

# Features

## Regulated Converters

- 4:1 Wide Input Voltage Range
- 15 Watts Regulated Output Power
- 1.6kVDC Isolation
- Over Current and Over Voltage Protection
- Six-Sided Shield
- No Derating to 65°C
- Standard 2" x 1" Package and Pinning
- Efficiency to 86 %

### Description

The RP15-FW series wide range input DC/DC converters are certified to UL 60950-1 and to cUL 60950-1. This makes them ideal for all telecom and industrial applications where approved safety standards are required. The industry standard 2" x 1" package meets military standards for thermal shock and vibration tolerance.

### Selection Guide 24V and 48V Wide Input Types

Part Number	Input Range VDC	Output Voltage VDC	Output Current mA	Input <sup>(4,5)</sup> Current mA	Efficiency <sup>(6)</sup> %	Capacitive <sup>(7)</sup> Load max. $\mu$ F
RP15-243.3SFW	9-36	3.3	4500	60/773	84	14750 $\mu$ F
RP15-2405SFW	9-36	5	3000	60/777	86	7200 $\mu$ F
RP15-2412SFW	9-36	12	1250	75/771	85	1250 $\mu$ F
RP15-2415SFW	9-36	15	1000	75/762	86	800 $\mu$ F
RP15-483.3SFW	18-75	3.3	4500	30/422	84	14750 $\mu$ F
RP15-4805SFW	18-75	5	3000	30/381	86	7200 $\mu$ F
RP15-4812SFW	18-75	12	1250	40/385	85	1250 $\mu$ F
RP15-4815SFW	18-75	15	1000	40/381	86	800 $\mu$ F
RP15-2405DFW	9-36	$\pm$ 5	$\pm$ 1500	85/801	82	$\pm$ 3600 $\mu$ F
RP15-2412DFW	9-36	$\pm$ 12	$\pm$ 625	100/771	85	$\pm$ 625 $\mu$ F
RP15-2415DFW	9-36	$\pm$ 15	$\pm$ 500	100/762	86	$\pm$ 400 $\mu$ F
RP15-4805DFW	18-75	$\pm$ 5	$\pm$ 1500	45/400	82	$\pm$ 3600 $\mu$ F
RP15-4812DFW	18-75	$\pm$ 12	$\pm$ 625	50/385	85	$\pm$ 625 $\mu$ F
RP15-4815DFW	18-75	$\pm$ 15	$\pm$ 500	50/381	86	$\pm$ 400 $\mu$ F

\* add /P for CTRL function with Positive Logic (1=ON, 0=OFF)

\* add /N for CTRL function with Negative Logic (0=ON, 1=OFF)

\* add suffix -HC for premounted heatsink and clips

### Ordering Examples

RP15-2405SFW/P = 24V 4:1 Input, 5V Output, Positive Logic CTRL pin fitted

RP15-4805DFW-HC = 48V 4:1 Input,  $\pm$ 5V Output, No CTRL pin, Heatsink fitted

# POWERLINE

## DC/DC-Converter

with 3 year Warranty

# RECOM

## 15 Watt

## 2" x 1"

## Single &

## Dual Output



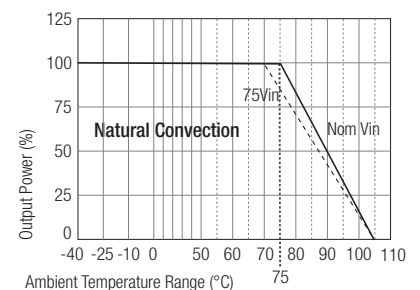
**UL-60950-1 Certified**  
**E196683**

# RP15-FW

## Derating-Graph

(Ambient Temperature)

### RP15-4805SFW



Derating graphs are valid only for the shown part numbers.

If you need detailed derating information about a part number not shown here please contact our technical customer service at [info@recom-development.at](mailto:info@recom-development.at)

**Refer to Application Notes**

**Specifications** (typical at nominal input and 25°C unless otherwise noted)

Input Voltage Range	24V nominal input	9-36VDC
	48V nominal input	18-75VDC
Input Filter		Pi Type
Input Surge Voltage (100 ms max.)	24V Input	50VDC
	48V Input	100VDC
Input Reflected Ripple (nominal Vin and full load)		20mA <sub>p-p</sub>
Start Up Time (nominal Vin and constant resistor load)		20ms typ.
Remote ON/OFF <sup>(1)</sup>	DC-DC ON	Open or 3.0V < Vr < 12V
	DC-DC OFF	Short or 0V < Vr < 1.2V
Remote OFF input current	Nominal input	2.5mA
Output Power		15W max.
Output Voltage Accuracy (full Load and nominal Vin)		±1%
Minimum Load		0%
Line Regulation (low line, high line at full load)		±0.2%
Load Regulation (0% to 100% full load)	Single	±0.5%
	Dual	±1%
Cross Regulation Dual Output (asymmetrical 25% <>100%load)	Dual	±5%
Ripple and Noise (20MHz bandwidth, with 1µF MLCC on output) (measured with a 104pF ceramic across the output)	3.3, 5.0V	50mV <sub>p-p</sub>
	12, 15, ±5, ±12, ±15V	75mV <sub>p-p</sub>
Temperature Coefficient		±0.02%/°C max.
Transient Response (25% load step change)		250µs
Input Voltage Variation, dv/dt	complies with ETS300 132, part 4.4	5V/ms
Over Load Protection (% of full load at nominal Vin)		150% typ
Overvoltage Protection (Single)		Zener Diode Clamp
Undervoltage Protection		See Application Notes
Short Circuit Protection		Continuous, automatic recovery
Efficiency		see „Selection Guide“ table
Isolation Voltage (rated for one minute)	In to Out and I/O to case	1600VDC min.
Isolation Resistance		10 GΩ min.
Isolation Capacitance		1500pF max.
Operating Frequency		400kHz typ.
Operating Temperature Range	5.1, 12, 15, ±12, ±15V	-40°C to +75°C
	3.3, ±5V	-40°C to +65°C
	with derating	-40°C to +105°C
Maximum Case Temperature		+105°C
Storage Temperature Range		-55°C to +125°C
Thermal Impedance <sup>(2)</sup>	Natural convection	12°C/Watt
	with Heatsink	10°C/Watt
Case Material		Nickel plated copper
Base Material		Non-conductive black plastic
Potting Material		Epoxy (UL94-V0)
Weight		27g

continued on next page

**Specifications** (typical at nominal input and 25°C unless otherwise noted)

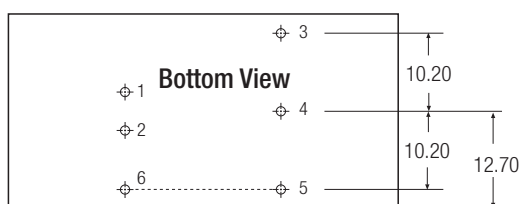
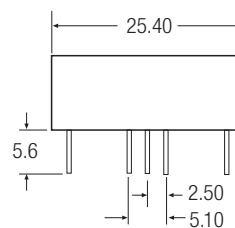
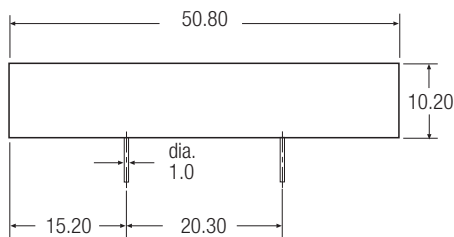
Packing Quantity	Refer to App Notes for tube dimensions	9 pcs per TubeC
Conducted Emissions <sup>(3)</sup>	EN55022	Class A
Radiated Emissions <sup>(3)</sup>	EN55022	Class A
ESD	EN61000-4-2	Perf. Criteria B
Radiated Immunity	EN61000-4-3	Perf. Criteria A
Fast Transient <sup>(3)</sup>	EN61000-4-4	Perf. Criteria B
Surge <sup>(3)</sup>	EN61000-4-5	Perf. Criteria B
Conducted Immunity	EN61000-4-6	Perf. Criteria A
Thermal Shock		MIL-STD-810D
Vibration		10-55Hz, 10G, 30 Min. along X, Y and Z
Relative Humidity		5% to 95% RH
MTBF <sup>(2)</sup>	Bellcore-TR-NWT-000332	2350 x 10 <sup>3</sup> hours

**Notes :**

- The ON/OFF control function can be positive or negative logic. The pin voltage is referenced to negative input.  
Positive logic ON/OFF is marked with suffix-P (eg. RP15-2405SFW/P)  
Negative logic ON/OFF is marked with suffix-N (eg. RP15-2405SFW/N).  
If no suffix is specified, the control pin will be omitted.
- BELLCORE TR-NWT-000332. Case I: 50% Stress, Temperature at 40°C (Ground fixed and controlled environment).
- RP15-24xxW meets Class A. RP15-48xxW requires 1µF MLCC across input to meet Class A.  
An external capacitor (220µF/Low ESR) is required to meet EN61000-4-4 and -5  
See application notes for Class B common mode filter suggestion.
- Typical value at nominal input voltage and no load.
- Maximum value at nominal input voltage and full load
- Typical value at nominal input voltage and full load.
- Test by minimum Vin and constant resistor load.
- Optional Heatsink Part Number 7G-0020-C. Powerline DC/DC Converters can be ordered with pre-mounted heatsinks including antivibration fixing clips (add suffix -HC). See Application Notes for heatsink details.

**Package Style and Pinning (mm)**

**2" x 1" Package Style**



**Pin Connections**

Pin #	Single	Dual
1	+Vin	+Vin
2	-Vin	-Vin
3	+Vout	+Vout
4	No Pin	Com
5	-Vout	-Vout
6*	CTRL*	CTRL*

\* Optional. See Note 1.

Pin Pitch Tolerance ±0.25 mm  
Pin dimension tolerance ±0.1 mm  
Tolerance: X.X ±0.5mm  
X.XX ±0.25mm

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