AC/DC 15W Enclosed Switching Power Supply

TGR15-XX, TGR15-XX-C, TGR15-XX-Q Series

FEATURES

- 85 - 305VAC or 100 - 430VDC input voltage
- Accepts AC or DC input (dual-use of same terminal)
- Operating ambient temperature range: -30℃ to +70℃
- Up to 83% efficiency
- No-load power consumption < 0.5W
- High I/O isolation test voltage up to 4000VAC
- Output short circuit, over-current, over-voltage protection
- IEC/EN/UL62368, GB4943 safety approval
- Over-voltage class Ⅲ (designed to meet EN61558)
- Operating up to 5000m altitude

TGR15-XX series is one of Tiger Power's 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 and high reliability. These converters offer excellent EMC performance and meet IEC/EN61000-4, CISPR32/EN55032, IEC/UL/EN62368, 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.	Capacitive Load (μF) Max.
UL, CE, CB, CCC	TGR15-3	9.9	3.3V/3.0A	2.85-3.6	73	3000
	TGR15-5	15	5V/3.0A	4.5-5.5	78	2400
	TGR15-12	15.6	12V/1.3A	10.2-13.8	82	1800
	TGR15-15	15	15V/1.0A	13.5-18	82	1200
	TGR15-24	15	24V/0.625A	21.6-28.8	83	600
	TGR15-48	15.36	48V/0.32A	42-54	83	300

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	85	--	305	VAC
	DC input	100	--	430	VDC
Input Frequency		47	--	63	Hz
Input Current	115VAC	--	--	0.35	A
	230VAC	--	--	0.25	
Inrush Current	115VAC	--	30	--	
	230VAC	--	50	--	
Leakage Current	277VAC	＜0.5mA			
Hot Plug		Unavailable			

Output Specifications

Item	Operating Conditions		Min.	Typ.	Max.	Unit
Output Voltage Accuracy	Full load range	3.3V	--	±3	--	%
		5V	--	±2	--	
		12V/15V/24V/48V	--	±1	--	
Line Regulation	Rated load	3.3V/5V	--	±1	--	
		12V/15V/24V/48V	--	±0.5	--	
Load Regulation	0%-100% load	3.3V/5V	--	±1	--	
		12V/15V/24V/48V	--	±0.5	--	
Ripple & Noise*	20MHz bandwidth (peak-to-peak value)	3.3V/5V	--	--	80	mV
		12V/15V	--	--	120	
		24V/48V	--	--	150	
Temperature Coefficient			--	±0.03	--	%/℃
Minimum Load			0	--	--	%

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Stand-by Power Consumption	230VAC	--	0.3	0.5	W
Hold-up Time	115VAC input	--	7	--	ms
	230VAC input	--	48	--	
Short Circuit Protection	Recovery time <5s after the short circuit disappear.	Hiccup, continuous, self-recovery			
Over-current Protection		110%-200% Io, self-recovery			
Over-voltage Protection	3.3V/5V	⩽ 6.75VDC (Output voltage hiccup or clamp)			
	12V	⩽ 16.2VDC (Output voltage hiccup or clamp)			
	15V	⩽ 21.8VDC (Output voltage hiccup or clamp)			
	24V	⩽ 33.6VDC (Output voltage hiccup or clamp)			
	48V	⩽ 60.0VDC (Output voltage hiccup or clamp)			

Note: *The "Tip and barrel method" is used for ripple and noise test, please refer to Enclosed Switching Power Supply Application Notes for specific information.

General specifications

Item		Operating Conditions		Min.	Typ.	Max.	Unit
Isolation	Input-⏚	Electric Strength Test for 1min., leakage current <10mA		2000	--	--	VAC
	Input-Output			4000	--	--	
	Output-⏚			1250	--	--	
Insulation Resistance	Input -⏚	At 500VDC		100	--	--	MΩ
	Input - Output			100	--	--	
	Output -⏚			100	--	--	
Operating Temperature				-30	--	+70	℃
Storage Temperature				-40	--	+85	
Storage Humidity		Non-condensing		--	--	95	%RH
Operating Humidity		Non-condensing		20	--	90	
Switching Frequency				--	65	--	kHz
Power Derating		-30℃ to -25℃	85VAC - 100VAC	6.0	--	--	%/℃
		+50℃ to +70℃		2.0	--	--	
		85VAC - 100VAC		1.33	--	--	%/VAC
		277VAC - 305VAC		0.72	--	--	
Safety Standard				IEC/EN/UL62368/GB4943			
Safety Certification				IEC/EN/UL62368/GB4943			
Safety Class				CLASS I			
MTBF		MIL-HDBK-217F@25℃		>700,000 h			

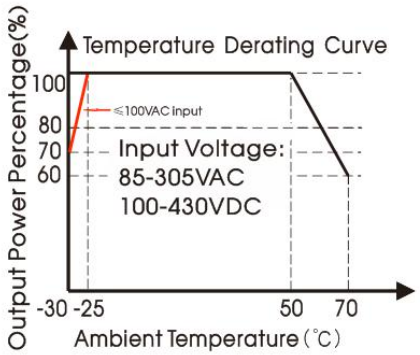
Mechanical specifications

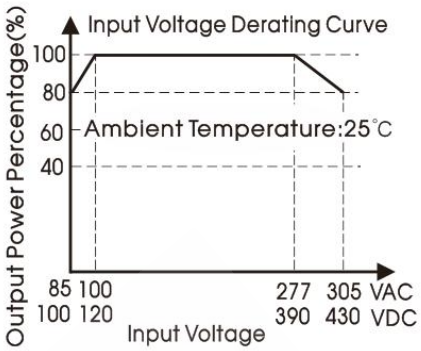
Case Material	Metal (AL5052, SGCC)
Dimension	65.00 x 55.00 x 25.00 mm
Weight	90.0g (Typ.)
Cooling method	Free air convection

Electromagnetic Compatibility (EMC)

Emissions	CE	CISPR32/EN55032 CLASS B	
	RE	CISPR32/EN55032 CLASS B	
Immunity	ESD	IEC/EN 61000-4-2 Contact ±6KV/Air ±8KV	Perf. Criteria B
	RS	IEC/EN61000-4-3 10V/m	perf. Criteria A
	EFT	IEC/EN61000-4-4 ±2KV	perf. Criteria A
	Surge	IEC/EN61000-4-5 line to line ±1KV/line to ground ±2KV	perf. Criteria A
	CS	IEC/EN61000-4-6 10Vr.m.s	perf. Criteria A
	Voltage dip, short interruption and voltage variation	IEC/EN61000-4-11 0%, 70%	perf. Criteria B

Product Characteristic Curve





Note: ① With an AC input between 85-100V/277-305VAC and a DC input between 100-120VDC/390-430VDC, the output power must be derated as per

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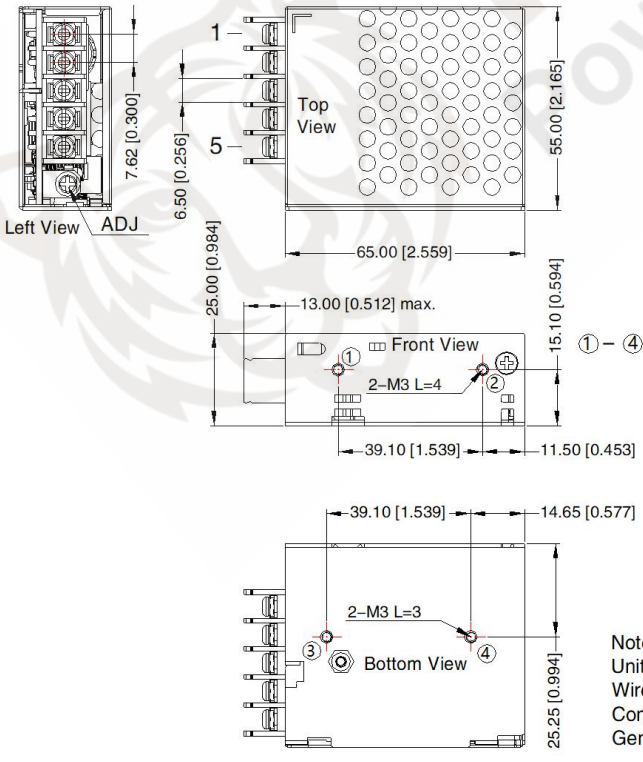
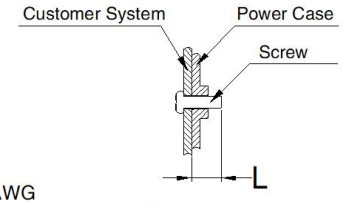


THIRD ANGLE PROJECTION

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

①– ④ any position must be connected to the earth(⏚)

Position	Screw Spec.	L(max)	Torque(max)
① – ②	M3	4mm	0.4N·m
③ – ④	M3	3mm	0.4N·m



Note:
Unit: mm[inch]
Wire range: 22–14AWG
Connector tightening torque: M3，0.4N·m
General tolerances: ± 1.00[± 0.039]

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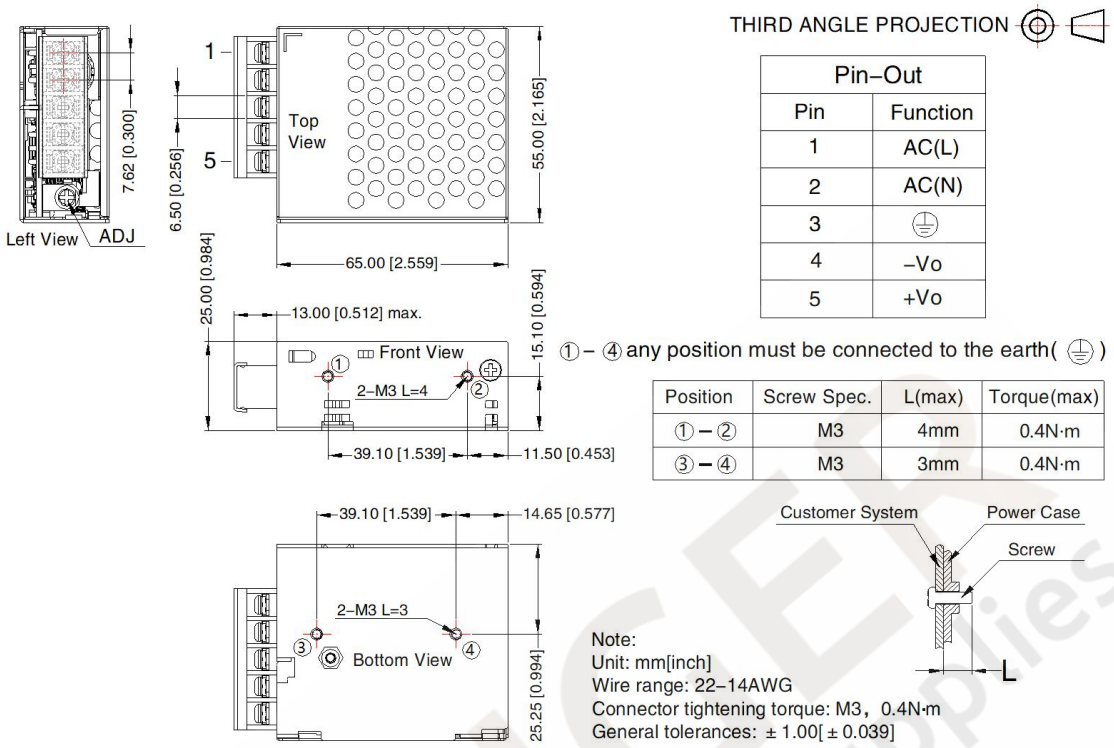
TGR15-XX-C series



Pin–Out	
Pin	Function
1	AC(L)
2	AC(N)
3	⏚
4	–Vo
5	+Vo

①– ④ any position must be connected to the earth(⏚)

Position	Screw Spec.	L(max)	Torque(max)
① – ②	M3	4mm	0.4N·m
③ – ④	M3	3mm	0.4N·m

Note:
Unit: mm[inch]
Wire range: 22–14AWG
Connector tightening torque: M3，0.4N·m
General tolerances: ± 1.00[± 0.039]

Note:

1. **For additional information on Product Packaging please refer to www.TigerPowerSupplies.com**
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.**