

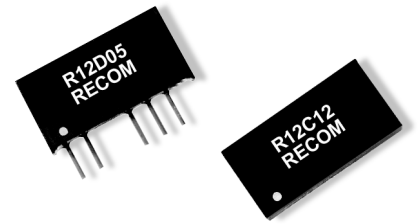
# EUROLINE - DC/DC-Converter

RxxC and RxxD Series, 2 Watt, DIP14/SIP7, Isolated (Dual Output)

# RECOM

## Features

- Wide Temperature performance at full 2 Watt load,  $-40^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$
- Industry Standard Pinout
- 1kVDC Isolation
- Efficiency to 86%
- UL 94V-0 Package Material
- Internal SMD Construction
- MTTF up to 2.0 Million Hours



## Selection Guide 5V, 12V, 24V and 48V Input Types

Part Number	Nom. Input Voltage (VDC)	Rated Output Voltage (VDC)	Rated Output Current (mA)	Input Current at Rated Load (mA)	Efficiency (%)	Isolation Capacitance (pF)	Package Style
R05C05	5	$\pm 5$	$\pm 200$	500	80	24	DIP14
R05C09	5	$\pm 9$	$\pm 111$	494	81	28	
R05C12	5	$\pm 12$	$\pm 83$	488	82	30	
R05C15	5	$\pm 15$	$\pm 67$	476	84	33	
R05D05	5	$\pm 5$	$\pm 200$	500	80	24	SIP7
R05D09	5	$\pm 9$	$\pm 111$	494	81	28	
R05D12	5	$\pm 12$	$\pm 83$	488	82	30	
R05D15	5	$\pm 15$	$\pm 67$	476	84	33	
R12C05	12	$\pm 5$	$\pm 200$	208	80	35	DIP14
R12C09	12	$\pm 9$	$\pm 111$	201	83	55	
R12C12	12	$\pm 12$	$\pm 83$	198	84	63	
R12C15	12	$\pm 15$	$\pm 67$	198	84	66	
R12D05	12	$\pm 5$	$\pm 200$	208	80	35	SIP7
R12D09	12	$\pm 9$	$\pm 111$	201	83	55	
R12D12	12	$\pm 12$	$\pm 83$	198	84	63	
R12D15	12	$\pm 15$	$\pm 67$	198	84	66	
R24C05	24	$\pm 5$	$\pm 200$	103	81	41	DIP14
R24C09	24	$\pm 9$	$\pm 111$	98	85	75	
R24C12	24	$\pm 12$	$\pm 83$	97	86	95	
R24C15	24	$\pm 15$	$\pm 67$	97	86	104	
R24D05	24	$\pm 5$	$\pm 200$	103	81	41	SIP7
R24D09	24	$\pm 9$	$\pm 111$	98	85	75	
R24D12	24	$\pm 12$	$\pm 83$	97	86	95	
R24D15	24	$\pm 15$	$\pm 67$	97	86	104	
R48C05	48	$\pm 5$	$\pm 200$	51	82	45	DIP14
R48C09	48	$\pm 9$	$\pm 111$	51	82	74	
R48C12	48	$\pm 12$	$\pm 83$	49	85	90	
R48C15	48	$\pm 15$	$\pm 67$	49	85	112	
R48D05	48	$\pm 5$	$\pm 200$	51	82	45	SIP7
R48D09	48	$\pm 9$	$\pm 111$	51	82	74	
R48D12	48	$\pm 12$	$\pm 83$	49	85	90	
R48D15	48	$\pm 15$	$\pm 67$	49	85	112	

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## Absolute Maximum Ratings

Input Voltage $V_{IN}$	05V types	7VDC
	12V types	15VDC
	24V types	28VDC
	48V types	54VDC
Short Circuit Duration <sup>1)</sup>		1 s
Internal Power Dissipation		300mW
Lead Temperature (1.5mm from case for 10 seconds)		300°C

<sup>1)</sup> Supply voltage must be discontinued at the end of the short circuit duration.

## Electrical Specifications (measured at $T_A = 25^\circ\text{C}$ , at nominal input voltage and rated output current unless otherwise specified)

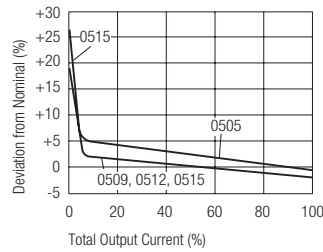
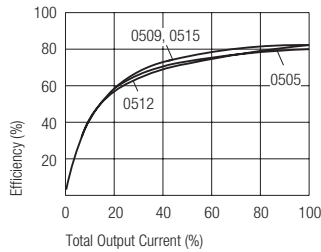
Input Voltage Range $V_{IN}$ (continuous operation)	5V types	4.5VDC min. / 5.5VDC max.
	12V types	10.8VDC min. / 13.2VDC max.
	24V types	21.6VDC min. / 26.4VDC max.
	48V types	43.2VDC min. / 52.8VDC max.
Reflected Ripple Current (depending on the type)		50 mA p-p min. to 200 mA p-p max.
Output Voltage Accuracy (depending on the type)		-5% min. / 7.5% max.
Line Regulation (high $V_{IN}$ to low $V_{IN}$ )		1.0% min. / 1.2% max. of $V_{IN}$
Load Regulation (10% load to rated load) (depending on the type)		3% typ. / 10% max.
Ripple and Noise (BW=DC to 20MHz) (depending on the type)		70mVp-p min. / 200mVp-p max.
Isolation Voltage (flash tested for 1 second)		1000VDC min.
Test Voltage (50Hz, 10 seconds)		1000 Vpk min.
Resistance (Viso = 500V)		1G $\Omega$ min. / 10 G $\Omega$ typ.
Switching Frequency at Full Load (depending on the type)		80kHz min. / 95kHz max.
Package Weight	SIP types	2.76 g
	DIP types	2.85 g
Efficiency (100% load)		70% min.
Power Consumption (0% load)		300mW typ.
Operating Temperature Range (all output types)		-40°C min. to +85°C max. (see graph)
Storage Temperature Range		-50°C to +130°C
Case Temperature Above Ambient (depending on the type)		+25°C min. / +30°C max.
MTTF <sup>2)</sup> (depending on the type)	-40°C	134kHrs min. / 2004kHrs max.
	+25°C	112kHrs min. / 1574kHrs max.
	+85°C	93kHrs min. / 1101kHrs max.

<sup>2)</sup> Calculated using MIL-HDBK-217F with nominal input voltage at full load.

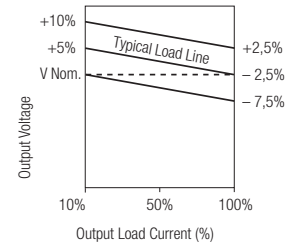
Please contact us, if you need exact parameters for the converter you have selected.

## Typical Characteristics, Tolerance Envelope and Derating Graph

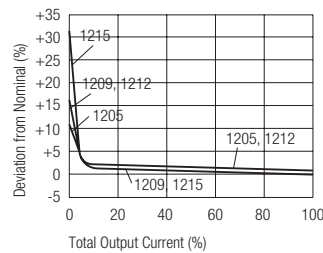
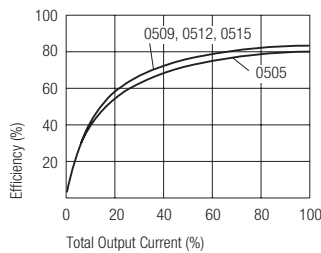
**R05C/Dxx**



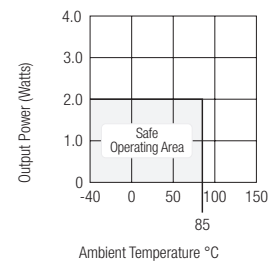
**Tolerance Envelope**



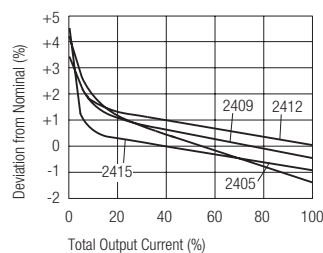
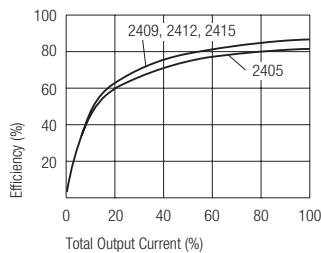
**R12C/Dxx**



**Temperature Derating Graph**



**R24C/Dxx**



**R48C/Dxx**

