



**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 <sup>(4, 5)</sup>	nom. Vin= 230VAC	85VAC 120VDC	230VAC	264VAC 370VDC
Input Current	115VAC 230VAC			450mA 400mA
Inrush Current	cold start at +25°C	115VAC 230VAC		20A 40A
No Load Power Consumption	230VAC		40mW	
ErP Lot 6 Standby Mode Conformity (Output Load Capability)	0.5W Input Power = 1.0W 2.0W			0.3W 0.7W 1.6W
Input Frequency Range	AC Input	47Hz		63Hz
Minimum Load <sup>(7)</sup>	single dual (required for regulation on both outputs)	0%	10%	
Power Factor	115VAC 230VAC	0.6 0.5		
Start-up Time			150ms	
Rise Time			40ms	
Hold-up Time	115VAC 230VAC		15ms 90ms	
Internal Operating Frequency				100kHz
Output Ripple and Noise <sup>(6)</sup>	20MHz BW		100mVp-p	

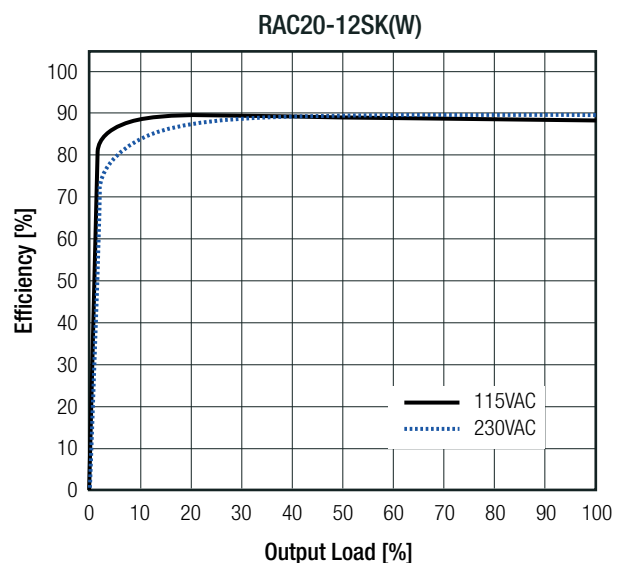
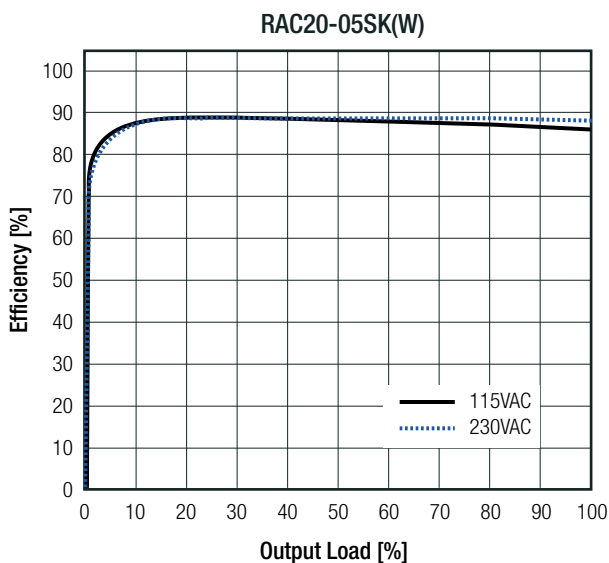
**Notes:**

Note4: The products were submitted for safety files at AC-Input operation

Note5: Refer to "Line Derating"

Note6: Measurements are made with a 1.0µF MLCC across output (low ESR)

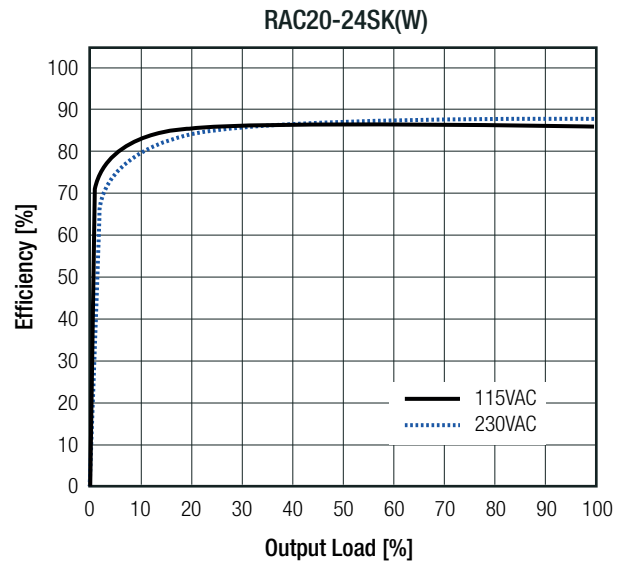
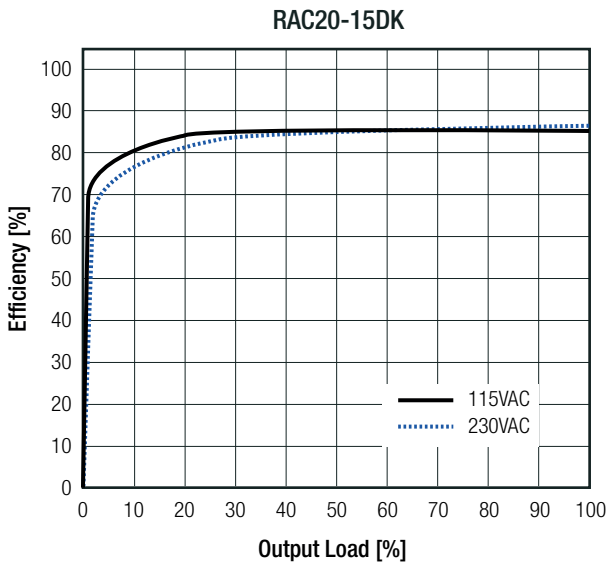
**Efficiency vs. Load**



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

**Efficiency vs. Load**



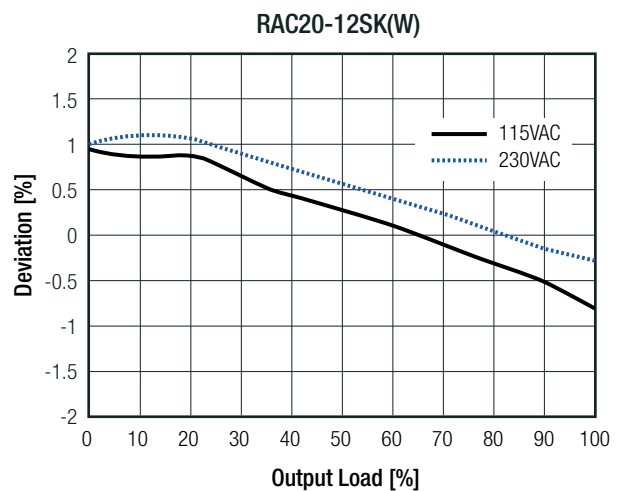
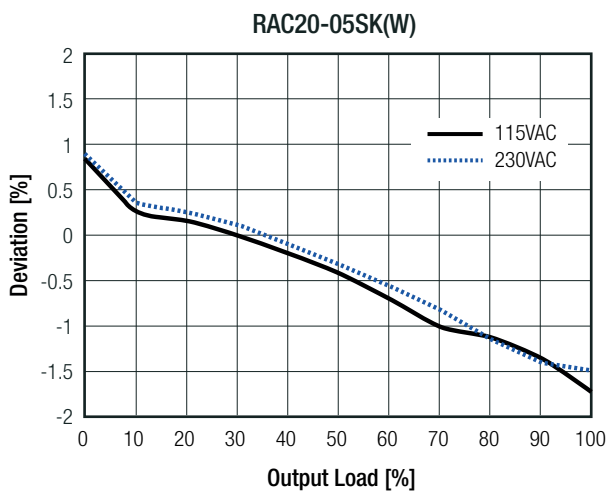
**REGULATIONS**

Parameter	Condition	Value
Output Accuracy		±2.0% typ.
Line Regulation	low line to high line	±0.5% typ.
Load Regulation <sup>(7)</sup>	10% to 100% load	±2.0% typ.
Cross Regulation	dual output only	±10.0% typ.
Transient Response	25% load step change recovery time	4.0% max. 500µs typ.

**Notes:**

Note7: Operation below 10% load will not harm the converter, but specifications may not be met

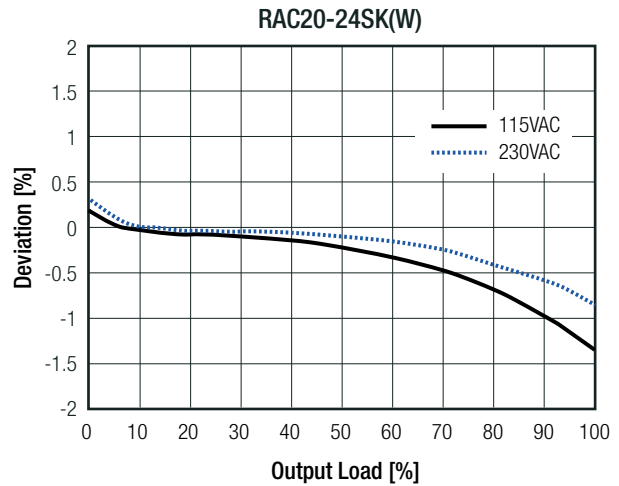
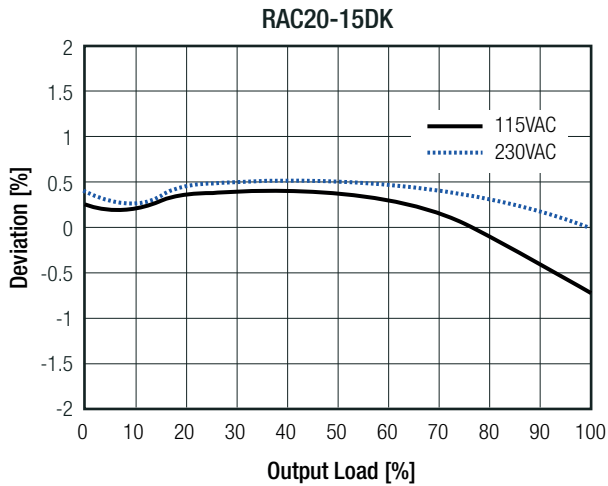
**Deviation vs. Load**



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

**Deviation vs. Load**



**PROTECTIONS**

Parameter	Type	Value
Input Fuse <sup>(8)</sup>	internal	T3.15A, slow blow type
Short Circuit Protection (SCP)	below 100mΩ	hiccup, auto recovery
Over Voltage Protection (OVP)		150% - 195%, latch off mode
Over Current Protection (OCP)		110% - 130%, hiccup mode
Over Voltage Category		OVCII
Class of Equipment		Class II
Isolation Voltage <sup>(9)</sup>	I/P to O/P	tested for 1 minute
Isolation Resistance		V <sub>iso</sub> = 500VDC
Isolation Capacitance		100pF max.
Insulation Grade		reinforced
Leakage Current		0.25mA max.

**Notes:**

- Note8: Refer to local safety regulations if input over-current protection is also required  
 Note9: For repeat Hi-Pot testing, reduce the time and/or the test voltage

**ENVIRONMENTAL**

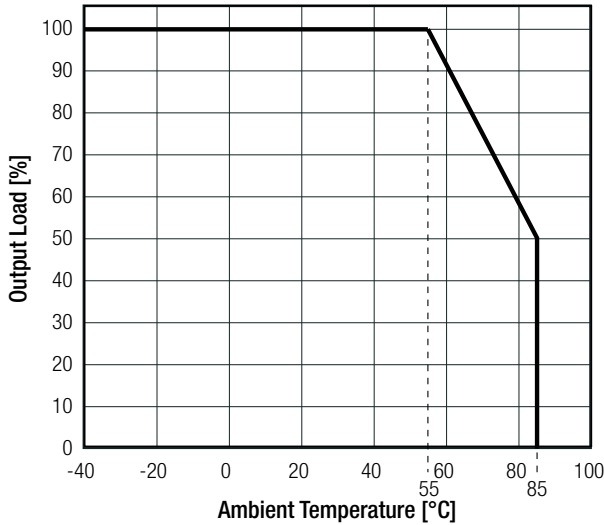
Parameter	Condition	Value
Operating Temperature Range	@ natural convection 0.1m/s	full load: -40°C to +55°C
		refer to derating graph: -40°C to +85°C
Maximum Case Temperature		+95°C
Temperature Coefficient		0.05%/K
Operating Altitude		3000m
Operating Humidity	non-condensing	20% - 90% RH max.
IP Rating		IP20
Pollution Degree		PD2
Vibration	according to MIL-STD-202G	10-500Hz, 2G 10min./1cycle, period 60min. along x,y,z axes
Design Lifetime	+25°C	130 x 10 <sup>3</sup> hours
	+55°C	16 x 10 <sup>3</sup> hours
MTBF	according to MIL-HDBK-217F, G.B.	+25°C
		+40°C
		>1196 x 10 <sup>3</sup> hours
		>955 x 10 <sup>3</sup> hours

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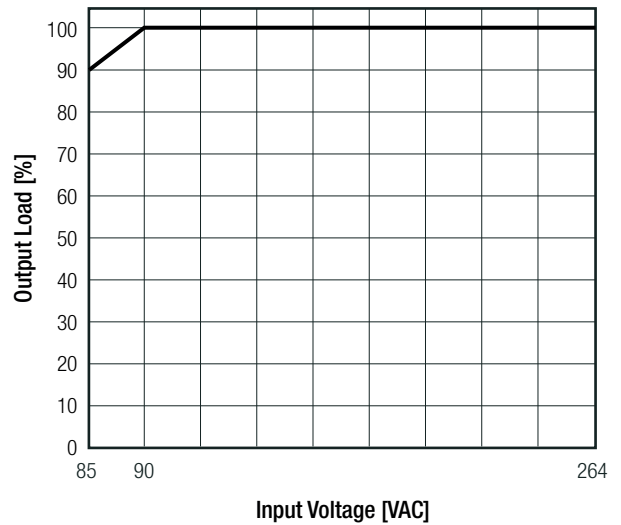
**Specifications** (measured @ Ta= 25°C, nom. Vin, full load and after warm-up unless otherwise stated)

**Derating Graph**

(@ Chamber and natural convection 0.1 m/s)



**Line Derating**



**SAFETY AND CERTIFICATIONS**

Certificate Type (Safety)	Report / File Number	Standard
Audio/Video, information and communication technology equipment - Safety requirements	E224736	UL62368-1, 2nd Edition, 2014 CAN/CSA C22.2 Nr. 62368-1-14, 2nd Ed. 2014
Audio/Video, information and communication technology equipment - Safety requirements (CB Scheme)	E491408-A6008-CB-1	IEC62368-1:2014 2nd Edition
Audio/Video, information and communication technology equipment - Safety requirements (LVD)		EN62368-1:2014 + A11:2017
Household and similar electrical appliances – Safety – Part 1: General requirements	LCS180508046AS	IEC60335-1:2010 + AMD2:2016 + COR1:2016 EN60335-1:2012 + A11:2014 + A13:2017
Safety of power transformers, power supplies, reactors and similar products for supply voltages up to 1100 V (CB Scheme)	50198090 001	IEC61558-1:2005 2nd Edition + A1:2009
Safety of power transformers, power supplies, reactors and similar products for supply voltages up to 1100 V		EN61558-1:2005 + A1:2009
Safety of power transformers, power supplies, reactors and similar products for supply voltages up to 1100 V Part 2: Particular requirements (CB Scheme)	50198090 001	IEC61558-2-16:2009 1st Edition + A1:2013
Safety of power transformers, power supplies, reactors and similar products for supply voltages up to 1100 V Part 2: Particular requirements		EN61558-2-16:2009 + A1:2013
EAC	RU-AT.03.67361	TP TC 004/2011
RoHS2+		RoHS-2011/65/EU + AM-2015/863

EMC Compliance	Condition	Standard / Criterion
Low voltage power supplies, d.c. output Part 3: Electromagnetic compatibility (EMC)		IEC/EN61204-3:2018, Class B
Electromagnetic compatibility of multimedia equipment - Emission requirements	without external filter	EN55032:2015, Class B
Electromagnetic compatibility of household appliances, electric tools and similar apparatus - Emission Requirements		EN55014-1:2006 + A2:2011
Information technology equipment - Immunity characters - Limits and methods of measurement		EN55024:2010 + A1:2015
Electromagnetic compatibility of household appliances, electric tools and similar apparatus - Immunity Requirements		EN55014-2:2015
ESD Electrostatic discharge immunity test	Air ±8kV, Contact ±4kV	EN61000-4-2:2009, Criteria B
Radiated, radio-frequency, electromagnetic field immunity test	80MHz - 6GHz: 10V/m 1.4GHz - 2GHz: 3V/m 2.0GHz - 2.7GHz: 1V/m	EN61000-4-3:2006 + A1:2008, Criteria A

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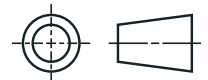
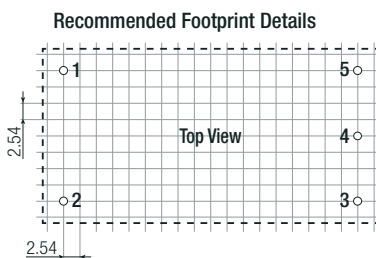
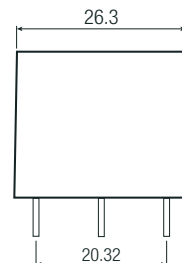
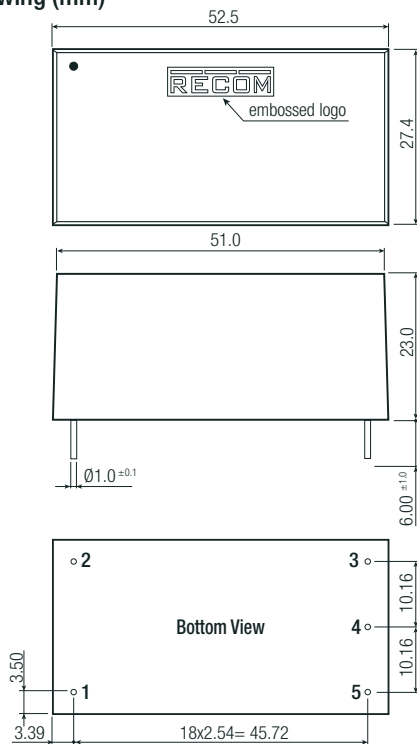
**Specifications** (measured @ Ta= 25°C, nom. Vin, full load and after warm-up unless otherwise stated)

EMC Compliance	Condition	Standard / Criterion
Fast Transient and Burst Immunity	AC Port: ±2.0kV DC Port: ±2.0kV	EN61000-4-4:2012, Criteria B
Surge Immunity	AC Port: L-N ±1.0kV DC Port: ±0.5kV	EN61000-4-5:2014 + A1:2017, Criteria B
Immunity to conducted disturbances, induced by radio-frequency fields	AC Port: 10V DC Port: 10V	EN61000-4-6:2014, Criteria A
Power Magnetic Field Immunity	50Hz, 30A/m	EN61000-4-8:2010, Criteria A
Voltage Dips and Interruptions	Voltage Dips 20% Voltage Dips 30% Voltage Dips 60% Voltage Dips 100% Voltage Interruptions > 95%	EN61000-4-11:2004 + A1:2017, Criteria C EN61000-4-11:2004 + A1:2017, Criteria C EN61000-4-11:2004 + A1:2017, Criteria C EN61000-4-11:2004 + A1:2017, Criteria B EN61000-4-11:2004 + A1:2017, Criteria C
Limits of Voltage Fluctuations & Flicker		EN61000-3-3:2013
Limitations on the amount of electromagnetic interference allowed from digital and electronic devices		FCC 47 CFR Part 15 Subpart B, Class B
American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz		ANSI C63.4-2014, Class B
<b>Notes:</b> Note9: If output is connected to GND, please contact RECOM tech support for advice		

**DIMENSION AND PHYSICAL CHARACTERISTICS**

Parameter	Type	Value
Material	case	black plastic, (UL94V-0)
	potting	silicone, (UL94V-0)
	PCB	FR4, (UL94V-0)
	baseplate	black plastic, (UL94V-0)
Dimension (LxWxH)		52.5 x 27.4 x 23.0mm
Weight	pin	60g typ.
	wired	65g typ.

**Dimension Drawing (mm)**



**Pinning information**

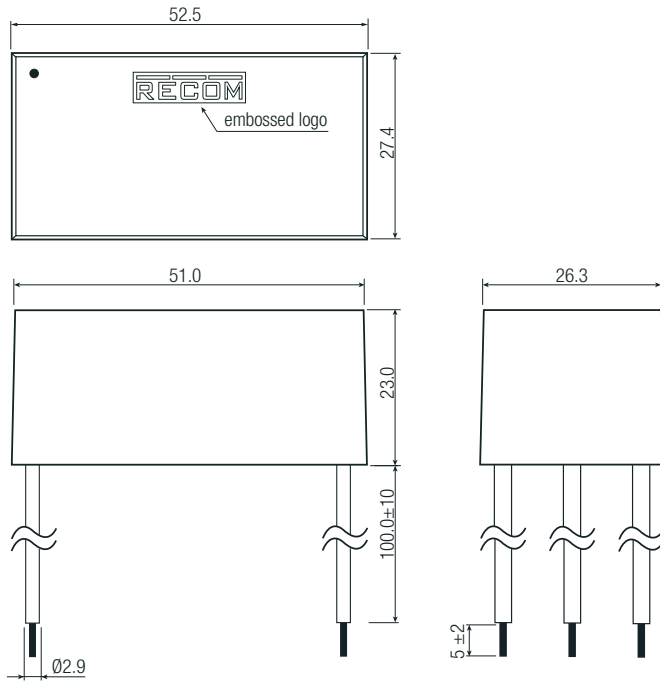
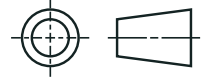
Pin #	Single	Dual
1	VAC in (N)	VAC in (N)
2	VAC in (L)	VAC in (L)
3	no pin	-Vout
4	-Vout	Com
5	+Vout	+Vout

Tolerance: xx.x= ±0.5mm  
xx.xx= ±0.25mm

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

**Dimension Drawing Single Wired (mm)**



**Wired information**

#	Function	Wire color	Type	AWG
1	VAC in (N)	blue	UL-1015	18
2	VAC in (L)	brown	UL-1015	18
4	-Vout	black	UL-1015	18
5	+Vout	red	UL-1015	18

Tolerance: xx.x= ±0.5mm  
xx.xx= ±0.25mm

**PACKAGING INFORMATION**

Parameter	Type		Value
	pin wired	tube tray	
Packaging Dimension (LxWxH)			490.0 x 56.0 x 40.0mm
			488.0 x 202.0 x 47.0mm
Packaging Quantity		tube tray	15pcs
		tray	20pcs
Storage Temperature Range			-40°C to +85°C
Storage Humidity		non-condensing	20% to 90% RH max.

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