

Corporate office
Shipping Address
Oil 4 Less LLC
700 Sleater-Kinney SE #B-149
Lacey WA 98503-1113
(360) 763-5022
info@oil4lessllc.com



Sales, manufacturing Divisions
Billing Address
Oil 4 Less LLC
3 Monroe Pkwy #P-321
Lake Oswego OR 97035

<http://oil4lessllc.com>

Codatron HT^{®*}

High Voltage Regulators

General Description – Oil 4 Less LLC is the sole exclusive manufacturer of the Codatron[®] HT high voltage zeners. They are designed to give superior regulation over rapid temperature changes, and are for use in high temperature environments. The regulation of the Codatron[®] HT over rapid temperature changes is superior to any other currently manufactured high voltage regulator. The Codatron[®] HT regulator acts like a high voltage zener, but with low noise and a low temperature coefficient (TC). The regulated voltages offered include those available for the original, now discontinued, Victoreen Corotron[™], and many more. The Codatron[®] HT regulator has been optimized to operate at approximately 60 microamps, the current favored by many well logging tool technicians, but functions well over a wide range of currents up to a maximum current rating of 500 microamps. A much higher pulse or transient current rating is allowed due to the unique electrical characteristics of the Codatron HT. A small positive temperature coefficient has been included in the design to partly compensate downhole logging detector temperature response characteristics. The Codatron HT was designed for high temperature downhole well logging tools, but can be used as a direct replacement for the Victoreen Corotron in most applications. Shunt capacitors may be used, since the Codatron[®] HT has a positive resistance characteristic at all operating currents.

- Available in standard Victoreen Corotron voltages (custom voltages also)
- *Standard* model specifications good from -55° C (-67° F) to +177° C (350° F)
- *Grade "A"* model specifications good from -75° C (-103° F) to +204° C (400° F)
- Nominal voltage rating specified at 100° C (212° F)
- Operating current range: 20mA to 200mA, -75° C (-103° F) to +204° C (400° F)
- Minimum shunt current for regulation: 2mA, 0° C (32° F) to 75° C (167° F)
- Maximum shunt current: 500mA, -75° C (-103° F) to +177° C (350° F)
- Recommended operating current: 60mA
- Excellent peak current rating
- Stable at all operating currents by design
- Rev F, 10V steps: Precision tolerance; available to ±5V on selected values
- Excellent voltage regulation 20mA to 500mA
- Low noise generation and no self-oscillation
- Slight positive temperature coefficient added for downhole detector compensation

High Temperature Well Logging Electronics

Society of Petroleum Engineers (SPE) FEIN:52-2314971 OR ID:1158242-3 DUNS:19-581-1190
CAGE/NCAGE 4BFS6

Codatron® HT Data Sheet

4/30/2019
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Oil 4 Less® LLC

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Web: <http://oil4lessllc.com>

ORDERING GUIDE

Model ^{1,2,3}	Voltage ⁴	Part Number
Codatron® HT	100 Volts	Codatron® HT - 100
Codatron® HT	In 10 Volt Steps To	Codatron® HT - xxxx
Codatron® HT	1250 Volts	Codatron® HT - 1250
Codatron® HT ²	1300 Volts	Codatron® HT - 1300
Codatron® HT ²	In 10 Volt Steps To	Codatron® HT - xxxx
Codatron® HT ²	2500 Volts	Codatron® HT - 2500

Notes:

1. Specify **Standard** to 177°C (350°F), or **Grade "A"** to 204°C (400°F).
2. A surcharge applies to models over 1250 volts.
3. An additional surcharge applies to models over 2500 volts.
4. Custom voltages available on special order.
5. Selectable dual voltage models are no longer available
6. ECCN number (export commodity control number): EAR99
7. Harmonized Tariff number: 8541100050
8. Schedule B Trade Number: 9032.89.3000
9. Approximate weight (to 1250V): 0.2 oz.

**ELECTRICAL CHARACTERISTICS*****Standard Models**

Parameter ⁵	Conditions ¹	Min	Typ	Max	Units
Temperature Range	Standard Models	-55/-67		177/350	°C/°F
Operating Current Range	-55°C to +177°C (350°F)	20	60	500	μA
Minimum Shunt Current	0°C (32°F) to 75°C (167°F)		2		μA
Maximum Shunt Current	-55°C to +177°C (350°F)		500		μA
Suggested Current			60		μA
Peak Current	PW<300μSec, <0.1% Duty	0		+30	mA
Temperature Coefficient	60μA, 20°C to 177°C (350°F)		3		%
Tolerance ²	60μA, 100°C (212°F)		1;5	2;5	%/V
Voltage Regulation ³	At Constant Temperature		1.6	2	%
Voltage Regulation ⁴	Over Temperature Range		4.3	5	%

Notes:

1. Ta = -55°C (-67°F) to +177°C (350°F), unless otherwise specified.
2. Voltage is specified at 100°C (212°F), not at 25°C (77°F). Tolerance % or V whichever is tighter.
3. From 20μA to 500μA at constant temperature.
4. From 25°C (77°F) at 20μA to 177°C (350°F) at 500μA (absolute worst case scenario).
5. Specifications are preliminary and subject to change. Beware of "tin pest" at very low temperatures.

ELECTRICAL CHARACTERISTICS***Grade "A" Models**

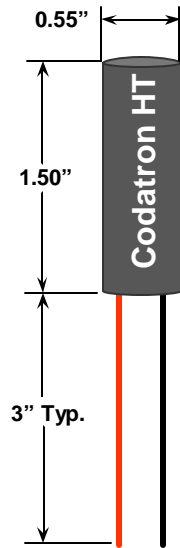
Parameter ⁶	Conditions ¹	Min	Typ	Max	Units
Temperature Range	Grade "A" Models	-75/-103		204/400	°C/°F
Operating Current Range	-75°C to +204°C (400°F)	20	60	200	μA
Minimum Shunt Current	0°C (32°F) to 75°C (167°F)		2		μA
Maximum Shunt Current ²	-75°C to +177°C (350°F)		500		μA
Suggested Current			60		μA
Peak Current	PW<300μSec, <0.1% Duty	0		+30	mA
Temperature Coefficient	60μA, 20°C to 204°C (400°F)		3		%
Tolerance ³	60μA, 100°C (212°F)		1;5	2;5	%/V
Voltage Regulation ⁴	At Constant Temperature		2.0	2.5	%
Voltage Regulation ⁵	Over Temperature Range		5.2	7	%

Notes:

1. Ta = -75°C (-103°F) to +204°C (400°F) for grade "A" models, unless otherwise specified.
2. From -75°C (-103°F) to +177°C (250°F); derate to 200μA above 177°C (350°F).
3. Voltage is specified at 100°C (212°F), not at 25°C (77°F). Tolerance % or V whichever is tighter.
4. From 20μA to 200μA at constant temperature.
5. From 25°C (77°F) at 20μA to 204°C (400°F) at 200μA (absolute worst case scenario).
6. Specifications are preliminary and subject to change. Beware of "tin pest" at very low temperatures.



PACKAGING INFORMATION



Single Voltage

Depth Dimension:

Up to 1250 volts 0.24".

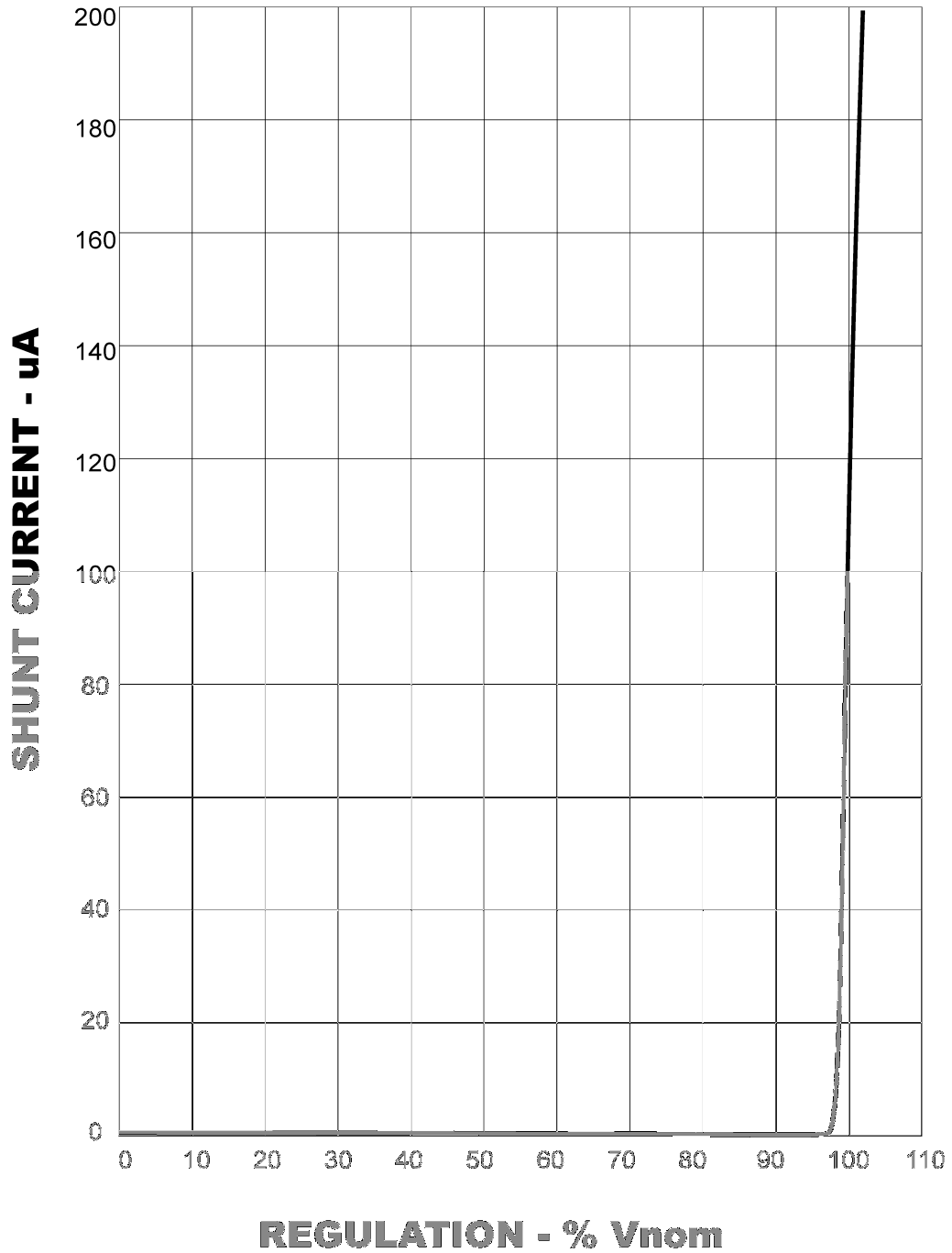
1300-2500 volts 0.36".

Notes:

1. 24 gauge stranded EE grade Teflon insulated leads (colors may vary).
2. Ends stripped and tinned with lead-free high temperature solder.
3. Custom lead lengths available on special order.
4. Viton shrink tubing with Kapton film over-wrap standard packaging.
5. Dual voltage units discontinued due to lack of interest.



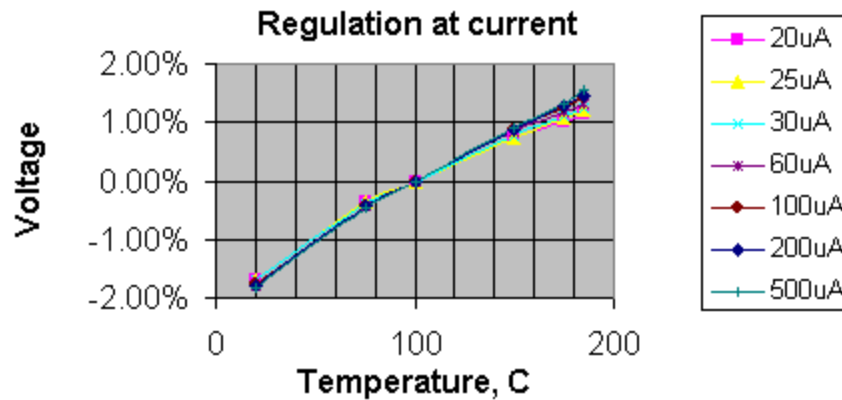
TYPICAL CURRENT AS A FUNCTION OF VOLTAGE



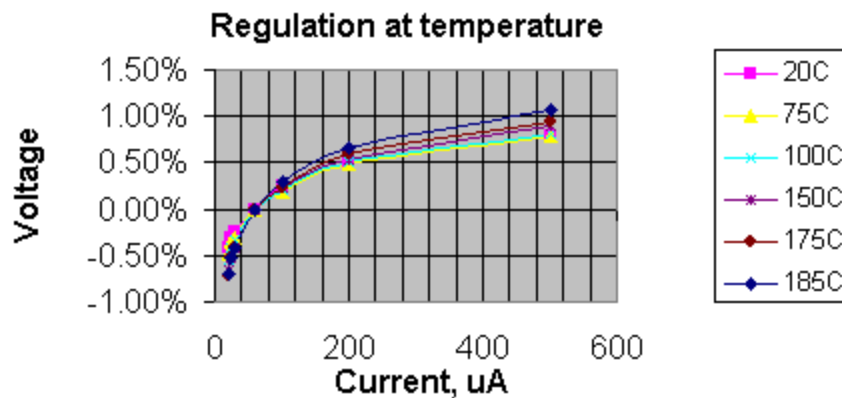
NOTE: I/V curve sharp and behaved into nanoamp region at 25°C



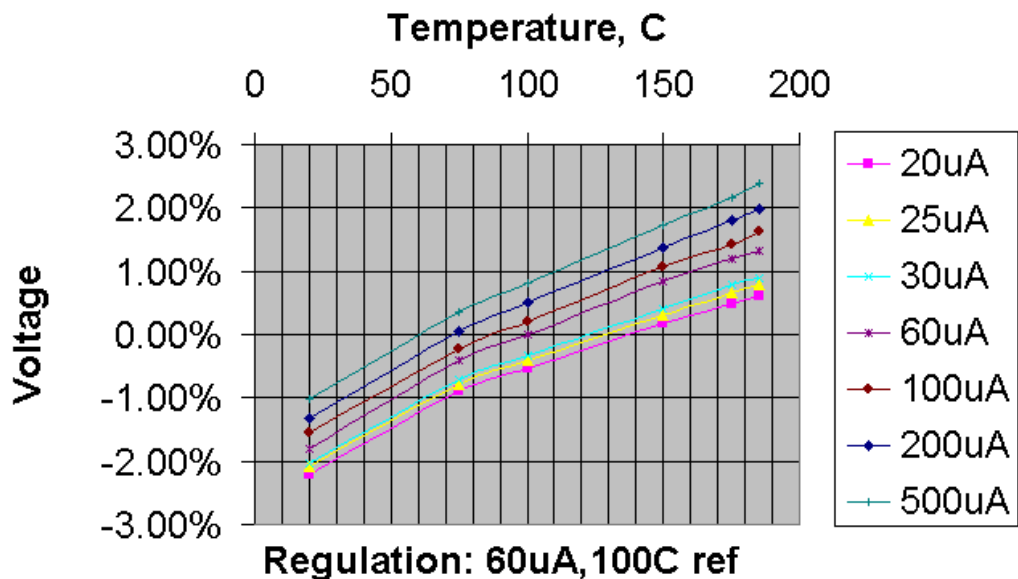
TYPICAL PERFORMANCE CURVES



Note: Voltage seen at 100C used as reference.



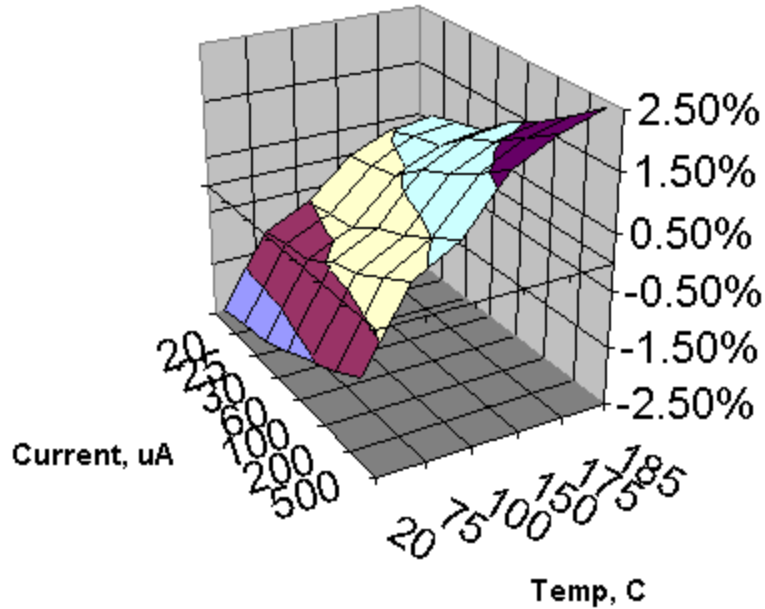
Note: Voltage seen at 60uA used as reference.



Note: Voltage seen at 60uA and 100C is used as reference.



Codatron HT regulation



Note: Voltage seen at 60uA and 100C is used as reference.

*Formerly called the TitanTwo.