



TRE25R Series

Application Note V12

25W AC-DC I.T.E. Switch Power Adapter TRE25R Series APPLICATION NOTE



Approved By:

Department	Approved By	Checked By	Written By
Research and Development Department	Ovid	Calvin	Jeter
Design Quality Department	Benny	JoJo	



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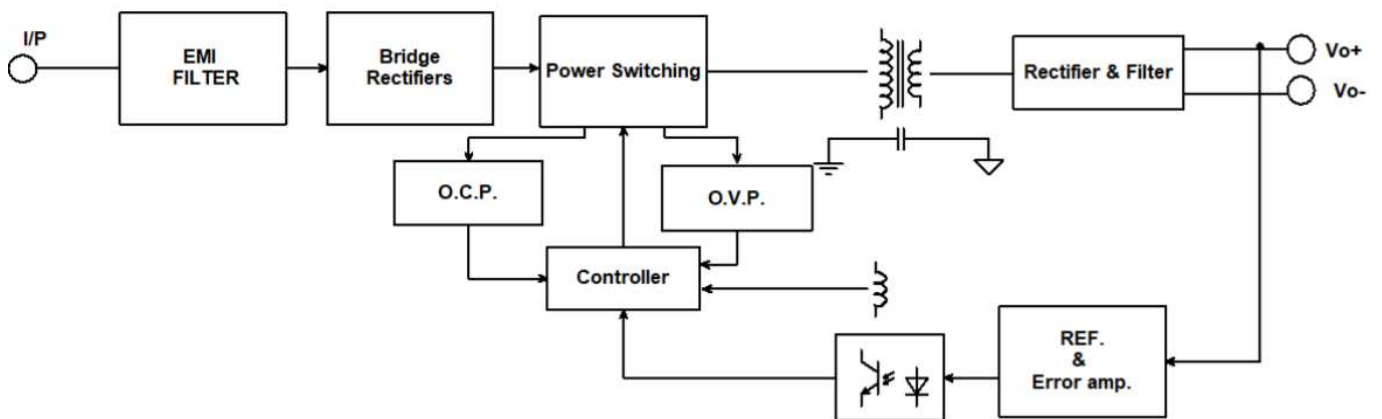
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1. Introduction

This application note describes the features and functions of Cincon's TRE25R series of AC-DC switch power adapters. These are highly efficient, reliable, compact, high power density, single output AC-DC switch power adapters. The switch power adapter 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 TRE25R series switch power adapters is extremely reliable.

2. Electrical Block Diagram





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3. Main Features and Functions

3.1 Operating Temperature Range

The highly efficient design of Cincon's TRE25R series switch power adapter has resulted in their ability to operate within ambient temperature environments from -20°C to 60°C (40°C~60°C with 2.5%/°C de-rating).

Due consideration must be given to the de-rating curves when ascertaining the maximum power that can be drawn from the switch power adapter. 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)
- Effective heat sinks

3.2 Output Protection (Over Current Protection)

The switch power adapter provide 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 will operate normally once the fault condition is removed. The switch power adapter will go to hiccup mode if the output current is set from 110% to 140% of rated current.

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 TRE25R 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 full load

V_{NL} is the output voltage at 60% load

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

Where:

V_{FL} is the output voltage at 60% load

V_{NL} is the output voltage at 20% 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 full load.

V_{LL} is the output voltage of minimum input voltage at full load.

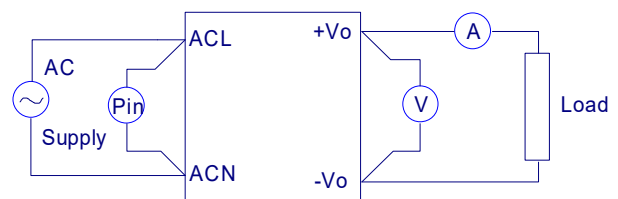


Figure 1. TRE25R Series Test Setup

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 C2=0.1uF ceramic capacitor and a C1=10uF electrolytic capacitor to output at 20 MHz Band Width.

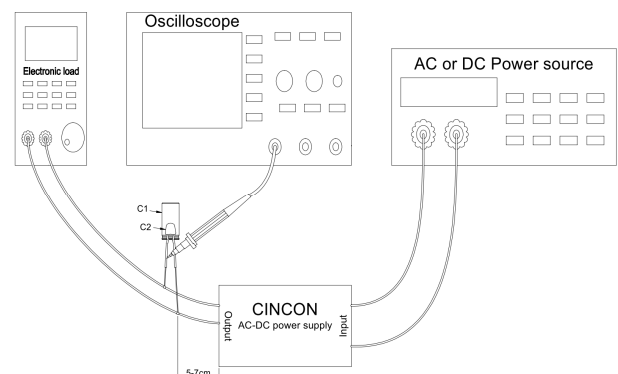


Figure 2. Output Voltage Ripple and Noise Measurement Set up

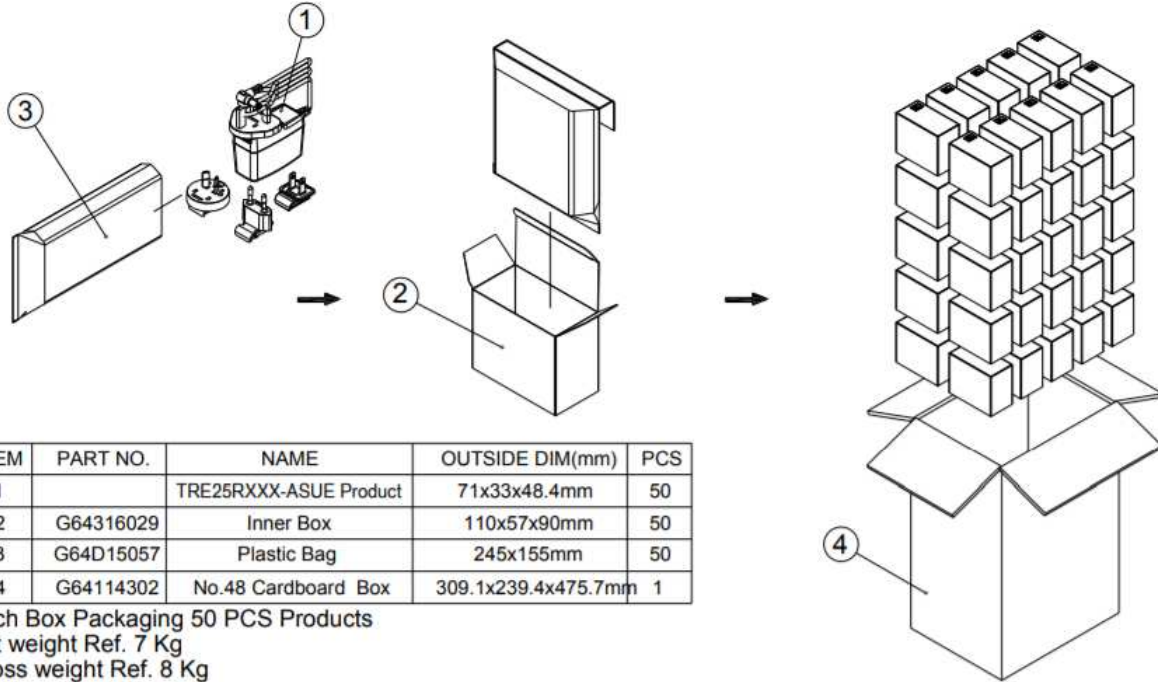


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5. Packing Information

The packing information for TRE25R series is showing as follows:



ITEM	PART NO.	NAME	OUTSIDE DIM(mm)	PCS
1		TRE25RXXX-ASUE Product	71x33x48.4mm	50
2	G64316029	Inner Box	110x57x90mm	50
3	G64D15057	Plastic Bag	245x155mm	50
4	G64114302	No.48 Cardboard Box	309.1x239.4x475.7mm	1

Each Box Packaging 50 PCS Products
Net weight Ref. 7 Kg
Gross weight Ref. 8 Kg

TRE25R series 50pcs a box, including the total weight of package material about 8Kg

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
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