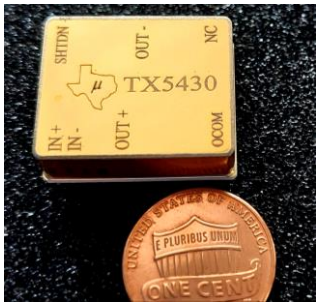
200°C, Isolated, 1.5W, Dual Output Power Supply

BENEFITS

- 200°C Case Temp Operation
- High input / output isolation
- Indefinite Short Circuit Protection
- Shutdown Control



APPLICATIONS

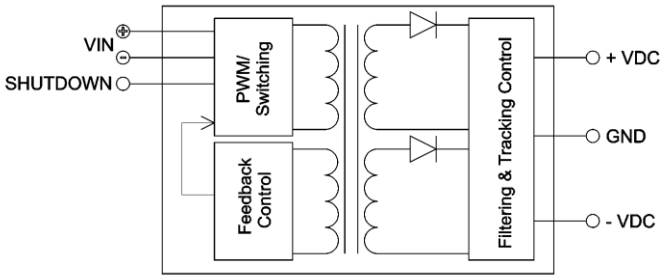
- High temperature applications
- Down-hole applications
- POL applications
- Multi tool power distribution

The TX5430 is a miniature footprint, dual output power supply designed for operation at case temperatures up to 200°C. With measurements of 0.950” x 0.800 x 0.310”, the TX5430 is well suited for applications where board real estate or design circles are limited yet a well-regulated, fully isolated, switching supply is required.

This device is capable of delivering a full 1.5W of power through the entire operational temperature range with an input supply that can range from a low of 8 volts, under specific conditions, to as high as 25 volts. Any output is capable of delivering up to 80% of the total rated power so long as the remaining output is delivering 20%. Indefinite short circuit protection and an ultra-low input current shutdown control have also been incorporated.

The TX5430 is constructed utilizing a flyback topology that incorporates a current-mode PWM switching at 240Khz. All feedback signals are magnetically isolated from the outputs allowing an exceptional isolation standoff of 1KV, input to output. The hermetically sealed packaging has also been carefully designed to withstand 1KV from any pin to case.

Output Voltage Configuration:
TX5430 Part can be configured for a range of output voltages ranging from +5V to +15V.



TX5405 Isolated Dual Output Series Block Diagram – Fig1

200C Isolated, 1.5W, Dual Output Power Supply Specifications

Absolute Maximum Ratings		Isolation
Input Voltage Range	8 – 25VDC	• 1000 VDC isolation from any pin to case • 1000 VDC isolation from input pins to output pins
Shutdown Pin Voltage	9.0VDC	
Operating Temperature (T_{case}) [1]	200˚C	
Storage Temperature	200˚C	

Notes:

1. **Proper thermal management must be conducted to ensure T_{case} stays at or below 200DegC.**

Electrical Characteristics	25 – 200 DegC	Units
Input Voltage	8 to 25	V
Input Current Inhibited	< 1	mA
Output Ripple	30	mV p-p
Output Short Duration	∞	mS
Shutdown Pin Voltage	9	VDC
Switching Frequency	210 – 270	KHz
Startup Delay	8 – 60	mS
Startup Overshoot Max	≤ 50	mV-pk

Electrical Characteristics Notes:

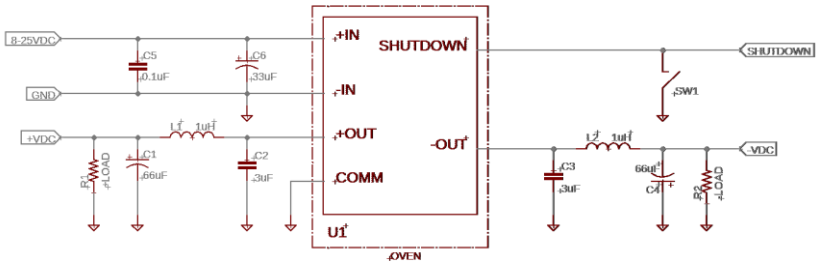
1. Recommended minimum load of 0.3W per leg.
2. 80% of the converters total output is available from either output providing the other output carries a minimum of 20% of the total load.
1. Maximum output ripple is dependent on the size and quality of external bulk capacitance on each output leg.
2. Electrical Characteristics: 16 VDC $V_{IN,}$ 50% load, unless otherwise specified.
3. Electrical Characteristics based on ±5V Output, other output voltages may present different electrical characteristics.

Part Number →	TX5430	Units
Output Voltage + VDC	+5V ±5%	V
Output Voltage – VDC	-5V ±5%	V
Output Current Max	±150	mA
Power Max	1.5	W
Max Efficiency*	> 69	%

Notes:

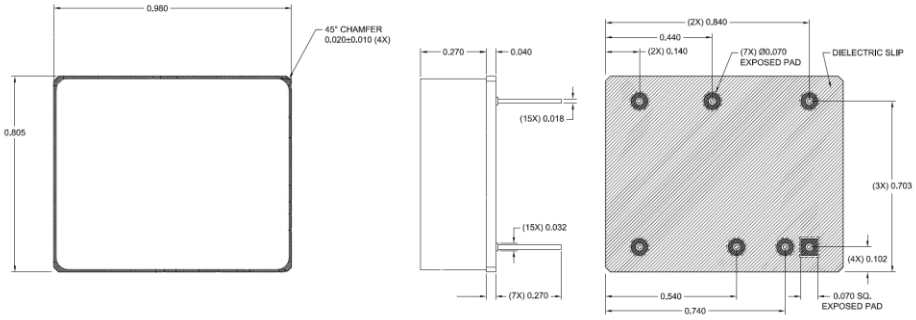
1. Max Efficiency measured at 100% load, 200DegC Case Temperature

200C Isolated, 1.5W, Dual Output Power Supply Specifications



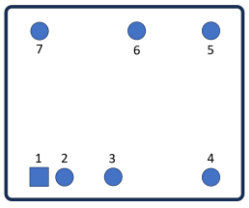
TX5430 Isolated, Dual Output Schematic - Fig. 2

Notes: Input and output capacitance, inductance and loads recommended for power supply to operate correctly and avoid damage.
TX5430 is tested with 100uF caps on output pins.



Mechanical Drawing – Fig. 3

Top View (Left) Side View (Middle) & Bottom View (Right)



1	+IN
2	-IN
3	OUT+
4	OUT Common
5	NC
6	OUT-
7	Shutdown

PIN OUT – Fig. 4

Top View

MATERIALS:

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