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

Input Current

Input Reflected Ripple

- · See table See table

35 mA pk-pk through 12 µH inductor and 47 μF capacitor, 5 Hz to 20 MHz

Input Filter • External capacitor (see application notes)

Output

Output Voltage

Minimum Load 5 mA Line Regulation • ±0.5% max

Load Regulation

• ±0.8% from 10% to 100% load

Setpoint Accuracy Turn-on Time

±3% · See note 6

See table

Ripple & Noise

• 60 mV pk-pk with 10% minimum load, 20 MHz bandwidth

Maximum Capacitive Load

110 µF for S3V3, S05 and S12 models, 47 µF for S15 models

Short Circuit Protection • Indefinite (automatic recovery)

Temperature Coefficient • 0.02%/°C

General

Efficiency Isolation Voltage Switching Frequency See table Non-isolated • 570 kHz typical

• 3 pin SIP

Package Style **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 Case Temperature

• 95% RH • +100 °C max

Storage Temperature

• -40 °C to +125 °C

Cooling

· Convection-cooled

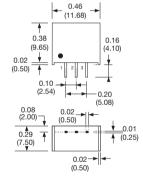
Notes

- 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 Vin to minimum Vin
- 6. For maximum reliability, ensure turn on time is >1 ms by placing a 22 μF capacitor between +Vin and GND

Model Numbers -

Input Voltage	No Load Input Current	Output Voltage	Output Current	Efficiency ⁽⁵⁾	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

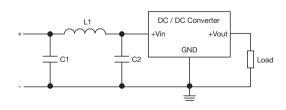




Pin Connections				
Pin	Function			
1	+Vin			
2	GND			
3	+Vout			

Application Notes

Input Filter to meet Class B Conducted Emissions



C1	L1	C2
10 μF, 35 V	6.8 µH	10 μF, 35 V