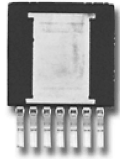


## 2A SIMPLE SWITCHER® Power Module with 42V Maximum Input Voltage

Easy to use 7 pin package



Top View



Bottom View

30114586

**TO-PMOD 7 Pin Package**  
 10.16 x 13.77 x 4.57 mm (0.4 x 0.542 x 0.18 in)  
 $\theta_{JA} = 20^{\circ}\text{C/W}$ ,  $\theta_{JC} = 1.9^{\circ}\text{C/W}$   
 RoHS Compliant

### Applications

- Point of load conversions from 12V and 24V input rail
- Time critical projects
- Space constrained / high thermal requirement applications
- Negative output voltage applications

### Performance Benefits

- Operates at high ambient temperature with no thermal derating
- High efficiency reduces system heat generation
- Low radiated emissions (EMI) complies with EN55022 class B standard
- Passes 10V/m radiated immunity EMI test standard EN61000 4-3

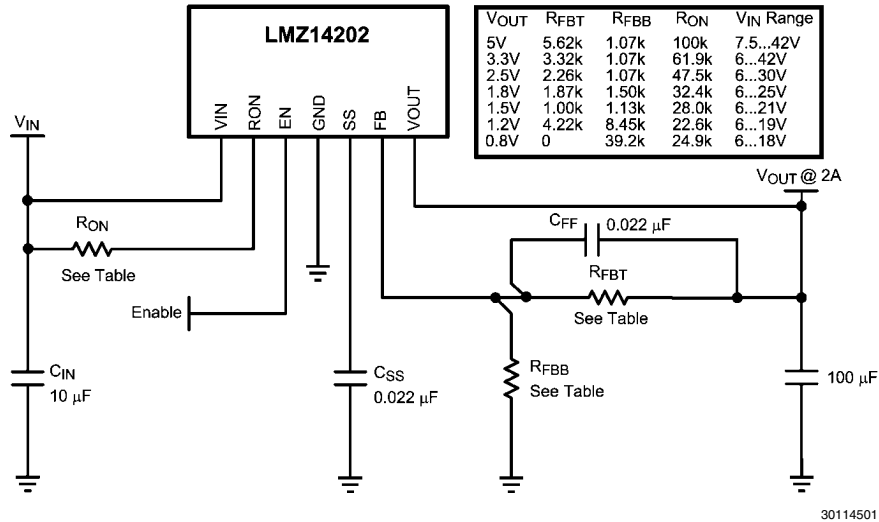
### Electrical Specifications

- 9W maximum total output power
- Up to 2A output current
- Input voltage range 6V to 42V
- Output voltage range 0.8V to 6V
- Efficiency up to 90%

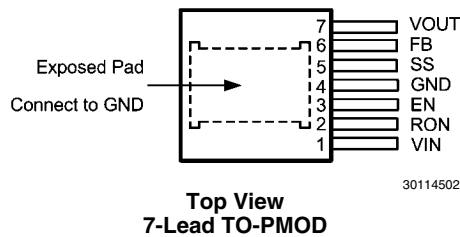
### Key Features

- Integrated shielded inductor
- Simple PCB layout
- Flexible startup sequencing using external soft-start and precision enable
- Protection against inrush currents and faults such as input UVLO and output short circuit
- $-40^{\circ}\text{C}$  to  $125^{\circ}\text{C}$  junction temperature range
- Single exposed pad and standard pinout for easy mounting and manufacturing
- Fast transient response for powering FPGAs and ASICs
- Low output voltage ripple
- Pin-to-pin compatible family:
  - LMZ14202/2/1 (42V max 3A, 2A, 1A)
  - LMZ12003/2/1 (20V max 3A, 2A, 1A)
- Fully enabled for Webench® Power Designer

## Simplified Application Schematic



## Connection Diagram



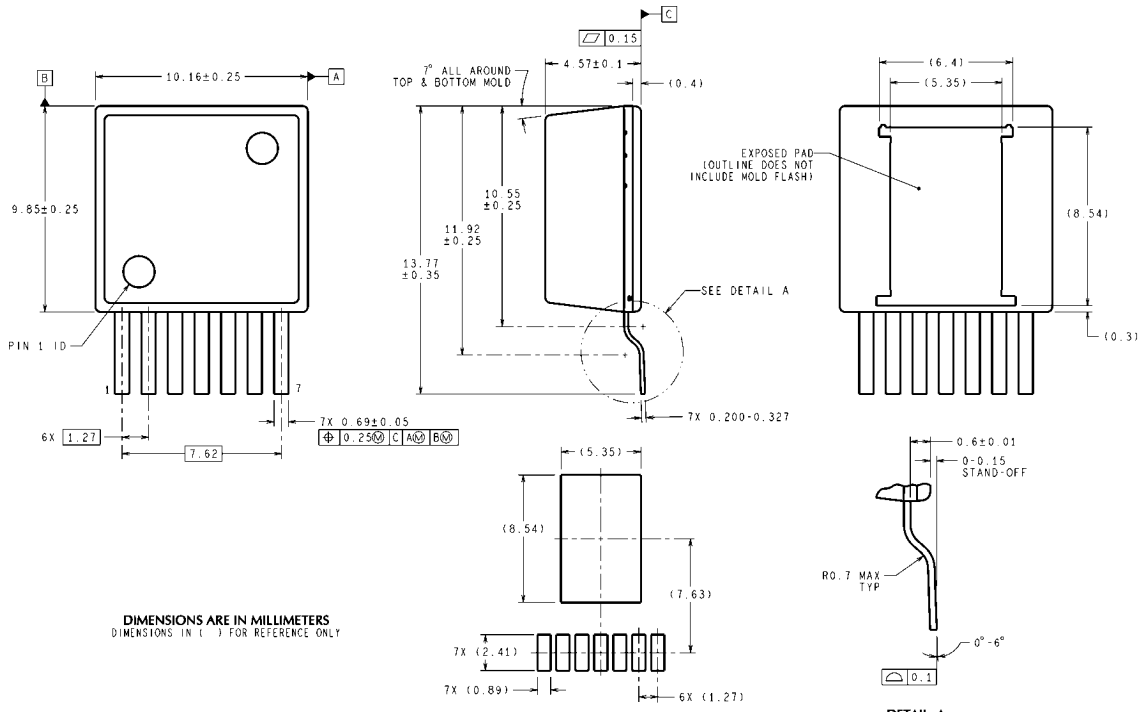
## Ordering Information

| Order Number    | Package Type | NSC Package Drawing | Supplied As                |
|-----------------|--------------|---------------------|----------------------------|
| LMZ14202TZ-ADJ  | TO-PMOD-7    | TZA07A              | 250 Units on Tape and Reel |
| LMZ14202TZX-ADJ | TO-PMOD-7    | TZA07A              | 500 Units on Tape and Reel |

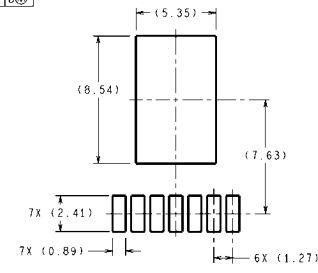
## Pin Descriptions

| Pin | Name | Description  |
|-----|------|--|
| 1   | VIN  | Supply input — Nominal operating range is 6V to 42V . A small amount of internal capacitance is contained within the package assembly. Additional external input capacitance is required between this pin and exposed pad.                                 |
| 2   | RON  | On Time Resistor — An external resistor from $V_{IN}$ to this pin sets the on-time of the application. Typical values range from 25k to 100k ohms.   |
| 3   | EN   | Enable — Input to the precision enable comparator. Rising threshold is 1.18V nominal; 90 mV hysteresis nominal. Maximum recommended input level is 6.5V.   |
| 4   | GND  | Ground — Reference point for all stated voltages. Must be externally connected to EP.  |
| 5   | SS   | Soft-Start — An internal 8 $\mu$ A current source charges an external capacitor to produce the soft-start function. This node is discharged at 200 $\mu$ A during disable, over-current, thermal shutdown and internal UVLO conditions.                    |
| 6   | FB   | Feedback — Internally connected to the regulation, over-voltage, and short-circuit comparators. The regulation reference point is 0.8V at this input pin. Connected the feedback resistor divider between the output and ground to set the output voltage. |
| 7   | VOUT | Output Voltage — Output from the internal inductor. Connect the output capacitor between this pin and exposed pad.   |
| EP  | EP   | Exposed Pad — Internally connected to pin 4. Used to dissipate heat from the package during operation. Must be electrically connected to pin 4 external to the package.  |

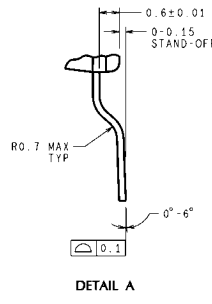
**Physical Dimensions** inches (millimeters) unless otherwise noted



DIMENSIONS ARE IN MILLIMETERS  
DIMENSIONS IN ( ) FOR REFERENCE ONLY



**7-Lead TZA Package**  
**NS Package Number TZA07A**



TZA07A (Rev C)

## Notes

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| Power Management               | <a href="http://www.national.com/power">www.national.com/power</a>           | Green Compliance             | <a href="http://www.national.com/quality/green">www.national.com/quality/green</a> |
| Switching Regulators           | <a href="http://www.national.com/switchers">www.national.com/switchers</a>   | Distributors                 | <a href="http://www.national.com/contacts">www.national.com/contacts</a>           |
| LDOs                           | <a href="http://www.national.com/ldo">www.national.com/ldo</a>               | Quality and Reliability      | <a href="http://www.national.com/quality">www.national.com/quality</a>             |
| LED Lighting                   | <a href="http://www.national.com/led">www.national.com/led</a>               | Feedback/Support             | <a href="http://www.national.com/feedback">www.national.com/feedback</a>           |
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