

500W Enclosed Switching Power Supply

TGR500-XX Series



FEATURES

- Universal 80 - 264VAC or 110 - 370VDC Input voltage
- Accepts AC or DC input (dual-use of same terminal)
- Operating ambient temperature range: -30°C to +70°C
- Low standby power consumption, high efficiency, active PFC
- High I/O isolation test voltage up to 4000VAC
- Output short circuit constant current, over-current, over-voltage, over-temperature protection
- Over-voltage class III (designed to meet EN61558)
- Remote sense compensation, remote ON/OFF function
- Safety according to IEC/UL62368, IEC/EN60601, EN60335, EN61558

TGR500-XX series is one of Tiger Power Supplies' enclosed AC-DC switching power supply. It features universal AC input and at the same time accepts DC input voltage, cost-effective, low no load power consumption, high efficiency, high reliability and double or reinforced insulation. These converters offer excellent EMC performance and meet IEC/EN/UL62368, IEC/EN60601, EN60335, GB4943, EN61558 standards and they are widely used in areas of industrial, LED, street light control, electricity, security, telecommunications, smart home etc.

Selection Guide

Certification	Part No.*	Output Power (W)	Nominal Output Voltage and Current (Vo/Io)	Output Voltage Adjustable Range (V)	Efficiency at 230VAC (%) Typ.	Max. Capacitive Load (µF)	Remote Sense Compensation (mV)	Remote ON/OFF Function
CE/ UKCA	TGR500-03	297	3.3V/90A	3.13-3.46	84	15000		
	TGR500-05	450	5V/90A	4.75-5.25	87			
CE / UKCA	TGR500-12	500.4	12V/41.7A	11.4-12.6	92	12000	300	Y
	TGR500-15	501.0	15V/33.4A	14.25-15.75				
	TGR500-24	501.6	24V/20.9A	22.8-25.2	93	6000		
	TGR500-27	502.2	27V/18.6A	25.65-28.35		3000		
	TGR500-36	500.4	36V/13.9A	34.2-37.8		1800		
	TGR500-48	499.2	48V/10.4A	45.6-50.4				
CE/ UKCA	TGR500-54	502.2	54V/9.3A	51.3-56.7				

Note: *Under any conditions, the total power of the product should not exceed rated power, and the output current should not exceed the rated output current

Input Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Input Voltage Range	AC input	80	--	264	VAC
	DC input	110	--	370	VDC
Input Voltage Frequency		47	--	63	Hz
Input Current	115VAC	--	--	6	A
	230VAC	--	--	3	
Inrush Current	230VAC Cold start	--	40	--	
Power Factor	115VAC Full load	0.98	--	--	--
	230VAC	0.95	--	--	
Leakage Current	240VAC	<0.1mA			
Hot Plug		Unavailable			

500W Enclosed Switching Power Supply

TGR500-XX Series



Output Specifications						
Item	Operating Conditions		Min.	Typ.	Max.	Unit
Output Voltage Accuracy	Full load range	3.3V/5V	--	±2	--	%
		12V/15V/24V/27V/36V/48V/54V	--	±1	--	
Line Regulation	Rated load	3.3V/5V	--	±0.5	--	
		12V/15V/24V/27V/36V/48V/54V	--	±0.3	--	
Load Regulation	0% - 100% load	3.3V/5V	--	±1	--	
		12V/15V/24V/27V/36V/48V/54V	--	±0.5	--	
Ripple & Noise*	20MHz bandwidth (peak-to-peak value), 25°C	5V	--	--	150	mV
		Others	--	--	120	
Temperature Coefficient			--	±0.03	--	%/°C
Minimum Load			--	0	--	%
Hold-up Time	230VAC		12	18	--	ms
Short Circuit Protection	Recovery time <3s after the short circuit disappear.		Constant current protection, continuous, self-recover			
Over-current Protection (12V、15V、24V、27V、36V、48V、54V)	Room temperature, high temperature		110%-160% Io, constant current protection, self-recover			
	Low temperature		>105% Io, constant current protection, self-recover			
Over-current Protection (3.3V、5V)	Room temperature		110%-160% Io, constant current protection, self-recover			
	Low temperature, high temperature		>105% Io, constant current protection, self-recover			
Over-voltage Protection	3.3V		≤5VDC		Output voltage turn off, re-power on for recover	
	5V		≤10VDC			
	12V		≤16VDC			
	15V		≤21.8VDC			
	24V		≤32.4VDC			
	27V		≤35VDC			
	36V		≤45VDC			
	54V		≤63VDC			
Over-temperature Protection			Output voltage turn off, self-recover after the temperature drops			

Note: *The "Tip and barrel method" is used for ripple and noise test, output parallel 47uF electrolytic capacitor and 0.1uF ceramic capacitor, please refer to Enclosed Switching Power Supply Application Notes for specific information.

General Specifications						
Item	Operating Conditions		Min.	Typ.	Max.	Unit
Isolation Test	Input - ⊕	Electric strength test for 1min., leakage current <5mA	2000	--	--	VAC
	Input - output		4000	--	--	
	Output - ⊕		2000	--	--	
Insulation Resistance	Input - ⊕	At 500VDC	100	--	--	MΩ
	Input - output		100	--	--	
	Output - ⊕		100	--	--	
Operating Temperature			-30	--	+70	°C
Storage Temperature			-40	--	+85	
Operating Humidity	Non-condensing		--	--	--	%RH
Storage Humidity			10	--	95	
Power Derating	Operating temperature derating	+50°C to +70°C	2.5	--	--	%/°C
	Input voltage derating	80VAC - 100VAC	1.33	--	--	%/VAC
Safety Standard	3.3V/5V		GB4943.1 safety approved & EN62368-1,			

500W Enclosed Switching Power Supply

TGR500-XX Series

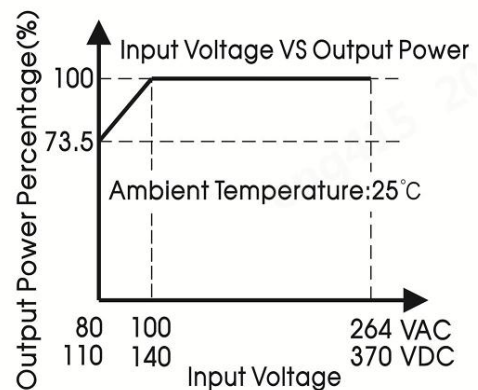
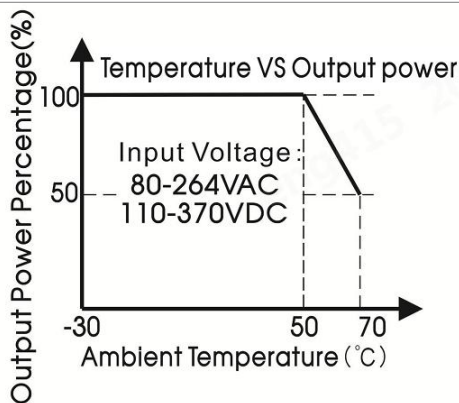


		BS EN62368-1 (Report) Design refer to IEC/UL62368-1, IEC/EN60601-1, EN60335-1, EN61558-1, EN61558-2-16, IS13252 (Part1)
	12V/15V/24V/27V/36V/48V	GB4943.1, IS13252 (Part1) safety approved & EN62368-1, BS EN62368-1 (Report) Design refer to IEC/UL62368-1, IEC/EN60601-1, EN60335-1, EN61558-1, EN61558-2-16
	54V	GB4943.1 safety approved & EN62368-1, BS EN62368-1 (Report) Design refer to IEC/UL62368-1, IEC/EN60601-1, EN60335-1, EN61558-1, EN61558-2-16, IS13252 (Part1)
Safety Class		CLASS I
MTBF	MIL-HDBK-217F@25°C	>300,000 h

Mechanical Specifications	
Case Material	Metal (AL1100, SGCC)
Dimensions	203.10mm x 101.60mm x 40.60mm
Weight	850g (Typ.)
Cooling Method	Forced air convection

Electromagnetic Compatibility (EMC)			
Emissions	CE	CISPR32/EN55032	CLASS B
	RE	CISPR32/EN55032	CLASS B
	Harmonic current	IEC/EN61000-3-2	CLASS A
Immunity	ESD	IEC/EN 61000-4-2	Contact ±8KV/Air ±15KV perf. Criteria A
	RS	IEC/EN 61000-4-3	10V/m perf. Criteria A
	EFT	IEC/EN 61000-4-4	±4KV perf. Criteria A
	Surge	IEC/EN 61000-4-5	line to line ±2KV/line to ground ±4KV perf. Criteria A
	CS	IEC/EN61000-4-6	10 Vr.m.s perf. Criteria A
	Voltage dips, short interruptions and voltage variations immunity	IEC/EN61000-4-11	0%, 70% perf. Criteria B

Product Characteristic Curve

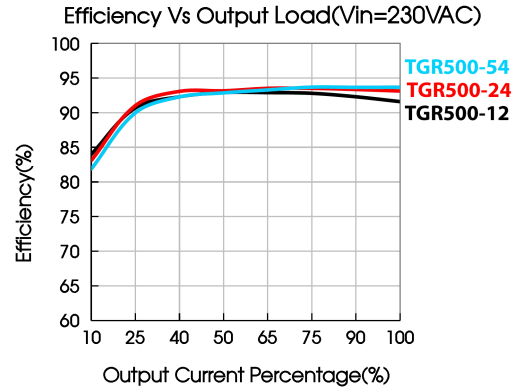
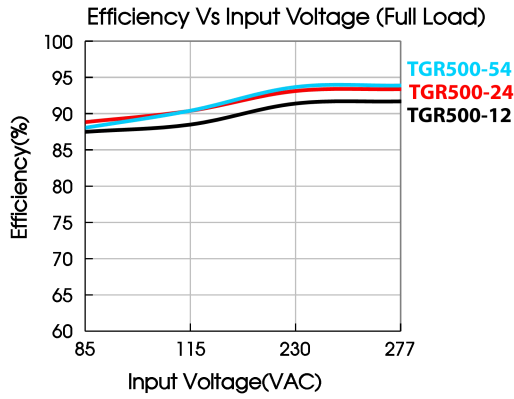


Note: 1. With an AC input voltage between 80-100VAC and a DC input between 110-140VDC the output power must be derated as per the temperature derating curves;

2. This product is suitable for applications using natural air cooling; for applications in closed environment please consult Tiger Power.

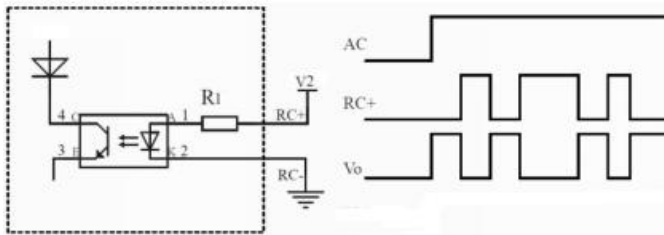
500W Enclosed Switching Power Supply

TGR500-XX Series



Typical Application

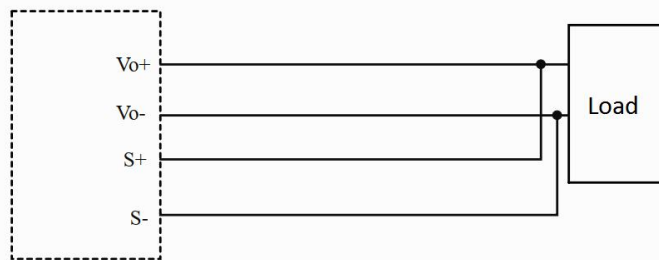
1. Remote ON/OFF



R1 (Product inside)	2K Ω , $\frac{1}{4}$ W
V2 (User side)	5V-15V

Note: When the product is working normally, apply voltage (5-15V) to RC+ and RC- to trigger the remote ON/OFF function, and the output voltage will be off. Withdraw the voltage, the output voltage will be re-established.

2. Remote Sense Compensation



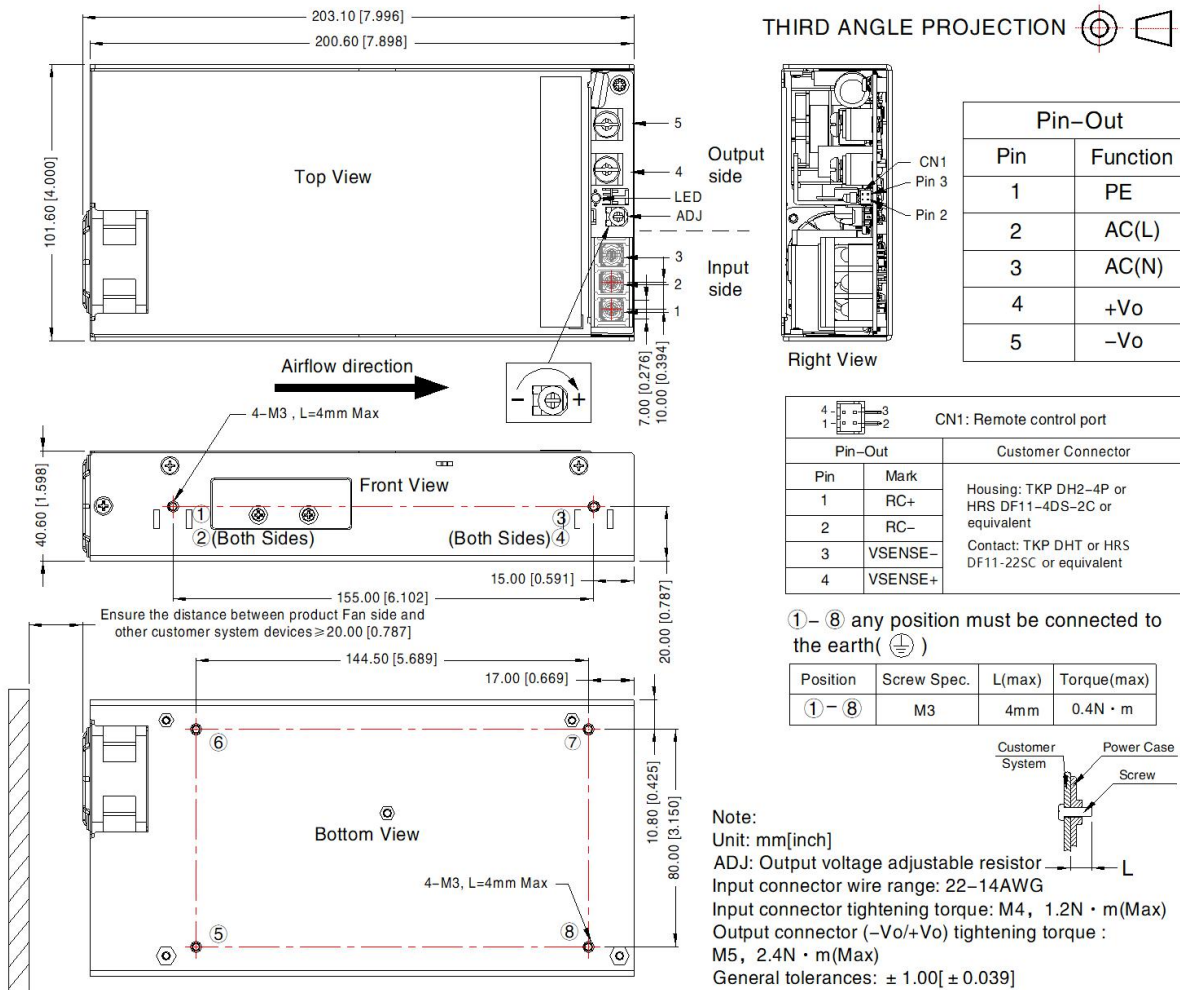
Note: 1. The left side represents the internal schematic diagram of the product, the right side represents the customer system; 2. Twisted pair wires are needed for S+/S-.

500W Enclosed Switching Power Supply

TGR500-XX Series



Dimensions and Recommended Layout



- Note:**
- For additional information on Product Packaging please refer to www.TigerPowerSupplies.com
 - Unless otherwise specified, parameters in this datasheet were measured under the conditions of $T_a=25^{\circ}\text{C}$, humidity<75% RH with nominal input voltage and rated output load;
 - The room temperature derating of $5^{\circ}\text{C}/1000\text{m}$ is needed for operating altitude greater than 2000m;
 - All index testing methods in this datasheet are based on our company corporate standards;
 - In order to improve the efficiency at high input voltage, there will be audible noise generated, but it does not affect product performance and reliability;
 - We can provide product customization service, please contact our technicians directly for specific information;
 - Products are related to laws and regulations: see "Features" and "EMC";
 - The out case needs to be connected to PE (⊕) of system when the terminal equipment in operating;
 - The output voltage can be adjusted by the ADJ, clockwise to increase;
 - CAUTION: Double pole, neutral fusing. Disconnect mains before servicing."/"/ATTENTION: Double pôle/fusible sur le neutre. Débrancher l'alimentation avant l'entretien;**
 - Our products shall be classified according to related environmental laws and regulations, and shall be handled by qualified units;
 - The power supply is considered a component which will be installed into a terminal equipment. All EMC tests should be confirmed with the final equipment. Please consult our FAE for EMC test operation instructions.