

DESCRIPTION

The PT6382 is designed to integrate the VFD driver, key-scan matrix, LED driving, infrared (IR) remote control decoding and into one integrated solution. All functions are programmable using 3-wire serial or I²C interface.

In standby operation, the PT6382 provides the standby power management to the chipset for low power consumption

The PT6382 is housed in a 44-pin LQFP package. Pin assignments and application circuit are optimized for easy PCB layout and cost saving advantages.

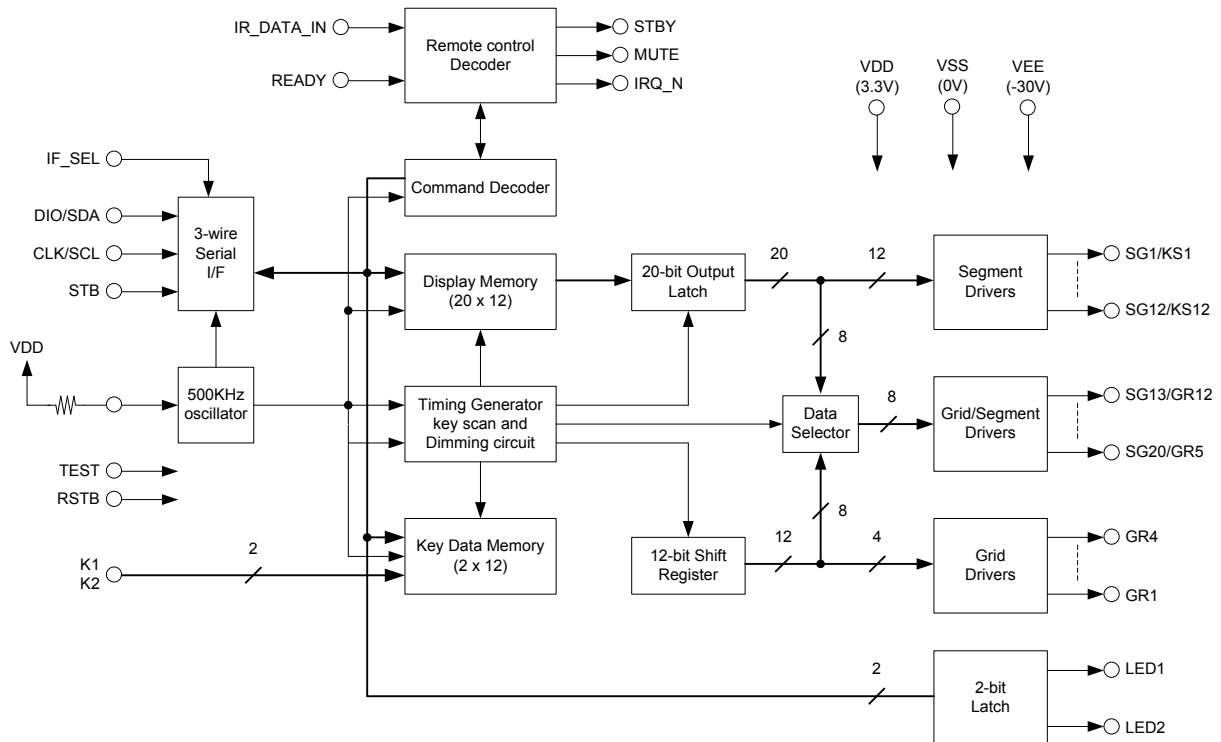
APPLICATIONS

- VCR
- DVD recorder
- Home theater
- Set-top box and other application that require a compact, integrated solution
- HTiB (Home theater in a Box)
- Personal Video recorders (PVRs)

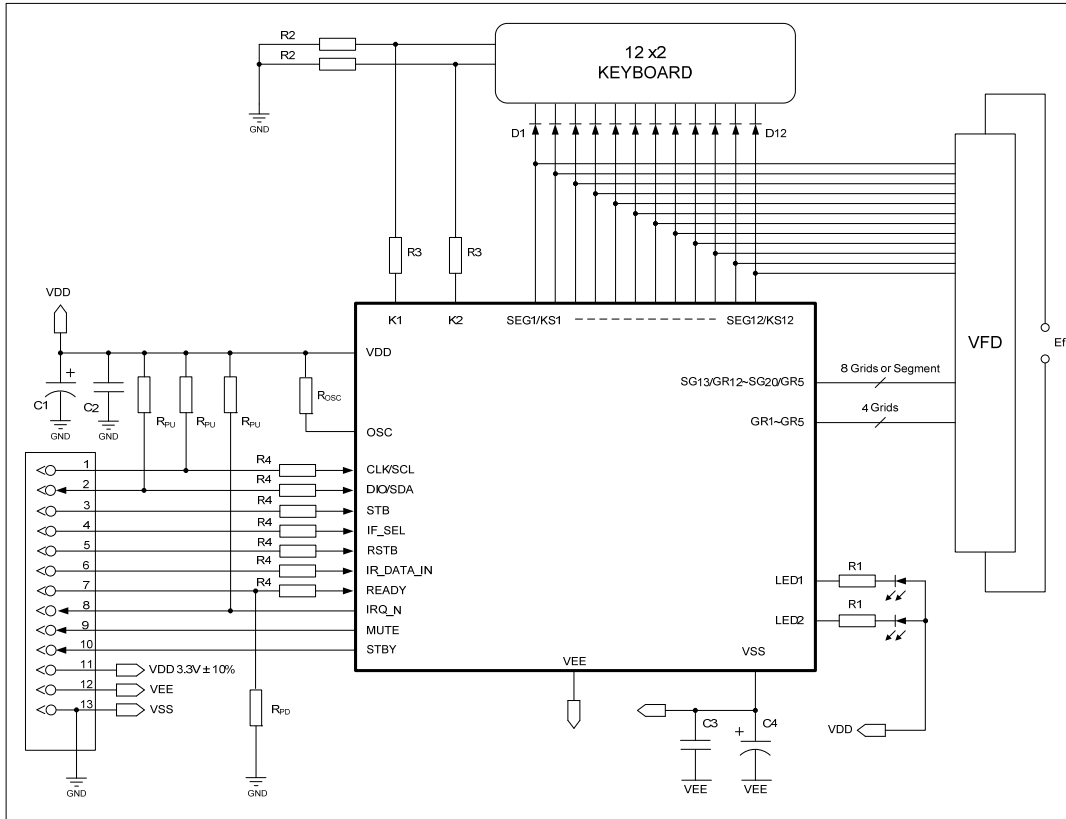
FEATURES

- IC front panel VFD controller driver
- Standby power management to the host
- 3.3V (VDD) and down to -30V (VEE) supply for the IC
- IR remote control decoder (Philips, NEC, Thomson, Sony, Matsushita)
- Multiple display modes (12 segments and 12 digits to 20 segments and 4 digits)
- High voltage outputs (VDD - 33.3V max)
- No external resistors necessary for driver outputs (P-CH. Open drain + pull-down resistor)
- Key scanning (up to 12 x 2 matrix = 24 keys)
- LED ports (IOL=20mA@1V, IOH=1mA@0.9VDD)
- 3-wire (SPI) serial interface for clock, data input/output, and strobe
- I²C serial interface (SCL, SDA) communication protocol
- Programmable hotkeys for IR remote control command
- Programmable hotkeys for KEYSKAN command
- Low power consumption in standby mode
- Dimming circuit (8 steps)
- Available in LQFP-44 package

BLOCK DIAGRAM

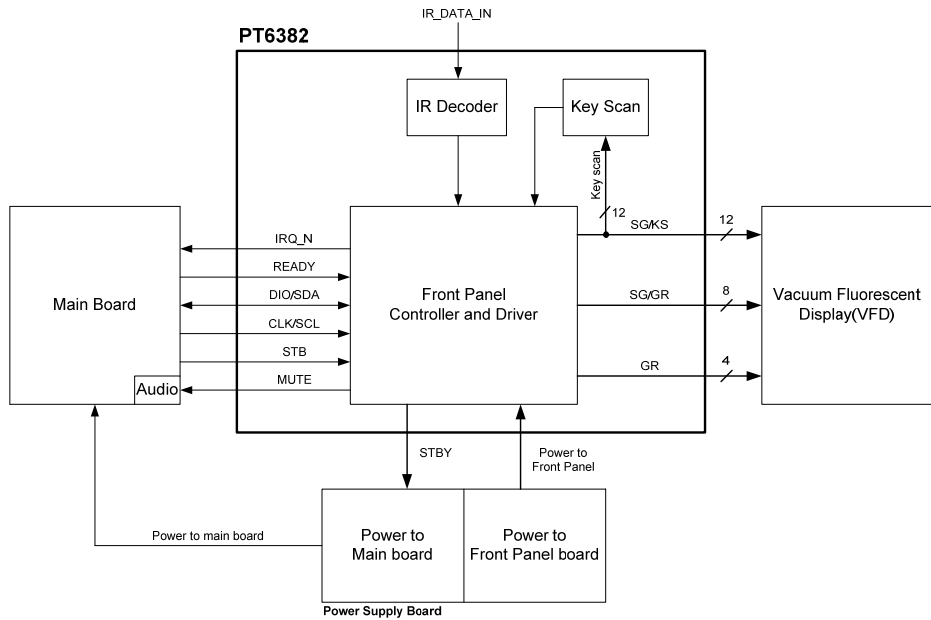


1. TYPICAL APPLICATION CIRCUIT



- R1 = 0.75 ~ 1.2kΩ
- R2 = 10kΩ for external keyboard pull-down resistor
- R3 = 0.1k ~ 1kΩ
- R4 = 0.1k ~ 1kΩ
- R_{pu} = 4.7kΩ for external pull-up resistor on DIO/SDA, CLK/SCL
- R_{pu} = 10kΩ for external pull-up resistor on IRQ_N
- R_{pd} = 10kΩ for external pull-down resistor on READY
- R_{osc} = 33kΩ (±1%) for oscillator resistor
- C1 = 33μF-25V electrolytic capacitor
- C2 = 0.01~ 0.1μF-25V ceramic capacitor
- C3 = 0.01~ 0.1μF-63V ceramic capacitor
- C4 = 33μF-63V electrolytic capacitor
- D1 ~ D12 = 1N4148
- Ef = filament voltage according to the VFD specs
- VDD = 3.3V ± 10%
- VEE = down to VDD - 33.3V

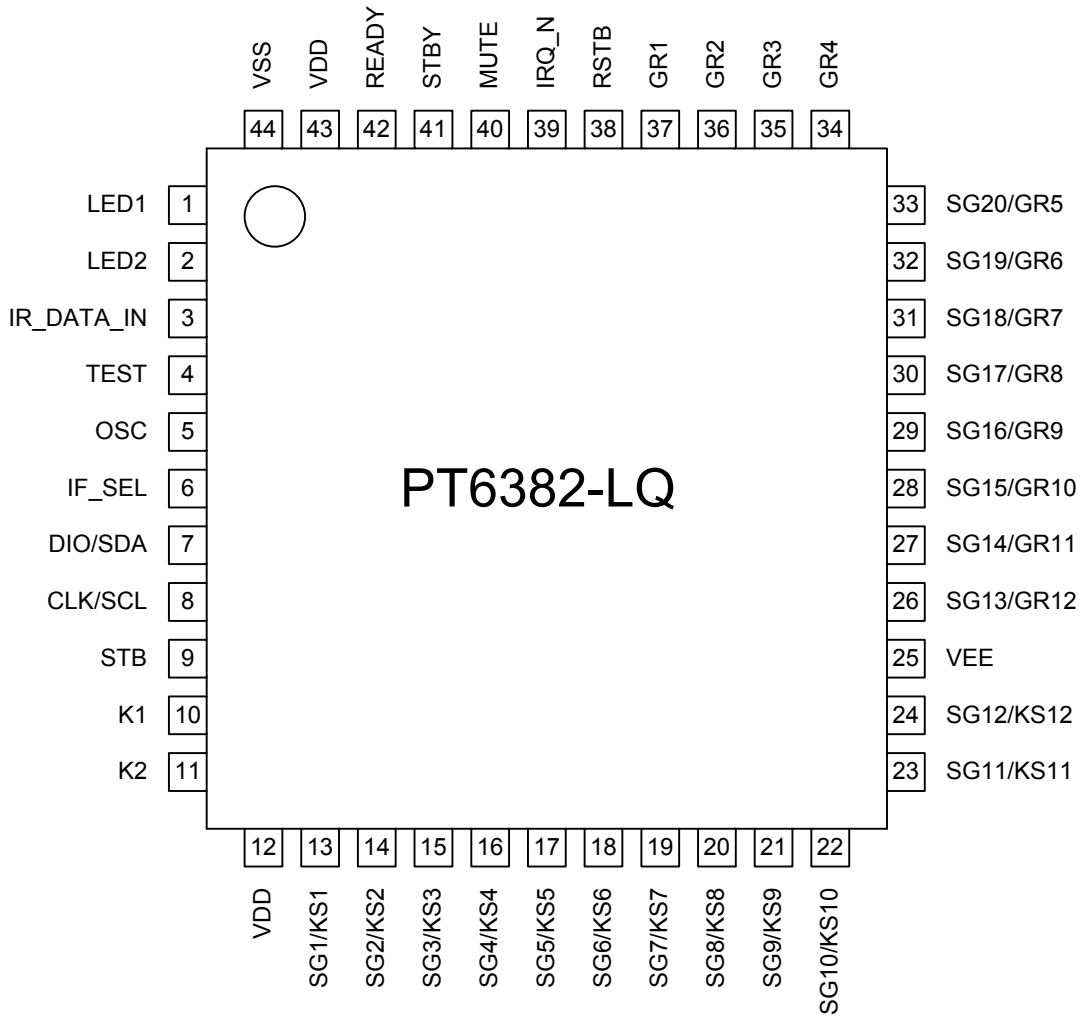
2. FUNCTION DIAGRAM



3. ORDER INFORMATION

Valid Part Number	Package Type	Top Code
PT6382-LQ	44 Pins, LQFP	PT6382-LQ

4. PIN CONFIGURATION



5. PIN DESCRIPTION

Pin Name	I/O	Description	Pin No
LED1, LED2	O	CMOS Sink outputs (20 mA max.)	1, 2
IR_DATA_IN	I	Remote control input. Connect to IR photodiode	3
TEST	O	TEST pin with an internal pull-down resistor. Customer can't use this pin	4
OSC	I	Connect to an external resistor of value $33K\Omega \pm 1\%$	5
IF_SEL	I	Serial interface mode setting IF_SEL = "0" → I ² C interface, IF_SEL = "1" → 3-wire (SPI) interface	6
DIO/SDA	I/O	IF_SEL = "0" → The data pin of I ² C interface. Connect to 3.3V through an external pull-up resistor. IF_SEL = "1" → The data pin of 3-wire interface. Connect to 3.3V through an external pull-up resistor. Serial data must be ready at the rising edge of CLK. This pin outputs data at the falling edge of CLK	7
CLK/SCL	I	IF_SEL = "0" → The clock pin of I ² C interface. Connect to 3.3V through an external pull-up resistor IF_SEL = "1" → The clock pin of 3-wire interface. Serial data is read at rising edge and output data is valid at the falling edge	8
STB	I	IF_SEL = "0" → Unused pin IF_SEL = "1" → The strobe pin of 3-wire interface	9
K1, K2	I	Input data to these pins from external keyboard are latched at the end of the display cycle (maximum keyboard size is 12 x 2)	10, 11
VDD	-	3.3V±10% positive power supply	12, 43
SG1/KS1 to SG12/KS12	O	Segment output pins(dual function as key source)	13~24
VEE	-	VFD outputs high voltage pull_down level. VDD-33.3V max.	25
SG13/GR12 to SG20/GR5	O	These pins are selectable for segment or grid driving	26~33
GR4 to GR1	O	Grid output pins	34~37
RSTB	I	Active low reset input pin	38
IRQ_N	O	Interrupt (Open Drain). A pull up resistor of 10KΩ must be connected on this pin	39
MUTE	O	High level means mute status for audio. Low level stands for normal working	40
STBY	O	Pin to control power to the main board. High level means stand-by status. Low level stands for normal working	41
READY	I	High level on this pin means that main board chip has been working normally. Connect an external pull down resistor of 10kΩ on this pin	42
VSS	-	Connect this pin to system GND	44

IMPORTANT NOTICE

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