

0.5 Amps TR Series



- 3 Pin SIP 3T Switching Regulator
- Wide Input Range
- Continuous Short-circuit Protection
- Pin Compatible with LM78MXX
- Efficiency up to 94%
- -40 °C to +85 °C Operating Temperature
- 3 Year Warranty

Specification

Input

- Input Voltage Range • See table
- Input Current • See table
- Input Reflected Ripple • 35 mA pk-pk through 12 μ H inductor and 47 μ F capacitor, 5 Hz to 20 MHz
- Input Filter • External capacitor (see application notes)

Output

- Output Voltage • See table
- Minimum Load • 5 mA
- Line Regulation • $\pm 0.5\%$ max
- Load Regulation • $\pm 0.8\%$ from 10% to 100% load
- Setpoint Accuracy • $\pm 3\%$
- Turn-on Time • See note 6
- Ripple & Noise • 60 mV pk-pk with 10% minimum load, 20 MHz bandwidth
- Maximum Capacitive Load • 110 μ F for S3V3, S05 and S12 models, 47 μ F for S15 models
- Short Circuit Protection • Indefinite (automatic recovery)
- Temperature Coefficient • 0.02%/°C

General

- Efficiency • See table
- Isolation Voltage • Non-isolated
- Switching Frequency • 570 kHz typical
- Package Style • 3 pin SIP
- MTBF • >4.0 Mhrs to MIL-HDBK-217F at 25 °C, GB

Environmental

- Operating Temperature • -40 °C to +85 °C, S3V3 and S05, derate from 100% load at 70 °C to 40% load at 85 °C, S12 and S15 derate from 100% load at 65 °C to 40% load at 85 °C
- Operating Humidity • 95% RH
- Case Temperature • +100 °C max
- Storage Temperature • -40 °C to +125 °C
- Cooling • Convection-cooled

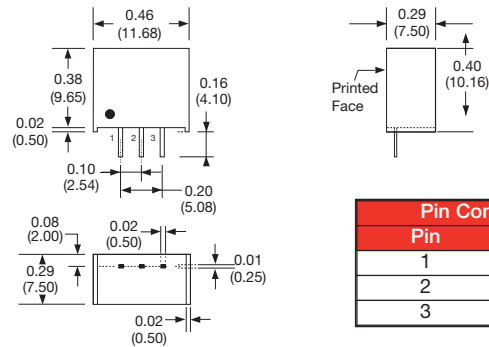
Notes

1. All dimensions in inches (mm)
2. Weight: 0.004 lbs (1.8 g)
3. Pin pitch tolerance: ± 0.014 (± 0.35)
4. Case tolerance: ± 0.02 (± 0.5)
5. Efficiency range given for maximum V_{in} to minimum V_{in}
6. For maximum reliability, ensure turn on time is >1 ms by placing a 22 μ F capacitor between +Vin and GND

Model Numbers

Input Voltage	No Load Input Current	Output Voltage	Output Current	Efficiency ⁹	Model Number
4.5-28.0 VDC	1.0 mA	3.3 V	500 mA	75-89%	TR05S3V3
7.0-28.0 VDC	1.0 mA	5.0 V	500 mA	80-92%	TR05S05
14.0-28.0 VDC	1.5 mA	12.0 V	500 mA	90-94%	TR05S12
17.0-28.0 VDC	2.0 mA	15.0 V	500 mA	92-94%	TR05S15

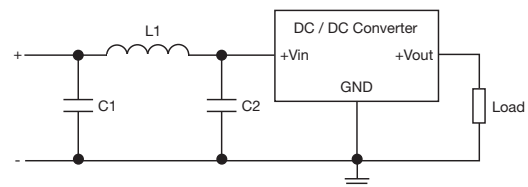
Mechanical Details



Pin Connections	
Pin	Function
1	+Vin
2	GND
3	+Vout

Application Notes

Input Filter to meet Class B Conducted Emissions



C1	L1	C2
10 μ F, 35 V	6.8 μ H	10 μ F, 35 V