



# TRG30RA V Series Application Note V11

## 30W AC-DC INTERCHANGEABLE PLUG SWITCHING ADAPTER TRG30RA V Series APPLICATION NOTE



**Approved By:**

Department	Approved By	Checked By	Written By
Research and Development Department	Ovid	Yang/ Shih Hang	Joyce
Design Quality Department	Benny	JoJo	



# TRG30RA V Series

## Application Note V11

---

### Content

<b>1. INTRODUCTION</b>	<b>3</b>
<b>2. ELECTRICAL BLOCK DIAGRAM</b>	<b>3</b>
<b>3. MAIN FEATURES AND FUNCTIONS</b>	<b>4</b>
3.1 <i>Operating Temperature Range</i>	4
3.2 <i>Output Protection</i>	4
<b>4. APPLICATIONS</b>	<b>4</b>
4.1 <i>Test Set-Up</i>	4
4.2 <i>Output Ripple and Noise Measurement</i>	4
<b>5. PACKING INFORMATION</b>	<b>5</b>



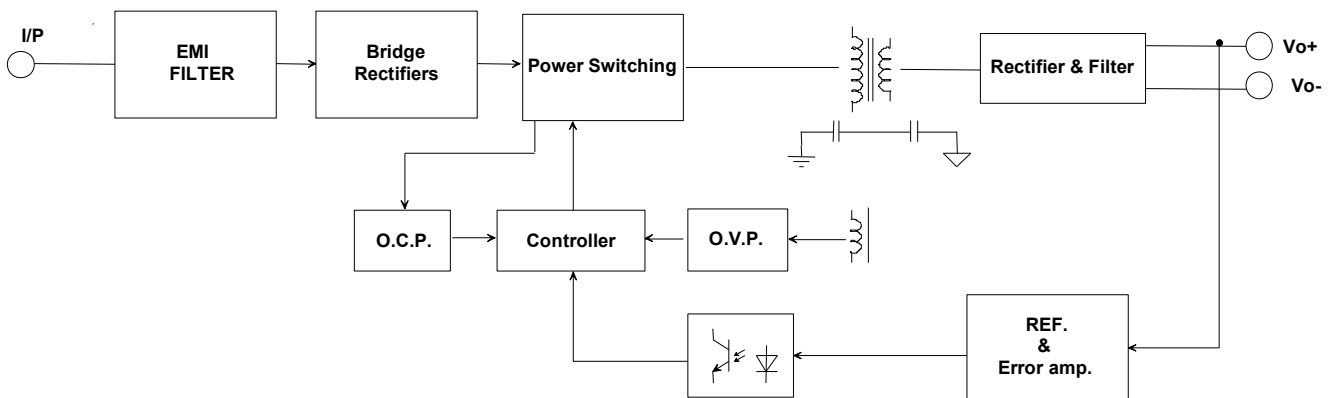
# TRG30RA V Series

## Application Note V11

### 1. Introduction

This application note describes the features and functions of Cincon's TRG30RA V series of adapter, switching AC-DC power. These are highly efficient, reliable, compact, high power density, single output AC/DC power. The power is fully protected against short circuit and over-voltage conditions. Cincon's world class automated manufacturing methods, together with an extensive testing and qualification program, ensure that the TRG30RA V series power is extremely reliable.

### 2. Electrical Block Diagram





# TRG30RA V Series

## Application Note V11

### 3. Main Features and Functions

#### 3.1 Operating Temperature Range

The highly efficient design of Cincon's TRG30RA V series power has resulted in their ability to operate within ambient temperature environments from -20°C to 60°C. Due consideration must be given to the de-rating curves when ascertaining the maximum power that can be drawn from the power. The maximum power which can be drawn is influenced by a number of factors, such as:

- Input voltage range
- Permissible output load (per derating curve)

#### 3.2 Output Protection

All different voltage models have a full continuous short-circuit protection. The unit will auto recover once the short circuit is removed. To provide protection in a fault condition, the unit is equipped with internal over-current protection. The unit operates normally once the fault condition is removed. The power module will supply up to 110% - 160% of rated current. In the event of an over current converter will go into a hiccup mode protection.

### 4. Applications

#### 4.1 Test Set-Up

The basic test set-up to measure parameters such as efficiency and load regulation is shown in Figure 1. When testing the Cincon's TRG30RA V series under any transient conditions, please ensure that the transient response of the source is sufficient to power the equipment under test. We can calculate the

- Efficiency
- Load regulation and line regulation

The value of efficiency is defined as:

$$\eta = \frac{V_o \times I_o}{P_{in}} \times 100\%$$

Where:

- $V_o$  is output voltage,
- $I_o$  is output current,
- $P_{in}$  is input power

The value of load regulation is defined as:

$$Load\ reg1. = \frac{V_{FL} - V_{NL}}{V_{NL}} \times 100\%$$

Where:

- $V_{FL}$  is the output voltage at 100% full load
- $V_{NL}$  is the output voltage at 60% full load

$$Load\ reg2. = \frac{V_{FL} - V_{NL}}{V_{NL}} \times 100\%$$

Where:

- $V_{FL}$  is the output voltage at 60% full load
- $V_{NL}$  is the output voltage at 20% full load

The value of line regulation is defined as:

$$Line\ reg. = \frac{V_{HL} - V_{LL}}{V_{LL}} \times 100\%$$

Where:

- $V_{HL}$  is the output voltage of maximum input voltage at 100% full load
- $V_{LL}$  is the output voltage of minimum input voltage at 100% full load

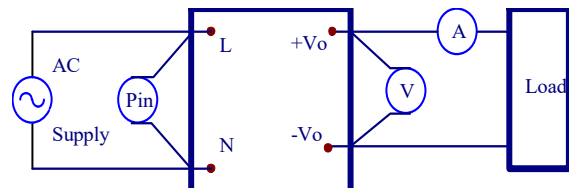


Figure 1. TRG30RA V Series Test Setup

#### 4.2 Output Ripple and Noise Measurement

The test set-up for noise and ripple measurements is shown in Figure 2. Measured method:

Add a C1: 10uF electrolytic capacitor and a C2: 0.1uF ceramic capacitor to output at 20 MHz band width.

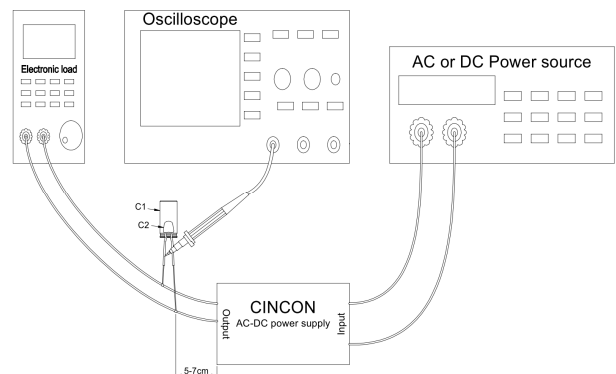


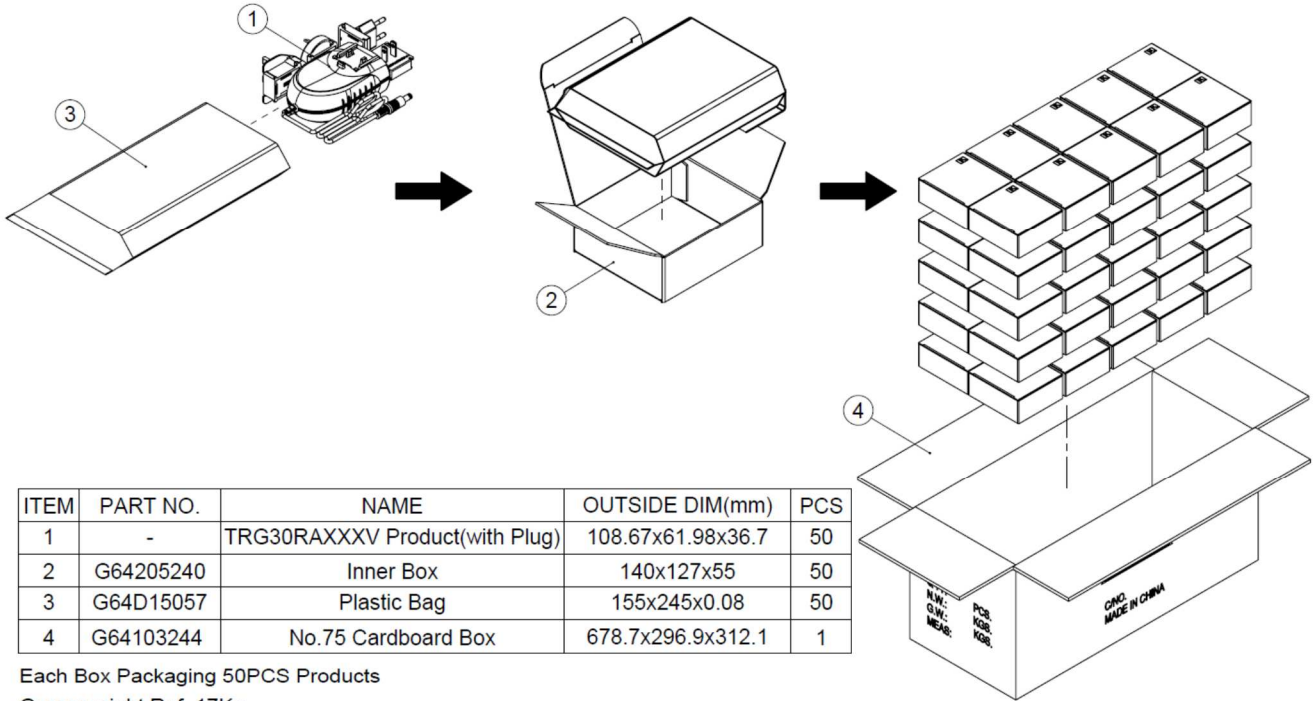
Figure 2. Output Voltage Ripple and Noise Measurement Set-Up



# TRG30RA V Series Application Note V11

## 5. Packing Information

The packing information for TRG30RA V series is showing as follows:



ITEM	PART NO.	NAME	OUTSIDE DIM(mm)	PCS
1	-	TRG30RAXXXV Product(with Plug)	108.67x61.98x36.7	50
2	G64205240	Inner Box	140x127x55	50
3	G64D15057	Plastic Bag	155x245x0.08	50
4	G64103244	No.75 Cardboard Box	678.7x296.9x312.1	1

Each Box Packaging 50PCS Products  
Gross weight Ref. 17Kg

TRG30RA V 50pcs a box, including the total weight of package material about 17.0Kg

### Headquarters:

14F, No.306, Sec.4, Hsin Yi Rd.  
Taipei, Taiwan  
Tel: 886-2-27086210  
Fax: 886-2-27029852  
E-mail: [sales@cincon.com.tw](mailto:sales@cincon.com.tw)  
Web Site: <https://www.cincon.com>

### CINCON ELECTRONICS CO., LTD.

#### Factory:

No. 8-1, Fu Kung Rd.  
Fu Hsing Industrial Park  
Fu Hsing Hsiang,  
Chang Hua Hsien, Taiwan  
Tel: 886-4-7690261  
Fax: 886-4-7698031

#### Cincon North America:

1655 Mesa Verde Ave. Ste 180  
Ventura, CA 93003  
Tel: 805-639-3350  
Fax: 805-639-4101  
E-mail: [info@cincon.com](mailto:info@cincon.com)