

KEY FEATURES

- SIP-Package Fits Existing TO-220 Footprint
- Pin Compatible with LMxx Linear Regulators
- Efficiency up to 96%, Non Isolated, No Need for Heatsinks
- Wide Input Operating (4.6V~36V)
- Non Standard Outputs Available as Specials Between 1.5V~15V
- Short Circuit Protection
- Over-Current Protection & Over-Temperature protection
- UL94V-0 Package Material
- Meet EN55022 Class A Conducted Emissions& Radiated Emissions(Note 3)
- Meet EN55022 Class B Conducted Emissions& Radiated Emissions(Note 4)
- 3-Years Product Warranty

A Type

PIN material: Metal

(Nickel Plate Brass)



All specifications are typical at normal input voltage, full load and +25°C otherwise noted ◦

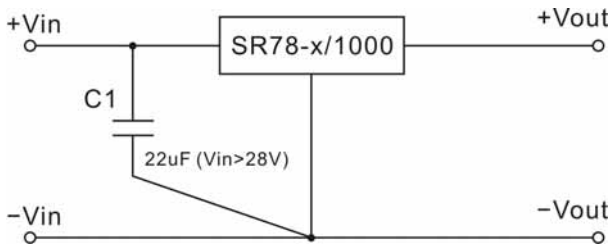
ELECTRICAL SPECIFICATIONS

| Model No. (Single Output) | SR78-1.5S/1000 | SR78-1.8S/1000 | SR78-2.5S/1000 | SR78-3.3S/1000 | SR78-5S/1000 |
|-----------------------------|----------------|----------------|----------------|----------------|---------------|
| Max Output Wattage (W) | 1.5W | 1.8W | 2.5W | 3.3W | 5W |
| Input Voltage Range (V.DC.) | 4.6-36V | 4.6-36V | 4.6-36V | 4.6-36V | 6.5-36V |
| Output Voltage (V.DC.) | 1.5V / 1000mA | 1.8V / 1000mA | 2.5V / 1000mA | 3.3V / 1000mA | 5.0V / 1000mA |
| Efficiency(Min. Vin) (typ.) | 76% | 80% | 85% | 88% | 93% |
| Efficiency(Max. Vin) (typ.) | 66% | 71% | 76% | 80% | 85% |

| Model No. (Single Output) | SR78-6.5S/1000 | SR78-9S/1000 | SR78-12S/1000 | SR78-15S/1000 |
|-----------------------------|----------------|---------------|---------------|---------------|
| Max Output Wattage (W) | 6.5W | 9W | 12W | 15W |
| Input Voltage Range (V.DC.) | 8.0-36V | 11-36V | 15-36V | 18-34V |
| Output Voltage (V.DC.) | 6.5V / 1000mA | 9.0V / 1000mA | 12V / 1000mA | 15V / 1000mA |
| Efficiency(Min. Vin) (typ.) | 93% | 95% | 95% | 96% |
| Efficiency(Max. Vin) (typ.) | 87% | 90% | 92% | 93% |

| Model No. (Single Output) | SR78-1.5 S/1000 | SR78-1.8 S/1000 | SR78-2.5 S/1000 | SR78-3.3 S/1000 | SR78-5S /1000 | SR78-6.5 S/1000 | SR78-9S /1000 | SR78-12 S/1000 | SR78-15 S/1000 | | | | |
|--|---|-----------------|-----------------|-----------------|---------------|-----------------|---------------|----------------|----------------|----------|--|--|--|
| Max Output Wattage (W) | 1.5W | 1.8W | 2.5W | 3.3W | 5W | 6.5W | 9W | 12W | 15W | | | | |
| Input | Input Voltage Range (V.DC.)(Note 1) | | | | | | | | | | | | |
| | 4.6-36V | | | 4.6-36V | | | 4.6-36V | | | 4.75-36V | | | |
| | 9 VDC | | | 12 VDC | | | 24 VDC | | | | | | |
| Nominal input | | | | | | | | | | | | | |
| Input filter | | | | | | | | | | | | | |
| C filter | | | | | | | | | | | | | |
| Output | Voltage (V.DC.) | | | | | | | | | | | | |
| | 1.5V | 1.8V | 2.5V | 3.3V | 5.0V | 6.5V | 9.0V | 12V | 15V | | | | |
| | Voltage Accuracy (at Full Load) | | | | | | | | | | | | |
| | ±3% | | | | | | | | | | | | |
| | Current (mA) (max.) | | | | | | | | | | | | |
| | 1000 | | | | | | | | | | | | |
| | Quiescent Current (mA) (max.) | | | | | | | | | | | | |
| | 1~2 (Vin=min. to max. at 0% Load) | | | | | | | | | | | | |
| | Minimum Load (Note 2) | | | | | | | | | | | | |
| | 0% | | | | | | | | | | | | |
| Line Regulation (LL-28V) (typ.) (Note 1) | | | | | | | | | | | | | |
| ±1% (at full load) | | | | | | | | | | | | | |
| Load Regulation (10-100%) (typ.) | | | | | | | | | | | | | |
| ±0.8% (Nominal input) | | | | | | | | | | | | | |
| Ripple&Noise (Nominal Input) (20MHz) | | | | | 50mV | | 75mV | | 100mV | 120mV | | | |
| Switching Frequency (typ.) | | | | | | | | | | | | | |
| 500KHz | | | | | | | | | | | | | |
| Capacitor Load (max) | | | | | | | | | | | | | |
| 470uF | | | | | | | | | | | | | |
| Protection | Current Limit (mA) (max.) | | | | | | | | | | | | |
| | 2000 | | | | | | | | | | | | |
| | Short Circuit Protection | | | | | | | | | | | | |
| Continuous, auto-recovery | | | | | | | | | | | | | |
| Thermal Shut Down (typ.) | | | | | | | | | | | | | |
| +160°C (Internal IC Junction) | | | | | | | | | | | | | |
| Environment | Operating Temperature | | | | | | | | | | | | |
| | -40°C...+85°C (with derating) | | | | | | | | | | | | |
| | Storage Temperature | | | | | | | | | | | | |
| | -55°C...+125°C | | | | | | | | | | | | |
| | Operating Case Temperature | | | | | | | | | | | | |
| | +100°C max. | | | | | | | | | | | | |
| Case Thermal Impedance (max.) | | | | | | | | | | | | | |
| 70°C / W | | | | | | | | | | | | | |
| Humidity | | | | | | | | | | | | | |
| 95% RH | | | | | | | | | | | | | |
| MTBF | | | | | | | | | | | | | |
| 5,358,000 h @ 25°C (MIL-HDBK-217F) | | | | | | | | | | | | | |
| Physical | Dimension (L x W x H) | | | | | | | | | | | | |
| | 0.45 x 0.40 x 0.3 Inches (11.5 x 10.2 x 7.55 mm) Tolerance ±0.25 mm | | | | | | | | | | | | |
| | Case Material | | | | | | | | | | | | |
| Non-conductive black plastic | | | | | | | | | | | | | |
| Weight | | | | | | | | | | | | | |
| 1.9 g | | | | | | | | | | | | | |
| EMC | Conducted Emissions | | | | | | | | | | | | |
| | EN 55022 Class A(Note3) | | | | | | | | | | | | |
| | Radiated Emissions | | | | | | | | | | | | |
| | EN 55022 Class A(Note3) | | | | | | | | | | | | |
| Conducted Emissions | | | | | | | | | | | | | |
| EN 55022 Class B(Note4) | | | | | | | | | | | | | |
| Radiated Emissions | | | | | | | | | | | | | |
| EN 55022 Class B(Note4) | | | | | | | | | | | | | |

Note 1:

 a. Input capacitor needed only if $V_{in} > 28VDC$


b. Line Regulation (LL-36V) (typ.) <

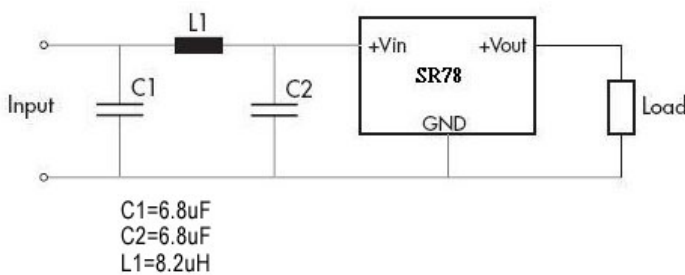
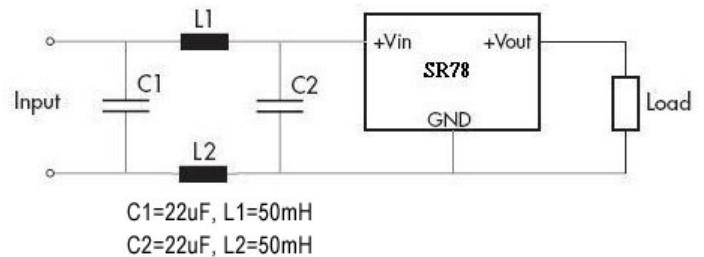
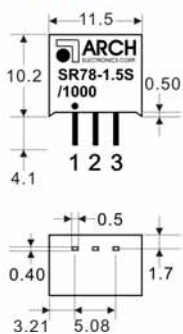
 SR78-1.5S、SR78-1.8S $\leq \pm 2.5\%$ (at Full Load)

 SR78-2.5S、SR78-3.3S $\leq \pm 2\%$ (at Full Load)

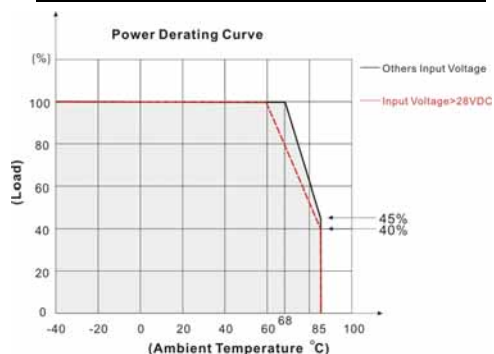
Note 2:

a. The input voltage minus the output voltage should be greater than 3 VDC, if less, a 3% minimum load is required for proper regulation.

b. For SR78-1.5S or SR78-1.8S models, Inputs greater than 28VDC require 3% minimum load for proper regulation.

Note 3:

Note 4:

MECHANICAL DIMENSION (Top View)
A Type (PIN material: Metal)


| PIN# | Single |
|------|--------|
| 1 | +VIN |
| 2 | GND |
| 3 | +VOUT |

DERATING
SR78-1.5S、5S、1.8S、2.5S、3.3S

SR78-6.5S、9S、12S、15S
