



### 235°C, Non-Isolated, Single Output Power Supply

#### BENEFITS

- Operates to a case temp of 235°C
- **Non-Isolated** flyback configuration
- Indefinite short circuit protection
- Shutdown control
- 5 or 6 Watts Configuration



#### APPLICATIONS

- High temperature applications
- Down-hole applications
- POL applications
- Multi tool power distribution
- Geothermal applications

The TX54xx Non-Isolated, Single Output series is a small footprint, dual output power supply designed for operation at case temperatures up to 235°C. With a footprint of only 2.800" x 0.630 x 0.375", the TX54xx Non-Isolated, Single Output series is well suited for applications where board space is at a premium, yet a well-regulated switching supply is required.

This device is capable of delivering a full 5 or 6 watts over the specified temperature range with an input supply range of 18V to 36 V. Any output is capable of delivering up to 50% of the total rated power so long as the remaining output is delivering at minimum, 5% of the total rated power. Indefinite short circuit protection and an ultra-low input current shutdown control have also been incorporated.

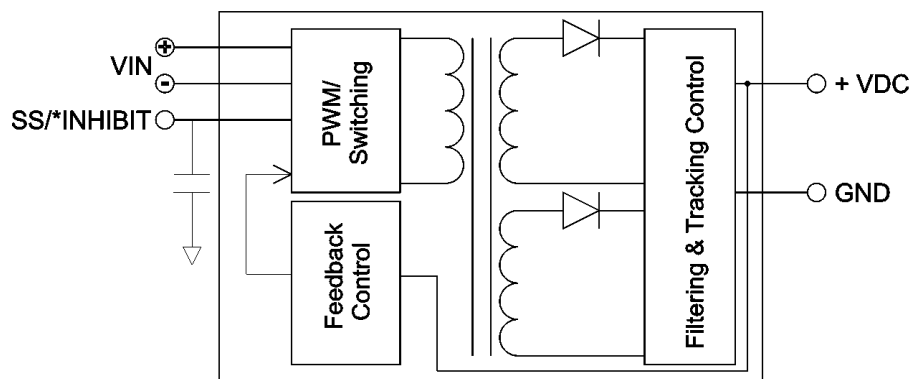
The TX54xx Non-Isolated, Single Output series is constructed utilizing a flyback topology that incorporates a current-mode PWM switching at 240Khz. The soft-start pin is a dual function pin. The primary function is a supply soft-start for which an external capacitor must be added (See Fig. 2). The secondary function is as an inhibit pin initiated by externally pulling the apparent voltage below 0.5VDC

**TX5412NS +12 Volts, 6W**

**TX5415NS +15 Volts, 6W**

**TX5417NS +17 Volts, 6W**

**TX5412N-5S +5 Volts, 5W**



**TX54xx Non-Isolated Single Output Series Block Diagram – Fig1**

## TX54xx Non-Isolated, Single Output Specifications

Absolute Maximum Ratings		Shutdown
Input Voltage Range	18 – 36VDC	User supplied external circuitry capable of discharging the soft-start capacitor to a voltage of 0.5VDC is required. The soft-start capacitor is charged through an internal resistor and regulated supply.
Soft-Start Pin Voltage	9.0VDC	
Operating Temperature (T <sub>case</sub> ) *	235°C	
Storage Temperature	235°C	

Note: Proper thermal management must be conducted to ensure T<sub>case</sub> stays at or below 235DegC.

Electrical Characteristics	25 – 235 DegC	Units
Input Voltage	18 to 36	V
Input Current Inhibited	<1	mA
Output Ripple	30	mV p-p
Output Short Duration	∞	mS
SS/Inhibit Pin Voltage	8	VDC
Switching Frequency	210 - 270	KHz
Startup Delay	20 - 25	mS
Startup Overshoot Max	≤50	mV-pk

Electrical Characteristics Notes:

1. Recommended minimum load of 0.3W
2. Maximum output ripple is dependent on the size and quality of external bulk capacitance on each output leg.
3. Electrical Characteristics: 27 VDC V<sub>IN</sub>, 50% load, unless otherwise specified

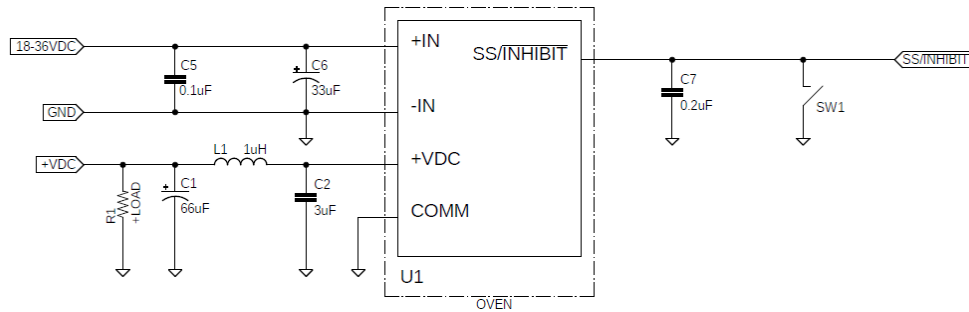
Part Number →	TX5412NS	TX5415NS	TX5417NS	Units
Voltage +VDC	+12V ±5%	+15V ±5%	+17V ±5%	V
Current Max	+500	+400	+353	mA
Power Max	6	6	6	W
Max Efficiency*	> 71	> 71	> 71	%

Part Number →	TX5412N-5S	Units
Voltage +VDC	+5V ±5%	V
Current Max	+1000	mA
Power Max	5	W
Max Efficiency*	> 69	%

Notes:

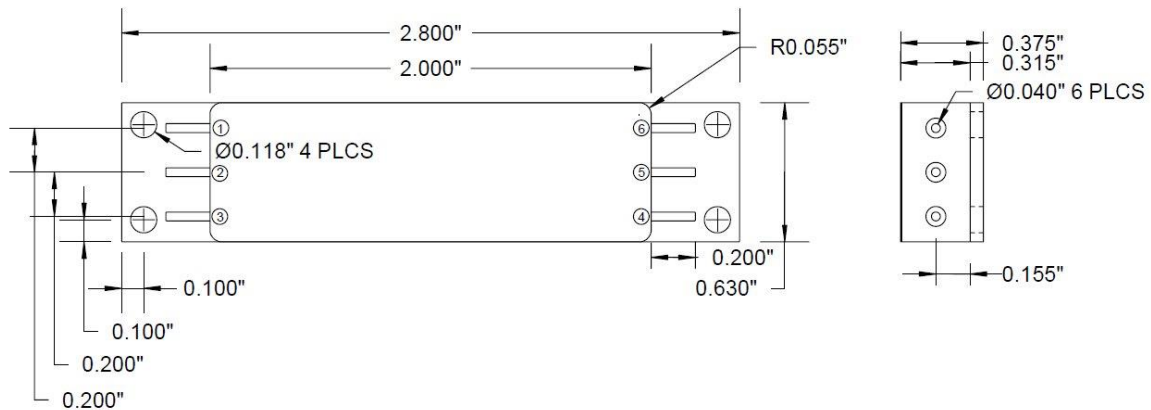
1. Max Efficiency measured at 100% load, 235DegC Case Temperature

## TX54, Non-Isolated, Single Output Specifications



**TX54 Non-Isolated, Single Output Schematic – As Tested - Fig. 2**

Notes: Input and output capacitance, inductance and loads required for power supply to operate correctly and avoid damage.



**Top & End View - Fig. 3**

### PIN OUT

1	+IN
2	-IN
3	SS / Inhibit
4	+VDC Output
5	NC
6	GND
CASE	Isolated

### MATERIALS:

- Housing: 1010/1020 CRS, Nickel/Gold plated.
- Base: OFHC
- Contact Pins: Alloy 52 Cu Core, Nickel/Gold plated.
- Lid: Kovar, Nickel/Gold plated.