

Features

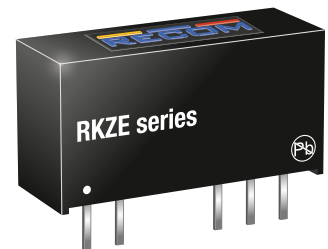
Unregulated Converters

- Low cost 2W converter
- Industry standard SIP7 package
- 3kVDC or 4kVDC isolation options
- Single or dual outputs
- Short circuit protected (/P versions)
- EN62368-1 pending

RECOM
DC/DC Converter

RKZE

**2 Watt
SIP7
Single and Dual
Output**



EN62368-1 pending
EN55032 pending
EN55024 pending

Description

The RKZE series are low cost 2W DC/DC converters in a standard SIP7 footprint. This makes them suitable for price sensitive industrial, test and measurement and high volume applications. The RKZE converters are pin-compatible with the RK and RH converter series, offering a simple way to upgrade a 1W high isolation supply to 2W. Standard isolation is 3kVDC with a /H version factory tested to 4kVDC. The RKZE is available with single or dual outputs with optional continuous short circuit protection (/P suffix).

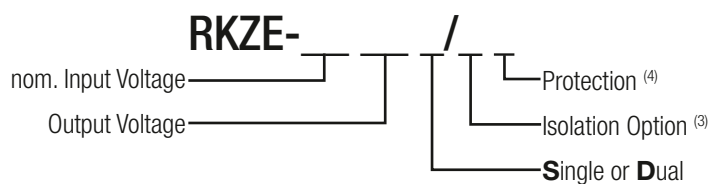
Selection Guide

Part Number	nom. Input Voltage [VDC]	Output Voltage [VDC]	Output Current [mA]	Efficiency typ. ⁽¹⁾ [%]	max. Capacitive Load ⁽²⁾ [μF]
RKZE-xx05S ^(3,4)	5, 12, 15, 24	5	400	81-83	1500
RKZE-xx09S ^(3,4)	5, 12, 15, 24	9	222	84-85	680
RKZE-xx12S ^(3,4)	5, 12, 15, 24	12	167	82-88	330
RKZE-xx15S ^(3,4)	5, 12, 15, 24	15	133	84-86	330
RKZE-xx05D ^(3,4)	5, 12, 15, 24	±5	±200	83-85	±680
RKZE-xx12D ^(3,4)	5, 12, 15, 24	±12	±84	84-85	±220
RKZE-xx15D ^(3,4)	5, 12, 15, 24	±15	±66	83-86	±220

Notes:

Note1: Efficiency is tested at nominal input and full load at +25°C ambient
Note2: Max Cap Load is tested at nominal input and full resistive load

Model Numbering



Notes:

Note3: standard part is without suffixes
without suffix, standard isolation voltage (3kVDC/1 second)
add suffix „/H“ for 4kVDC isolation

Note4: add suffix „/P“ for Continuous Short Circuit Protection
or add suffix „/HP“ for 4kVDC Isolation and Continuous Short Circuit Protection

Ordering Examples

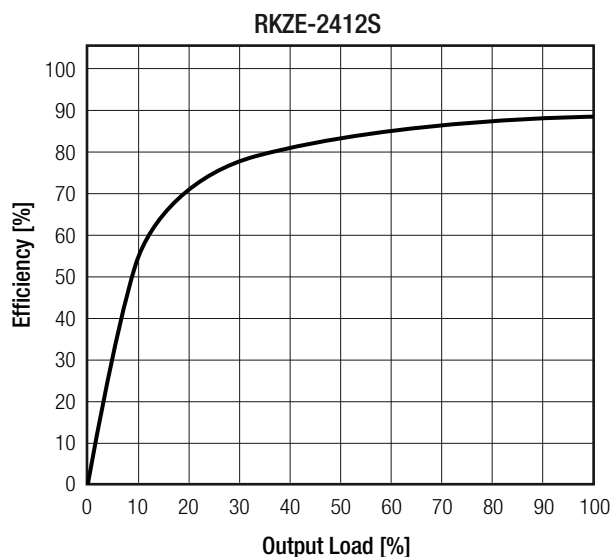
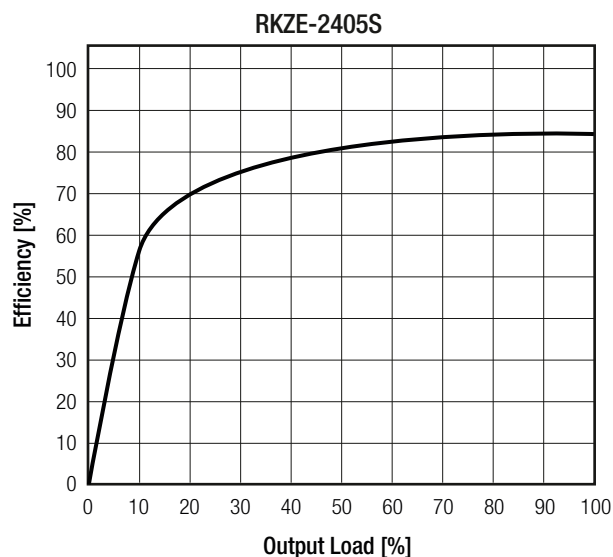
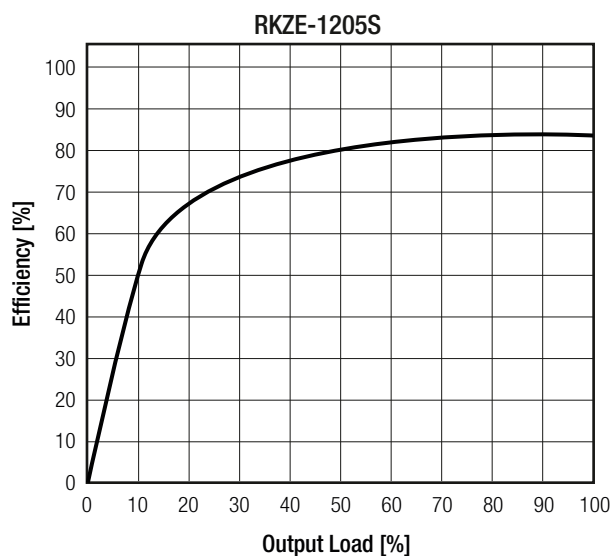
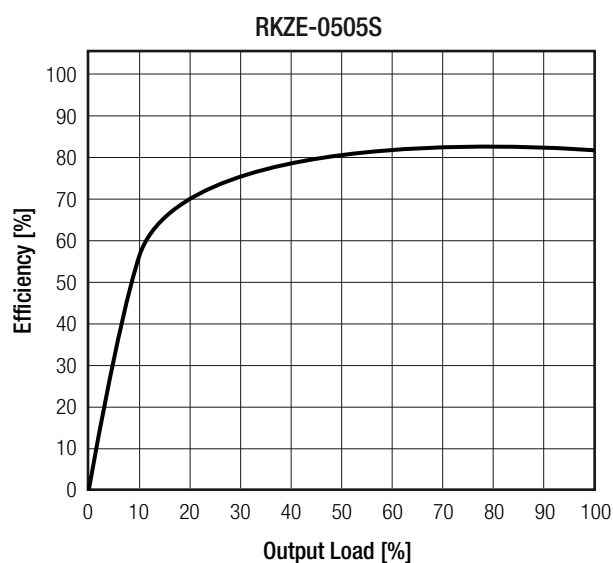
RKZE-1205S = 12V Input Voltage, 5V Output Voltage, Single Output with 3kVDC Isolation
RKZE-1509S/H = 15V Input Voltage, 9V Output Voltage, Single Output with 4kVDC Isolation
RKZE-0505D/P = 5V Input Voltage, 5V Output Voltage, Dual Output with 3kVDC Isolation and Continuous Short Circuit Protection
RKZE-2415D/HP = 24V Input Voltage, 15V Output Voltage, Dual Output with 4kVDC Isolation and Continuous Short Circuit Protection

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			capacitor type		
Input Voltage Range				±10%	
Input Current	nom. Vin=	5VDC		500mA	
		12VDC		200mA	
		15VDC		160mA	
		24VDC		100mA	
Quiescent Current	nom. Vin=	5VDC		30mA	
		12VDC		15mA	
		15VDC		12mA	
		24VDC		7mA	
Minimum Load			0%		
Start-up Time				10ms	
Rise Time				2ms	
Internal Operating Frequency			20kHz		
Output Ripple and Noise	20MHz BW			75mVp-p	150mVp-p

Efficiency vs. Load



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

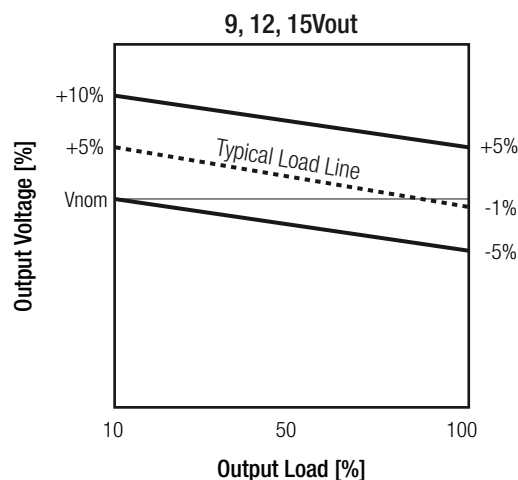
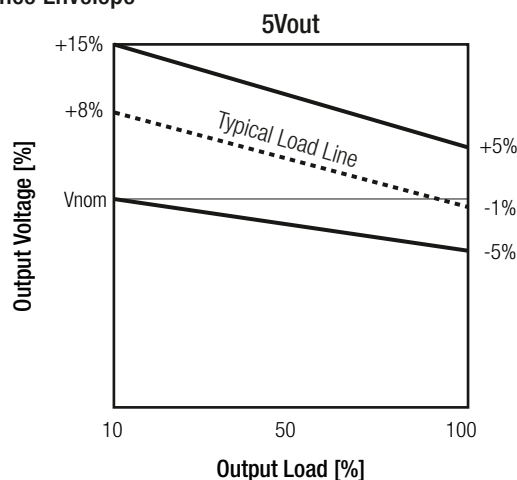
REGULATIONS

Parameter	Condition		Value
Output Accuracy			±5.0% max.
Line Regulation	low line to high line		±1.2% typ. / 1.0% max.
Load Regulation ⁽⁵⁾	10% to 100% load	5Vout	15% max.
		9, 12, 15Vout	10% max.
Cross Regulation	dual output only		±5.0% typ.

Notes:

Note5: Operation below 10% load will not harm the converter, but specifications may not be met

Tolerance Envelope



PROTECTIONS

Parameter	Type		Value
Short Circuit Protection (SCP)	below 100mΩ, "/P" suffix		continuous
Isolation Voltage ⁽⁶⁾	I/P to O/P	standard part	tested for 1 second rated for 1 minute 3kVDC 1.5kVAC
		"/H" suffix	tested for 1 second rated for 1 minute 4kVDC 1.8kVAC
Isolation Resistance			10GΩ min.
Isolation Capacitance			120pF max.
Leakage Current			0.3μA max.
Insulation Grade			functional

Notes:

Note6: For repeat Hi-Pot testing, reduce the time and/or the test voltage

Note7: 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	full load @ natural convection 0.1m/s (see graph)	-40°C to +80°C
Maximum Case Temperature		+110°C
Temperature Coefficient		±0.01%/K
Thermal Impedance	0.1m/s, horizontal	46K/W
Operating Altitude		2000m
Operating Humidity	non-condensing	5% - 95% RH

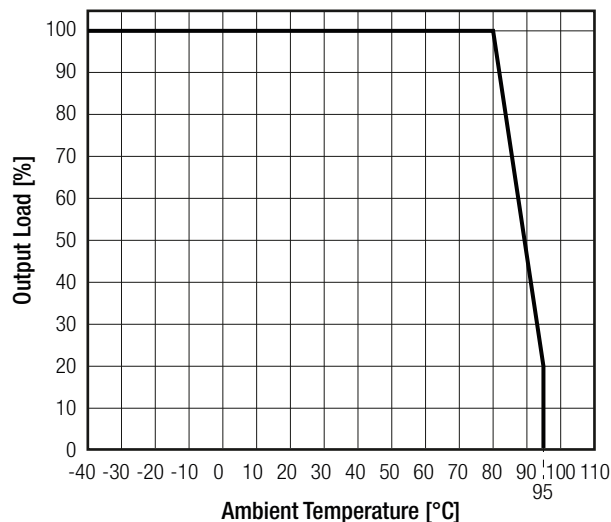
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Specifications (measured @ Ta= 25°C, nom. Vin, full load and after warm-up unless otherwise stated)

Parameter	Condition		Value
MTBF	according to MIL-HDBK-217F, G.B.	+25°C +80°C	18300 x 10 ³ hours 8070 x 10 ³ hours

Derating Graph

(@ Chamber and natural convection 0.1 m/s)



SAFETY AND CERTIFICATIONS

Certificate Type (Safety)	Report / File Number	Standard
Audio/video, information and communication technology equipment. Safety requirements	pending	EN62368-1
RoHs 2+		RoHs 10/10, 2011/65/EU + AM2015/863
EMC Compliance	Condition	Standard / Criterion
Electromagnetic compatibility of multimedia equipment – Emission Requirements	pending	EN55032, Class A EN55032, Class B
Information technology equipment - Radio disturbance characteristics - Limits and methods of measurement	pending	EN55024

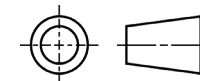
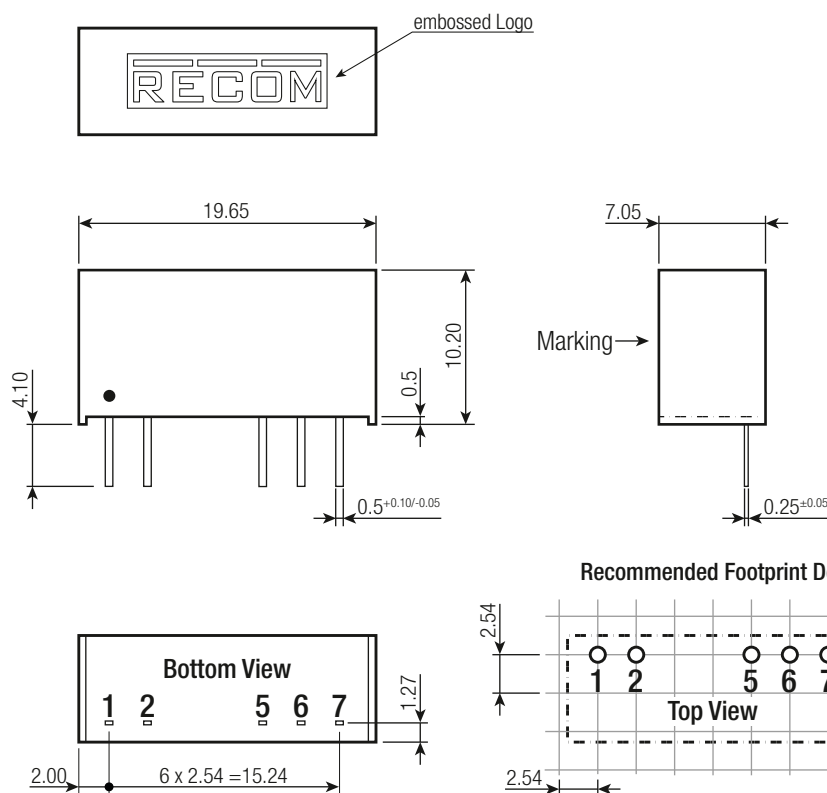
DIMENSION and PHYSICAL CHARACTERISTICS

Parameter	Type	Value
Material	case potting	black plastic, (UL94V-0) epoxy, (UL94V-0)
Dimension (LxWxH)		19.65 x 7.05 x 10.20mm
Weight		2.8g typ.

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

Dimension Drawing (mm)

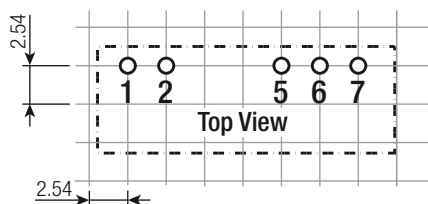


Pin Connections

Pin #	Single	Dual
1	+Vin	+Vin
2	-Vin	-Vin
5	-Vout	-Vout
6	No Pin	Com
7	+Vout	+Vout

XX.X ± 0.5mm
XX.XX ± 0.25mm

Recommended Footprint Details



PACKAGING INFORMATION

Parameter	Type	Value
Packaging Dimension (LxWxH)	tube	520.0 x 16.0 x 9.0mm
Packaging Quantity	tube	25pcs
Storage Temperature Range		-55°C to +125°C
Storage Humidity		5% to 95% RH

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