

Specifications (measured @ Ta= 25°C, nom. Vin, full load and after warm-up unless otherwise stated)

BASIC CHARACTERISTICS

Parameter	Condition		Min.	Typ.	Max.
Internal Input Filter			Pi-type		
Input Voltage Range ^(4,5,6)	nom. Vin= 230VAC		85VAC	230VAC	264VAC
Input Current	115VAC 230VAC			25mA 18mA	30mA 20mA
Inrush Current	cold start at 25°C	115VAC 230VAC			30A 40A
No load Power Consumption					150mW
Input Frequency Range			47Hz		63Hz
Minimum Load			0%		
Power Factor	115VAC, 230VAC		0.4		0.6
Start-up Time	115VAC 230VAC				1s 2s
Hold-up time	115VAC 230VAC				18ms 80ms
Internal Operating Frequency	100% load at nominal Vin			65kHz	
Output Ripple and Noise	20MHz BW	0°C to 80 °C	5Vout 12Vout		100mVp-p 200mVp-p
		-25 °C to 0 °C	5Vout 12Vout		200mVp-p 300mVp-p

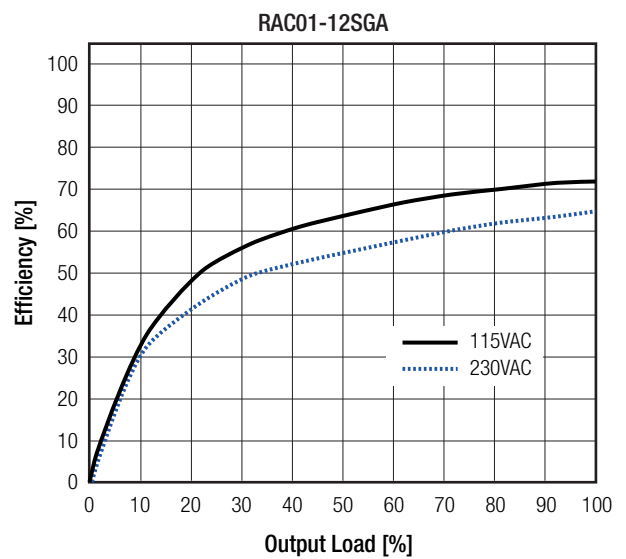
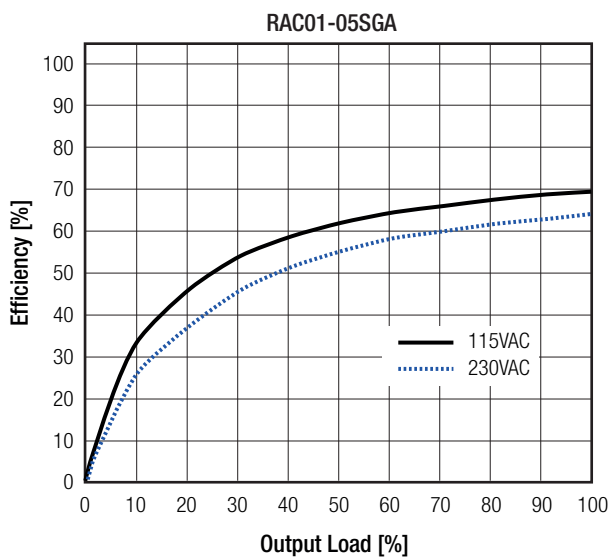
Notes:

Note4: No proper operation with DC input voltage

Note5: The products were submitted for safety files at AC-Input operation

Note6: Refer to “**Line Derating**”

Efficiency vs. Load

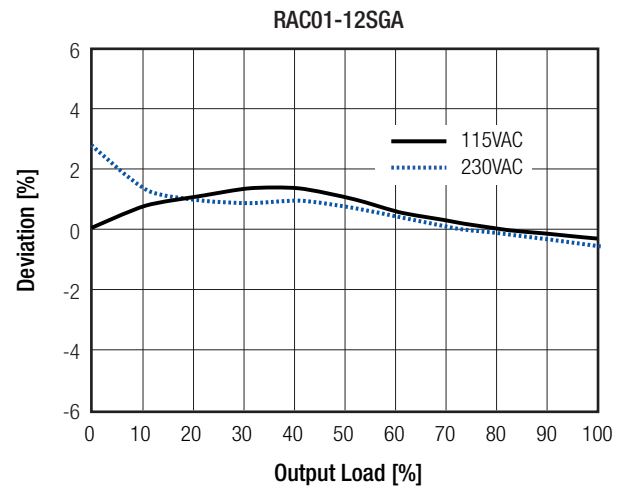
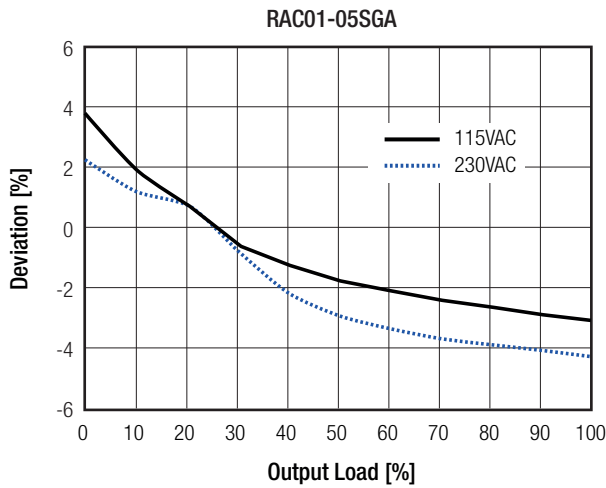


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REGULATIONS

Parameter	Condition	Value
Output Accuracy	-25°C to +80°C	±6.0% max.
Line Regulation	-25°C to +80°C	±2.0% max.
Load Regulation	-25°C to +80°C	6.0% max.

Deviation vs. Load



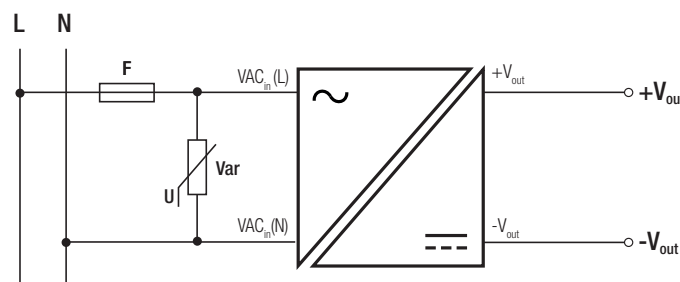
PROTECTIONS

Parameter	Type	Value
Input Fuse ⁽⁷⁾	internal	fusible resistor, 1Ω/1W
Short Circuit Protection (SCP)	below 100mΩ	continuous, auto recovery
Over Voltage Category		OVCII
Over Current Protection (OCP)	5Vout 12Vout	0.22A - 0.5A, hiccup mode 0.25A - 0.91A, hiccup mode
Class of Equipment		Class II
Isolation Voltage ⁽⁸⁾	I/P to O/P	rated for 1 minute 3kVAC
Isolation Resistance		100MΩ min.
Insulation Grade		reinforced
Leakage Current	I/P to O/P	0.25mA max.

Notes:

- Note7: Refer to local wiring regulations if input over-current protection is also required
- Note8: For repeat Hi-Pot testing, reduce the time and/or the test voltage
- Note9: For operation at 230VAC, an external MOV is recommended. The Varistor should comply with IEC-61051-2. e.g. EPCOS S14 series

Protection Circuit



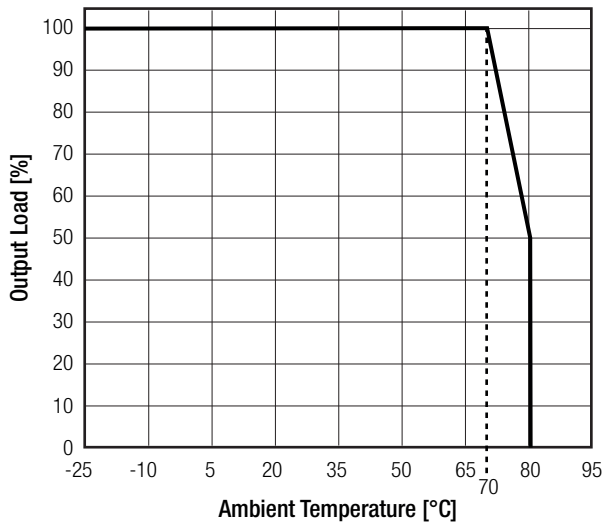
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ENVIRONMENTAL

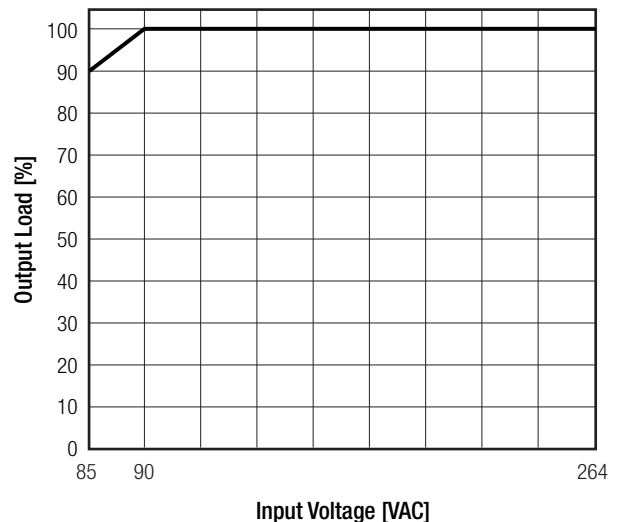
Parameter	Condition		Value
Operating Temperature Range	@ natural convection 0.1m/s	full load	-25°C to +70°C
		refer to "Derating Graph"	-25°C to +80°C
Maximum Case Temperature			+120°C
Temperature Coefficient			0.03%/K
Operating Altitude ⁽¹⁰⁾			4000m
Operating Humidity	non-condensing		5% - 90% RH max.
Pollution Degree			PD2
Shock			10-150Hz, 2G 10min./1cycle, period 60min. each along x,y,z axes
Vibration	according to MIL-STD-202G		20G/11ms pulse, 3 times at each x, y, z axes
MTBF ⁽¹¹⁾	according to MIL-HDBK-217F, method 2	+25°C	1691 x 10 ³ hours
		+70°C	424 x 10 ³ hours

Derating Graph

(@ Chamber and natural convection 0.1 m/s)



Line Derating



Notes:

- Note10: Recognized by UL for safe operation up to 4000m. High altitude operation may impact the performance and lifetime. Contact TechsupportAT@recom-power.com for advice
- Note11: Based on calculation for 5Vout

SAFETY AND CERTIFICATIONS

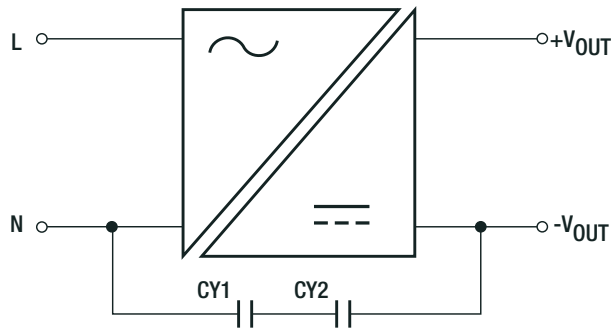
Certificate Type (Safety)	Report / File Number	Standard
Information Technology Equipment, General Requirements for Safety	SA1804152L01001	IEC60950-1:2005 2nd Edition + Am2:2013 EN60950-1:2006 + A12:2011 + A2:2013
Audio/Video, information and communication technology equipment - Part1: Safety requirements	E196683-A5 and E19668-A6001	UL62368-1, 2nd Edition CAN/CSA-C22.2 No. 62368-1-14
Audio/Video, information and communication technology equipment - Part1: Safety requirements (CB Scheme)	SA1804152S 001	IEC62368-1:2014 2nd Edition
Audio/Video, information and communication technology equipment - Part1: Safety requirements		EN62368-1:2014+A11:2017
Household and similar electrical appliances – Safety – Part 1: General requirements	SES180313004001E	EN60335-1:2012+A11:2014
RoHS2		RoHS 2011/65/EU + AM2015/863

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EMC Compliance	Condition	Standard / Criterion
Electromagnetic compatibility of multimedia equipment - Emission requirements	EA1804152E 01001	EN55032, Class A
Information technology equipment - Immunity characteristics - Limits and methods of measurement		EN55024:2010 + A1:2015
ESD Electrostatic discharge immunity test	Air ±2, 4, 8kV Contact ±2, 4kV	EN61000-4-2:2009, Criteria A
Radiated, radio-frequency, electromagnetic field immunity test	3V/m	EN61000-4-3:2006 + A2:2010, Criteria A
Fast Transient and Burst Immunity	AC Power Port: ±1.0kV	EN61000-4-4:2012, Criteria A
Surge Immunity	AC Power Port: L-N ±1.0kV	EN61000-4-5:2014, Criteria B
Immunity to conducted disturbances, induced by radio-frequency fields	AC Power Port 3V	EN61000-4-6:2014, Criteria A
Power Magnetic Field Immunity	50Hz, 1A/m	EN61000-4-8:2009, Criteria A
Voltage Dips and Interruption	Voltage Dips >95%	EN61000-4-11:2004, Criteria A
	Voltage Dips 30%	EN61000-4-11:2004, Criteria B
	Voltage Interruptions >95%	EN61000-4-11:2004, Criteria B
Limits of Voltage Fluctuations & Flicker		EN61000-3-3:2013

EMI Filtering according to EN60335-1 / EN55032 Class B Compliance



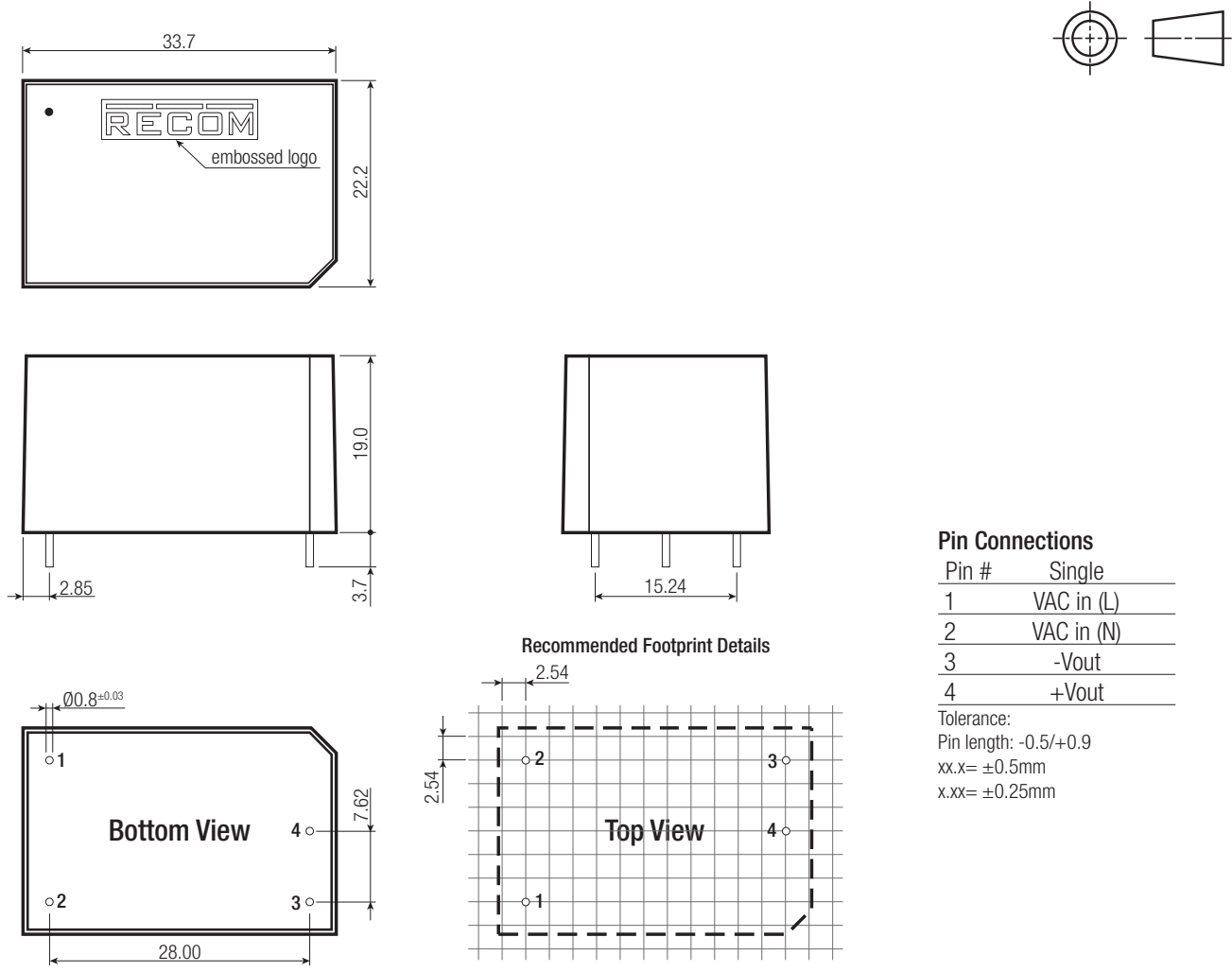
CY1,CY2
Vishay 564R30TSD22, SLCC X7R radial, 2.2nF, 3kVDC ±10%

DIMENSION AND PHYSICAL CHARACTERISTICS		
Parameter	Type	Value
Material	case PCB	black plastic (UL94V-2) FR4 (UL94V-0)
Dimension (LxWxH)		33.7 x 22.2 x 19.0mm
Weight		12g typ.

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Dimension Drawing (mm)



PACKAGING INFORMATION		
Parameter	Type	Value
Packaging Dimension (LxWxH)	tube	470.0 x 36.4 x 26.4mm
Packaging Quantity		20pcs
Storage Temperature Range		-25°C to +85°C
Storage Humidity	non-condensing	5% - 95% RH max.

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