AC/DC 350W Enclosed Switching Power Supply

TGR350-xx, TGR350-xx-C, TGR350-xx-Q Series

FEATURES

- Selectable AC input range: 90 - 132VAC/180 - 264VAC
- DC input range: 240 - 373VDC
- Ultra low standby power consumption < 0.75W @230VAC
- Operating ambient temperature range: - 30℃ to +70℃
- Compact size with 1U low profile
- LED indicator for power on
- Output short circuit, over-current, over-voltage, over-temperature protection
- Safety according to IEC/EN/UL62368, EN60335, GB4943
- Withstand 300VAC surge input for 5s (switch in position of 230)
- Built-in DC fan
- Operating up to 5000m altitude

TGR350-xx series is one of Tiger Power's enclosed AC-DC switching power supply. It features selectable AC input and at the same time accepts DC input voltage, cost-effective, low no load power consumption, high efficiency and high reliability. These power supply offer excellent EMC performance and meet IEC/EN61000-4, CISPR32/EN55032, IEC/UL/EN62368, EN60335, GB4943 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)
UL/CE/CQC	TGR350-5	300	5V/60A	4.5-5.5	83.5	10000
	TGR350-12	348	12V/29A	10.2-13.8	85	4000
	TGR350-15	348	15V/23.2A	13.5-18	86	3300
	TGR350-24	350.4	24V/14.6A	21.6-28.8	87	1500
	TGR350-36	349.2	36V/9.7A	32.4-39.6	88	1500
	TGR350-48	350.4	48V/7.3A	43.2-52.8	88.5	470

Note: *Use suffix "C" for terminal with protective cover and suffix "Q" for conformal coating.

Input Specifications

Item	Operating Conditions		Min.	Typ.	Max.	Unit
Input Voltage Range	AC input	Low voltage (switch in position of 115)	90	--	132	VAC
		High voltage (switch in position of 230)	180	--	264	
	DC input	Switch in position of 230	240	--	373	VDC
Input Voltage Frequency			47	--	63	Hz
Input Current	115VAC		--	6.8	8	A
	230VAC		--	3.4	4	
Inrush Current	115VAC	Cold start	--	60	--	
	230VAC		--	60	--	
Leakage Current	240VAC		--	--	0.75	mA
Hot Plug			Unavailable			

Output Specifications

Item	Operating Conditions		Min.	Typ.	Max.	Unit
Output Voltage Accuracy	Full load range	5V	--	±3	--	%
		12V	--	±1.5	--	

		15V/24V/36V/48V	--	±1	--	
Line Regulation	Rated load		--	±0.5	--	
Load Regulation	0% - 100% load	5V	--	±2	--	
		12V	--	±1	--	
		15V/24V/36V/48V	--	±0.5	--	
Output Ripple & Noise*	20MHz bandwidth (peak-to-peak value)	5V/12V/15V/24V	--	150	--	mV
		36V/48V	--	200	--	
Temperature Coefficient			--	±0.02	--	%/℃
Minimum Load			0	--	--	%
Stand-by Power Consumption	230VAC, 25℃		--	--	0.75	W
Hold-up Time	115VAC		--	12	--	ms
	230VAC		--	16	--	
Short Circuit Protection	Recovery time <8s after the short circuit disappear		Hiccup, continuous, self-recovery			
Over-current Protection			110% - 180% Io, self-recovery			
Over-voltage Protection	5V		5.75V-6.75V (Hiccup, self-recovery)			
	12V		13.8V-16.2V (Hiccup, self-recovery)			
	15V		18V-21V (Hiccup, self-recovery)			
	24V		28.8V-33.6V (Hiccup, self-recovery)			
	36V		41.4V-46.8V (Hiccup, self-recovery)			
	48V		55.2V-59.5V (Hiccup, self-recovery)			
Over-temperature Protection			Hiccup, self-recovery			

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

General Specifications

Item		Operating Conditions		Min.	Typ.	Max.	Unit
Isolation Test	Input - ⏚	Electric strength test for 1min., leakage current <10mA		2000	--	--	VAC
	Input - output			3000	--	--	
	Output - ⏚			500	--	--	
Insulation Resistance	Input - ⏚	At 500VDC		100	--	--	MΩ
	Input - output			100	--	--	
	Output - ⏚			100	--	--	
Operating Temperature				-30	--	+70	℃
Storage Temperature				-40	--	+85	
Fan On/Off Control		Fan On, temperature for Rth3		50	--	--	
		Fan Off, temperature for Rth3		--	--	40	
Operating Humidity		Non-condensing		20	--	90	%RH
Storage Humidity				--	--	95	
Switching Frequency				--	65	--	kHz
Power Derating		Operating temperature derating	+50℃ to +70℃	2	--	--	%/℃
		Input voltage derating	90VAC - 100VAC	2	--	--	%/VAC
			100VAC -132VAC	0	--	--	
			180VAC - 264VAC	0	--	--	
			240VDC - 373VDC	0	--	--	
Safety Standard				Meet IEC/EN/UL62368/EN60335/GB4943			
Safety Class				CLASS I			
MTBF		MIL-HDBK-217F@25℃		>300,000 h			

Case Material	**Metal (AL1100, SGCC)**
Dimensions	**215.00 x 115.00 x 30.00mm**
Weight	**700g (Typ.)**
Cooling Method	**Free air convection**

Electromagnetic Compatibility (EMC)

Emissions	**CE**	**CISPR32/EN55032 CLASS A**	
	RE	**CISPR32/EN55032 CLASS A**	
Immunity	**ESD**	**IEC/EN 61000-4-2 Contact ±6KV/Air ±8KV**	**perf. Criteria A**
	RS	**IEC/EN 61000-4-3 10V/m**	**perf. Criteria A**
	EFT	**IEC/EN 61000-4-4 ±2KV**	**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**
	DIP	**IEC/EN61000-4-11 0%,70%**	**perf. Criteria B**

Remark: 1. One magnetic beed should be coupled with the output load line during CE/RE testing;

2. When the power supply is used in the European Union or in applications that mandatory to meet the requirements of EN61000-3-2, users need to handle the harmonic current requirements, details please refer to Mornsun FAE. Applications like:

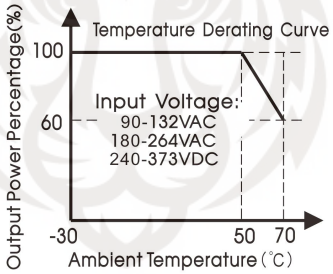
(1) The terminal equipment is used in the European Union;

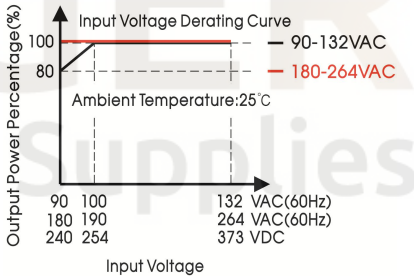
(2) The terminal equipment is connected to public mains supply with 220VAC or greater rated nominal voltage that mandatory to meet the requirements of EN61000-3-2;

(3) The power supply is installed in terminal equipment with average or continuous input power greater than 75W;

(4) The power supply belongs to a part of lighting system.

Product Characteristic Curve

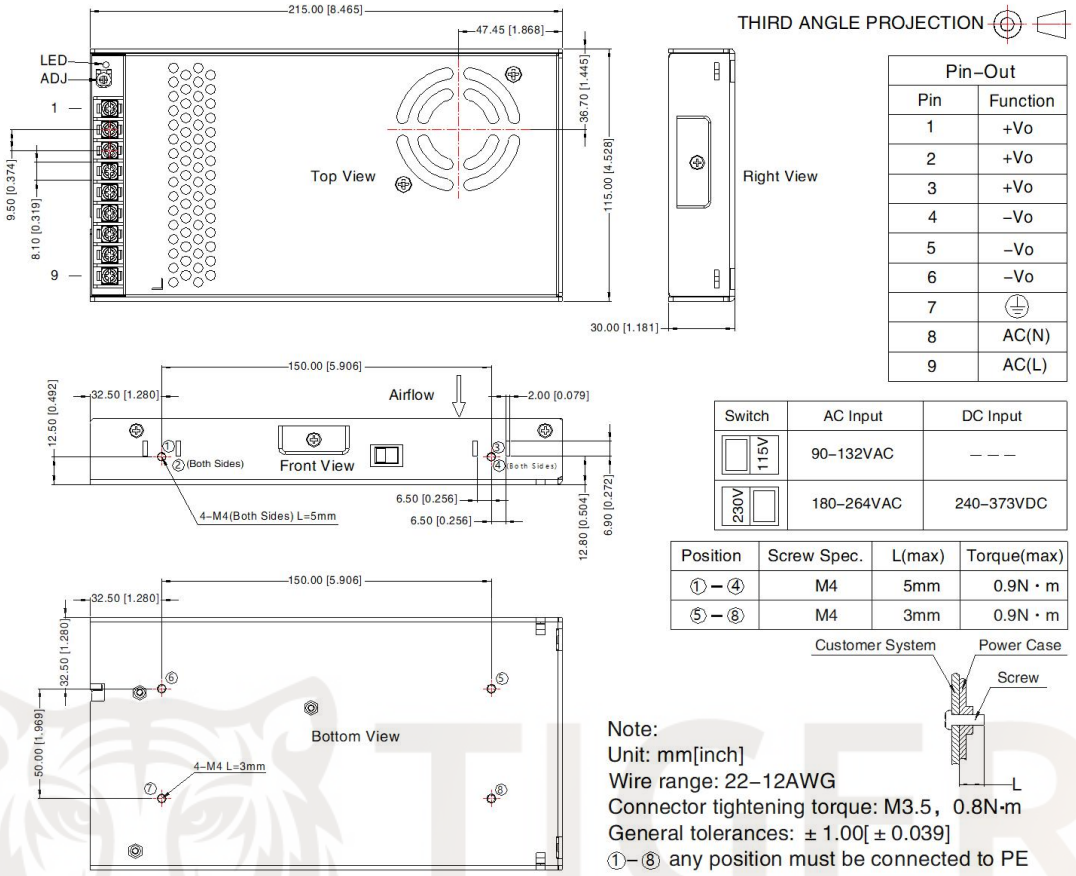




Note: This product is suitable for applications using natural air cooling; for applications in closed environment please consult Tiger.

Dimensions and Recommended Layout

TGR350-xx, TGR350-xx-Q Series



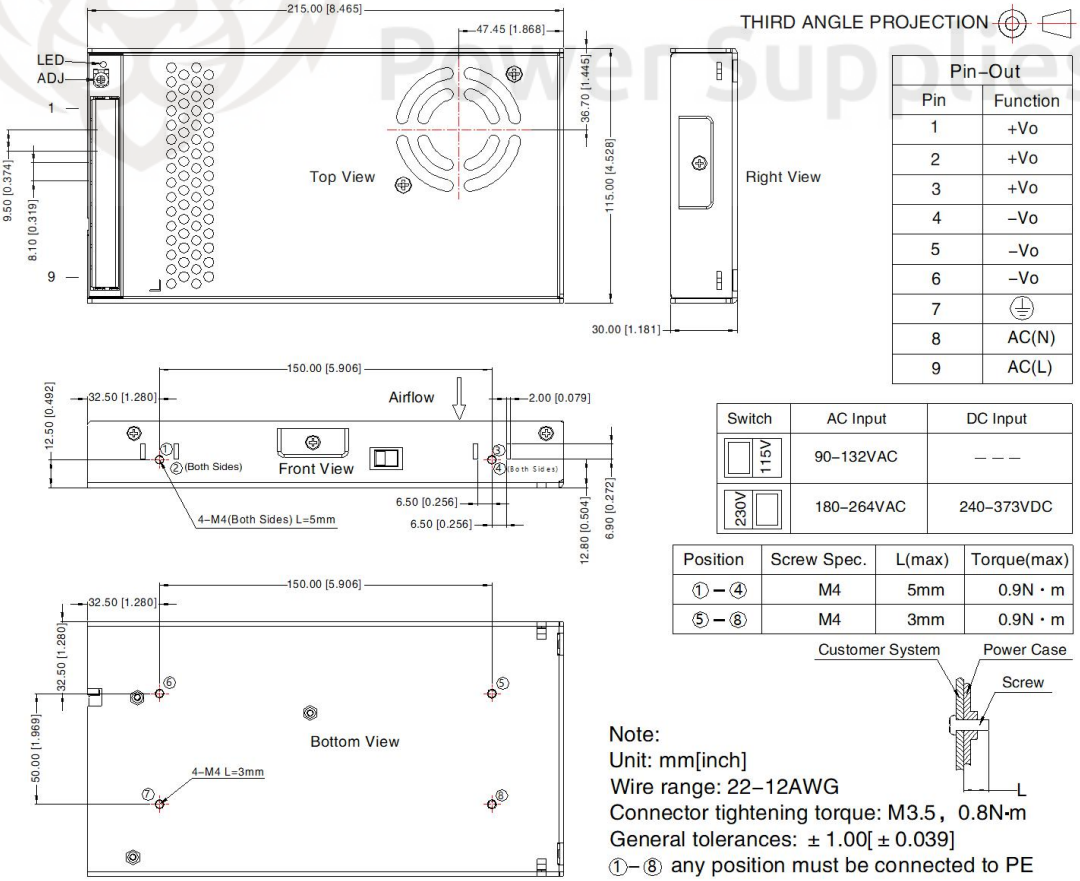
Pin-Out	
Pin	Function
1	+Vo
2	+Vo
3	+Vo
4	-Vo
5	-Vo
6	-Vo
7	⏚
8	AC(N)
9	AC(L)

Switch	AC Input	DC Input
115V	90-132VAC	- - -
230V	180-264VAC	240-373VDC

Position	Screw Spec.	L(max)	Torque(max)
①-④	M4	5mm	0.9N · m
⑤-⑧	M4	3mm	0.9N · m

Note:
Unit: mm[inch]
Wire range: 22-12AWG
Connector tightening torque: M3.5, 0.8N·m
General tolerances: ± 1.00[± 0.039]
①-⑧ any position must be connected to PE

TGR350-xx-C Series



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Note:

1. **For additional information on Product Packaging please refer to** www.TigerPowerSupplies.com **Packaging bag number: 58220115;**
2. **Unless otherwise specified, parameters in this datasheet were measured under the conditions of Ta=25℃, humidity<75% RH with nominal input voltage and rated output load;**
3. **The ambient temperature derating of 5℃/1000m is needed for operating altitude greater than 2000m;**
4. **All index testing methods in this datasheet are based on our company corporate standards;**
5. **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;**
6. **We can provide product customization service, please contact our technicians directly for specific information;**
7. **Products are related to laws and regulations: see "Features" and "EMC";**
8. **The out case needs to be connected to the earth ( ) of system when the terminal equipment in operating;**
9. **Our products shall be classified according to ISO14001 and related environmental laws and regulations, and shall be handled by qualified units.**
10. **The power supply is considered a component which will be installed into a final equipment. All EMC tests should be confirmed with the final equipment. Please consult our FAE for EMC test operation instructions.**