



235°C, ± 15 Volt, Dual Output Power Supply

BENEFITS

- Operates to a case temp of 235°C
- **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 TX5415I 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 TX5415 I 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, 5% of the total rated power. Indefinite short circuit protection and an ultra-low input current shutdown control have also been incorporated.

The TX5415I 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

TX5415I Block Diagram

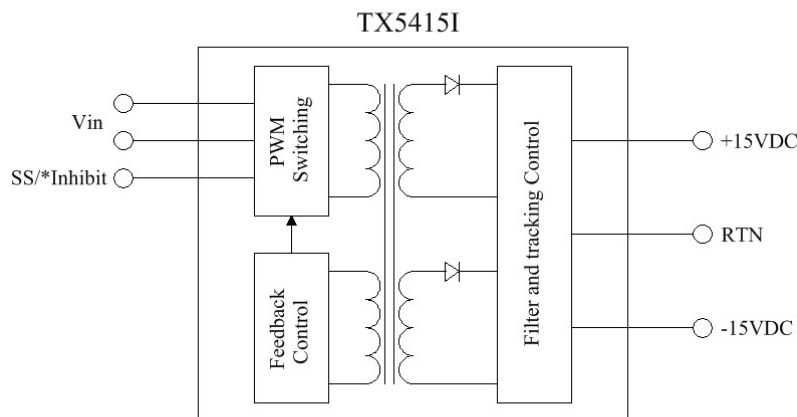


Fig. 1

TX5415I 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 _{case}) | 235°C | |
| Storage Temperature | 235°C | |

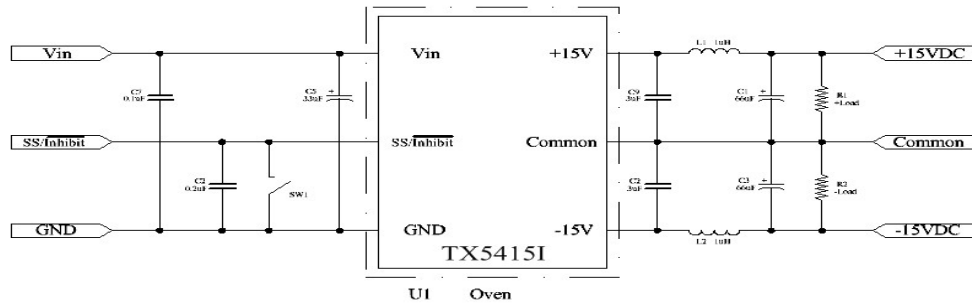
Electrical Characteristics: 27 VDC V_{IN}, ±125mA load, unless otherwise specified

| TX5415I | | 25°C | | | 150°C | | | 235°C | | | Units |
|-----------------------------|--|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Parameter | Conditions | Min | Typ | Max | Min | Typ | Max | Min | Typ | Max | |
| Output Voltage | V _{in} = 18 | ±14.25 | ±15.00 | ±15.75 | ±14.25 | ±15.00 | ±15.75 | ±14.25 | ±15.00 | ±15.75 | VDC |
| | V _{in} = 27 | ±14.25 | ±15.00 | ±15.75 | ±14.25 | ±15.00 | ±15.75 | ±14.25 | ±15.00 | ±15.75 | |
| | V _{in} = 36 | ±14.25 | ±15.00 | ±15.75 | ±14.25 | ±15.00 | ±15.75 | ±14.25 | ±15.00 | ±15.75 | |
| Output Current ¹ | V _{in} = 18 to 36VDC | - | ±125 | ±200 | - | ±125 | ±200 | - | ±125 | ±200 | mA |
| Output Power | V _{in} = 18 to 36VDC | 0.6 | - | 6 | 0.6 | - | 6 | 0.6 | - | 6 | W |
| Output Ripple ² | I _{out} = ±200mA | 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 _{in} = 18.00 – 36.00 | 60 | 71 | 80 | 60 | 71 | 80 | 60 | 73 | 80 | % |
| | V _{in} = 18.00, I _{out} = ±200mA | - | - | 82 | - | - | 82 | - | - | 82 | |
| SS/*Inhibit Pin Voltage | V _{in} = 18 to 36VDC | - | 8 | - | - | 8 | - | - | 8 | - | VDC |
| Switching Frequency | V _{in} = 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 |

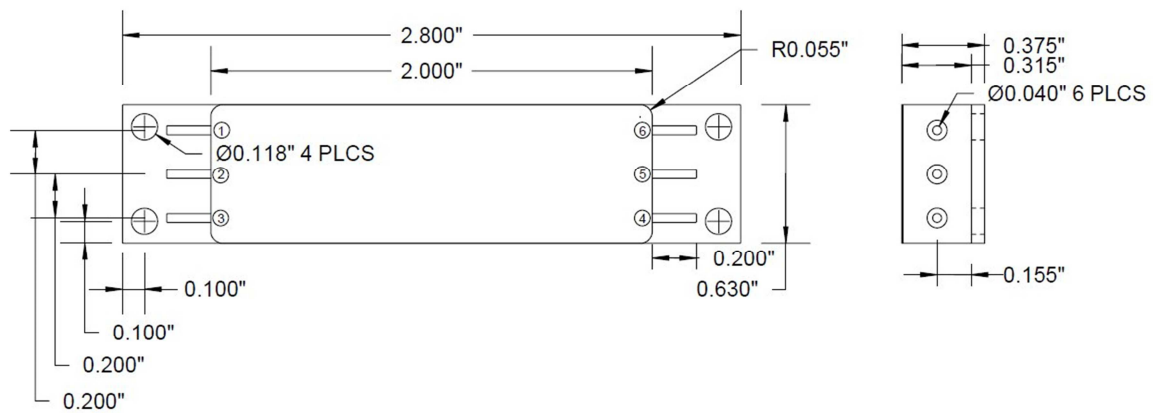
Notes:

1. Recommended minimum load of 0.3W per leg
2. Maximum output ripple is dependent on the size and quality of external bulk capacitance on each output leg.

TX5415I Specifications



TX5415I Schematic – As Tested - Fig. 2



Top & End View - Fig. 3

PIN OUT

| | |
|------|--------------|
| 1 | +IN |
| 2 | -IN |
| 3 | SS / Inhibit |
| 4 | +15V Out |
| 5 | Out Common |
| 6 | -15V 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.