

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

BASIC CHARACTERISTICS

Parameter	Condition	Min.	Typ.	Max.
Power Factor	115VAC 230VAC		0.6 0.5	
Start-up Time				50ms
Rise Time				40ms
Hold-up Time	115VAC 230VAC 277VAC	5ms 30ms 50ms		
Internal Operating Frequency	100% load at nominal Vin		80kHz	
Output Ripple and Noise ⁽⁴⁾	20MHz BW			150mVp-p

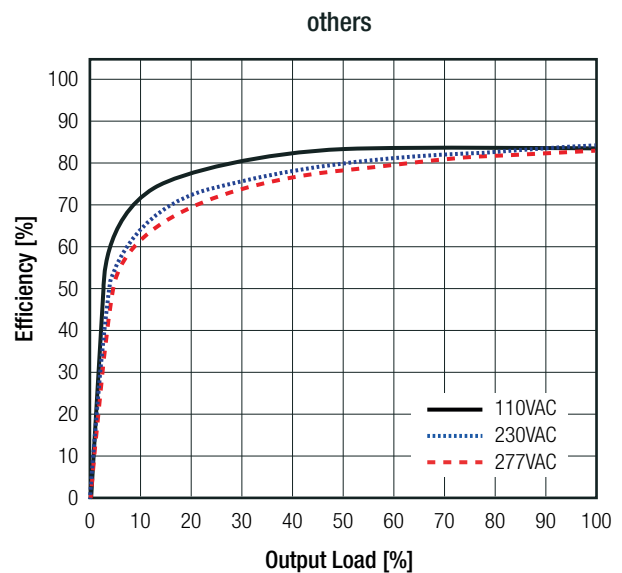
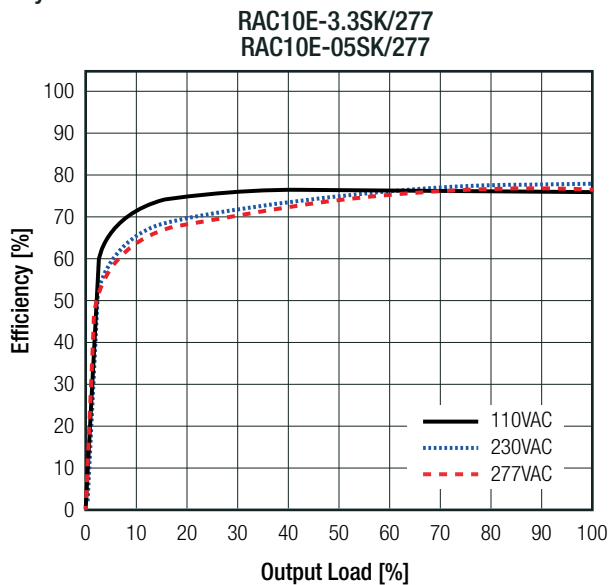
Notes:

Note2: The products were submitted for safety files at AC-Input operation

Note3: Refer to **"Line Derating"**

Note4: Measurements are made with a 0.1µF MLCC & 10µF E-cap in parallel across output. (low ESR)

Efficiency vs. Load

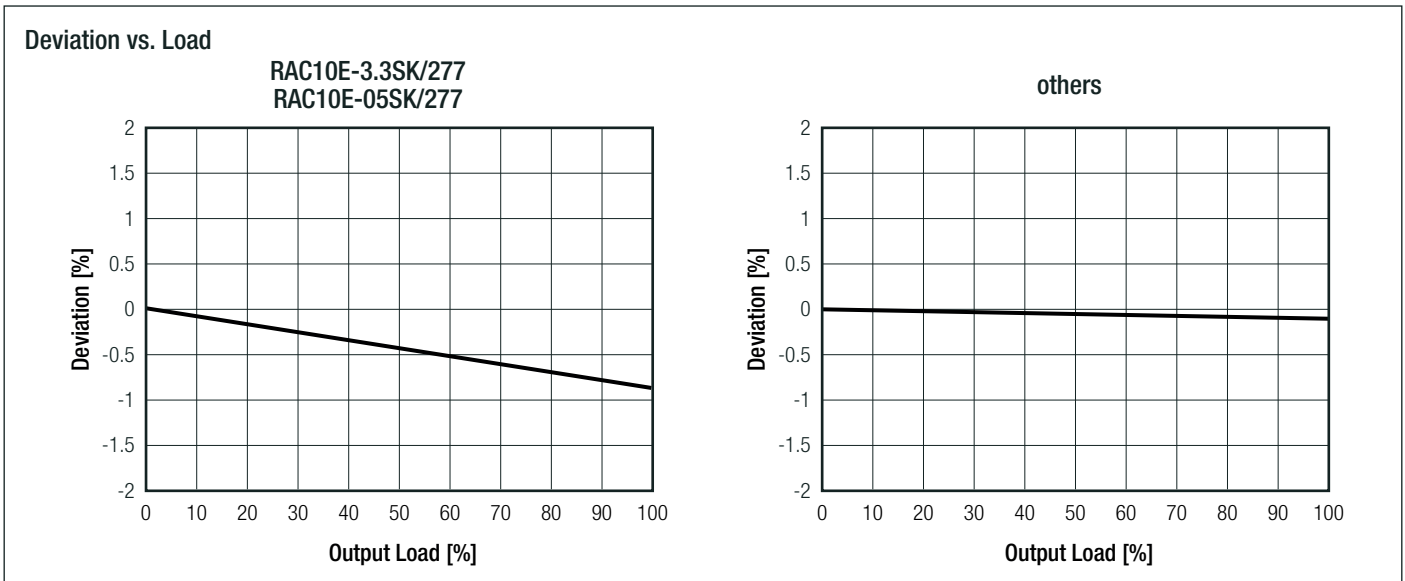


REGULATIONS

Parameter	Condition		Value
Output Accuracy			±2.0% typ.
Line Regulation	low line to high line, full load		±0.5% typ.
Load Regulation	0% to 100% load	3.3Vout	1.5% typ.
		others	0.5% typ.
Transient Response	25% load step change recovery time		3.0% max 500µs typ.

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PROTECTIONS

Parameter	Type	Value
Input Fuse ⁽⁵⁾	internal	T2A, slow blow type
Short Circuit Protection (SCP)	below 100mΩ	hiccup mode, auto recovery
Over Voltage Protection (OVP)		105% - 120%, clamping, auto restart
Over Current Protection (OCP)		128% - 155%, hiccup mode
Over Voltage Category (OVC)	according to 62368-1; -2-16 according to 61558-1; 2-16 (3rd Edition)	OVCII (5000m) OVCIII (2000m)
Isolation Voltage ⁽⁶⁾	I/P to O/P	1 minute 4kVAC
Isolation Resistance	I/P to O/P, Isolation Voltage 500VDC	1GΩ min.
Isolation Capacitance	I/P to O/P, 100kHz/0.1V	100pF max.
Leakage Current	@277VAC	0.05mA max.
Insulation Grade		reinforced

Notes:

- Note5: Refer to local safety regulations if input over-current protection is also required. Recommended fuse: slow blow type
 Note6: For repeat Hi-Pot testing, reduce the time and/or the test voltage

ENVIRONMENTAL

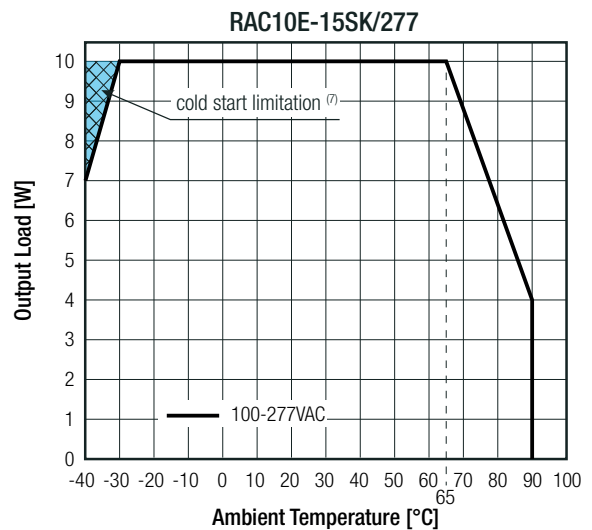
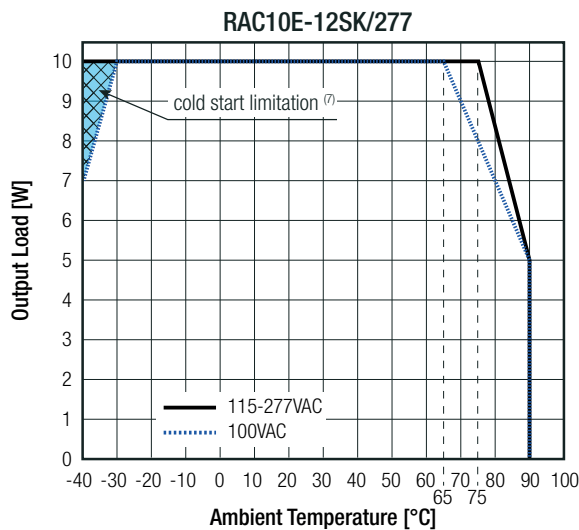
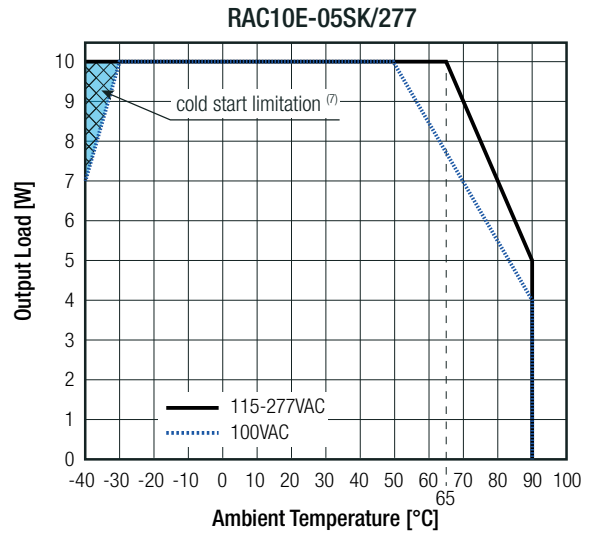
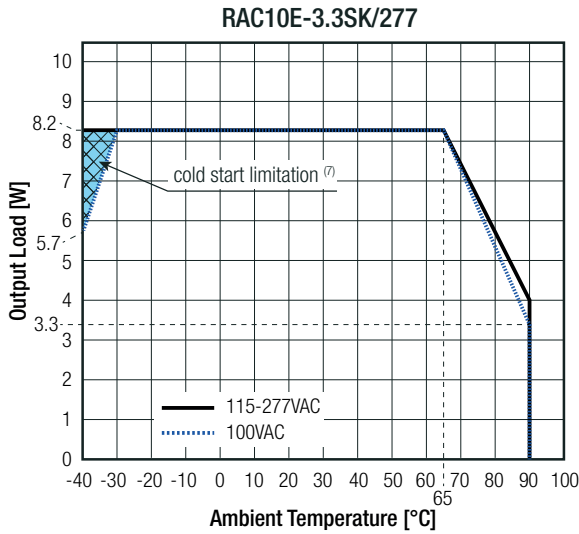
Parameter	Condition	Value
Operating Temperature Range	@ natural convection 0.1m/s full load refer to "Derating Graph"	-40°C to +65°C
Maximum Case Temperature		+110°C
Temperature Coefficient		±0.02%/K
Operating Humidity	non-condensing	95% RH max.
Operating Altitude		5000m (OVCII) 2000m (OVCIII)
Pollution Degree		PD2
Vibration		10-500Hz, 2G10min./1cycle, period 60min. each along x,y,z axes
MTBF	according to MIL-HDBK-217F, G.B.	+25°C 1710 x 10 ³ hours +40°C 1460 x 10 ³ hours
Design Lifetime	230VAC/60Hz and full load +55°C	>35 x 10 ³ hours

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Specifications (measured @ $T_a = 25^\circ\text{C}$, nom. V_{in} , full load and after warm-up unless otherwise stated)

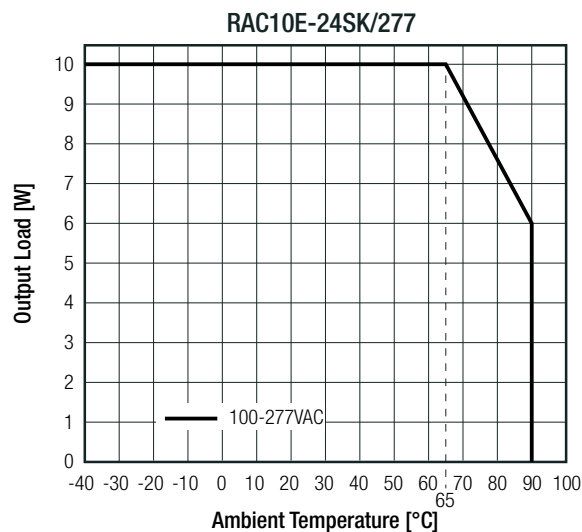
Derating Graph

(@ Chamber and natural convection 0.1 m/s)



Notes:

Note7: Cold start is limited to reduced output Power for 15V in general and for 3.3 to 12V versions at use in low line conditions



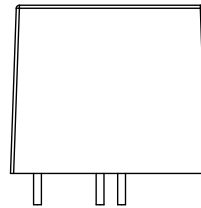
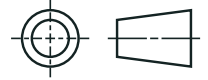
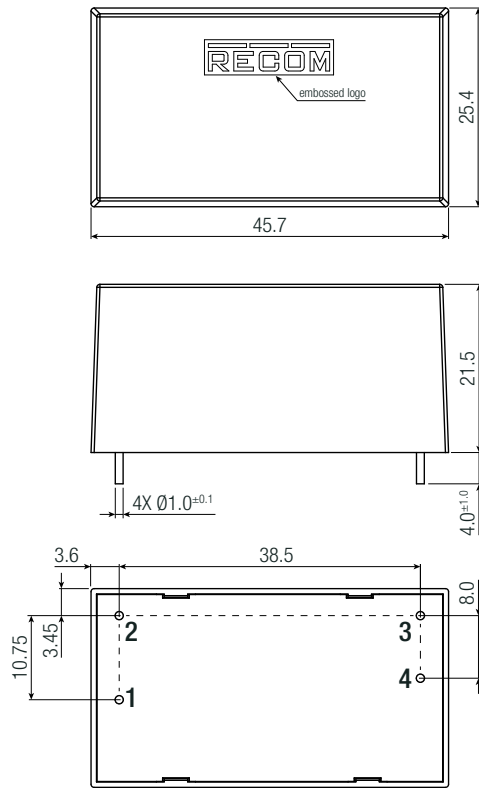
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SAFETY AND CERTIFICATIONS		
Certificate Type (Safety)	Report Number	Standard
Audio/Video, information and communication technology equipment - Part 1: Safety requirements	E491408-A6019-UL	UL62368-1:2019 3rd Ed. CAN/CSA-C22.2 No. 62368-1:2019 3rd Ed.
Audio/video, information and communication technology equipment. Safety requirements (CB Scheme)	210824013	IEC62368-1:2018 3rd Ed.
Audio/video, information and communication technology equipment. Safety requirements (LVD)	210824013	EN IEC 62368-1:2020 + A11:2020
Audio/video, information and communication technology equipment. Safety requirements (CB Scheme)	210824014	IEC62368-1:2014 2nd Ed.
Audio/video, information and communication technology equipment. Safety requirements (LVD)		EN62368-1:2014 + A11:2017
Safety of power transformers, power supplies, reactors and similar products for supply voltages up to 1100 V (CB Scheme)	pending	IEC61558-2-16:2009 AMD1:2013
Safety of power transformers, power supplies, reactors and similar products - Part 1: General requirements and tests (CB Scheme)	pending	IEC61558-1:2017
RoHS2		RoHS 2011/65/EU + AM2015/863
EMC Compliance	Condition	Standard / Criterion
Low voltage power supplies, d.c. output Part 3: Electromagnetic compatibility (EMC)		EN IEC 61204-3:2018
Limitations on the amount of electromagnetic interference allowed from digital and electronic devices, industrial, scientific, and medical equipment		FCC 47 CFR Part 18
ESD Electrostatic discharge immunity test	Air: ±2, 4, 8kV Contact: ±4kV	IEC61000-4-2:2008, Criteria A EN61000-4-2:2009, Criteria A
Radiated, radio-frequency, electromagnetic field immunity test	10 V/m (80-1000 MHz) 3 V/m (1400-2000MHz) 1 V/m (2000-2700MHz)	IEC/EN61000-4-3:2006+A2:2010, Criteria A
Fast Transient and Burst Immunity	AC Power Port: L, N: ±2kV L-N: +/-2kV	IEC/EN61000-4-4:2012, Criteria A IEC/EN61000-4-4:2012, Criteria B
Surge Immunity	AC Power Port: L-N 1.0kV	IEC/EN61000-4-5:2014, Criteria B
Immunity to conducted disturbances, induced by radio-frequency fields	AC Power Port: 10 Vrms (0.15-80MHz)	IEC61000-4-6:2013, Criteria A EN61000-4-6:2014, Criteria A
Power Magnetic Field Immunity	30 A/m	IEC61000-4-8:2009, Criteria A EN61000-4-8:2010, Criteria A
Voltage Dips	Voltage Dip 100% (0.5P) Voltage Dip 100% (1.0P) Voltage Dip 20, 30, 60%	IEC/EN61000-4-11:2004, Criteria A
Voltage Interruptions	Voltage Interruption 100%	IEC/EN61000-4-11:2004, Criteria B
Limits of Harmonic Current Emissions		EN61000-3-2:2014
Limits of Voltage Fluctuations & Flicker		EN61000-3-3:2013

DIMENSION AND PHYSICAL CHARACTERISTICS		
Parameter	Type	Value
Material	case/baseplate potting PCB	black plastic (UL94V-0) silicone (UL94V-0) FR4 (UL94V-0)
Dimension (LxWxH)		45.7 x 25.4 x 21.5mm
Weight		52g typ.
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Dimension Drawing (mm)



Recommended Footprint Details

Pinning Information

Pin #	Single
1	VAC in (N)
2	VAC in (L)
3	-Vout
4	+Vout

Tolerance:

xx.x= ±0.5mm
xx.xx= ±0.25mm

PACKAGING INFORMATION

Parameter	Type	Value
Packaging Dimension (LxWxH)	tube	490.0 x 50.0 x 36.0mm
Packaging Quantity		17pcs
Storage Temperature Range		-40°C to +85°C
Storage Humidity		20% to 90% RH max.

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