

Features

Unregulated Converters

- Power Sharing
- High Isolation 3kVDC & 4kVDC for 1 minute
- Efficiency up to 87%
- Wide Operating Temperature Range from -40°C to +85°C
- UL60950 Certified
- IEC/EN60950-1 Certified

Description

The RKZ-xx2005D series features DC/DC converters which are especially designed for SiC mosfet drivers. The modules are available with input voltages of 5, 12, 15, or 24VDC with two asymmetric outputs of +20VDC and -5VDC. A special feature of this converter is output power sharing: the RKZ-xx2005D can be used with equal power (asymmetrical current) or equal current (asymmetrical power) loads. The modules offer 3kVDC or 4kVDC isolation. The operating temperature range of -40C to +100°C (with derating) meets harsh environmental requirements.

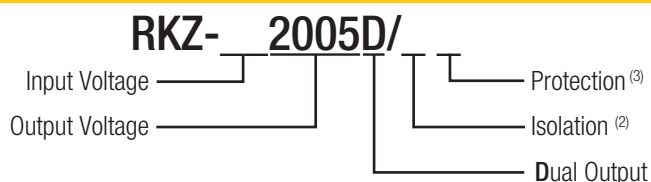
Selection Guide

Part Number	Input Voltage (VDC)	Output Voltage (VDC)	Output Current (mA)	Efficiency typ. (%)	max. Capacitive Load ⁽¹⁾ (µF)
RKZ-052005D	5	20/-5	50/-200 +/-80	86 85	100/1500
RKZ-122005D	12	20/-5	50/-200 +/-80	86	100/1500
RKZ-152005D	15	20/-5	50/-200 +/-80	86	100/1500
RKZ-242005D	24	20/-5	50/-200 +/-80	87	100/1500

Notes:

Note1: Max. capacitive load is tested at nominal input voltage and full load.

Model Numbering



Notes:

- Note2: without suffix, standard 3kVDC isolation
add suffix "/H" for higher 4kVDC isolation
- Note3: without suffix, without Short Circuit Protection
add suffix "/P" for continuous short circuit protection

Examples:

- RKZ-052005D = 5Vin, 20/-5Vout, without SCP function + standard 3kVDC isolation
- RKZ-12005D/HP = 12Vin, 20/-5Vout, with continuous SCP function + high 4kVDC isolation

Specifications (measured at T_a= 25°C, nominal Input and full load after warm-up time unless otherwise noted)

BASIC CHARACTERISTICS				
Parameter	Condition	Min.	Typ.	Max.
Input Voltage Range		-10%		+10%
Operating Frequency		20kHz		
Minimum Load			0%	
Output Ripple and Noise ⁽⁴⁾			70mVp-p	150mVp-p

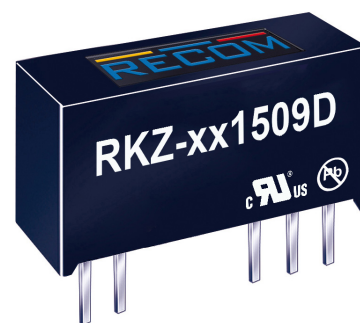
Notes:
Note4: Ripple and Noise is measured with a 20MHz bandwidth and a 0.1µF ceramic capacitor.

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RECOM
DC/DC Converter

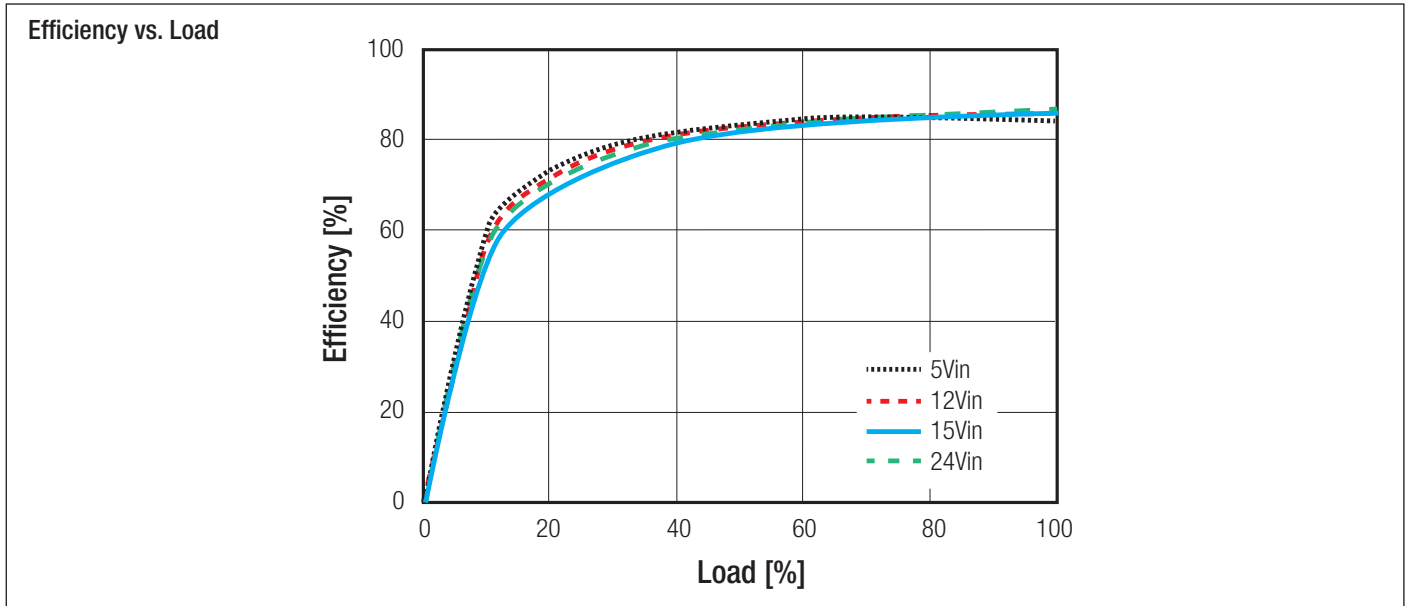
RKZ-xx2005D

2 Watt
SIP7 for
SiC Application

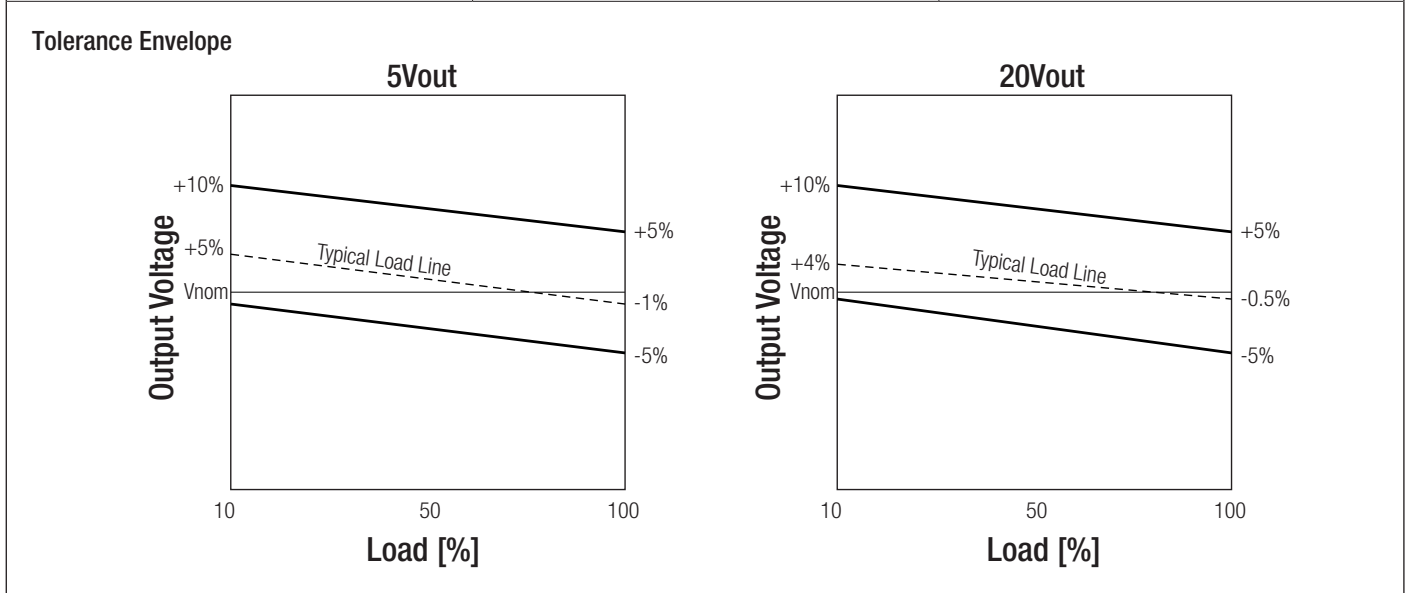


UL60950-1 Certified
CSA C22.2 No. 60950-1-07 Certified
IEC/EN60950-1 Certified
EN55022 Compliant

Specifications (measured at $T_a = 25^\circ\text{C}$, nominal Input and full load after warm-up time unless otherwise noted)



REGULATIONS		
Parameter	Condition	Values
Output Voltage Accuracy		$\pm 5\%$ max.
Line Voltage Regulation	low line to high line, full load and 1%Vin	$\pm 1.2\%$ typ.
Load Voltage Regulation	10% to 100% load	$\pm 5\%$ typ. / $\pm 10\%$ max.

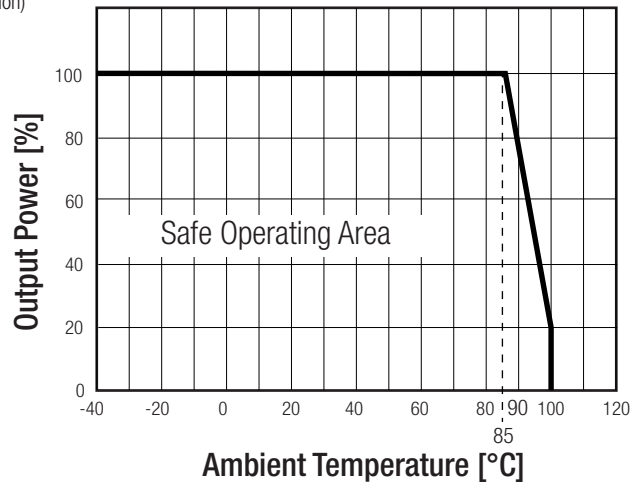


PROTECTIONS		
Parameter	Condition	Value
Short Circuit Protection (SCP)	only with "/P" suffix	continuous, automatic recovery
Isolation Voltage	I/P to O/P	without suffix: 3kVDC / 1 second with suffix "/H": 4kVDC / 1 second
Isolation Capacitance		135pF max.
Isolation Resistance		10G Ω min.

Specifications (measured at $T_a = 25^\circ\text{C}$, nominal Input and full load after warm-up time unless otherwise noted)

ENVIRONMENTAL		
Parameter	Condition	Value
Operating Temperature Range	free air convection, with derating	-40°C to +100°C
Operating Humidity	non-condensing	5% - 95% RH max.
Vibration		MIL-STD-202G
MTBF	according to MIL-HDBK-217F	+25°C 1800 x 10 ³ hours +85°C 560 x 10 ³ hours

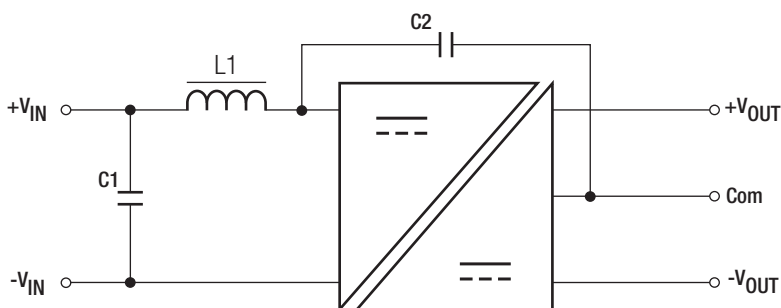
Derating Graph
(@ nominal V_{in} at chamber and free air convection)



SAFETY AND CERTIFICATIONS		
Certificate Type (Safety)	Report / File Number	Standard
Information Technology Equipment, General Requirements for Safety	SPCLVD1602031	IEC60950-1, 2nd Edition, 2005 EN60950-1, 2nd Edition, 2006
Information Technology Equipment, General Requirements for Safety	E358085	UL60950-1, 1st Edition, 2007 CAN/CSA C22.2 No. 60950-1-07, 1st Edition, 2006
RoHs 2		RoHS 6/6, 2011/65/EU

EMI Compliance	Condition	Standard / Criterion
Information technology equipment - Radio disturbance characteristics - Limits and methods of measurement	with external filter	EN55022, Class B

EMC filter suggestion for EN55022 Class B



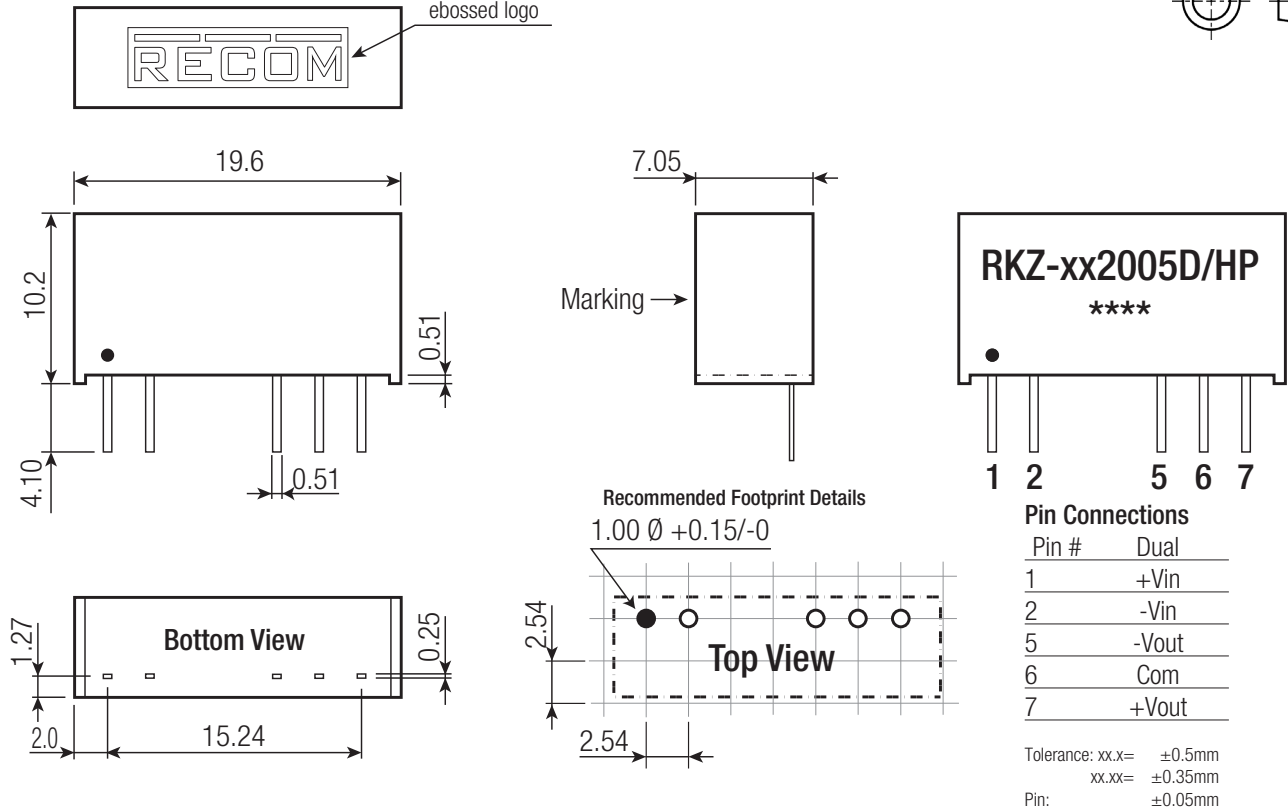
MODEL	C1	C2	L1
RKZ-052005D	10μF	470pF, 4kVDC	4.7μH
RKZ-122005D	4.7μF		22μH
RKZ-152005D	4.7μF		22μH
RKZ-242005D	2.2μF		47μH

Specifications (measured at $T_a=25^\circ\text{C}$, nominal Input and full load after warm-up time unless otherwise noted)

DIMENSION and PHYSICAL CHARACTERISTICS

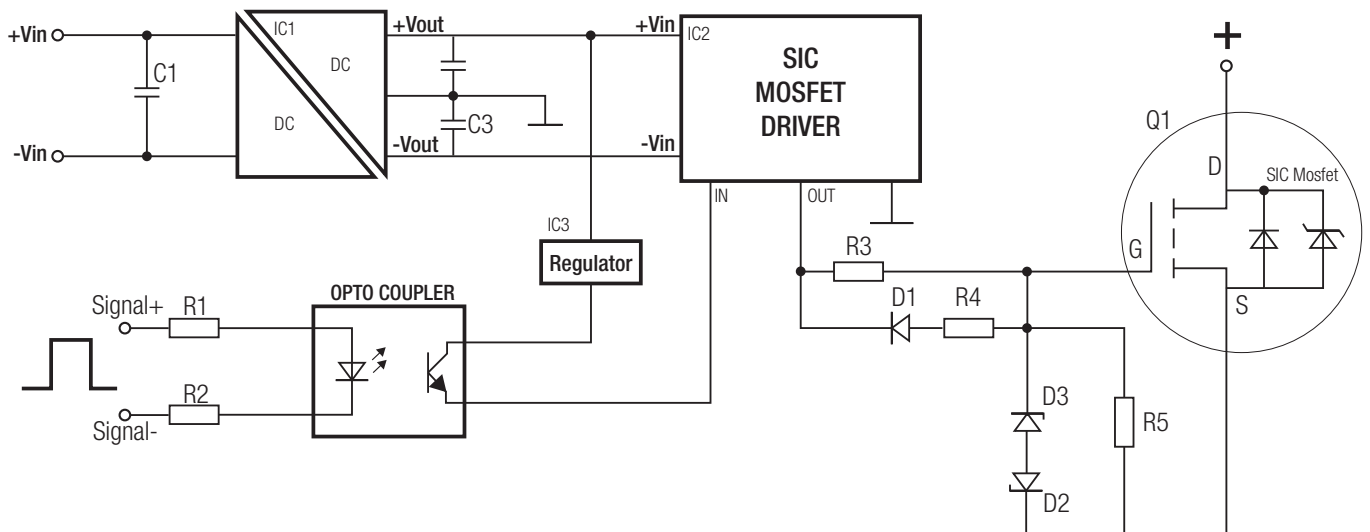
Parameter	Type	Value
Material	Case Potting	Plastic, (UL94V-0) Epoxy, (UL94V-0)
Package Dimension (LxWxH)		19.65 x 7.05 x 10.2mm
Package Weight		2.8g

Dimension Drawing (mm)



INSTALLATION AND APPLICATION

Typical Application Circuit



Specifications (measured at $T_a = 25^\circ\text{C}$, nominal Input and full load after warm-up time unless otherwise noted)

PACKAGING INFORMATION		
Packaging Dimension (LxWxH)	Tube	520.0 x 16.5 x 9.3mm
Packaging Quantity		25pcs
Storage Temperature Range		-55°C to +125°C
Storage Humidity		5% to 95% RH