DESCRIPTION

The PT6951 is a compact LED driver for 90 single LEDs control. The device can be programmed via the I²C or SPI compatible interface. Additionally, each of the 90 LEDs can be dimmed individually with 8-bit allowing 256 steps of linear dimming. The high logic and low logic control threshold are specially designed for white goods and industry application.
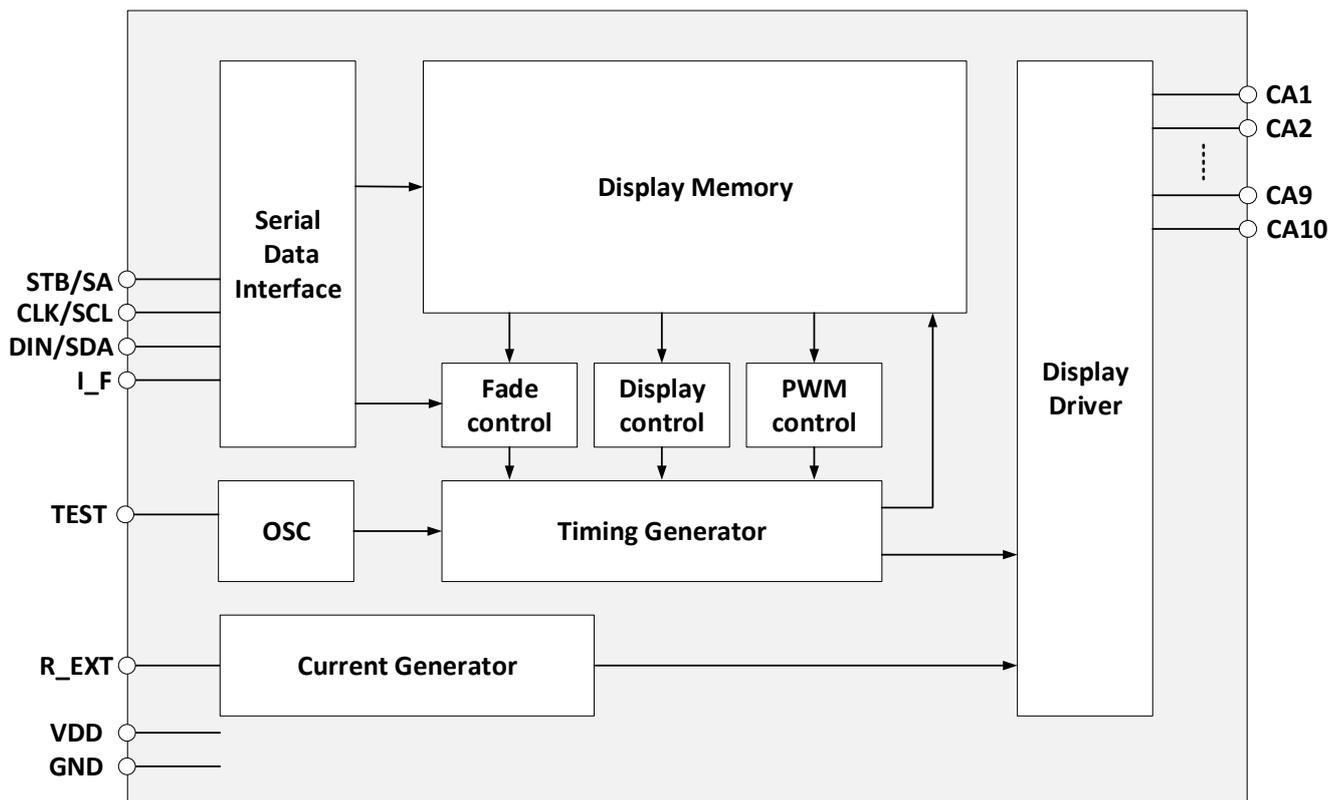
APPLICATIONS

- Micro-computer Peripheral Device

FEATURES

- CMOS technology
- Low power consumption
- 3-wire SPI-bus interface (DIN, CLK, STB)
- 2-wire I²C interface (SCL, SDA)
- 90 LEDs in dot matrix
- 256-Step dimming setting for all individual LED
- Fading enable for all individual LED
- Constant-Current LED Segment Drive
- Serial interface for Clock, Data Input, Strobe Pins and low voltage operation ability when user's MCU power supply is 3.3V.
- Integrated Oscillator Circuit
- Available in 20-pin, TSSOP

BLOCK DIAGRAM

APPLICATION CIRCUIT
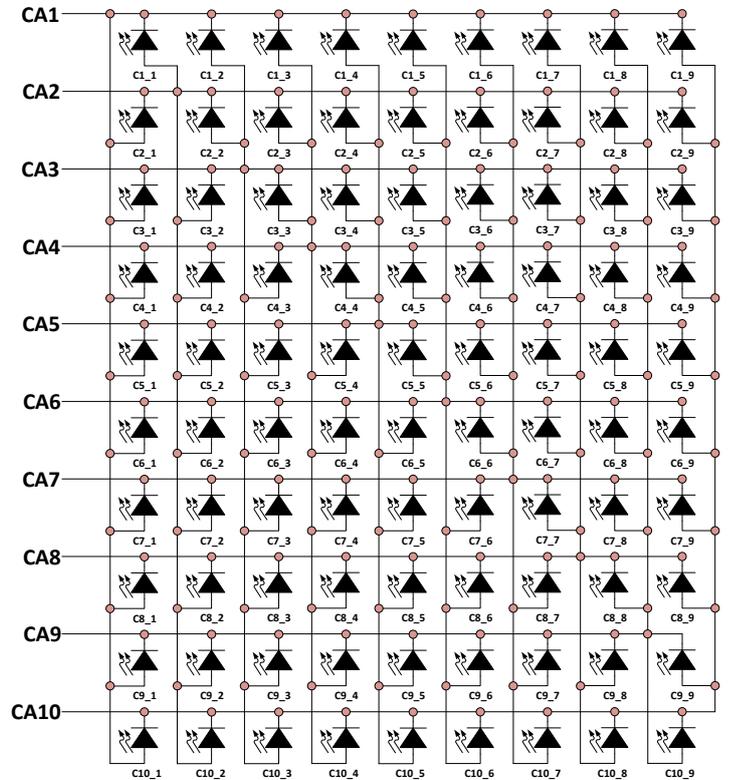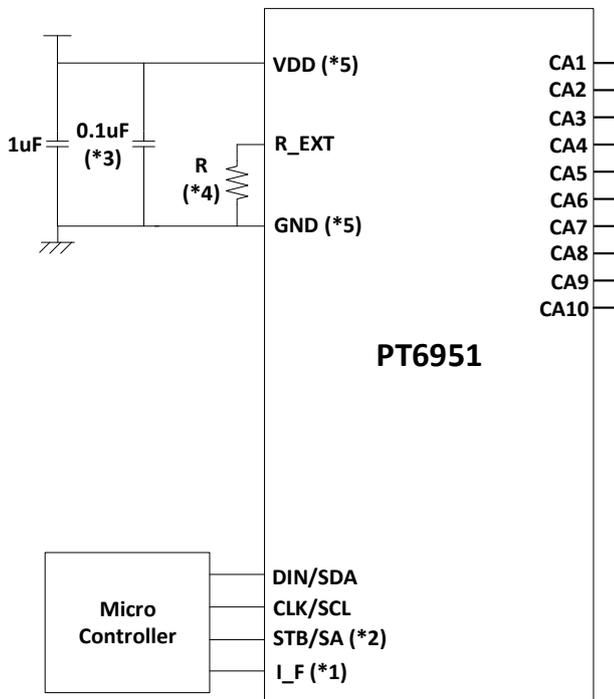
*Notes:

1. I_F pin is select 2-wire (I²C) or 3-wire (SPI) interface, "H (connect with VDD)"=2 wire (I²C) interface, "L (connect with GND)"=3-wire (SPI) interface.
2. When 2-wire (I²C) interface be select (I_F pin=H), STB/SA pin is set slave address (connect with GND=70H, connect with VDD=72H), please refer the page 11 for detail.
3. The capacitor (0.1μF) connected between the GND and the VDD pins must be located as close as possible to the PT6951 chip.
4. About the resistor value for R_EXT, please refer to the DRIVING CURRENT AND RESISTOR TABLE of page 3.
5. We strongly suggest user that please to connect all the power pins of PT6951 IC (2 VDDs: PIN7, 18; 2 GNDs: PIN5, 19) in their applications (Don't to connect 1 VDD and 1 GND in their applications) to avoid abnormal operating.
6. The PT6951 power supply is separate from the application system power supply.

MULTI-CHIPS (CASACDE) APPLICATIONS

SPI: (2 OR MORE THAN PT6951IC CHIPS)
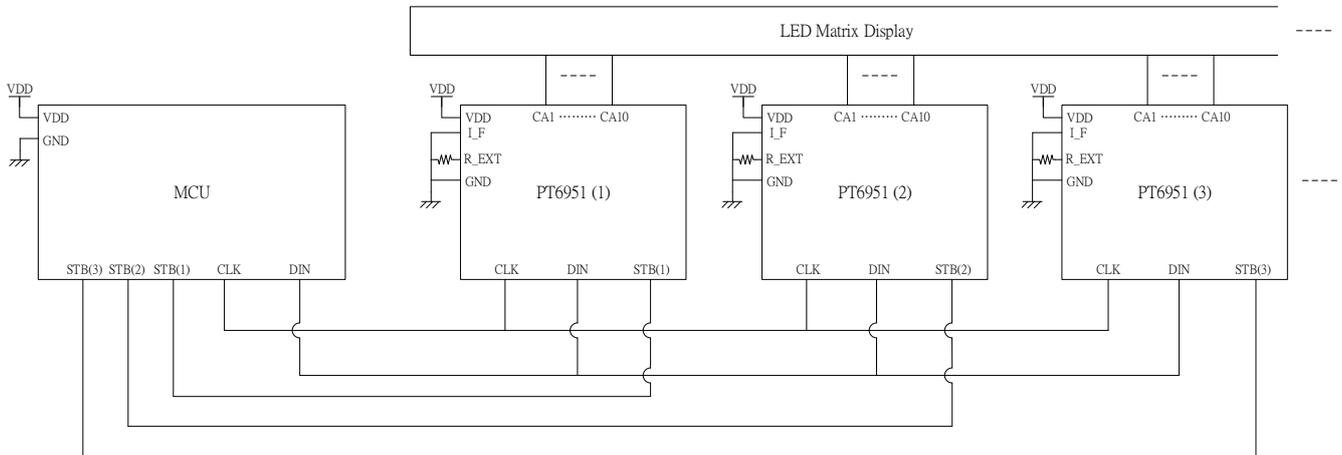
I²C: (2 PT6951IC CHIPS MAX.)
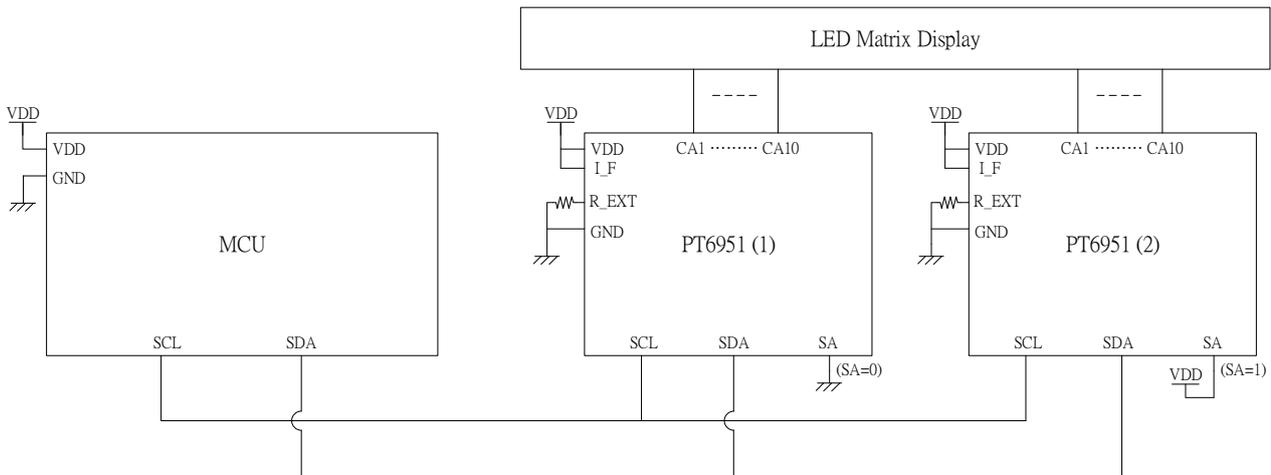
DRIVING CURRENT AND RESISTOR TABLE

About the relationship between driving current of CA outputs and resistor of R_EXT pin, please refer the table below.

Resistor of R_EXT pin	Driving Current (Approximate)
20KΩ	-33mA
22KΩ	-30mA
24KΩ	-27mA
27KΩ	-24mA
33KΩ	-20mA
47KΩ	-14mA
62KΩ	-10mA
100KΩ	-6mA

Note: Please do not use the resistance value higher or lower than the above table (Resistor range: 20KΩ~100KΩ).

普 誠 科 技
Princeton Technology Corp.

ORDER INFORMATION

Valid Part Number	Package Type	Top Code
PT6951-TX	20 pins, TSSOP, 173mil (Tube)	PT6951-TX
PT6951-TX-TP	20 pins, TSSOP, 173mil (Tape & Reel)	PT6951-TX

PIN CONFIGURATION
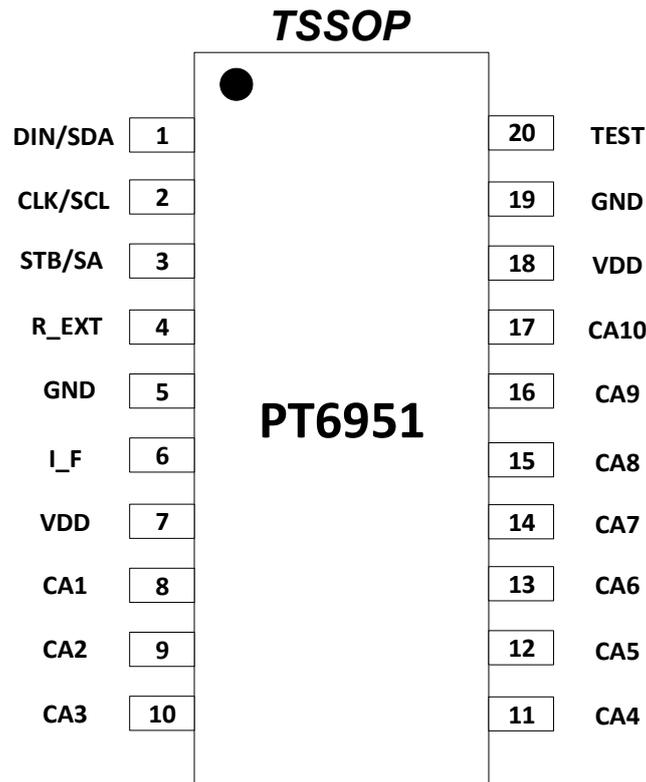
TSSOP

PIN DESCRIPTION

Pin Name	I/O	Description	Pin No TSSOP-20
DIN/SDA	IO	SPI Serial data input I²C Serial data input/output	1
CLK/SCL	I	SPI Serial data transfer clock I²C Serial data transfer clock	2
STB/SA	I	SPI Serial interface strobe pin I²C slave address setting input pin	3
R_EXT	A	LED Current Selection Pin Connect with resistance to confirm the LED current	4
GND	P	Ground Pin	5, 19
I_F	I(PL)	Interface select, "L"=SPI "H"=I²C	6
VDD	P	Power Supply	7, 18
CA1 ~ CA10	I/O	LED matrix current output/input port	8~17
TEST	I	For PTC using only. (We suggested to connect this pin to ground in user's applications)	20

IMPORTANT NOTICE

Princeton Technology Corporation (PTC) reserves the right to make corrections, modifications, enhancements, improvements, and other changes to its products and to discontinue any product without notice at any time.

PTC cannot assume responsibility for use of any circuitry other than circuitry entirely embodied in a PTC product. No circuit patent licenses are implied.

Princeton Technology Corp.
2F, 233-1, Baociao Road,
Sindian Dist., New Taipei City 23145, Taiwan
Tel: 886-2-66296288
Fax: 886-2-29174598
http://www.princeton.com.tw