

The PT7746 is a high-output 32 Amp "Current Booster" for the PT7770 series housed in a 27-pin SIP package.

Multiple PT7746 boosters will operate in parallel with any of the PT7770 series products, boosting output current in increments of 32A. Combinations of a PT7770 series regulator and PT7746 current boosters can supply enough power for virtually any multiple mega-processor application.

A PT7746 current booster adds a parallel output stage that is driven from the

regulator. As such, the system runs in perfect synchronization providing a low noise solution.

The PT7746 only operates in combination with a PT7770 series regulator and is not a stand-alone product. Please refer to the PT7771, PT7772, or PT7777 series data sheet for performance specifications.

The PT7746 has the same mechanical outline and package options as the PT7770 series.

## Features

- 32A Current Boost
- Tracks  $V_o$  of a PT7770
- High Efficiency
- Input Voltage Range: 3V to 5.5V
- Synchronized with PT7770
- 27-pin SIP Package
- Run up to 2 in Parallel - 96 Amps

## Pin-Out Information

| Pin | Function       | Pin | Function       |
|-----|----------------|-----|----------------|
| 1   | Do not connect | 14  | GND            |
| 2   | Do not connect | 15  | GND            |
| 3   | Do not connect | 16  | GND            |
| 4   | Do not connect | 17  | GND            |
| 5   | Do not connect | 18  | GND            |
| 6   | Do not connect | 19  | GND            |
| 7   | $V_{in}$       | 20  | $V_{out}$      |
| 8   | $V_{in}$       | 21  | $V_{out}$      |
| 9   | $V_{in}$       | 22  | $V_{out}$      |
| 10  | $V_{in}$       | 23  | $V_{out}$      |
| 11  | $V_{in}$       | 24  | $V_{out}$      |
| 12  | Do not connect | 25  | $V_{out}$      |
| 13  | GND            | 26  | Do not connect |
|     |                | 27  | Master Sync In |

## Ordering Information

### PT7746□

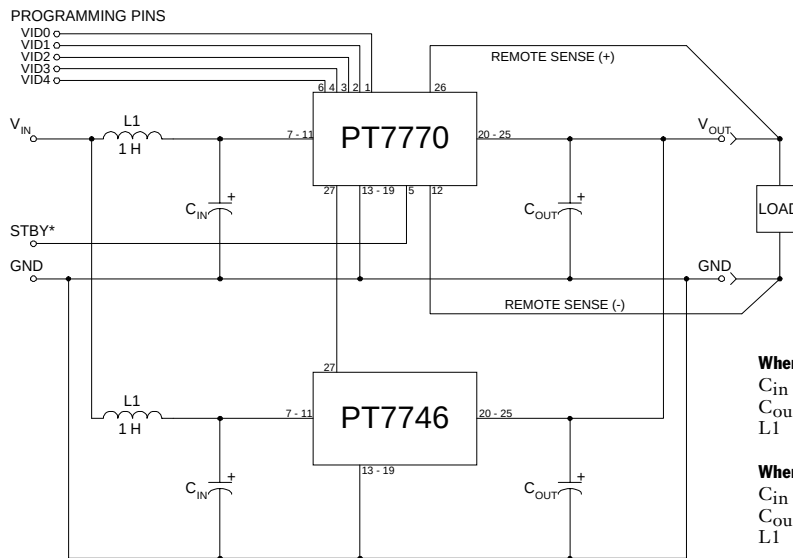
(For dimensions and PC Board layout, see Package Styles 1020 and 1030.)

## PT Series Suffix (PT1234X)

### Case/Pin Configuration

|                          |          |
|--------------------------|----------|
| Vertical Through-Hole    | <b>N</b> |
| Horizontal Through-Hole  | <b>A</b> |
| Horizontal Surface Mount | <b>C</b> |

## Standard Application



### When used with PT7771/7772:

$C_{in}$  = Required 2400 $\mu$ F electrolytic  
 $C_{out}$  = Required 2400 $\mu$ F electrolytic  
 $L1$  = Optional 1 $\mu$ H input choke

### When used with PT7777:

$C_{in}$  = Required 2400 $\mu$ F electrolytic  
 $C_{out}$  = Required 680 $\mu$ F electrolytic  
 $L1$  = Optional 1 $\mu$ H input choke

**Output Capacitors:** When used with a PT7771 or PT7772, the PT7746 requires a minimum output capacitance of 2400 $\mu$ F. When used with a PT7777, the PT7746 requires a minimum output capacitance of 680 $\mu$ F for proper operation. Do not use Oscon type capacitors. The maximum allowable output capacitance is 30,000 $\mu$ F.

**Input Filter:** An input filter is optional for most applications. The input inductor must be sized to handle 32ADC with a typical value of 1 $\mu$ H. The input capacitance must be rated for a minimum of 2.6Arms of ripple current. For transient or dynamic load applications, additional capacitance may be required.

## PACKAGING INFORMATION

| Orderable Device | Status <sup>(1)</sup> | Package Type | Package Drawing | Pins | Package Qty | Eco Plan <sup>(2)</sup> | Lead/Ball Finish | MSL Peak Temp <sup>(3)</sup> |
|------------------|-----------------------|--------------|-----------------|------|-------------|-------------------------|------------------|------------------------------|
| PT7746A          | NRND                  | SIP MOD ULE  | EJA             | 27   | 6           | TBD                     | Call TI          | Level-1-215C-UNLIM           |
| PT7746C          | NRND                  | SIP MOD ULE  | EJC             | 27   |             | TBD                     | Call TI          | Call TI                      |
| PT7746N          | NRND                  | SIP MOD ULE  | EJD             | 27   |             | TBD                     | Call TI          | Call TI                      |

<sup>(1)</sup> The marketing status values are defined as follows:

**ACTIVE:** Product device recommended for new designs.

**LIFEBUY:** TI has announced that the device will be discontinued, and a lifetime-buy period is in effect.

**NRND:** Not recommended for new designs. Device is in production to support existing customers, but TI does not recommend using this part in a new design.

**PREVIEW:** Device has been announced but is not in production. Samples may or may not be available.

**OBsolete:** TI has discontinued the production of the device.

<sup>(2)</sup> Eco Plan - The planned eco-friendly classification: Pb-Free (RoHS), Pb-Free (RoHS Exempt), or Green (RoHS & no Sb/Br) - please check <http://www.ti.com/productcontent> for the latest availability information and additional product content details.

**TBD:** The Pb-Free/Green conversion plan has not been defined.

**Pb-Free (RoHS):** TI's terms "Lead-Free" or "Pb-Free" mean semiconductor products that are compatible with the current RoHS requirements for all 6 substances, including the requirement that lead not exceed 0.1% by weight in homogeneous materials. Where designed to be soldered at high temperatures, TI Pb-Free products are suitable for use in specified lead-free processes.

**Pb-Free (RoHS Exempt):** This component has a RoHS exemption for either 1) lead-based flip-chip solder bumps used between the die and package, or 2) lead-based die adhesive used between the die and leadframe. The component is otherwise considered Pb-Free (RoHS compatible) as defined above.

**Green (RoHS & no Sb/Br):** TI defines "Green" to mean Pb-Free (RoHS compatible), and free of Bromine (Br) and Antimony (Sb) based flame retardants (Br or Sb do not exceed 0.1% by weight in homogeneous material)

<sup>(3)</sup> MSL, Peak Temp. -- The Moisture Sensitivity Level rating according to the JEDEC industry standard classifications, and peak solder temperature.

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| DSP                | <a href="http://dsp.ti.com">dsp.ti.com</a>                         |
| Interface          | <a href="http://interface.ti.com">interface.ti.com</a>             |
| Logic              | <a href="http://logic.ti.com">logic.ti.com</a>                     |
| Power Mgmt         | <a href="http://power.ti.com">power.ti.com</a>                     |
| Microcontrollers   | <a href="http://microcontroller.ti.com">microcontroller.ti.com</a> |
| RFID               | <a href="http://www.ti-rfid.com">www.ti-rfid.com</a>               |
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### Applications

|                    |                                                                          |
|--------------------|--------------------------------------------------------------------------|
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| Digital Control    | <a href="http://www.ti.com/digitalcontrol">www.ti.com/digitalcontrol</a> |
| Military           | <a href="http://www.ti.com/military">www.ti.com/military</a>             |
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