



**Specifications** (measured at Ta= 25°C, full load otherwise noted)

**BASIC CHARACTERISTICS**

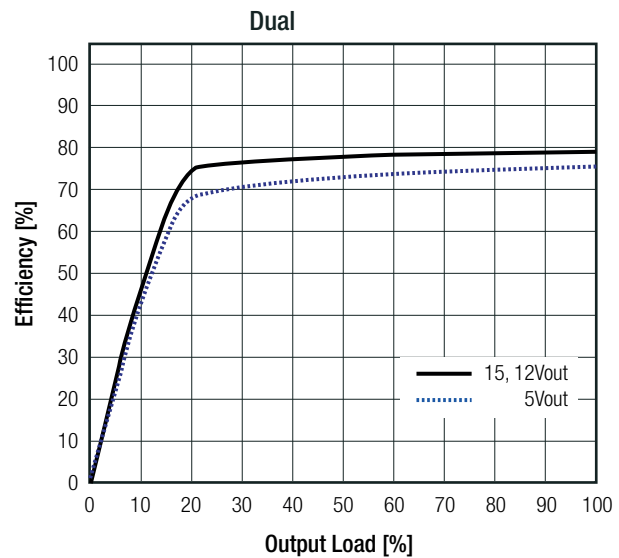
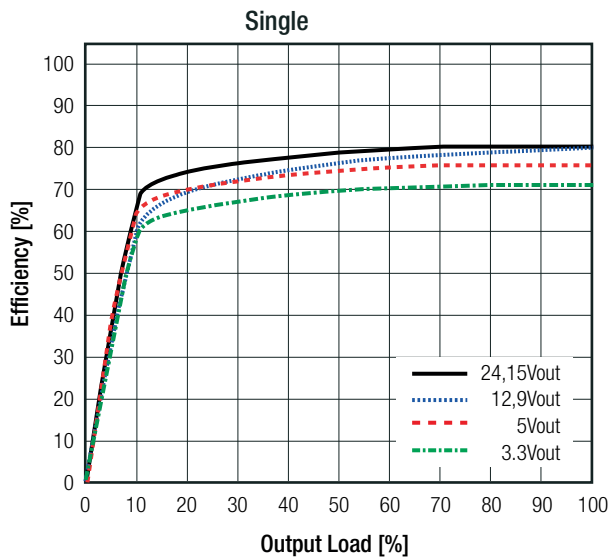
Parameter	Condition	Min.	Typ.	Max.
Input Voltage Range <sup>(5)</sup>	nom. Vin = 230VAC	80VAC 115VDC		264VAC 370VDC
Input Current	115VAC 230VAC		120mA 78mA	
Inrush Current	<2ms 115VAC 230VAC			30A 60A
No load Power Consumption				250mW
Input Frequency Range	AC Input	47Hz		440Hz
Minimum Load		0%		
Hold-up time	115VAC		10ms	
Internal Operating Frequency	100% load at nominal Vin		132kHz	
Output Ripple and Noise <sup>(6)</sup>	20MHz BW 3.3Vout all others			120mVp-p 150mVp-p

**Notes:**

Note5: Refer to line derating graph on page PA-3

Note6: Measurements are made with a 0.1µF MLCC across output (low ESR)

**Efficiency vs. Load**



**REGULATIONS**

Parameter	Condition	Value
Output Accuracy		±2.0% max.
Line Regulation	low line to high line	±0.3% typ.
Load Regulation <sup>(7)</sup>	5% to 100% load	0.5% typ.

**Notes:**

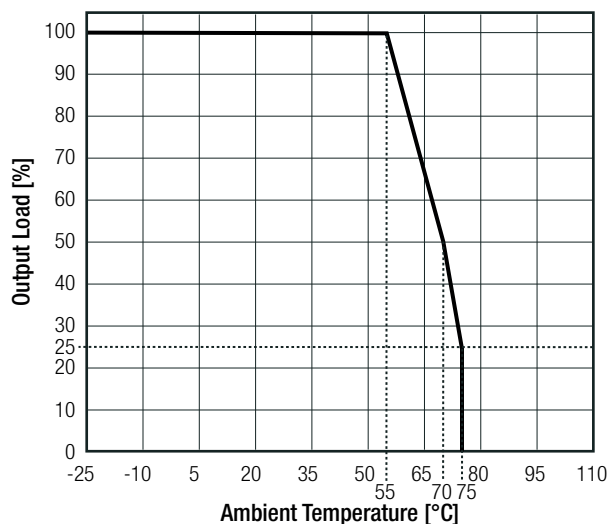
Note7: Operation below 5% load will not harm the converter, but specifications may not be met

**Specifications** (measured at Ta= 25°C, full load otherwise noted)

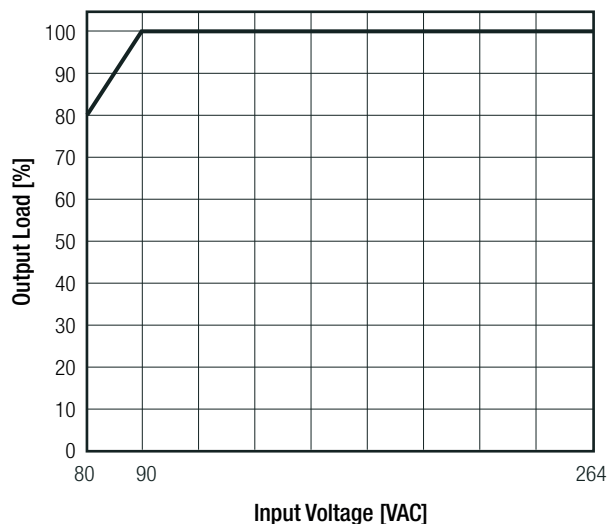
PROTECTIONS			
Parameter	Type		Value
Short Circuit Protection (SCP)	below 100mΩ		Hiccup mode, automatic recovery
Over Load Protection (OLP)			115% - 145%
Over Voltage Protection (OVP)	zener diode clamp	3.3Vout all others	145% - 165% 110% - 135%
Over Voltage Category			OVCII
Isolation Voltage	I/P to O/P	tested for 1 minute	3kVAC
Isolation Resistance	I/P to O/P		1GΩ min.
Isolation Capacitance			1000pF typ.
Leakage Current			0.85mA max.
<b>Notes:</b>			
Note8: Refer to local safety regulations if input over-current protection is also required. Recommended fuse: slow blow type			

ENVIRONMENTAL			
Parameter	Condition		Value
Operating Temperature Range <sup>(8)</sup>	full load		-25°C to +55°C
	refer to derating graph		-25°C to +75°C
Operating Altitude			2000m
Operating Humidity	non-condensing		95% RH max.
Pollution Degree			PD2
MTBF	according to MIL-HDBK-217F, G.B.	+25°C	>400 x 10 <sup>3</sup> hours
		+55°C	>200 x 10 <sup>3</sup> hours

**Derating Graph**



**Line Derating**



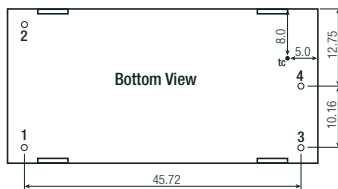
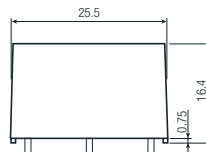
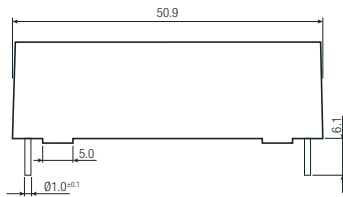
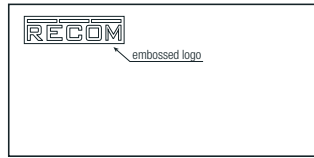
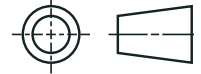
**Specifications (measured at Ta= 25°C, full load otherwise noted)**

<b>SAFETY AND CERTIFICATIONS</b>		
<b>Certificate Type (Safety)</b>	<b>Report / File Number</b>	<b>Standard</b>
Information Technology Equipment - General Requirments for Safety	E224736-A1-UL	UL60950-1, 2nd Edition, 2007 CAN/CSA-C22.2 No. 60950-1-07, 2nd Edition, 2007
Information Technology Equipment - General Requirments for Safety	SPCLVD1605077-06	IEC60950-1:2005 2nd Edition + A2:2013 EN60950-1:2006 + A2:2013
EAC Safety of Low Voltage Equipment	RU-AT.AB37.B.02367	TP TC 004/2011
RoHS2+		RoHS-2011/65/EU + AM-2015/863
<b>EMC Compliance</b>	<b>Condition</b>	<b>Standard / Criterion</b>
Electromagnetic compatibility of multimedia equipment – Emission Requirements		EN55032:2015
Information technology equipment - Immunity characteristics - Limits and methods of measurement		EN55024:2010 + A1:2015
ESD Electrostatic discharge immunity test	Air ±8.0kV, Contact ±4.0kV	IEC61000-4-2:2008, Criteria A
Radiated, radio-frequency, electromagnetic field immunity test	3V/m	IEC61000-4-3:2008, Criteria A
Fast Transient and Burst Immunity	AC Power Port: ±1.0kV	IEC61000-4-4:2004, Criteria A
Surge Immunity	AC Power Port: L-N ±1.0kV	IEC61000-4-5:2005, Criteria A
Immunity to conducted disturbances, induced by radio-frequency fields	AC Power Port 3.0V	IEC61000-4-6:2008, Criteria A
Power Magnetic Field Immunity	50Hz, 1A/m	IEC61000-4-8:2009, Criteria A
Voltage Dips and Interruptions	Voltage Dips >95%	IEC61000-4-11:2004, Criteria A
	Voltage Dips 30%	IEC61000-4-11:2004, Criteria A
	Voltage Interruptions > 95%	IEC61000-4-11:2004, Criteria B
Limits of Harmonic Current Emissions		EN61000-3-2:2014, Class A
Limits of Voltage Fluctuations & Flicker		EN61000-3-3:2013

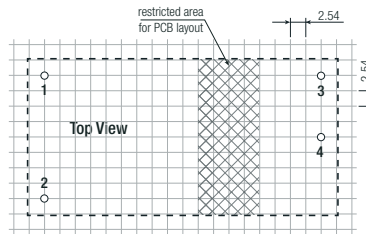
<b>DIMENSION AND PHYSICAL CHARACTERISTICS</b>		
<b>Parameter</b>	<b>Type</b>	<b>Value</b>
Material	case	black plastic (UL94V-0)
	potting	epoxy (UL94V-0)
Dimension (LxWxH)	single	50.9 x 25.5 x 16.4mm
	dual	53.5 x 27.8 x 16.4mm
Weight	THT version	35g typ.
	wired version	38g typ.
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Specifications (measured at Ta= 25°C, full load otherwise noted)

Dimension Drawing Single (mm)



Recommended Footprint Details



Pin Connections

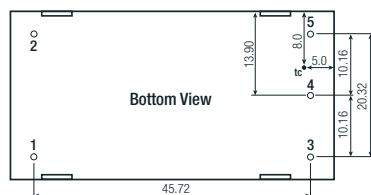
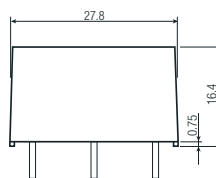
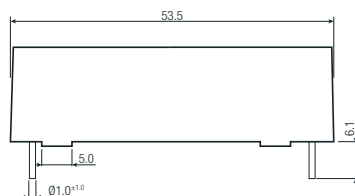
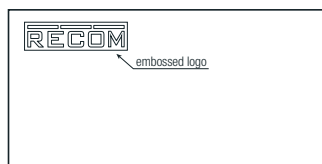
Pin #	Single
1	VAC in (N)
2	VAC in (L)
3	+VDC out
4	-VDC out
5	no pin

tc= case temperature measuring point

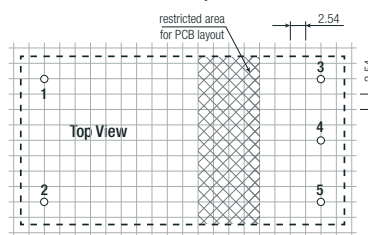
Tolerance: xx.x= ±0.5mm

xx.xx= ±0.25mm

Dimension Drawing Dual (mm)



Recommended Footprint Details



Pin Connections

Pin #	Dual
1	VAC in (N)
2	VAC in (L)
3	+VDC out
4	Com
5	-VDC out

tc= case temperature measuring point

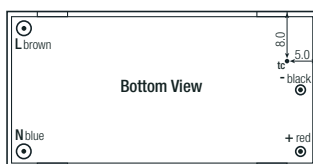
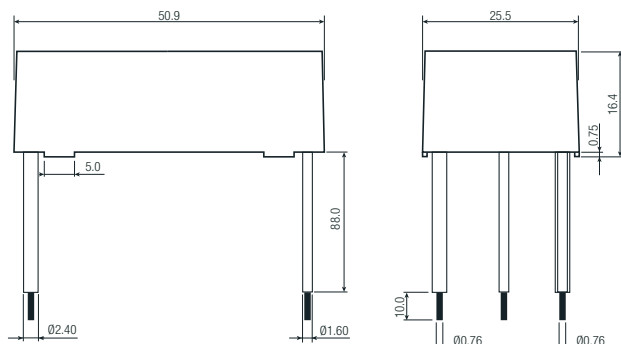
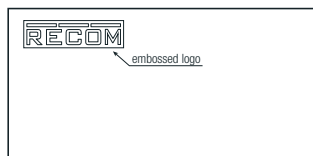
Tolerance: xx.x= ±0.5mm

xx.xx= ±0.25mm

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Specifications (measured at Ta= 25°C, full load otherwise noted)

Dimension Drawing Single wired (mm)

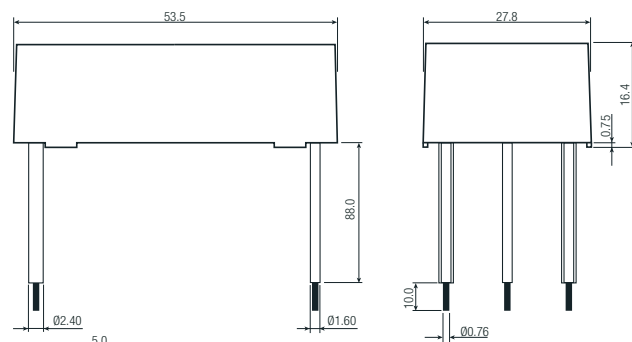


Wired information

#	Function	Wire color	Type	AWG
1	VAC in (N)	blue	UL-1015	22
2	VAC in (L)	bown	UL-1015	22
3	+VDC out	red	UL-1007	22
4	-VDC out	black	UL-1007	22

tc= case temperature measuring point  
 Tolerance: xx.x= ±0.5mm  
 xx.xx= ±0.25mm

Dimension Drawing Dual wired (mm)



Wired information

#	Function	Wire color	Type	AWG
1	VAC in (N)	blue	UL-1015	22
2	VAC in (L)	bown	UL-1015	22
3	+VDC out	red	UL-1007	22
4	Com	black	UL-1007	22
5	-VDC out	orange	UL-1007	22

tc= case temperature measuring point  
 Tolerance: xx.x= ±0.5mm  
 xx.xx= ±0.25mm

**Specifications** (measured at Ta= 25°C, full load otherwise noted)

PACKAGING INFORMATION		
Parameter	Type	Value
Packaging Dimension (LxWxH)	tube	520.0 x 56.0 x 26.0
	cardbox	520.0 x 195.0 x 67.0
Packaging Quantity	THT single	10pcs
	THT dual	9pcs
	wired	20pcs
Storage Temperature Range		-40°C to +100°C
Storage Humidity	non-condensing	95% RH max.

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