PT16517
1/4, 1/3-Duty General-Purpose LCD Display Driver

DESCRIPTION

The PT16517 is the 1/4 duty and 1/3 duty general-purpose microprocessor-controlled LCD driver that can be used in applications such as frequency display in products with electronic tuning. In addition to being able to drive up to 280 segments directly, the PT16517 can also control up to 8 general-purpose output ports. Because it has the PWM output of a maximum of 6 ch, the brightness control of the LED backlight of RGB can be done. Incorporation of an oscillation circuit helps to reduce the number of external resistors and capacitors required.

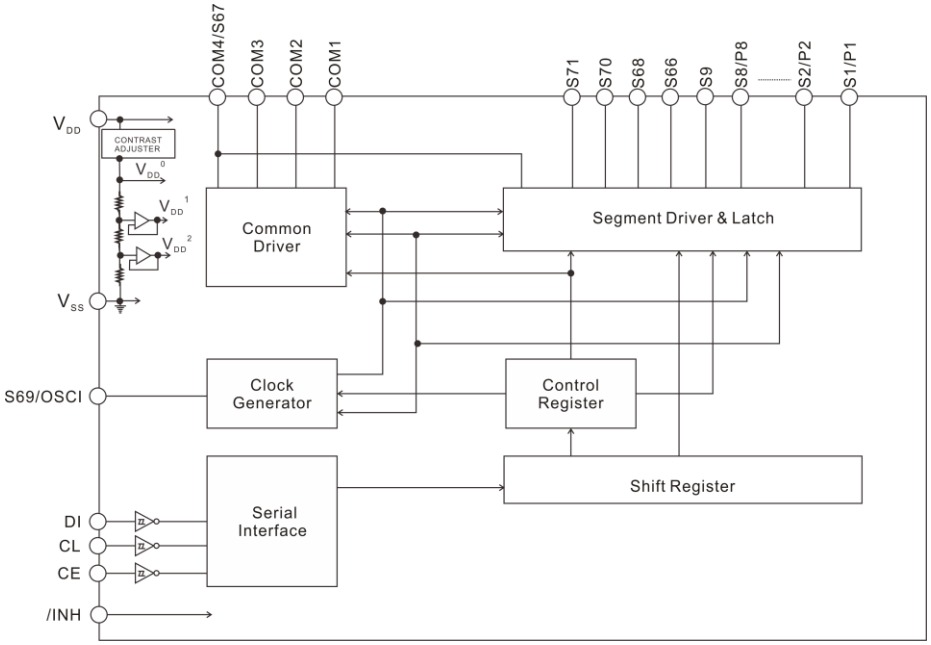
FEATURES

- Switching between 1/2 bias and 1/3 bias drive techniques under serial data control
  - When 1/4-duty: Capable of driving up to 280 segments
  - When 1/3-duty: Capable of driving up to 213 segments
- Serial data input supports serial format communication with the system controller (Support 3.3V and 5V operation)
- Serial data control of the power-saving mode based backup function and the all segments forced off function
- Serial data control of switching between the segment output port and general-purpose output port function.(Support for up to 8 general-purpose output ports)
- Support for the PWM output function of a maximum of 6 ch (It can output from the general-purpose output port)
- Support for clock output function of 1ch (It can output from the general-purpose output port)
- Serial data control of the frame frequency of the common and segment output waveforms
- Serial data control of switching between the internal oscillator operating mode and external clock operating mode
- High generality, since display data is displayed directly without the intervention of a decoder circuit
- Built-in display contrast adjustment circuit.
- The /INH pin allows the display to be forced to the off state
- Incorporation of an oscillator circuit (Incorporation of resistor and capacitor for an oscillation)
- AEC-Q100 grade 2 compliant for automotive applications

APPLICATION

- Car Audio
- Set-Top Box
- Electronic Equipment with LCD Display

BLOCK DIAGRAM



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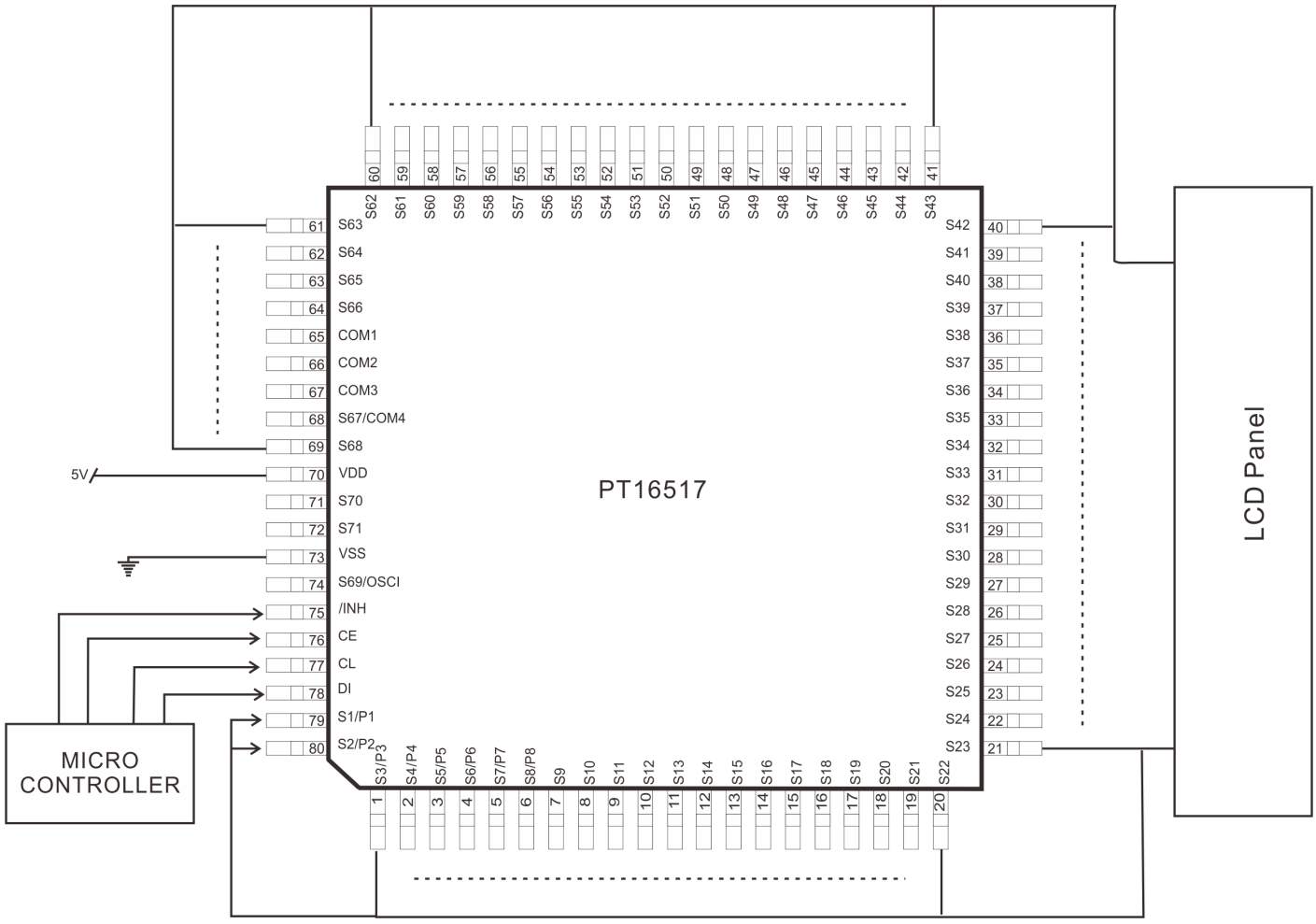
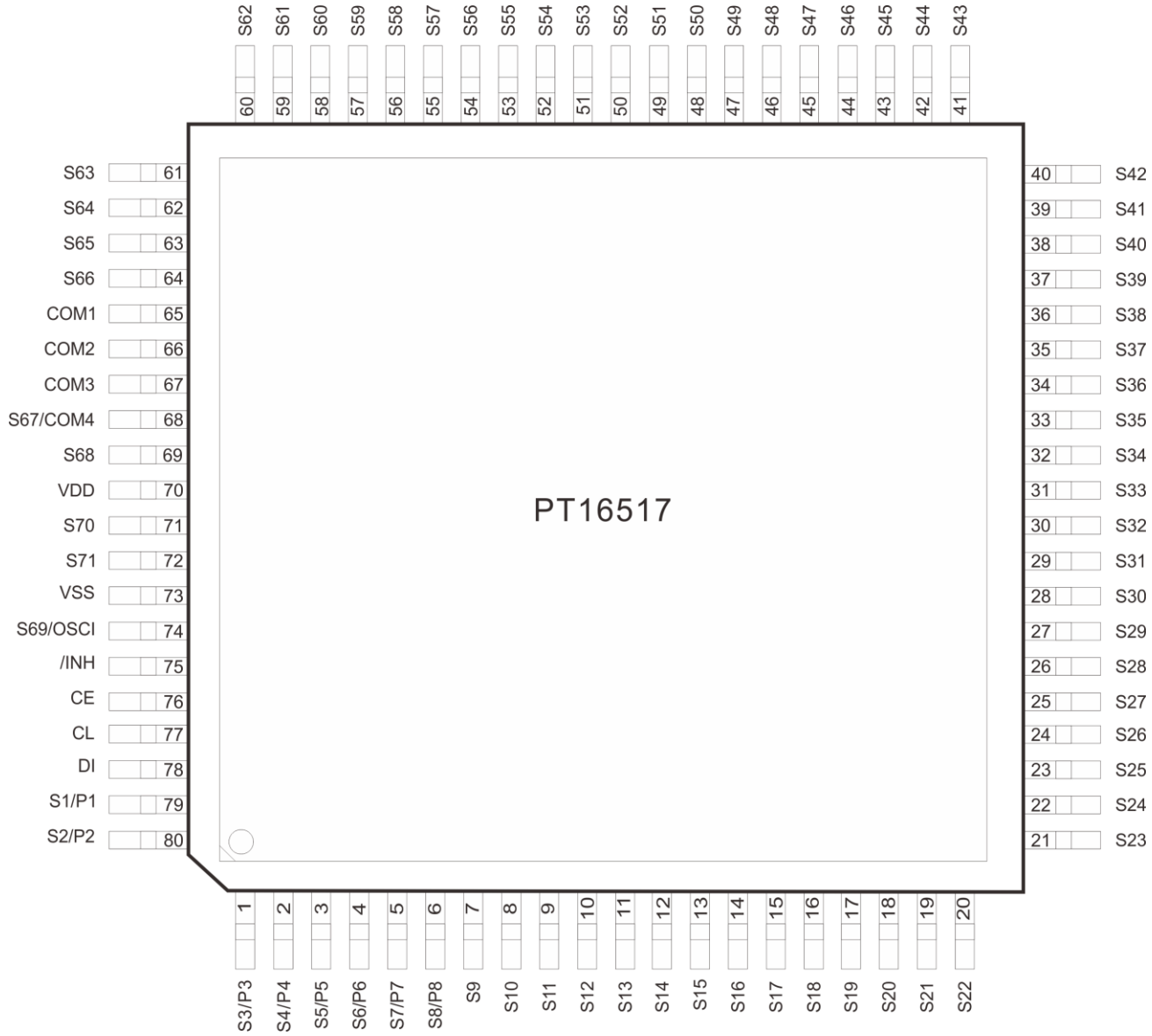
1. APPLICATION CIRCUIT



2.ORDER INFORMATION

Valid Part Number	Package Type	Top Code
PT16517-LQ	80-PIN, LQFP	PT16517-LQ

3.PIN CONFIGURATION



4.PIN DESCRIPTION

Pin Name	I/O	Active	Handling when unused	Function	Pin No.
S1/P1 to S8/P8 S9 to S66 S68,S70-71	O	-	OPEN	Segment outputs for displaying the display data transferred by serial data input. The S1/P1 to S8/P8 pins can be used as general-purpose output ports under serial data control.	79, 80, 1 to 6 7 to 64 69,71 to 72
COM1 to COM3 COM4/S67	O	-	OPEN	Common driver outputs The frame frequency is fo[Hz]. The COM4/S67 pin can be used as a segment output in 1/3 duty.	65 to 67 68
S69/OSCI	I/O	-	OPEN	Segment output. This pin can also be used as the external clock input pin when the external clock operating mode is selected by control data.	74
CE CL DI	I I I	H ↑ -	GND	Serial data transfer inputs. Must be connected to the controller. CE: Chip enable CL: Synchronization clock DI: Transfer data	76 77 78
/INH	I	L	GND	Display off control input •/INH=low(V_{SS})….Display forced off S1/P1 to S8/P8=low (V_{SS}) (These pins are forcibly set to the general-purpose output port function and held at the VSS level.) S9 to S66, S68, S70, S71=low(V_{SS}) COM1 to COM3= low(V_{SS}) COM4/S67=low(V_{SS}) S69/OSCI=low(V_{SS}) (This pin is forcibly set to the segment output port function and held at the V_{SS} level.) Stops the internal oscillator. Inhibits external clock input. Display contrast adjustment circuit stopped. •/INH=high(V_{DD})…Display on Enables the internal oscillator circuit. (Internal oscillator operating mode) Enables external clock input. (External clock operating mode) Display contrast adjustment circuit operation is enabled. However, serial data transfer is possible when the display is forced off.	75
V_{DD}	-	-	-	Power supply pin. A power voltage of 4.5 to 6.3V must be applied to this pin.	70
V_{SS}	-	-	-	Ground pin. Must be connected to ground.	73

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.

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