



TCR Series – Regulated Micro-Sized Modules

- Output regulation to 0.1%
- Programmable
- 100V to 5kV Output Voltages Available
- Sinewave Resonant Oscillator

The TCR Series is a broad line of mini-sized, high reliability DC to DC converters supplying up to 5,000 volts in only 0.563 cubic inches. These tiny converters are ideal for applications requiring a regulated high voltage. The output can be controlled via an external programming voltage or an external resistance and the output voltage can be regulated down to ground. Select either a positive or negative output unit. Output return is internally connected to input ground. The output maximum power output is limited to 1 Watt at full output voltage. Ripple is kept low by using a sinewave resonant oscillator. All TCR units offer reverse polarity and short circuit protection.

TYPICAL APPLICATIONS

General Lab Use
Electrostatics
Bias Voltage
Op-Amp Supply
Pulse Generator
Ultrasonics

SPECIFICATIONS

Input Voltage:

5 VDC Input (dash 5Vin Models)
12 VDC Input Standard
24 VDC Input (dash 24Vin Models)
48 VDC Input (dash 48Vin Models)

Output Voltage:

From 100VDC to 5,000VDC
Positive and negatives models available
See "model selection table"

Output Polarity:

Output return is connected to input return

Output Current:

depends upon Vout
See "model selection table"
Power is limited to 1 Watt

SPECIFICATIONS Continued

Voltage Regulation

Line: 0.10% ($V_{in} = 12 \pm 10\%$)
Load: 0.10% NL – FL (typical) Resistive load

Ripple:

1% maximum at full load each side

Temperature Coefficient:

100 ppm/ °C

Stability:

< 0.1% drift / hour after warm-up to operating temperature

Operating Temperature:

-55 °C to +100 °C case temperature

Humidity:

10% to 90% RH non-condensing

Input Terminals:

Gold pins (0.04 inch diameter x 0.25 inch length)

Output Terminals:

Gold Pins (0.04 inch diameter x 0.25 inch length)

Input Current:

No Load: 30 mA
Full Load: 125 mA

Power Efficiency:

60% typical

Encapsulation:

Epoxy potting

Short Circuit Ability:

Current limit

Switching Frequency:

Typical 30kHz

SPECIFICATIONS Continued

Cooling:

Convection: 1W full load = 10 ° C case temperature rise

Dimensions:

1.5 L x 1.0 W x 0.50 H (38.1mm x 25.4mm x 12.7mm)
Volume = 0.75 inch³ (12.3 cm³)

Weight:

2.0 oz (55 grams)

Encapsulation:

Epoxy potting

Finish:

Smooth Diallyl-Phthalate Thermoset Case

Terminations:

Electro-Gold Plated Brass pins (4)

MODEL SELECTION TABLE

Model	Voltage	Power Available
TCR-1P	+100v	1w
TCR-1N	-100v	1w
TCR-2P	+200v	1w
TCR-2N	-200v	1w
TCR-3P	+300v	1w
TCR-3N	-300v	1w
TCR-5P	+500v	1w
TCR-5N	-500v	1w
TCR-10P	+1,000v	1w
TCR-10N	-1,000v	1w
TCR-15P	+1,500v	1w
TCR-15N	-1,500v	1w
TCR-20P	+2,000v	1w
TCR-20N	-2,000v	1w
TCR-30P	+3,000v	1w
TCR-30N	-3,000v	1w
TCR-40P	+4,000v	1w
TCR-40N	-4,000v	1w
TCR-50P	+5,000v	1w
TCR-50N	-5,000v	1w

The above products are available in:
5V, 12V (standard), 24v, or 48v input

Ordering Information:

TCR – XXP_{or} N / ZVin

XX = Output voltage
Z = Input voltage (blank if 12VDC)

Example:

TCR – 30P: Maximum output = +3,000V 1Watt 12 VDC input
TCR – 10N / 5Vin: Maximum output = -1,000V 1Watt 5VDC input

PERFORMANCE CHARTS

