DESCRIPTION

The PT6950 is a compact LED driver for 144 single LEDs. The device can be programmed via the I^2C or SPI compatible interface. The high logic and low logic control threshold are specially designed for white goods and industry application. The PT6950 offers two blocks each driving 72 LEDs with 1/9 cycle rate.

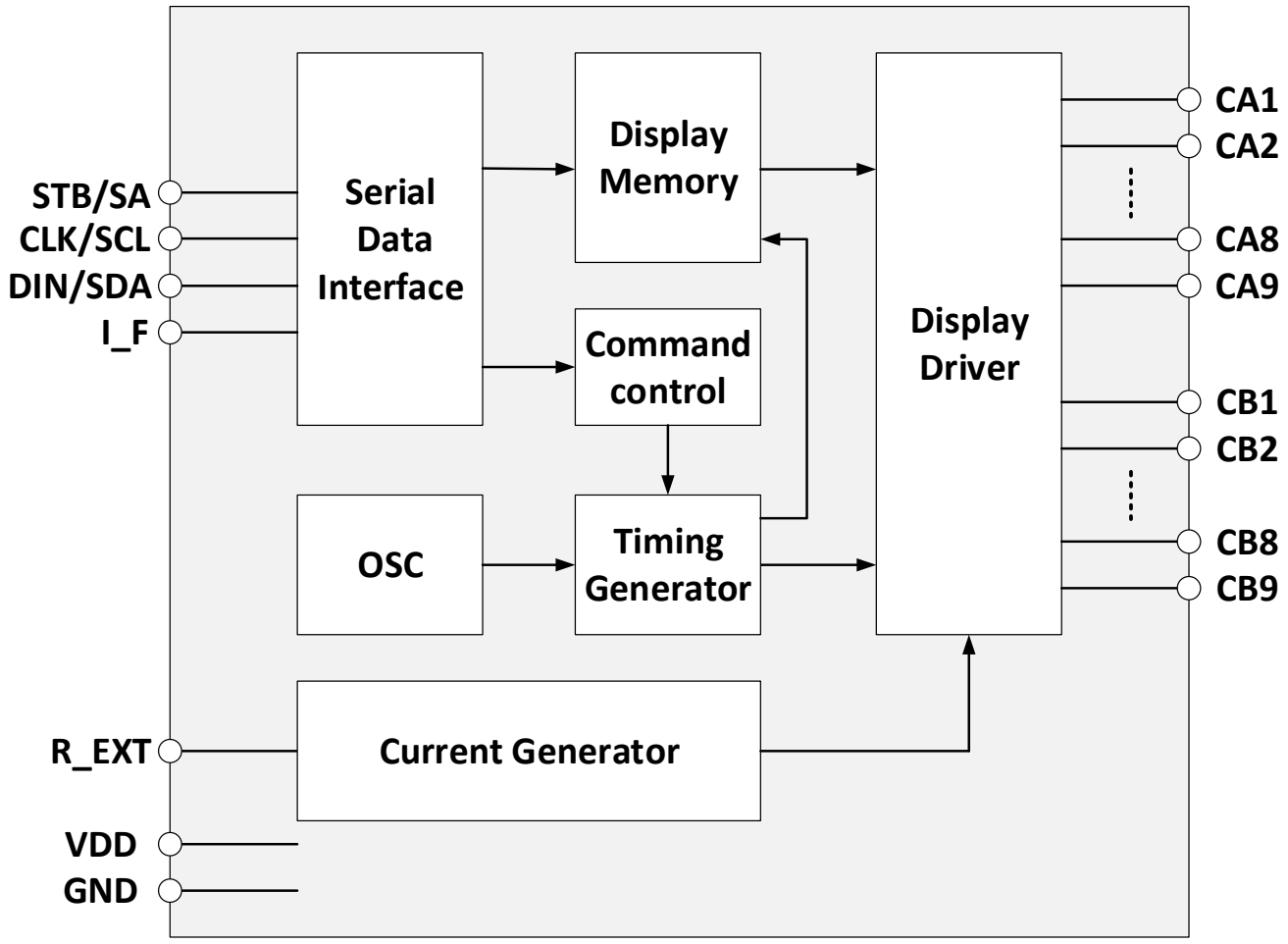
APPLICATIONS

- Micro-computer Peripheral Device

FEATURES

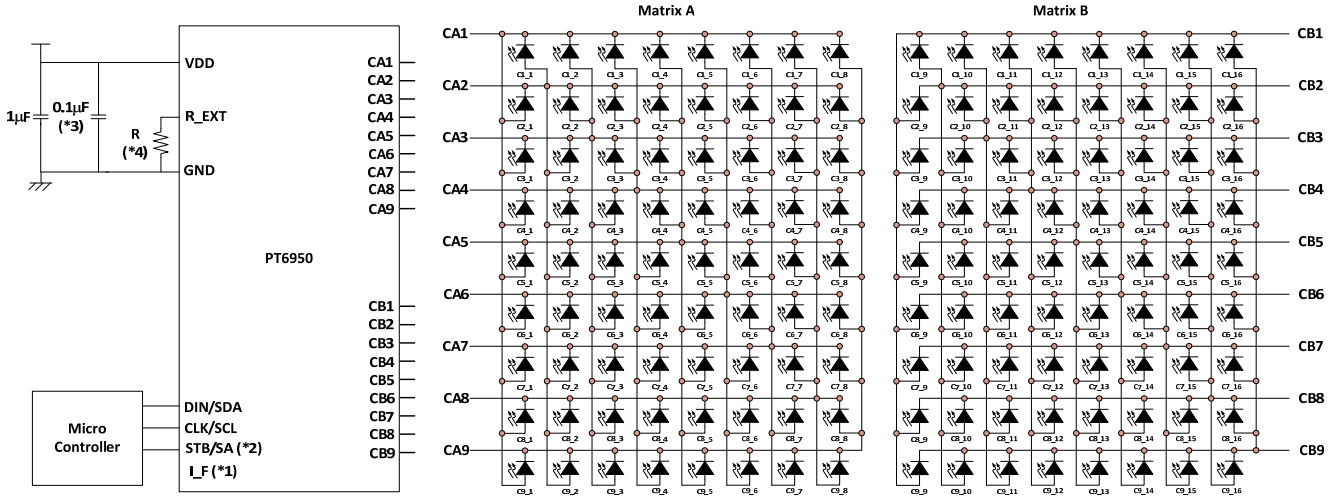
- CMOS technology
- Low power consumption
- 3-wire SPI-bus interface(DIN, CLK, STB)
- 2-wire I^2C interface(SCL, SDA)
- 144 LEDs in dot matrix
- Constant-Current LED Segment Drive
- 16-Step dimming circuitry
- Serial interface for Clock, Data Input, Strobe Pins and low voltage operation ability when user's MCU power supply is 3.3V.
- Integrated Oscillator Circuit
- Available in 28-pin, SOP&QFN

BLOCK DIAGRAM

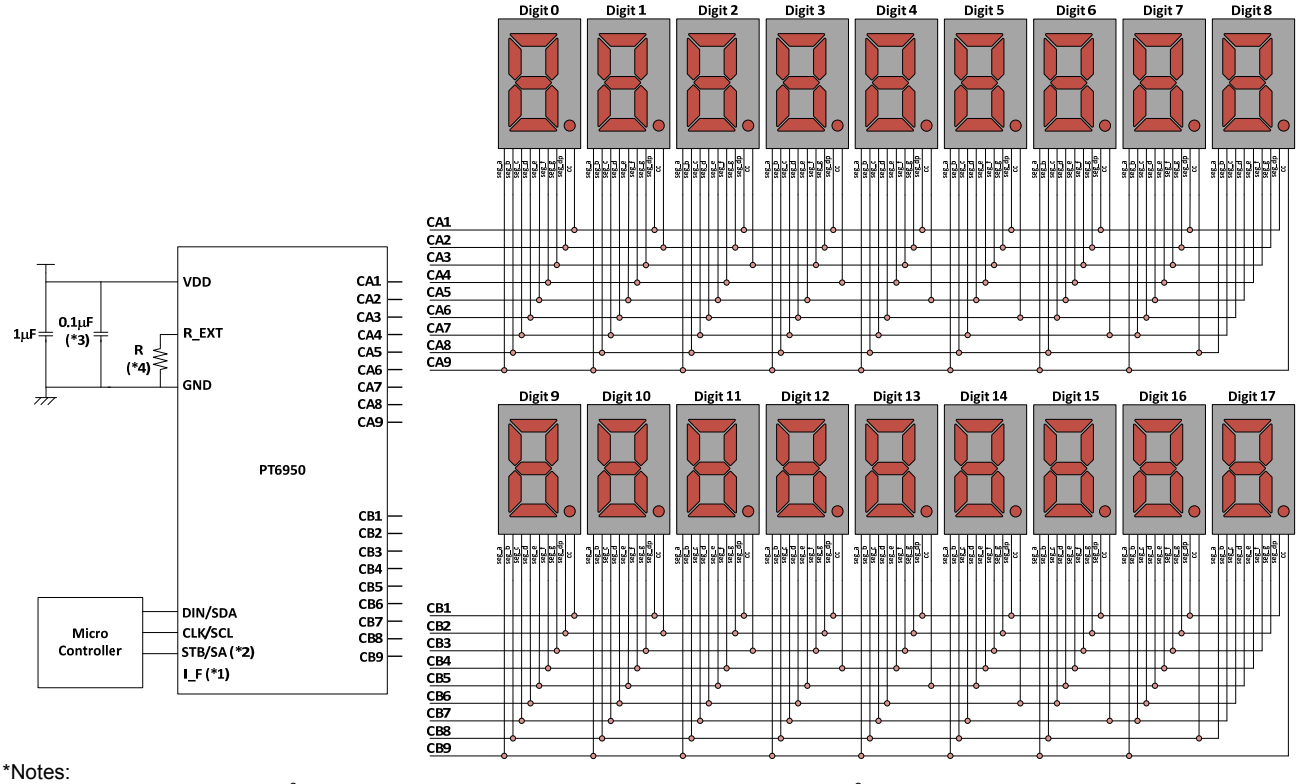


APPLICATION CIRCUIT

FOR DOT-MATRIX DISPLAY APPLICATION:



FOR SEVEN-SEGMENT DISPLAY APPLICATION:

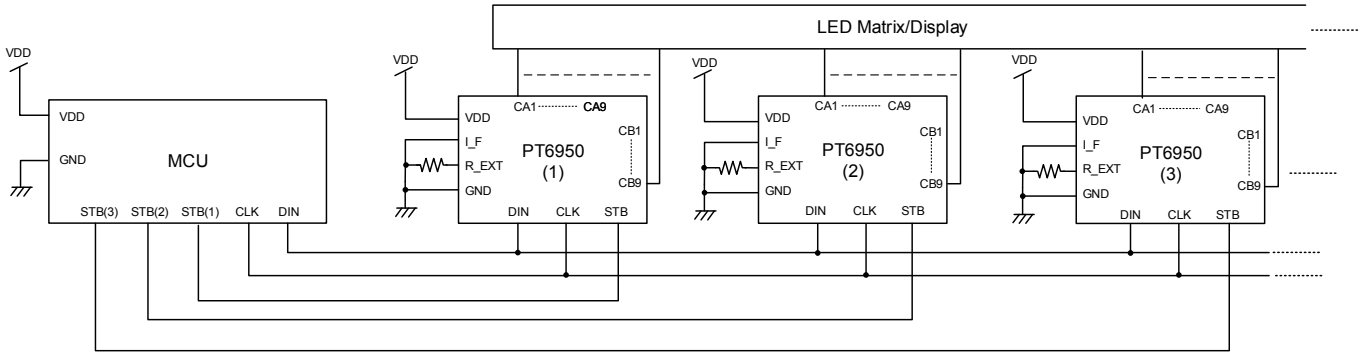


*Notes:

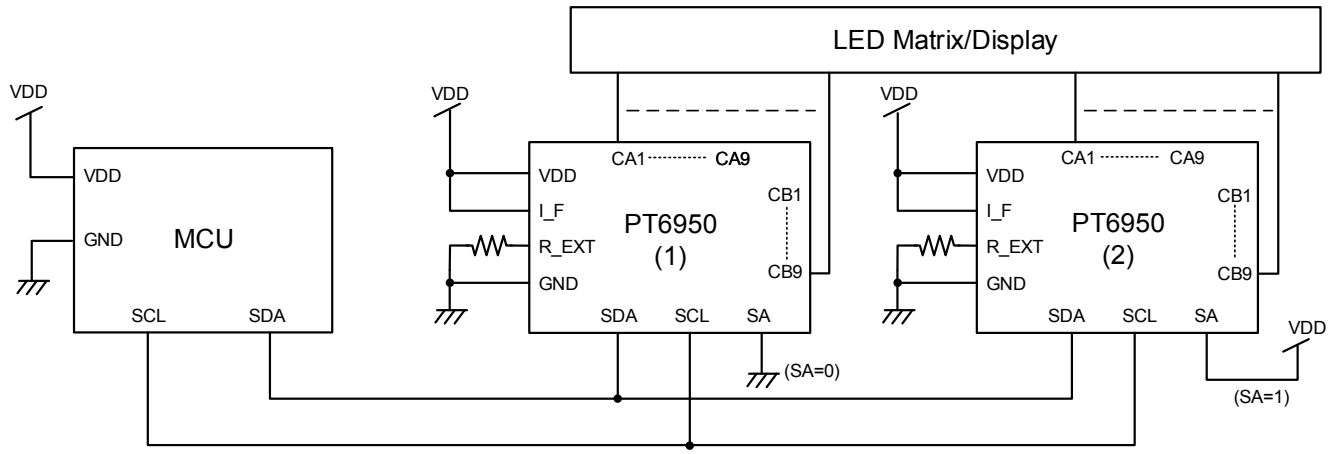
1. I_F pin is select 2-wire (I^2C) or 3-wire (SPI) interface, “H (connect with VDD)”=2 wire (I^2C) interface, “L(connect with GND)”=3-wire (SPI) interface.
2. When 2-wire (I^2C) interface be select (I_F pin=H), STB/SA pin is set slave address (connect with GND=70H, connect with VDD=72H), please refer the page 7 for detail.
3. The capacitor (0.1μF) connected between the GND and the VDD pins must be located as close as possible to the PT6950 chip.
4. About the resistor value for R_EXT, please refer to the DRIVING CURRENT AND RESISTOR TABLE of page 3.
5. The PT6950 power supply is separate from the application system power supply.

MULTI-CHIPS (CASACDE) APPLICATIONS

SPI: (2 OR MORE THAN PT6950 IC CHIPS)



I²C: (2 PT6950 IC CHIPS MAX.)



DRIVING CURRENT AND RESISTOR TABLE

About the relationship between driving current 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

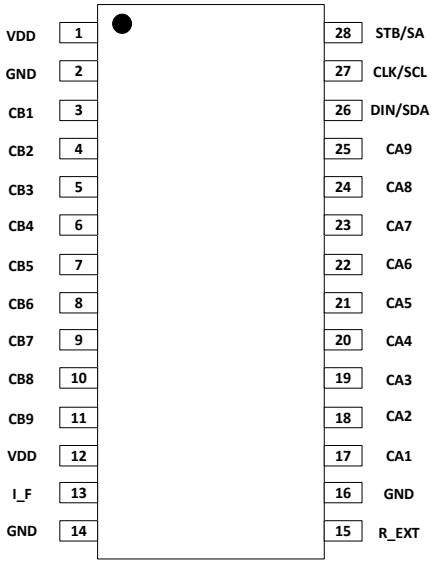
[Important] Please do not use the resistance value higher or lower than the above table (Resistor range: 20KΩ~100KΩ).

ORDER INFORMATION

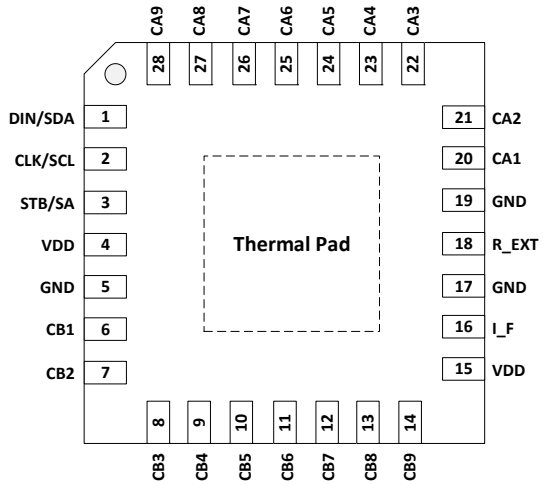
Valid Part Number	Package Type	Top Code
PT6950-S	28 pins, SOP, 300mil	PT6950-S
PT6950	28 pins, QFN	PT6950

PIN CONFIGURATION

SOP



QFN



PIN DESCRIPTION

Pin Name	I/O	Description	Pin No	
			QFN	SOP
DIN/SDA	IO	SPI Serial data input I^2C Serial data input/output	1	26
CLK/SCL	I	SPI Serial data transfer clock I^2C Serial data transfer clock	2	27
STB/SA	I	SPI Serial interface strobe pin I^2C slave address setting input pin	3	28
VDD	P	Power Supply	4, 15	1, 12
GND	P	Ground Pin	5 , 17	2, 14
CB1 ~ CB9	I/O	LED matrix B current output/input port	6 ~ 14	3 ~ 11
I_F	I(PL)	Interface select, “L”=SPI “H”=I^2C	16	13
R_EXT	A	LED Current Selection Pin Connect with resistance to confirm the LED current	18	15
GND	P	Ground Pin	19	16
CA1 ~ CA9	I/O	LED matrix A current output/input port	20 ~ 28	17 ~ 25
Thermal Pad	-	Thermal pad for enhanced thermal performance. Should be soldered to the PCB (Connect to board ground).	Chip Back-Side	-

IMPORTANT NOTICE

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