普 誠 科 技 Princeton Technology Corp.

DESCRIPTION

PT16974 is a linear LED driver for automotive exterior lighting. It incorporates linear regulation and multiple logic control for use in Rear Combination Lamps. There are eight linear programmable constant current sources, so that provides various sequencing turn signals.

PT16974 allows to set the STOP (DC value) and TAIL illumination (PWM duty cycle) via tow single resistors, the TAIL illumination can be controlled by external PWM input also.

Sequencing functionality is activated, controlled, and programmed by individual pins. In addition to programming of the sequence interval, the device can sequence 8 individual output channels, 4 pairs of output channels, 2 quad output channels, or all 8 at once.

An optional external ballast FET helps distribute the system power for high current application. Regulates the voltage at the top (anode) of the LED strings, to reduce the power dissipation of the device. Set back power limit reduces the drive current during overvoltage conditions. This is most useful for low power applications when no external FET is used.

A global enable function helps to active the device by external signal.

APPLICATION

- Rear Combination Lamps (RCL)
- Turn Signal
- Center High Mounted Stop Lamps (CHMSL) Arrays
- Daytime Running Lights (DRL)
- Fog Lights
- Signature Lamp

FEATURE

- Programmable LED current outputs for LED string
- LED current up to 800mA
- Single resistor set for the STOP current
- Single resistor set for the TAIL dimming
- Single resistor set for programming of the sequence interval
- Global enable control
- Various display sequencing
- Open LED string diagnostic with open-drain output in all modes
- Integrated 800Hz PWM dimming
- External PWM modulation input
- Low dropout operation for pre-regulator applications
- Overvoltage set back power limitation
- Programmable latch-off function on open string
- Over temperature protection
- HSSOP24 package

BLOCK DIAGRAM





ORDER INFORMATION

Valid Part Number	Package Type	Top Code
PT16974-HX	24 Pins, HSSOP	PT16974-HX

PIN CONFIGURATION



Top View



PIN DESCRIPTION

Pin Name	Description	Pin No.
DIAG	Diagnostic output. Requires a pull-up resistor. Normal operation in logic low, and indicate fault status in logic high. Fault status includes LED open circuit, RSTOP current limit, set back current Limit down 20%, and thermal shutdown. Forcing this pin below 1.8V (typ) to reinitiate the device. Ground this pin if not used.	1
SEQ1	Output sequencing setting. Ground or leave this pin floating for sequencing programming.	2
SEQ2	Output sequencing setting. Ground or leave this pin floating for sequencing programming.	3
LO	Ground this pin for latch off function.	4
RSTOP	STOP current programming pin. Connect a resistor to GND_Signal to set the output current of STOP mode.	5
RTAIL	TAIL current PWM duty cycle programming pin. Connect a resistor to GND_Signal to set the dimming duty cycle. Ground pin if using external modulation.	6
SEQTIME	Sequence Time programming pin. Connect a resistor to GND_Signal to set the sequence time.	7
OUT8	Channel 8 constant current output to LED. Ground this pin to GND_DRV is not used.	8
OUT7	Channel 7 constant current output to LED. Ground this pin to GND_DRV is not used.	9
OUT6	Channel 6 constant current output to LED. Ground this pin to GND_DRV is not used.	10
OUT5	Channel 5 constant current output to LED. Ground this pin to GND_DRV is not used.	11
GND_Signal	Analog ground. Return for the internal reference voltage and analog circuit. Connect to circuit ground, GND, to complete return path.	
GND_DRV	Power ground. Return for high current (8 channels). Connect to circuit ground, GND, to complete return path.	13
OUT4	Channel 4 constant current output to LED. Ground this pin to GND_DRV is not used.	14
OUT3	Channel 3 constant current output to LED. Ground this pin to GND_DRV is not used.	15
OUT2	Channel 2 constant current output to LED. Ground this pin to GND_DRV is not used.	16
OUT1	Channel 1 constant current output to LED. Ground this pin to GND_DRV is not used.	17
SEQOUT	Sequence status reporting, open-drain output, requires a pull-up resistor. Follows ENABLE pin after delay of OUT8 with SEQON high.	18
SEQON	Sequence mode enable. Requires a pull-up resistor, tie this pin to logic high, turns on 1-8 output sequencing.	19
ENABLE	Global enable input. Ground this pin to turn device on.	20
VP	Supply voltage input.	21
Ballast Drive	Gate drive for external power distribution PFET. Ground if not used.	22
FB	Feedback Sense reference, connect resistor divider from the top (anode) of the LED strings (Vstring) to set the regulation voltage. Connect to GND if not use.	
STOP	Stop Logic Input. External Modulation Input when VP is high.	
Thermal pad	Ground. Do not connect to PCB traces other than GND.	



IMPORTANT NOTICE

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