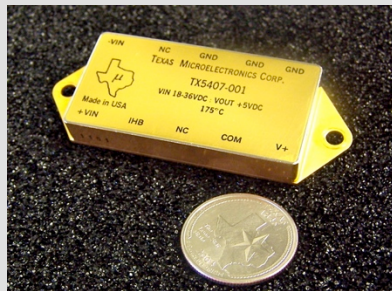




## 28 Volt Input – Single Voltage Output – Isolated 5 Watt Switching DC/DC Converter with Low Drop Out Linear Output Regulator

### 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 TX5407 is a 5 watt isolated power supply designed to operate at case temperatures to 175 °C. It features a unique combination of isolated switcher and low dropout linear output regulator. The TX5407 output regulator provides 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 the output since the linear regulator folds back to a very small current.

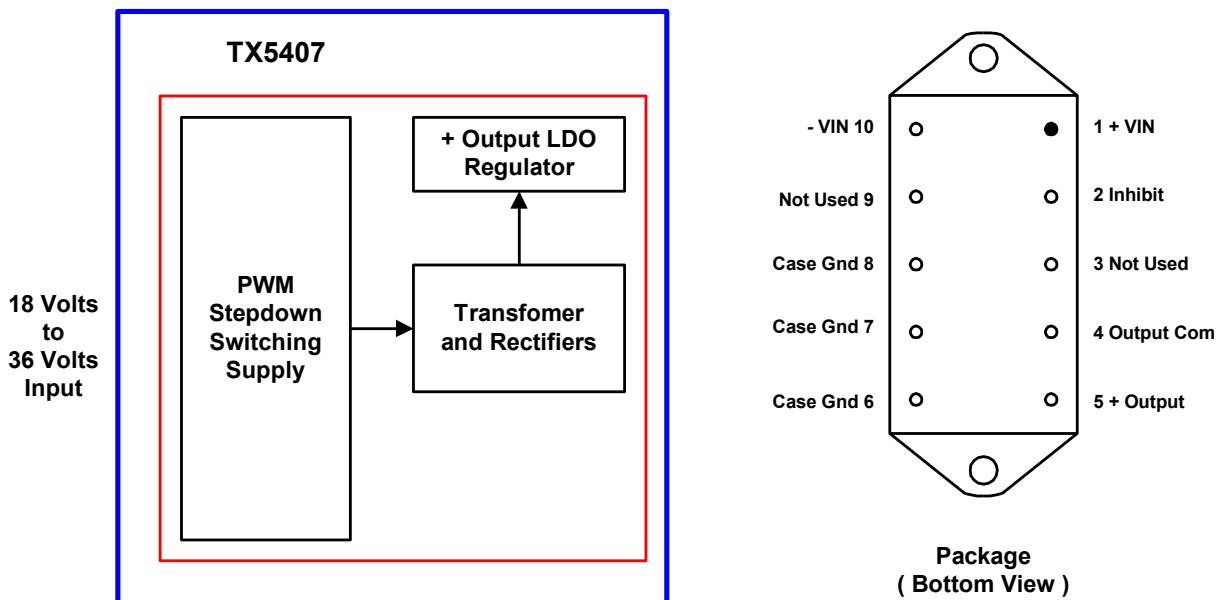
The TX5407 contains internal bypass capacitors on both the input and output. However, some application may require additional external bypass capacitors on the input and output.

The TX5407 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:

**TX5407-1 + 5.0 Volts at 1000 mA**

**TX5407-2 + 3.3 Volts at 1500 mA**

### TX5407 Block Diagram



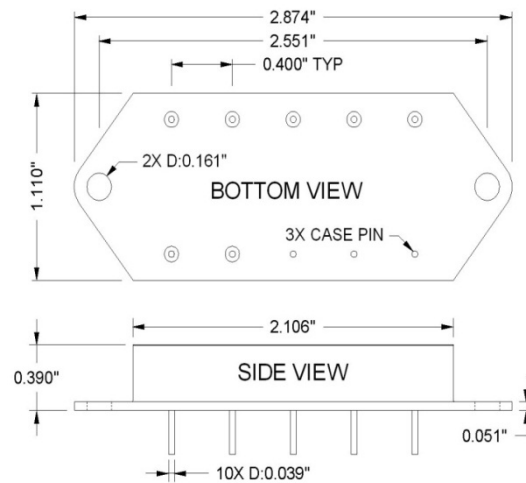
## TX5407 Specifications

Absolute Maximum Ratings		Shutdown	Isolation
Input voltage range	18 – 36VDC	Shutdown is effected 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		

TX5407- 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> =900mA	4.95	5.00	5.05	4.95	5.00	5.05	4.95	5.00	5.05	Volts
Output current	V <sub>in</sub> = 18 to 36V	-	-	1000	-	-	1000	-	-	1000	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> =900mA	-	5	10	-	5	10	-	5	10	mV
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> =900mA	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	260	-	300	260	-	300	260	-	300	KHz
Startup delay	V <sub>in</sub> = 28V	-	-	10	-	-	10	-	-	10	mS
Startup overshoot	V <sub>in</sub> = 28V	-	-	75	-	-	75	-	-	75	mV

## TX5407 Specifications

TX5407- 002		25°C			125°C			175°C			Units
Parameter	Conditions	Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	
Output voltage	$V_{in}=28V$ $I_{out}=1400mA$	3.27	3.30	3.33	3.27	3.30	3.33	3.27	3.30	3.33	Volts
Output current	$V_{in}=18$ to $36V$	-	-	1500	-	-	1500	-	-	1500	mA
Output power	$V_{in}=18$ to $36V$	-	-	5.0	-	-	5.0	-	-	5.0	Watts
Output ripple	$V_{in}=28V$ $I_{out}=1400mA$	-	3.3	6.6	-	3.3	6.6	-	3.3	6.6	mV rms
Input voltage	Total load $\leq 5.0W$	18	28	36	18	28	36	18	28	36	Volts
Input current	Inhibited	-	-	10	-	-	10	-	-	10	mA
Efficiency	$V_{in}=28V$ $I_{out}=1400mA$	53	60	-	49	55	-	45	50	-	%
Inhibit voltage	$V_{in}=18$ to $36V$	-	-	0.2	-	-	0.2	-	-	0.2	Volts
Switching freq	$V_{in}=18$ to $36V$	260	-	300	260	-	300	260	-	300	KHz
Startup delay	$V_{in}=28V$	-	-	10	-	-	10	-	-	10	mS
Startup overshoot	$V_{in}=28V$	-	-	50	-	-	50	-	-	50	mV



### MATERIALS:

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