

Features

- Efficiency up to 96%, no need for heatsinks!
- Pin-out compatible with LM78XX Linear Regs.
- Low profile (L*W*H=11.6*8.5*10.4mm)
- Wide input range (5V ~ 42V)
- Short circuit protection, thermal shutdown
- Non standard outputs available as specials
- Low ripple and noise
- See Innoline App Notes for use as a positive-to-negative inverter (alternative to 79xx regulator)

Selection Guide

| Part Number SIP3 | Input Range (V) | Output Voltage (V) | Output Current (A) | Efficiency | |
|---------------------|--------------------|-----------------------|-----------------------|-----------------|-----------------|
| | | | | Min. Vin (%) | Max. Vin (%) |
| R-78C1.8-1.0 | 5 – 42 | 1.8 | 1.0 | 80 | 71 |
| R-78C3.3-1.0 | 7 – 42 | 3.3 | 1.0 | 89 | 79 |
| R-78C5.0-1.0 | 8 – 42 | 5 | 1.0 | 93 | 85 |
| R-78C9.0-1.0 | 12 – 42 | 9 | 1.0 | 95 | 90 |
| R-78C12-1.0 | 15 – 42 | 12 | 1.0 | 96 | 92 |
| R-78C15-1.0 | 18 – 42 | 15 | 1.0 | 96 | 94 |

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

| Characteristics | Conditions | Min. | Typ. | Max. |
|----------------------------------------|---------------------------------------------------------|---------|--------------------------------|-----------------|
| Input Voltage Range | All Series | Vout+3V | | 42V |
| Output Voltage Range | All Series | 1.8V | | 15V |
| Output Current | All Series | 0mA* | | 1000mA |
| Output Current Limit | All Series | | | 3000mA |
| Short Circuit Input Current (Vin =24V) | All Series | | 65mA | |
| No Load Input Current | | | 1mA | |
| 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% | |
| Load Regulation (10 to 100% full load) | All Series | | 0.4% | |
| Dynamic Load Stability | 100% <-> 50% load | | | ±75mV |
| | 100% <-> 10% load | | | ±200mV |
| Ripple & Noise (20Mhz BW Limited) | Vin = 24V, Vout =1.8V-15V | | 75mVp-p | 100mVp-p |
| With 10µF MLCC output capacitor | Full Load | | 30mVp-p | |
| Temperature Coefficient | -40°C ~ +85°C ambient | | | 0.015%/°C |
| Max capacitance Load | with normal start-up time, no external components | | | 470µF |
| | with <1 second start up time + diode protection circuit | | | 6800µF |
| Switching Frequency | | | 350kHz | |
| Operating Temperature Range | | -40°C | | +85°C |
| Maximum Case Temperature | | | | +100°C |
| Storage Temperature Range | | -55°C | | +125°C |
| Case Thermal Impedance | | | | 70°C/W |
| Thermal Shutdown | Internal IC junction | | | +160°C |
| Conducted Emissions (with filter) | EN55022 | | | Class B |
| Radiated Emissions (with filter) | EN55022 | | | Class B |
| ESD | EN61000-4-2 | | | Class A |
| Radiated Immunity | EN61000-4-3 | | | Class A |
| Fast Transient | EN61000-4-4 | | | Class A |
| Conducted Immunity | EN61000-4-6 | | | Class A |
| Magnetic Field Immunity | EN61000-4-8 | | | Class A |
| Package Weight | | | | 2g |
| Packing Quantity | | | | 42 pcs per Tube |

INNOLINE
DC/DC-Converter
with 3 year Warranty

RECOM

1.0 AMP
SIP3
Single Output



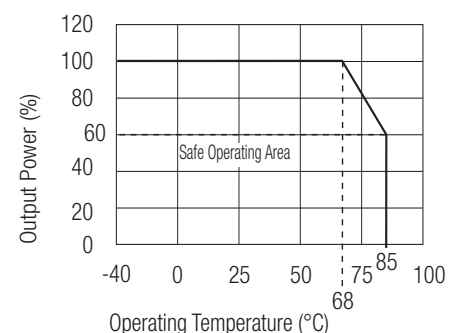
EN-60950-1 Certified

R-78C-1.0

Description

The R-78Cxx-1.0 series switching regulators are ideally suited to replace 1 Amp 78xx linear regulators and are pin compatible. Efficiencies of up to 96% means that very little energy is wasted as heat and the high input voltage is a useful feature.

Derating-Graph (Ambient Temperature)

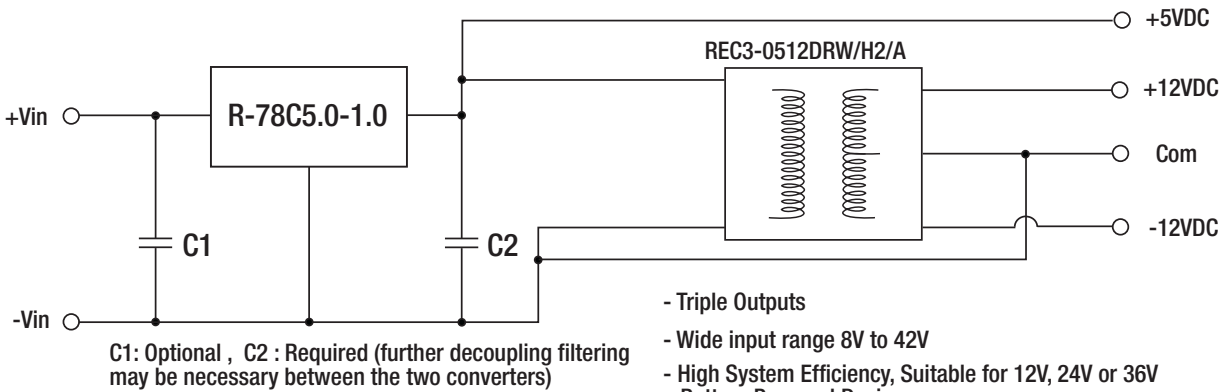


Specifications (typical at 25°C, 10% minimum load, unless otherwise specified)

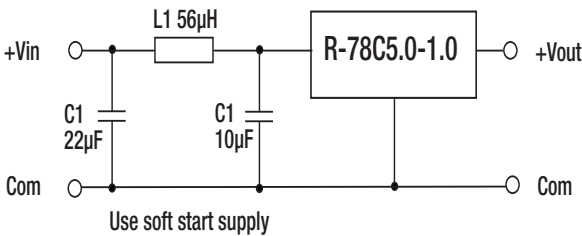
| | | |
|----------------|---------------------------------|------------------------------------------------------|
| Certifications | General Safety Standby Power | EN 60950-1:2006 + A11:2009 + A1:2010 EN62301:2005 |
| MTBF (+25°C) | using MIL-HDBK 217F | 8600 x 10 ³ hours. |
| (+68°C) | using MIL-HDBK 217F | 3880 x 10 ³ hours. |

Application Examples

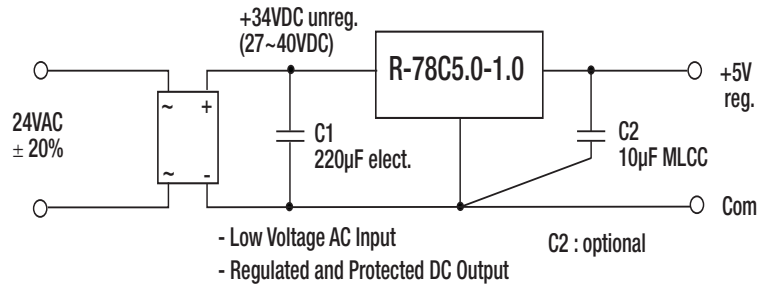
High efficiency regulated outputs



Standard Application Circuit with Class B EMC filter



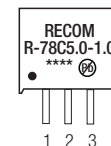
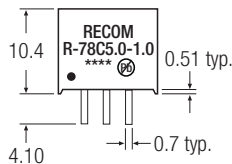
Low Voltage AC input, regulated DC output



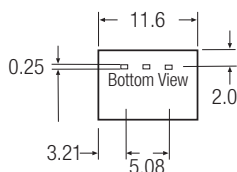
R-78C

Package Style and Pinning (mm)

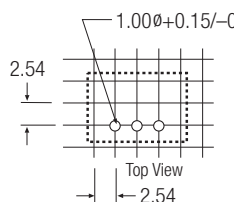
SIP3 PIN Package



3rd angle projection



Recommended Footprint Details



Pin Connections

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

xx.x ±0.5mm
xx.xx ±0.25mm