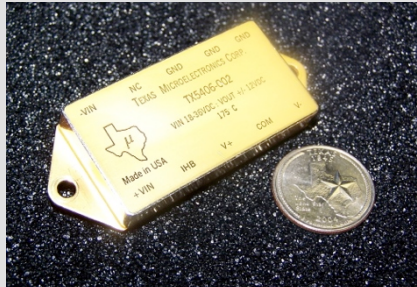




## 28 Volt Input – Dual Voltage Output – Isolated 5 to 12 Watt Switching DC/DC Converter with Dual Low Drop Out Linear Output Regulators

### FEATURES

- 175 °C operation
- Foldback linear regulator
- Low output ripple
- Shutdown control
- Linear regulators provide excellent line and load regulation



### APPLICATIONS

- High temperature applications
- Petroleum reservoir monitoring
- Petroleum logging tools
- Petroleum LWD and MWD tools
- Avionics

The TX5406 is a 5 to 12 watt isolated power supply designed to operate at case temperatures to 175 °C. It features a unique combination of isolated switcher and dual low dropout linear output regulators. The TX5406 output regulators provide superior regulation, low output noise and well behaved short circuit performance.

These devices may be operated with any load from 0 to 100% and will sustain a continuous short circuit on either output since the linear regulators fold back to a very small current.

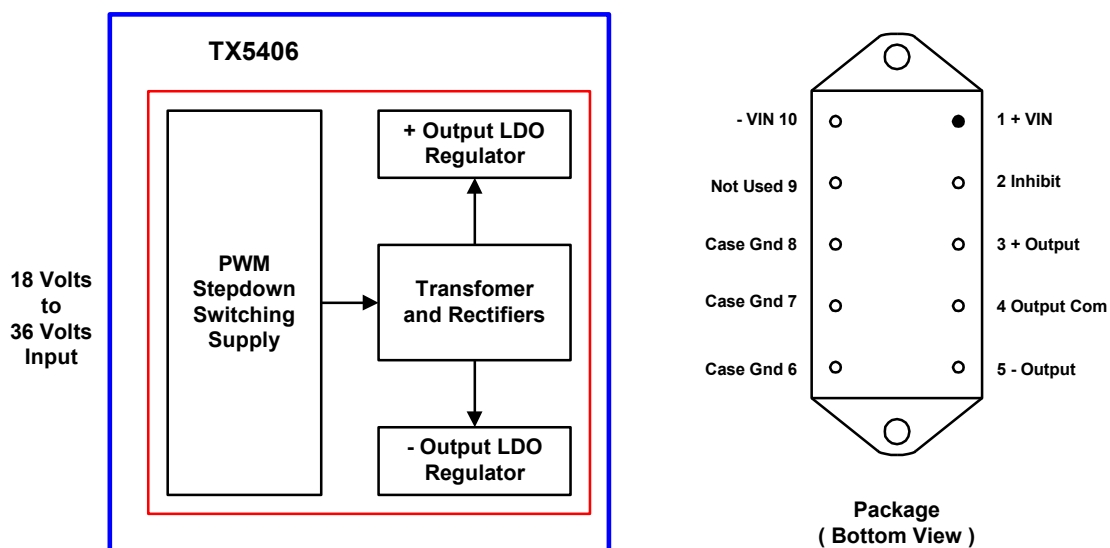
The TX5406 contains internal bypass capacitors on both the input and outputs. However, some application may require additional external bypass capacitors on the input and outputs.

The TX5406 is housed in a 10 pin hermetic power package with pin spacing of 0.4" and row spacing of 0.8". Free air thermal resistance is approximately 35 °C per watt. Part numbers are:

**TX5406-1 ± 5 Volts at 500 mA per output**

**TX5406-2 ± 12 Volts at 500 mA per output**

### TX5406 Block Diagram



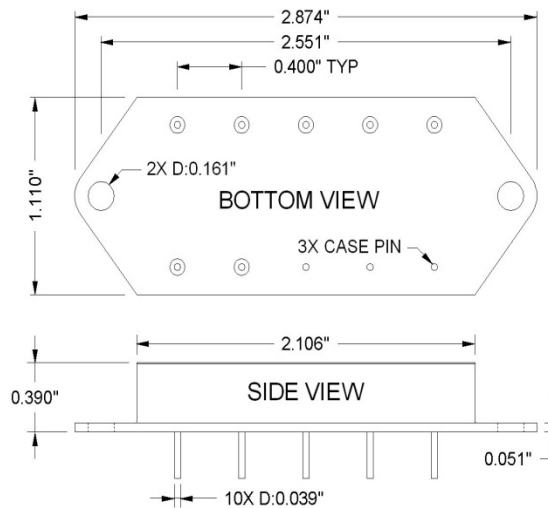
## TX5406 Specifications

Absolute Maximum Ratings		Shutdown		Isolation	
Input voltage range	18 – 36VDC	Shutdown is affected by pulling the Inhibit pin to -Vin with an open drain / collector circuit. Normal operation will occur when the Inhibit pin is left open.		<ul style="list-style-type: none"> <li>• 500 VDC isolation from any input pin to any output pin.</li> <li>• 500 VDC isolation from any input pin or output pin to case.</li> </ul>	
Operating temperature (T <sub>case</sub> )	175°C				
Storage temperature	200°C				

TX5406-001		25°C			125°C			175°C			Units
Parameter	Conditions	Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	
Output voltage	V <sub>in</sub> = 28V I <sub>out</sub> = ±400mA	±5.025	±5.050	±5.75	±5.000	±5.025	±5.050	±4.975	±5.000	±5.025	Volts
Output current	V <sub>in</sub> = 18 to 36V	-	-	±500	-	-	±500	-	-	±500	mA
Output power	V <sub>in</sub> = 18 to 36V	-	-	5.0	-	-	5.0	-	-	5.0	Watts
Output ripple	V <sub>in</sub> = 28V I <sub>out</sub> = ±400mA	-	5	10	-	5	10	-	5	10	mV rms
Input voltage	Total load ≤ 5.0W	18	28	36	18	28	36	18	28	36	Volts
Input current	Inhibited	-	-	<10	-	-	<10	-	-	<10	mA
Efficiency	V <sub>in</sub> = 28V I <sub>out</sub> = ±400mA	60	65	-	55	60	-	50	55	-	%
Inhibit voltage	V <sub>in</sub> = 18 to 36V	-	-	0.2	-	-	0.2	-	-	0.2	Volts
Switching freq	V <sub>in</sub> = 18 to 36V	290	-	310	270	-	290	260	-	280	KHz
Startup delay	V <sub>in</sub> = 28V	-	-	50	-	-	50	-	-	50	mS
Startup overshoot	V <sub>in</sub> = 28V	-	-	50	-	-	50	-	-	50	mV

## TX5406 Specifications

TX5406-002		25°C			125°C			175°C			Units
Parameter	Conditions	Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	
Output voltage	$V_{in}=28V$ $I_{out}=\pm 400mA$	$\pm 12.06$	$\pm 12.12$	$\pm 12.18$	$\pm 12.00$	$\pm 12.06$	$\pm 12.12$	$\pm 11.94$	$\pm 12.00$	$\pm 12.06$	Volts
Output current	$V_{in}=18$ to $36V$	-	-	$\pm 500$	-	-	$\pm 500$	-	-	$\pm 500$	mA
Output power	$V_{in}=18$ to $36V$	-	-	$12.0$	-	-	$12.0$	-	-	$12.0$	Watts
Output ripple	$V_{in}=28V$ $I_{out}=\pm 400mA$	-	$12$	$24$	-	$12$	$24$	-	$12$	$24$	mV rms
Input voltage	Total load $\leq 12.0W$	$18$	$28$	$36$	$18$	$28$	$36$	$18$	$28$	$36$	Volts
Input current	Inhibited	-	-	$<10$	-	-	$<10$	-	-	$<10$	mA
Efficiency	$V_{in}=28V$ $I_{out}=\pm 400mA$	$70$	$75$	-	$65$	$70$	-	$60$	$65$	-	%
Inhibit voltage	$V_{in}=18$ to $36V$	-	-	$0.2$	-	-	$0.2$	-	-	$0.2$	Volts
Switching freq	$V_{in}=18$ to $36V$	$290$	-	$310$	$270$	-	$290$	$260$	-	$280$	KHz
Startup delay	$V_{in}=28V$	-	-	$50$	-	-	$50$	-	-	$50$	mS
Startup overshoot	$V_{in}=28V$	-	-	$120$	-	-	$120$	-	-	$120$	mV



### MATERIALS:

- Body (frame and base) and leads: ASTM F-15 alloy
- Lid: Kovar
- Glass: 7052 or equivalent