



## 235°C, ± 12 Volt, Dual Output Power Supply

### BENEFITS

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



### APPLICATIONS

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

The TX5412N 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 TX5412N 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 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, 15% of the total rated power. Indefinite short circuit protection and an ultra-low input current shutdown control have also been incorporated.

The TX5412N 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

The TX5412N has successfully completed over 1000 hours of continuous operation at 235°C while providing 3 watts of regulated output.

### TX5412N Block Diagram

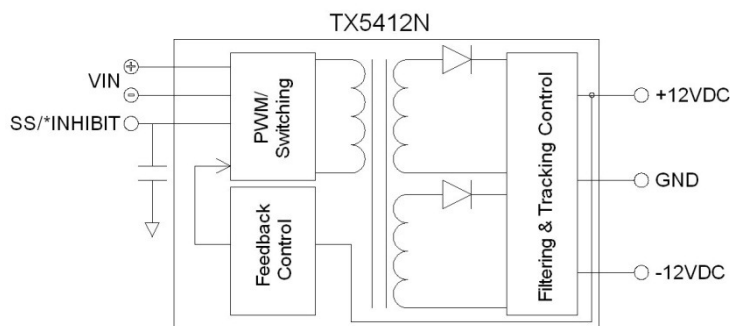


Fig. 1

## TX5412N 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	

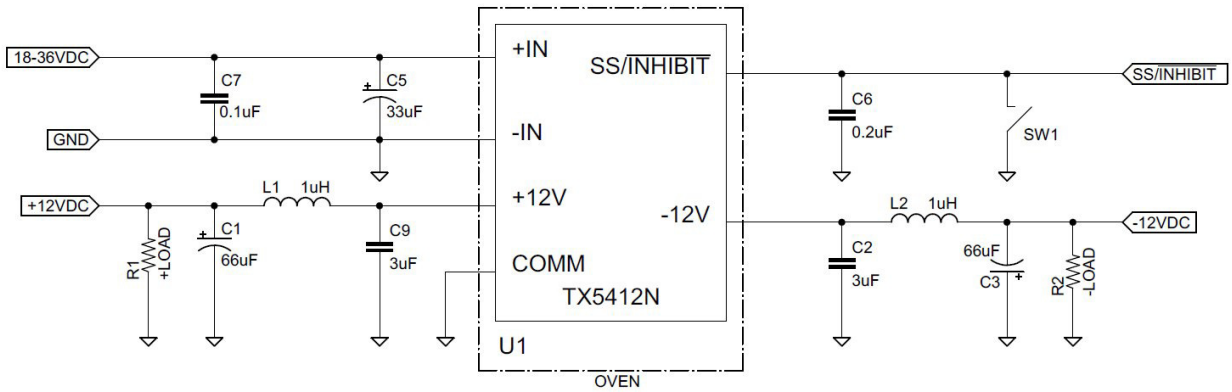
Electrical Characteristics: 27 VDC V<sub>IN</sub>, ±125mA load, unless otherwise specified

TX5412N		25°C			150°C			235°C			Units
Parameter	Conditions	Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	
Output Voltage	V <sub>in</sub> = 18	±11.40	±12.00	±12.60	±11.40	±12.00	±12.60	±11.40	±12.00	±12.60	VDC
	V <sub>in</sub> = 27	±11.40	±12.00	±12.60	±11.40	±12.00	±12.60	±11.40	±12.00	±12.60	
	V <sub>in</sub> = 36	±11.40	±12.00	±12.60	±11.40	±12.00	±12.60	±11.40	±12.00	±12.60	
Output Current <sup>1</sup>	V <sub>in</sub> = 18 to 36VDC	-	±125	±250	-	±125	±250	-	±125	±250	mA
Output Power	V <sub>in</sub> = 18 to 36VDC	0.6	-	6	0.6	-	6	0.6	-	6	W
Output Ripple <sup>2</sup>	I <sub>out</sub> =±260mA	0	30	-	0	30	-	0	30	-	mV p-p
Output Short	DURATION		∞			∞			∞		mS
Input Voltage	Load = 2 – 6W	18	27	36	18	27	36	18	27	36	VDC
Input Current	INHIBITED	-	-	<1	-	-	<1	-	-	<1	mA
Efficiency	V <sub>in</sub> = 18.00 – 36.00	-	75	-	-	75	-	-	75	-	%
	V <sub>in</sub> = 18.00, I <sub>out</sub> =±260mA	-	-	81	-	-	81	-	-	81	
SS/*Inhibit Pin Voltage	V <sub>in</sub> = 18 to 36VDC	-	8	-	-	8	-	-	8	-	VDC
Switching Frequency	V <sub>in</sub> = 18 to 36VDC	210	-	270	210	-	270	210	-	270	KHz
Startup	Delay	-	25	-	-	20	-	-	20	-	mS
	Overshoot	-	0	≤50	-	0	≤50	-	0	≤50	mV-pk

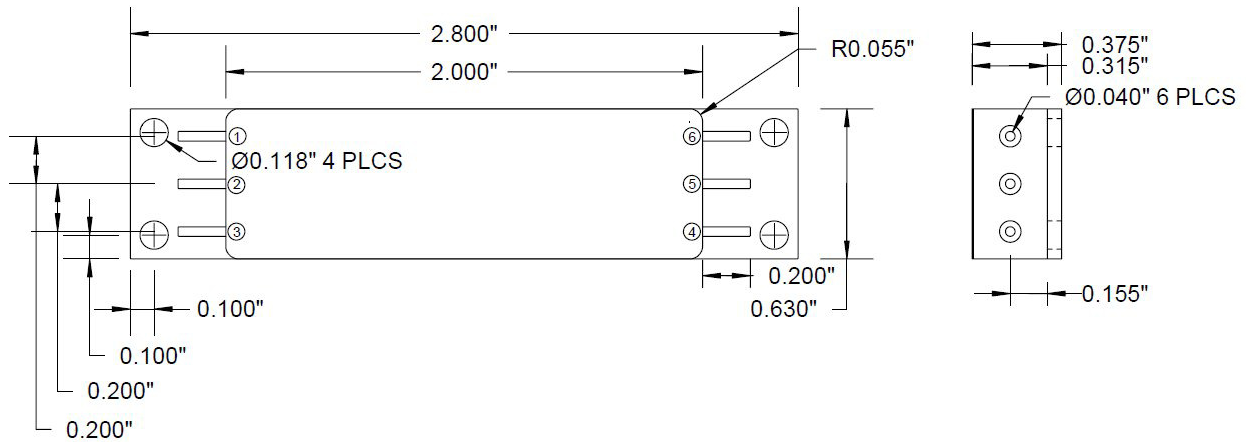
**Notes:**

- 50% of the converters total rated output is available from either output, providing the other output carries a minimum of 15% of the total load.
- Maximum output ripple is dependent on the size and quality of external bulk capacitance on each output leg.

## TX5412N Specifications



**TX5412N Schematic – As Tested - Fig. 2**



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

### PIN OUT

1	+IN
2	-IN
3	SS / Inhibit
4	+12V Out
5	Out Common
6	-12V Out
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.