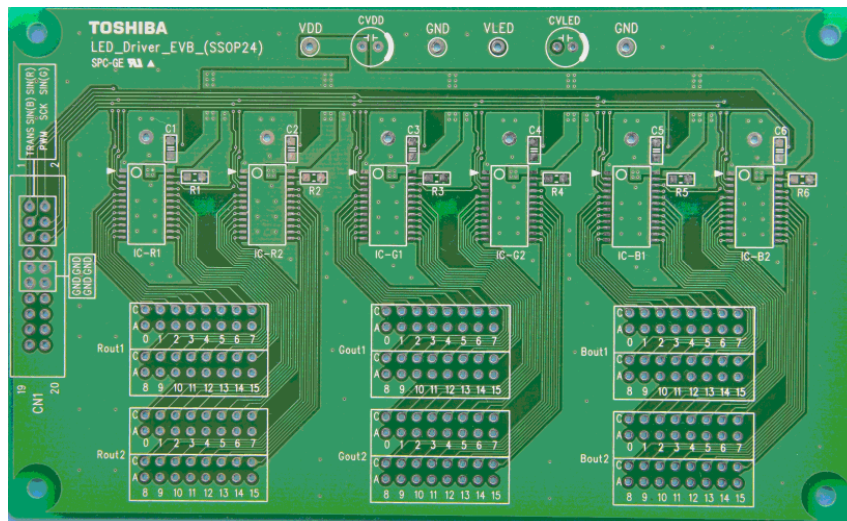
The silk name of a board	A corresponding signal
SIN(R)	SIN signal for IC-R1 & IC-R2
SIN(G)	SIN signal for IC-G1 & IC-G2
SIN(B)	SIN signal for IC-B1 & IC-B2
SCK	SCK signal for all ICs
TRANS	SLAT signal
PWM	OE signal

\*Please refer to TD for the details of each signal

## 2 Electrical schematic



### 3 Hardware layout



### 4 BOM

Symbol	Remarks	Recommended Value
C1,C2,C3,C4,C5,C6	Ceramic capacitor	0.47 $\mu$ F
CVDD	Electrolytic capacitor	2.2 $\mu$ F
CVLED	Electrolytic capacitor	47 $\mu$ F
R1,R2,R3,R4,R5,R6	Resistance	It is LED current setting resistance. LED current (A) = 1.04(V) $\div$ R ( $\Omega$ ) $\times$ 16.6

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