

Product Overview

TL494: PWM Controller (up to 200 kHz)

For complete documentation, see the data sheet.

The TL494 PWM Controller incorporates all the functions required in the construction of a pulse width modulation (PWM) control circuit on a single chip. Designed primarily for power-supply control, this device offers the flexibility to tailor the power-supply control circuitry to a specific application. The TL494 PWM Controller contains two error amplifiers, an on-chip adjustable oscillator, a dead-time control (DTC) comparator, a pulse-steering control flip-flop, a 5-V, 5%-precision regulator, and output-control circuits. The error amplifiers exhibit a common-mode voltage range from -0.3 V to $V_{CC} - 2$ V. The dead-time control comparator has a fixed offset that provides approximately 5% dead time. The on-chip oscillator can be bypassed by terminating RT to the reference output and providing a sawtooth input to CT, or it can drive the common circuits in synchronous multiple-rail power supplies. The uncommitted output transistors provide either common-emitter or emitter-follower output capability. This PWM Controller provides for push-pull or single-ended output operation, which can be selected through the output-control function. The architecture of this device prohibits the possibility of either output being pulsed twice during push-pull operation. The TL494C PWM Controller is characterized for operation from 0°C to 70°C. The TL494I is characterized for operation from -40°C to 85°C. The TL494B is characterized for operation from -40°C to 125°C. The NCV494B is characterized for -40°C to 125°C and certified for automotive applications.

Features

- Variable Frequency Operation (up to 200 KHz)
- PWM Buck Controller Configuration
- Complete Pulse Width Modulation Control Circuitry
- On-Chip Oscillator with Master or Slave Operation
- On-Chip Error Amplifiers
- On-Chip 5.0 V Reference
- Adjustable Deadtime Control
- Uncommitted Output Transistors Rated to 500 mA Source or Sink
- Output Control for Push-Pull or Single-Ended Operation
- Undervoltage Lockout

For more features, see the data sheet

Benefits

- Optimize system size and efficiency
- Simple to use in buck configuration

Applications

- Off-line power supply
- Buck converter

End Products

- VPA (Vehicle Power Adapter)
- LED Lighting

Part Electrical Specifications

| Product | Pricing (\$/Unit) | Compliance | Status | Topology | Phases | Control Mode | V_{CC} Min (V) | V_{CC} Max (V) | f_{SW} Typ (kHz) | Package Type |
|------------|-------------------|-------------------------------|--------|--|--------|--------------|------------------|------------------|--------------------|--------------|
| TL494BDR2G | 0.2652 | Pb-free non AEC-Q and PPAP | Active | Flyback Forward Half-Bridge Push-Pull Step-Down Step-Up | 1 | Voltage Mode | 7 | 40 | Up to 200 | SOIC-16 |
| TL494CDR2G | 0.2605 | Pb-free non AEC-Q and PPAP | Active | Flyback Forward Half-Bridge Push-Pull Step-Down Step-Up | 1 | Voltage Mode | 7 | 40 | Up to 200 | SOIC-16 |

For more information please contact your local sales support at www.onsemi.com.

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