

## Features

- Efficiency up to 94%, non-isolated, no need for heatsinks!
- Pin-out compatible with LM78XX Linears
- Very low profile (L\*W\*H=11.5\*7.5\*10.2mm)
- Wide input range (4.75V ~ 18V)
- Short circuit protection, thermal shutdown
- UL94V-0 Package Material
- Non standard outputs available as specials between 1.5V ~5.5V
- Low ripple and noise

## Selection Guide

| Part Number | Input Range (V) | Output Voltage (V) | Output Current (A) | Efficiency Min. Vin (%) | Max. Vin (%) |
|-------------|-----------------|--------------------|--------------------|-------------------------|--------------|
| SIP3        | (V)             | (V)                | (A)                | (%)                     | (%)          |
| R-781.8-1.0 | 4.75 – 18       | 1.8                | 1.0                | 82                      | 76           |
| R-782.5-1.0 | 4.75 – 18       | 2.5                | 1.0                | 87                      | 81           |
| R-783.3-1.0 | 4.75 – 18       | 3.3                | 1.0                | 90                      | 84           |
| R-785.0-1.0 | 6.5 – 18        | 5.0                | 1.0                | 94                      | 89           |

## Description

The R-78xx-1.0 series high efficiency switching regulators are ideally suited to replace 1 Amp 78xx linear regulators and are pin compatible. The efficiency of up to 97% means that very little energy is wasted as heat so there is no need for any heat sinks with their additional space and mounting costs. Low ripple and noise figures and a short circuit input current of typically only 10mA round off the specifications of this versatile converter series.

## Specifications ( typical at 25°C, 10% minimum load, unless otherwise specified )

| Characteristics                            | Conditions                    | Min.                           | Typ.    | Max.      |
|--------------------------------------------|-------------------------------|--------------------------------|---------|-----------|
| Input Voltage Range                        | All Series                    | 4.75                           |         | 18V       |
| Output Voltage Range                       | All Series                    | 1.5                            |         | 5.5V      |
| Output Current                             | All Series                    | 0                              |         | 1000mA    |
| Output Current Limit                       | All Series                    |                                |         | 3000mA    |
| Short Circuit Input Current                | All Series                    |                                | 10      | 30mA      |
| Internal Power Dissipation                 |                               |                                |         | 0.4W      |
| Short Circuit Protection                   |                               | Continuous, automatic recovery |         |           |
| Output Voltage Accuracy (At 100% Load)     | All Series                    |                                | ±2      | ±3%       |
| Line Regulation (100% Load, Vin max.)      | All Series                    |                                | 0.2     | 0.4%      |
| Load Regulation (10 to 100% full load)     | All Series                    |                                | 0.4     | 0.6%      |
| Dynamic Load Stability                     | 100% <-> 50% load             |                                | ±85mV   | ±100mV    |
| Ripple & Noise (20Mhz BW)                  | All Series                    |                                | 20mVp-p | 30mVp-p   |
| Temperature Coefficient                    | -40°C ~ +85°C ambient         |                                |         | 0.015%/°C |
| Max capacitance Load                       |                               |                                |         | 220µF     |
| Switching Frequency                        |                               | 280                            | 350     | 430kHz    |
| Quiescent Current                          | Vin = min. to max. at 0% load |                                | 5       | 7mA       |
| Operating Temperature Range                |                               | -40°C                          |         | +85°C     |
| Operating Case Temperature (with derating) |                               |                                |         | +100°C    |
| Storage Temperature Range                  |                               | -55°C                          |         | +125°C    |
| Case Thermal Impedance                     |                               |                                |         | 70°C/W    |
| Thermal Shutdown                           | Internal IC junction          |                                | +160°C  |           |
| Package Weight                             |                               |                                |         | 1.9g      |

Package Weight

MIL-STD-883C

(+71°C)

Detailed Information see  
Application Notes chapter "MTBF"

using MIL-HDBK 217F

13338 x 10<sup>3</sup> hours

using MIL-HDBK 217F

3880 x 10<sup>3</sup> hours

## INNOLINE

DC/DC-Converter

# R-78xx-1.0 Series

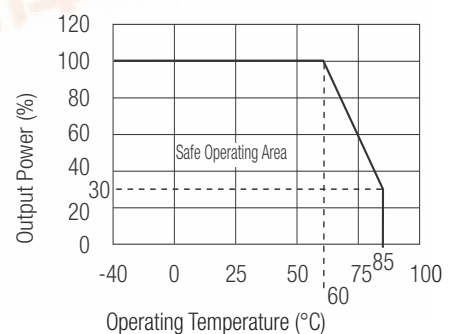
1.0 AMP

SIP3

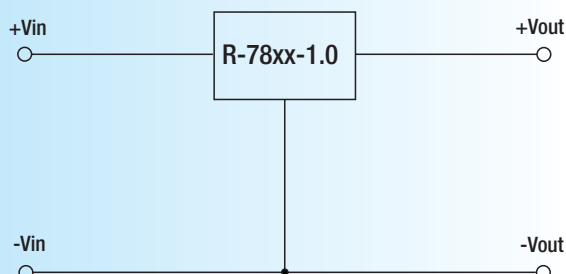
Single Output



## Derating-Graph (Ambient Temperature)



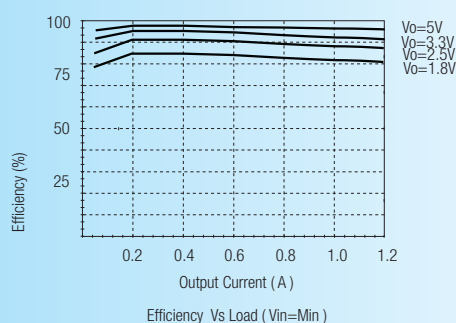
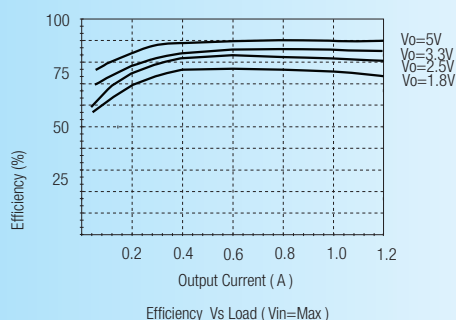
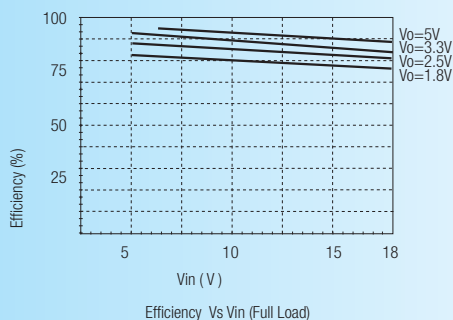
## Standard Application Circuit



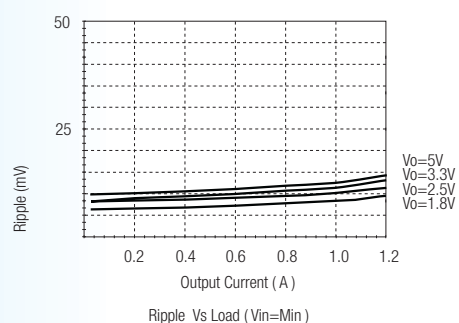
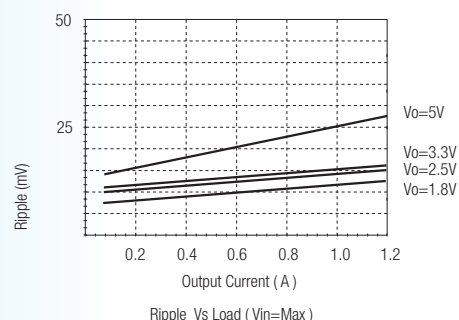
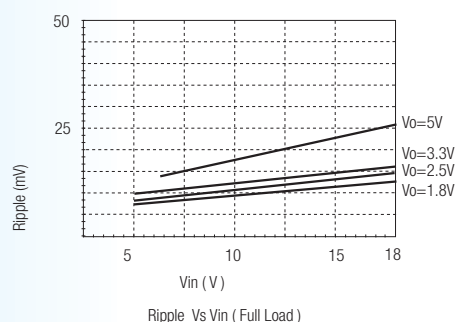
Add a blocking diode to Vout if current can flow backwards into the output, as this can damage the converter..

## Characteristics

### Efficiency

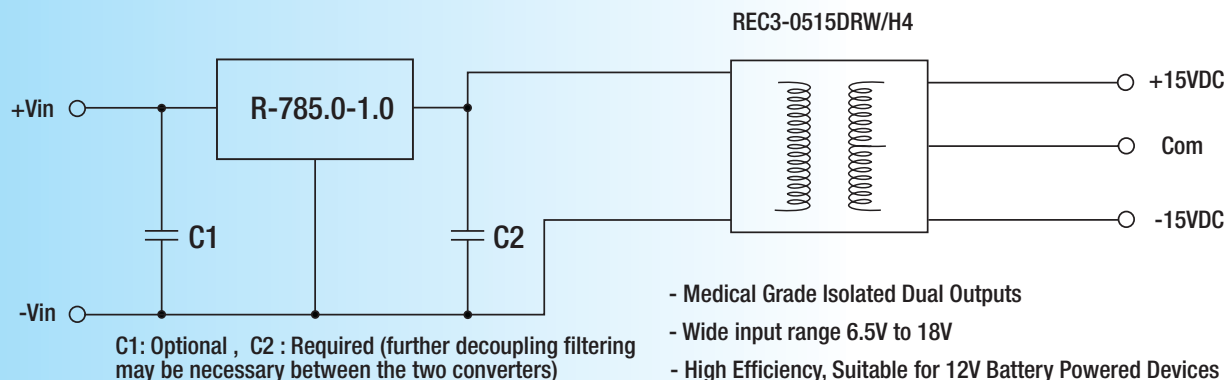


### Ripple

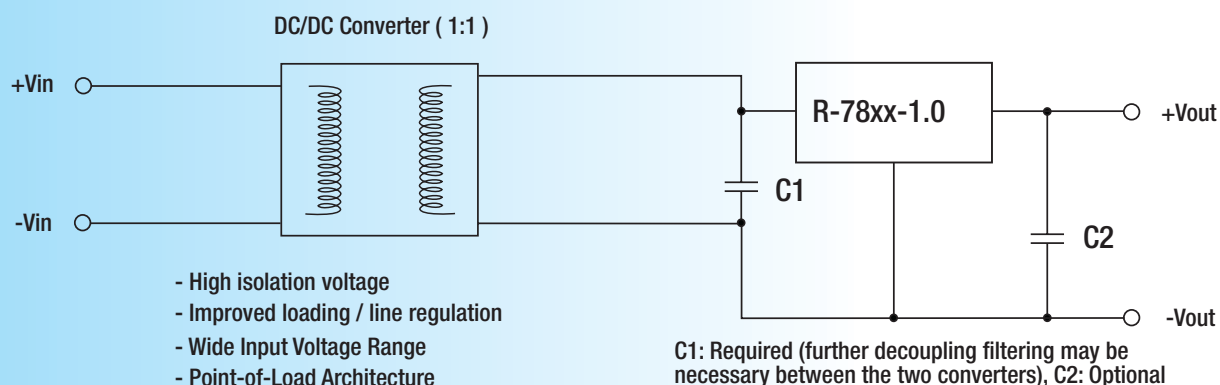


## Application Examples

High efficiency, isolated, dual regulated outputs



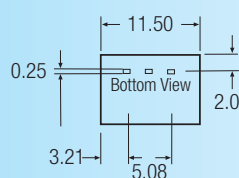
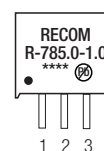
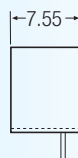
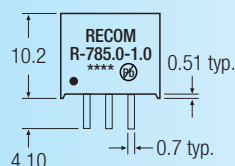
Isolated (up to 6KV), wide Input range regulated output



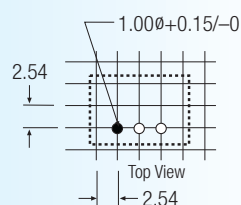
## Package Style and Pinning (mm)

SIP3 PIN Package

3rd angle projection



Recommended Footprint Details



Pin Connections

| Pin # |       |
|-------|-------|
| 1     | +Vin  |
| 2     | GND   |
| 3     | +Vout |

xx.x ±0.5mm  
xx.xx ±0.25mm