# Features

# Regulated Converter

- 4:1 wide input range
- 3kVAC reinforced insulation for 110Vin
  2.25kVDC basic insulation for 24Vin & 48Vin
- Efficiency up to 90%
- No minimum load required
- EN50155 certified
- IEC/EN60950-1 certified

RECOM
DC/DC Converter

# RP90Q-RW

## 90 Watt Quarter Brick Single Output

YEAR 3 warranty

## Description

The quarter-brick RP90Q series DC/DC converters are designed for railway rolling stock and high voltage battery applications. Each series has three 4:1 input voltage range options to cover all input voltages from 9VDC up to 160VDC with isolated and regulated 5V to 48VDC outputs. The converters have high efficiencies and metal base-plates to permit a wide operating temperature range from -40°C to +85°C (when mounted on a suitable heatsink). The case is fitted with threaded inserts to allow secure mounting to the PCB or bulkhead for use in high shock and vibration environments. The converters are EN50155 and IEC/EN60950 certified. The RP90Q-RW series have a three year warranty.

EN50155 certified
IEC/EN60950-1 certified

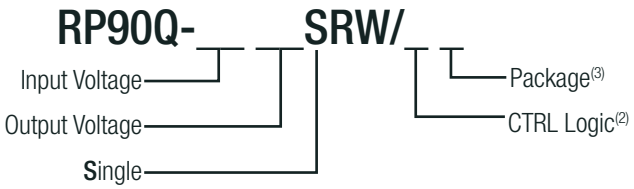
## Selection Guide

| Part Number | Input Voltage Range [VDC] | Output Voltage [VDC] | Output Current [mA] | Input[1] Current [mA] | Output Power [W] | Efficiency[1] typ. [%] | Max. Capacitive Load [µF] |
|---|---|---|---|---|---|---|---|
| RP90Q-2405SRW[2,3] | 9-36 | 5 | 18000 | 4213 | 90 | 89 | 36000 |
| RP90Q-2412SRW[2,3] | 9-36 | 12 | 7500 | 4213 | 90 | 89 | 6250 |
| RP90Q-2415SRW[2,3] | 9-36 | 15 | 6000 | 4213 | 90 | 89 | 4000 |
| RP90Q-2424SRW[2,3] | 9-36 | 24 | 3700 | 4157 | 89 | 89 | 1540 |
| RP90Q-2448SRW[2,3] | 9-36 | 48 | 1800 | 4090 | 86.5 | 88 | 380 |
| RP90Q-4805SRW[2,3] | 16.5-75 | 5 | 18000 | 2107 | 90 | 89 | 36000 |
| RP90Q-4812SRW[2,3] | 16.5-75 | 12 | 7500 | 2107 | 90 | 89 | 6250 |
| RP90Q-4815SRW[2,3] | 16.5-75 | 15 | 6000 | 2083 | 90 | 90 | 4000 |
| RP90Q-4824SRW[2,3] | 16.5-75 | 24 | 3700 | 2055 | 89 | 90 | 1540 |
| RP90Q-4848SRW[2,3] | 16.5-75 | 48 | 1800 | 2000 | 86.5 | 90 | 380 |
| RP90Q-11005SRW[2,3] | 40-160 | 5 | 17000 | 868 | 85 | 89 | 34000 |
| RP90Q-11012SRW[2,3] | 40-160 | 12 | 7000 | 858 | 84 | 89 | 5830 |
| RP90Q-11015SRW[2,3] | 40-160 | 15 | 5500 | 843 | 82.5 | 89 | 3670 |
| RP90Q-11024SRW[2,3] | 40-160 | 24 | 3500 | 858 | 84 | 89 | 1460 |
| RP90Q-11048SRW[2,3] | 40-160 | 48 | 1800 | 882 | 86.5 | 89 | 380 |

**Notes:**

Note1: Efficiency is tested by nominal Vin, full load and at 25°C

## Model Numbering




**Ordering Examples**

RP90Q-2405SRW/N = 24V Input, 5V Output, Single, Neg. CTRL function
RP90Q-11012SRW/P = 110V Input, 12V Output, Single, Pos. CTRL function
RP90Q-2405SRW/N-HC = 24V Input, 5V Output, Single, Neg. CTRL function, with premounted Heat-sink

**Notes:**

Note2: standard part is with suffix "P" for positive logic (1=ON, 0=OFF)
or add suffix "N" instead for negative logic (0=ON, 1=OFF)

Note3: add suffix "-HC" for premounted Heat-sink
(compatible with all other suffixes)

REF DESIGN available

www.recom-power.com/eval-ref-boards

SURGE PROTECTOR available

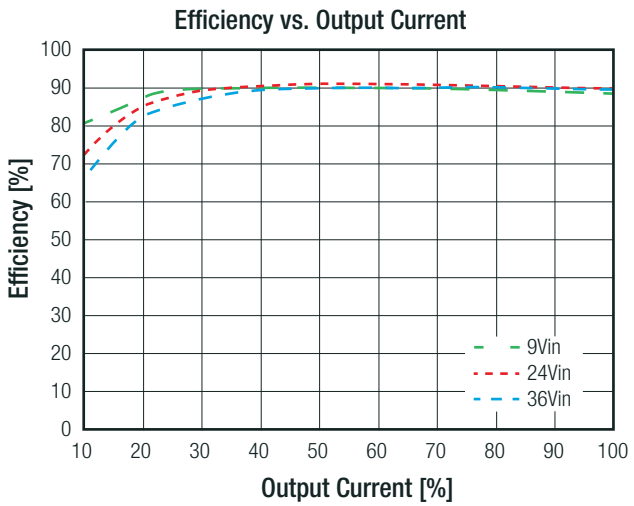
https://www.recom-power.com/pdf/Powerline_DC-DC/RSPxxx-168.pdf

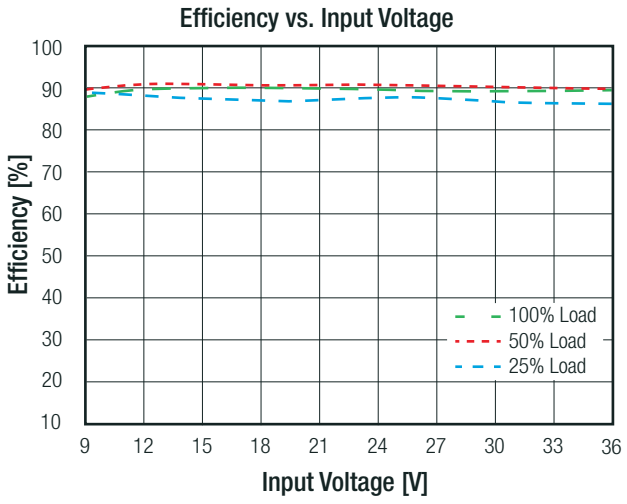
## Specifications (measured @Ta = 25°C, resistive load, nominal Vin and rated Iout unless otherwise noted)

### BASIC CHARACTERISTICS

| Parameter | Condition | | Min. | Typ. | Max. |
|---|---|---|---|---|---|
| Internal Input Filter | | | | | Pi-Type |
| Input Voltage Range | nom Vin = 24V<br>nom Vin = 48V<br>nom Vin = 110V | | 9VDC<br>16.5VDC<br>40VDC | 24VDC<br>48VDC<br>110VDC | 36VDC<br>75VDC<br>160VDC |
| Input Surge Voltage | Vin = 24V, 1s max.<br>Vin = 48V, 1s max.<br>Vin = 110V, 1s max. | | | | 50VDC<br>100VDC<br>185VDC |
| Quiescent Current | Vin = 24V<br>Vin = 48V<br>Vin = 110V | | | 25ma<br>15mA<br>8mA | |
| Start-up time | Power up<br>ON/OFF Control | | | 75ms<br>75ms | 100ms<br>100ms |
| Internal Operating Frequency | | | 270kHz | 300kHz | 330kHz |
| Minimum Load | | | 0% | | |
| Ripple and Noise | Measured by 20MHz BW<br>with a 22µF/25V X7R MLCC<br>with a 22µF/25V X7R MLCC<br>with a 4.7µF/50V X7R MLCC<br>with a 2.2µF/100V X7R MLCC | 5 Vout<br>12, 15Vout<br>24Vout<br>48Vout | | 75mVp-p<br>100mVp-p<br>200mVp-p<br>300mVp-p | |
| Under Voltage Lockout (UVLO) | Vin = 24V | DC-DC ON<br>DC-DC OFF | 7.3VDC | | 9VDC<br>8.1VDC |
| | Vin = 48V | DC-DC ON<br>DC-DC OFF | 15.5VDC | | 18VDC<br>16.3VDC |
| | Vin = 110V | DC-DC ON<br>DC-DC OFF | 33VDC | | 43VDC<br>36VDC |
| ON/OFF Control | Positive Logic | DC-DC ON<br>DC-DC OFF | | | Open or 3.0V < Vr < 12V<br>Short or 0V < Vr < 1.2V |
| | Negative Logic | DC-DC ON<br>DC-DC OFF | | | Short or 0V < Vr < 1.2V<br>Open or 3.0V < Vr < 12V |
| Input Current of CTRL pin | | | -0.5mA | | 1mA |
| Standby Current | | | | 3mA | |
| Output Trim | | | -20% | | +10% |
| Remote Sense | % of set Vout | | | | 10% |

**RP90Q-2405SRW**

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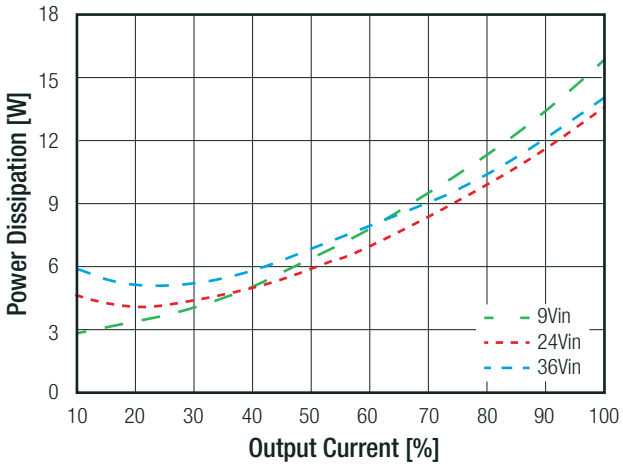
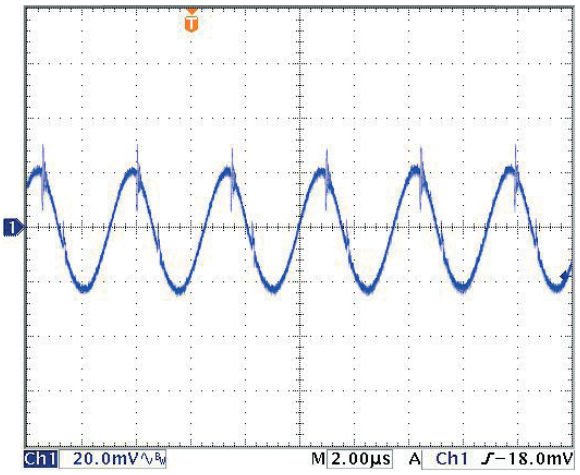
## Specifications (measured @Ta = 25°C, resistive load, nominal Vin and rated Iout unless otherwise noted)

RP90Q-2405SRW

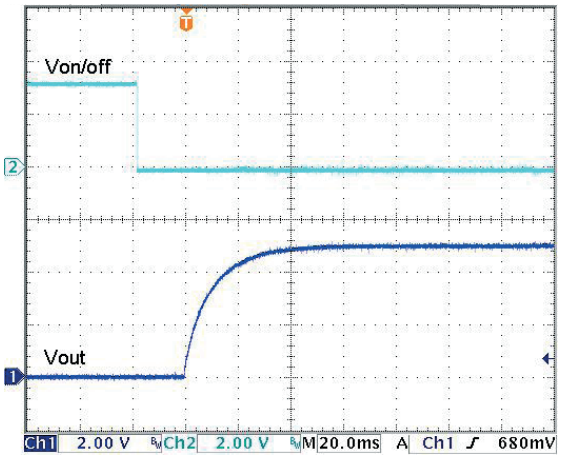
### Power Dissipation vs. Output Current



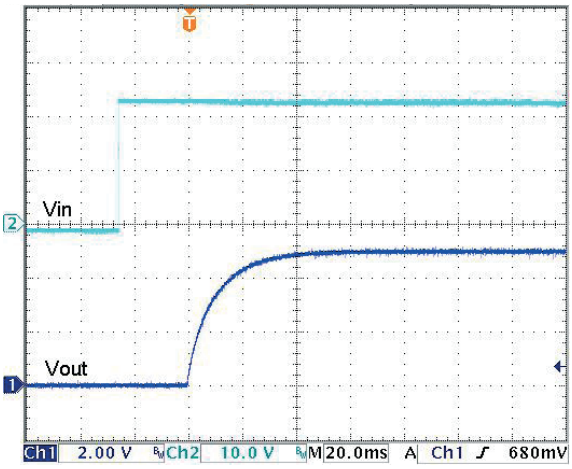

### Typical Output Ripple and Noise/full load




### ON/OFF Control Start up Rise Characteristic

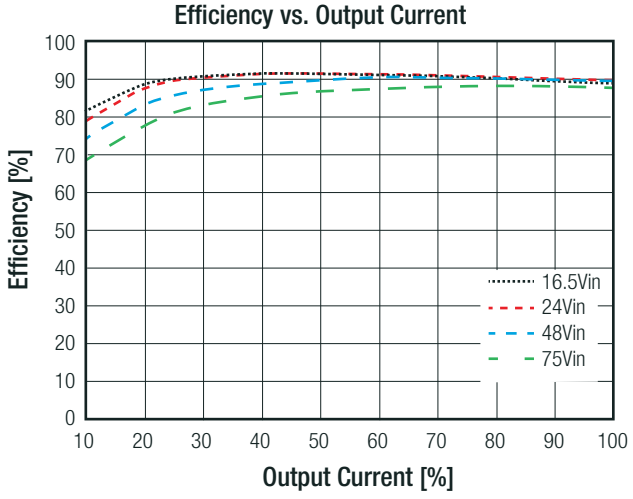



### Power up Start-up Rise Characteristic

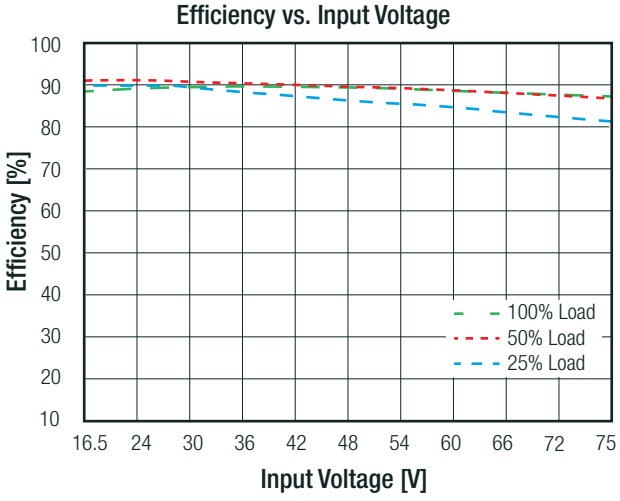



RP90Q-4805SRW

### Efficiency vs. Output Current




### Efficiency vs. Input Voltage

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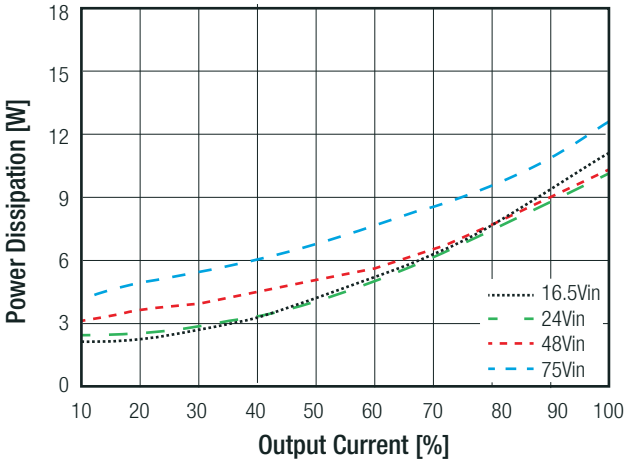
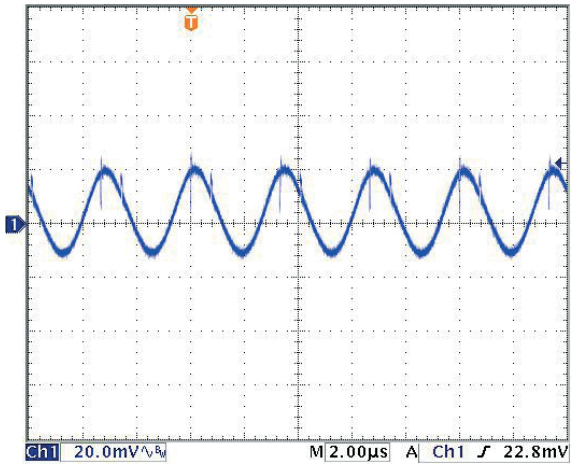
## Specifications (measured @Ta = 25°C, resistive load, nominal Vin and rated Iout unless otherwise noted)

### RP90Q-4805SRW

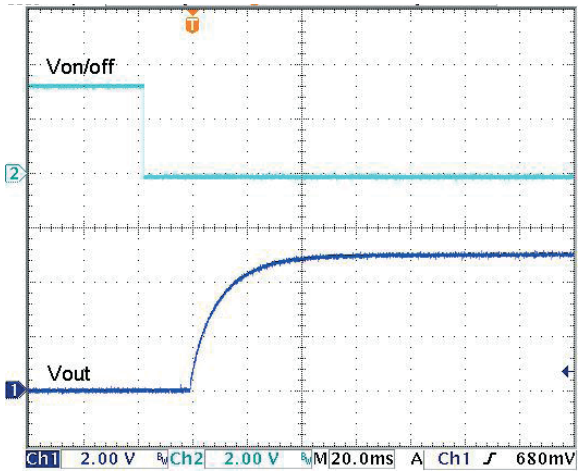
Power Dissipation vs. Output Current



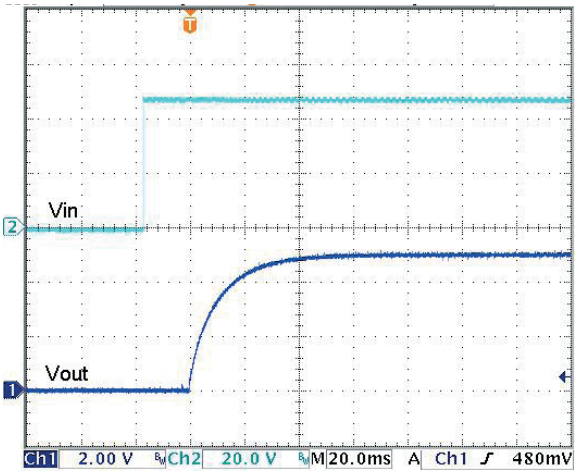

Typical Output Ripple and Noise/full load




ON/OFF Control Start up Rise Characteristic

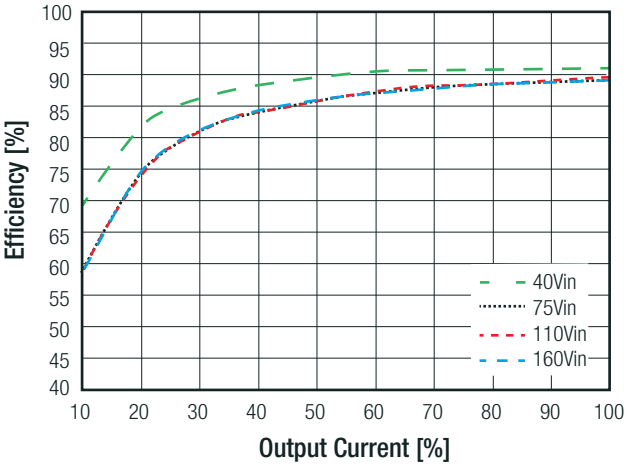



Power up Start-up Rise Characteristic

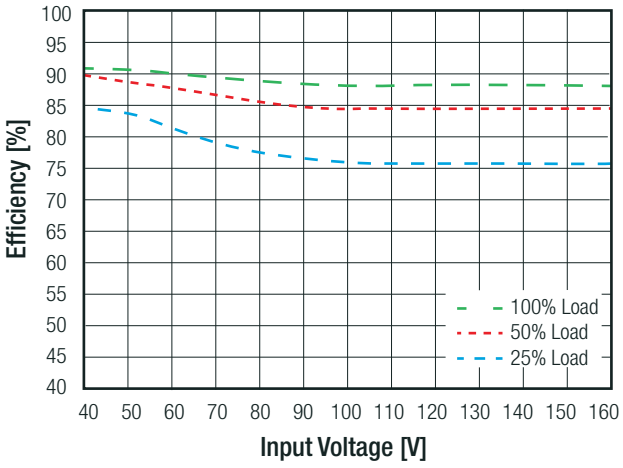



### RP90Q-11005SRW

Efficiency vs. Output Current




Efficiency vs. Input Voltage

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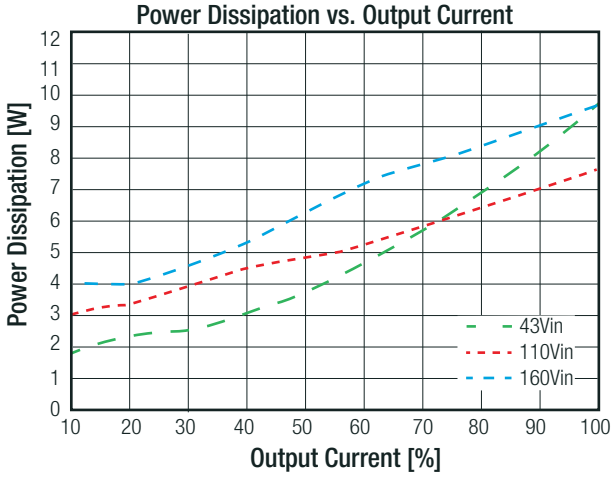
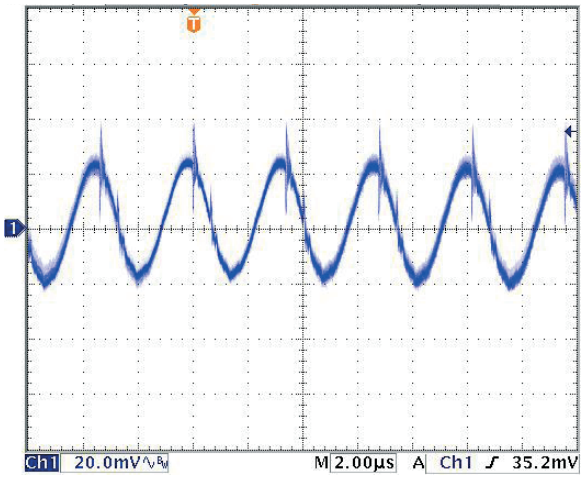
## Specifications (measured @Ta = 25°C, resistive load, nominal Vin and rated Iout unless otherwise noted)

RP90Q-11005SRW

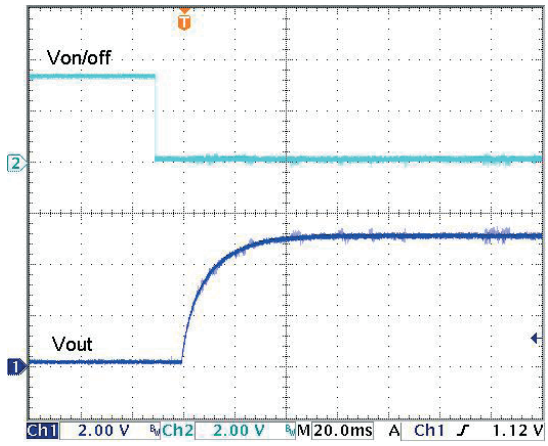
### Power Dissipation vs. Output Current



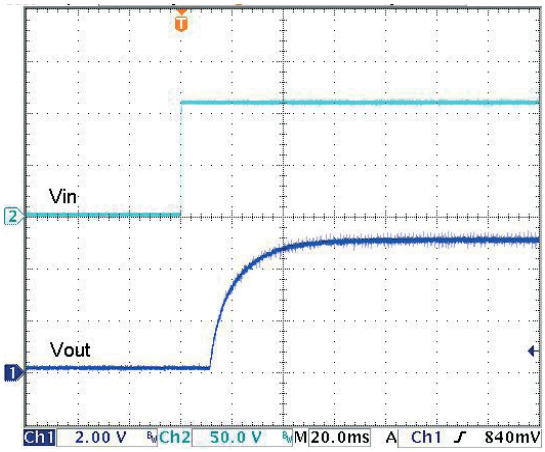

### Typical Output Ripple and Noise/full load




### ON/OFF Control Start up Rise Characteristic




### Power up Start-up Rise Characteristic

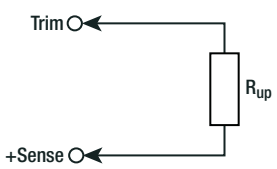



## OUTPUT TRIM

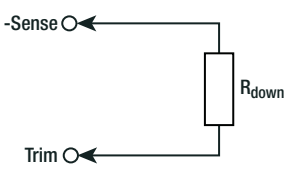
### Output Voltage Trimming

It allows the user to increase or decrease the output voltage of the module. This is accomplished by connecting an external resistor between the Trim pin and either the +Sense or -Sense pins. With an external resistor between the Trim and +Sense pin, the output voltage increases. With an external resistor between the Trim and -Sense pin, the output voltage decreases. The external Trim resistor needs to be at least 1/8W of rated. The values for trim resistors shown in trim tables below are according to standard E96 values; therefore, the specified voltage may slightly vary.

Trim up




Trim down

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## Specifications (measured @Ta = 25°C, resistive load, nominal Vin and rated Iout unless otherwise noted)

### OUTPUT TRIM

| | | |
|---|---|---|
| $Vout_{nom}$ | = nominal output voltage | [VDC] |
| $\Delta Vout$ | = output voltage change | [%] |
| $V_{ref}$ | = reference voltage | [VDC] |
| $R_{up}$ | = trim up resistor | [Ω] |
| $R_{down}$ | = trim down resistor | [Ω] |
| $R_1$ & $R_2$ | = internal resistors | [Ω] |

| $Vout_{nom}$ | $R_1$ | $R_2$ | $R_3$ | $V_{ref}$ |
|---|---|---|---|---|
| 5VDC | 10k2Ω | 511kΩ | 5k11 | 1.225VDC |
| 12VDC | | | | |
| 15VDC | | | | |
| 24VDC | | | | |
| 48VDC | | | | |

**Calculation:**

$$R_{up} = \left[\frac{R_3 \times Vout_{nom} \times (100 + \Delta Vout)}{V_{ref} \times \Delta Vout}\right] - \left[\frac{(R_1 \times \Delta Vout) + R_2}{\Delta Vout}\right]$$

$$R_{down} = \left[\frac{R_2}{\Delta Vout}\right] - R_1$$

**Practical Example RP90Q-xx05SRW +10% / -10%**

$$R_{up} = \left[\frac{5k11 \times 5 \times (100 + 10)}{1.225 \times 10}\right] - \left[\frac{(10k2 \times 10) + 511k}{10}\right] = \mathbf{168k\Omega}$$

$$R_{down} = \left[\frac{511k}{10}\right] - 10k2 = \mathbf{40k9\Omega}$$

$R_{up}$ according to E96 ≈ **169kΩ**

$R_{down}$ according to E96 ≈ **41k2Ω**

**RP90Q-xx05SRW**

| Trim up | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | [%] |
|---|---|---|---|---|---|---|---|---|---|---|---|
| $Vout_{set}$ = | 5.05 | 5.10 | 5.15 | 5.20 | 5.25 | 5.30 | 5.35 | 5.4 | 5.45 | 5.50 | [VDC] |
| $R_{up}$ (E96) ≈ | 1M58 | 806k | 536k | 402k | 324k | 247k | 237k | 205k | 187k | 169k | [Ω] |

**RP90Q-xx12SRW**

| Trim up | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | [%] |
|---|---|---|---|---|---|---|---|---|---|---|---|
| $Vout_{set}$ = | 12.12 | 12.24 | 12.36 | 12.48 | 12.60 | 12.72 | 12.84 | 12.96 | 13.08 | 13.20 | [VDC] |
| $R_{up}$ (E96) ≈ | 4M53 | 2M26 | 1M54 | 1M15 | 931k | 787k | 681k | 604k | 536k | 487k | [Ω] |

**RP90Q-xx15SRW**

| Trim up | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | [%] |
|---|---|---|---|---|---|---|---|---|---|---|---|
| $Vout_{set}$ = | 15.15 | 15.30 | 15.45 | 15.60 | 15.75 | 15.90 | 16.05 | 16.20 | 16.35 | 16.50 | [VDC] |
| $R_{up}$ (E96) ≈ | 5M76 | 2M94 | 1M96 | 1M50 | 1M21 | 1M02 | 866k | 768k | 698k | 619k | [Ω] |

**RP90Q-xx24SRW**

| Trim up | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | [%] |
|---|---|---|---|---|---|---|---|---|---|---|---|
| $Vout_{set}$ = | 24.24 | 24.48 | 24.72 | 24.96 | 25.20 | 25.44 | 25.68 | 25.92 | 26.16 | 26.40 | [VDC] |
| $R_{up}$ (E96) ≈ | 9M53 | 4M87 | 3M24 | 2M94 | 2M00 | 1M69 | 1M47 | 1M27 | 1M15 | 1M05 | [Ω] |

**RP90Q-xx48SRW**

| Trim up | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | [%] |
|---|---|---|---|---|---|---|---|---|---|---|---|
| $Vout_{set}$ = | 48.48 | 48.96 | 49.44 | 49.92 | 50.40 | 50.88 | 51.36 | 51.84 | 52.32 | 52.80 | [VDC] |
| $R_{up}$ (E96) ≈ | 19M6 | 9M945 | 6M65 | 5M11 | 4M12 | 3M48 | 3M01 | 2M61 | 2M37 | 2M15 | [Ω] |

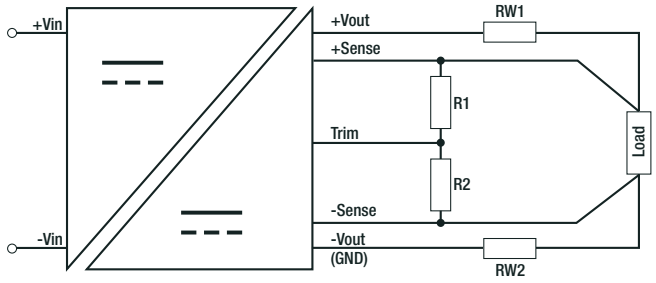
**Trim Down all Vout's**

| Trim down | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | [%] |
|---|---|---|---|---|---|---|---|---|---|---|---|
| $R_{down}$ (E96) ≈ | 499k | 243k | 162k | 118k | 90k9 | 75k | 63k4 | 53k6 | 46k4 | 41k2 | [Ω] |

| Trim down | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | [%] |
|---|---|---|---|---|---|---|---|---|---|---|---|
| $R_{down}$ (E96) ≈ | 36k5 | 32k4 | 28k7 | 26k1 | 23k7 | 21k5 | 19k6 | 18k2 | 16k5 | 15k4 | [Ω] |

## Specifications (measured @Ta = 25°C, resistive load, nominal Vin and rated Iout unless otherwise noted)

### Remote Sense




The output voltage can be adjusted by both trim and remote sense. The maximum combined adjustment range ±10%. Derate the maximum output power if using the trim or sense function.

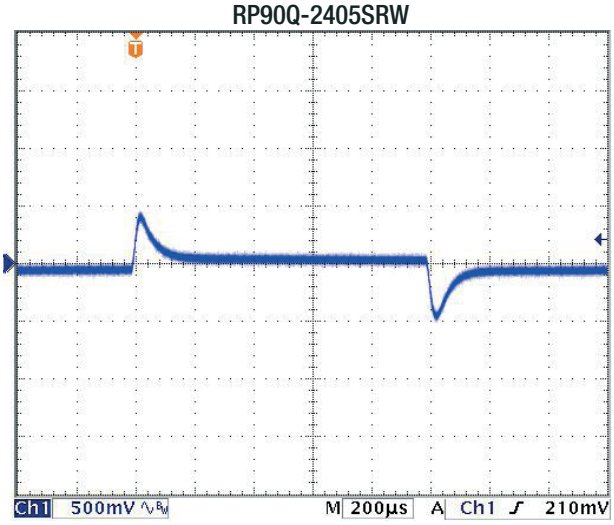
$R_{W1}$ ... wire losses +
$R_{W2}$ ... wire losses -
$R_1$ ... trim up resistor
$R_2$ ... trim down resistor

### REGULATIONS

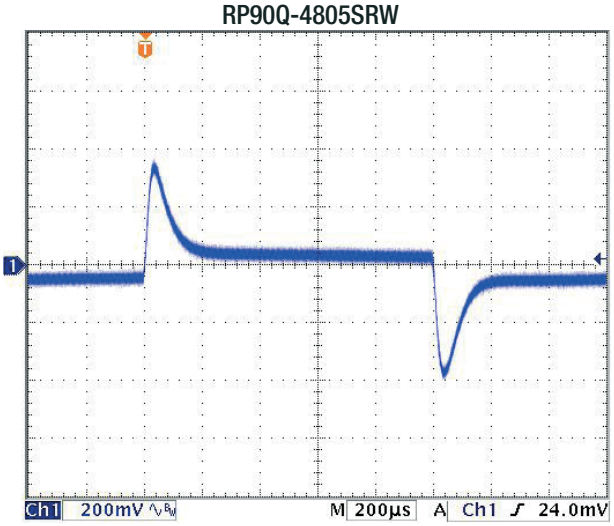
| Parameter | Condition | | Value |
|---|---|---|---|
| Output Accuracy | | | ±1.0% |
| Line Regulation | low line to high line at full load | | ±0.1% |
| Load Regulation | 0% to 100% load | 5Vout<br>others | 0.2%<br>0.1% |
| Transient Response | 25% load step change | | 250µs typ. |

**Transient Response to Dynamic Load Change from 100% to 75% to 100% of Full Load at nom.Vin**

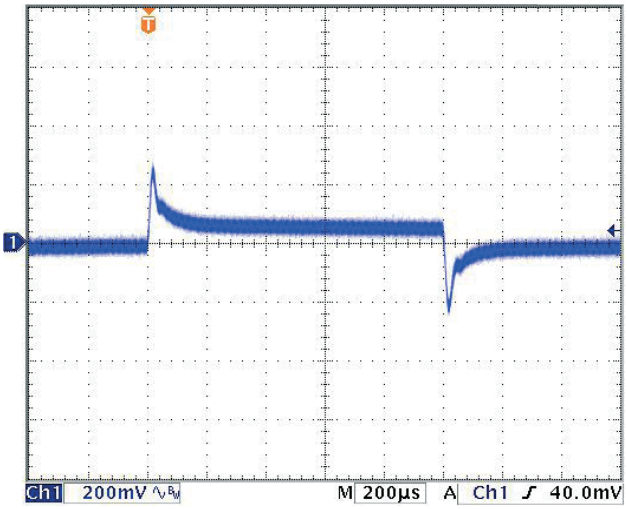
RP90Q-2405SRW




RP90Q-4805SRW




RP90Q-11005SRW



## Specifications (measured @Ta = 25°C, resistive load, nominal Vin and rated Iout unless otherwise noted)

### PROTECTIONS

| Parameter | Condition | | Value |
|---|---|---|---|
| Short Circuit Protection (SCP) | below 100mΩ | | continuous, automatic recovery |
| Over Voltage Protection (OVP) | % of nom. Vout | | 115%-130%, Hiccup Mode |
| Over Load Protection (OLP) | % Iout rated | | 110%-140%, Hiccup Mode |
| Over Temperature Protection (OTP) | | | +110°C |
| Isolation Voltage | 110Vin | I/P to O/P<br>I/P or O/P to Baseplate | 3kVAC/1minute<br>1.5kVAC/1minute |
| | 24Vin, 48Vin | I/P to O/P<br>I/P or O/P to Baseplate | 2.25kVDC/1minute<br>2.25kVDC/1minute |
| Isolation Resistance | 500 VDC | | 1GΩ min. |
| Isolation Capacitance | | | 1500pF max. |
| Isolation Grade | 110Vin<br>24Vin, 48Vin | | reinforced insulation<br>basic insulation |

**Notes:**

Note4: Refer to local wiring regulations if input over-current protection is also required. Recommended fuse: T35A slow blow

### ENVIRONMENTAL

| Parameter | Condition | Value |
|---|---|---|
| Operating Baseplate Temperature Range | | refer to derating graph |
| Maximum Case Temperature | | 100°C |
| Temperature Coefficient | | ±0.02%/°C max. |
| Thermal Impedance | vertical direction by natural convection (0.1m/s) without Heat-sink<br>vertical direction by natural convection (0.1m/s) with Heat-sink | 9°C/W<br>7.5°C/W |
| Operating Humidity | | 5% - 95% RH |
| Pollution Degree | | PD2 |
| Shock | according to EN61373 standard | |
| Thermal Shock | according to MIL-STD-810F standard | |
| Vibration | according to EN61373 standard | |
| Fire protection on railway vehicles | according to EN45545-2, 2013 standard | |
| MTBF | according to MIL-HDBK-217F standard, 25°C | 507.0 x $10^3$ hours |

### Thermal Calculation

$R_{thcase\text{-}ambient}$ = 9°C/W (vertical)
$R_{thcase\text{-}ambientHC}$ = 7.5°C/W (vertical)

$$R_{thcase\text{-}ambient} = \frac{T_{case} - T_{ambient}}{P_{dissipation}}$$

$$P_{dissipation} = P_{IN} - P_{OUT} = \frac{P_{OUTapp}}{\eta} - P_{OUTapp}$$

$T_{case}$ = Case Temperature
$T_{ambient}$ = Environment Temperature
$P_{dissipation}$ = Internal losses
$P_{IN}$ = Input Power
$P_{OUT}$ = Output Power
$\eta$ = Efficiency under given Operating Conditions
$R_{thcase\text{-}ambient}$ = Thermal Impedance

**Practical Example:**

Take the RP90Q-2405SRW with 9V input Voltage and 50% load. What is the maximum ambient operating temperature? Use converter vertical in application without airflow.

$Eff_{min}$ = 89% @ $V_{nom}$

$P_{OUT}$ = 90W

$P_{OUTapp}$ = 90 x 0.5 = 45W

$\eta$ = 91% (Efficiency vs. Load Graph)

$$P_{dissipation} = \frac{45}{0.91} - 45 = 4.45W$$

**without Heat-sink**

$$R_{th} = \frac{T_{casemax} - T_{amb}}{P_{dissipation}} \text{ --> } 9°C/W = \frac{100\text{-}T_{amb}}{4.45W}$$

$T_{amb}$ = **60°C**

**with Heat-sink**

$$R_{thHC} = \frac{T_{casemax} - T_{amb}}{P_{dissipation}} \text{ --> } 7.5°C/W = \frac{100\text{-}T_{amb}}{4.45W}$$

$T_{ambHC}$ = **66°C**

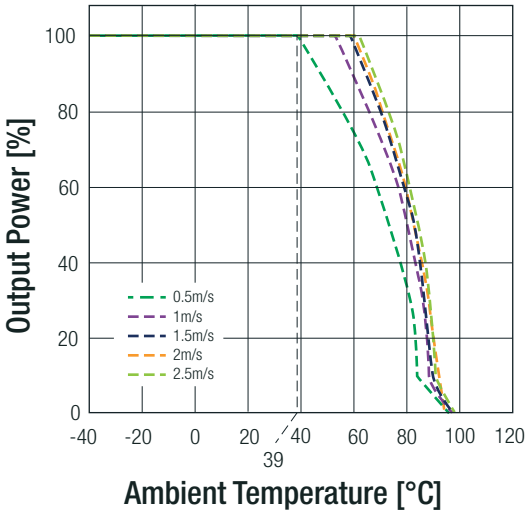
**continued on next page**

## Specifications (measured @Ta = 25°C, resistive load, nominal Vin and rated Iout unless otherwise noted)

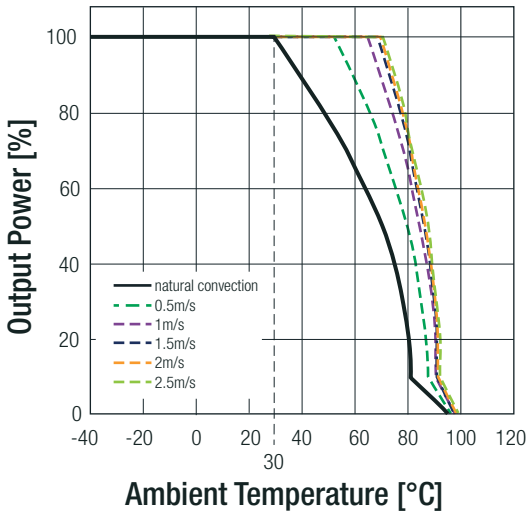
### Derating Graph[5]

(@ Chamber - tested with forced convection)

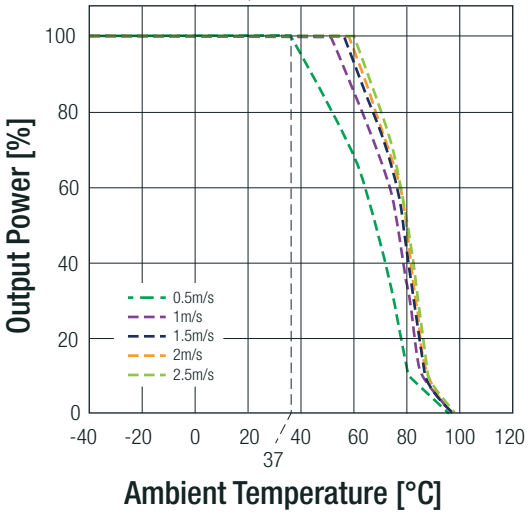
RP90Q-2405SRW



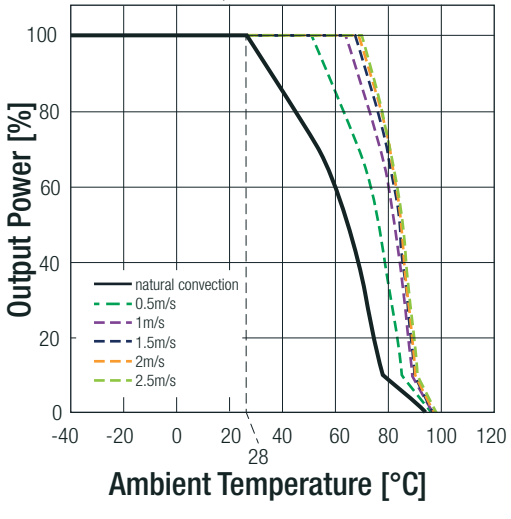

RP90Q-2405SRW-HC



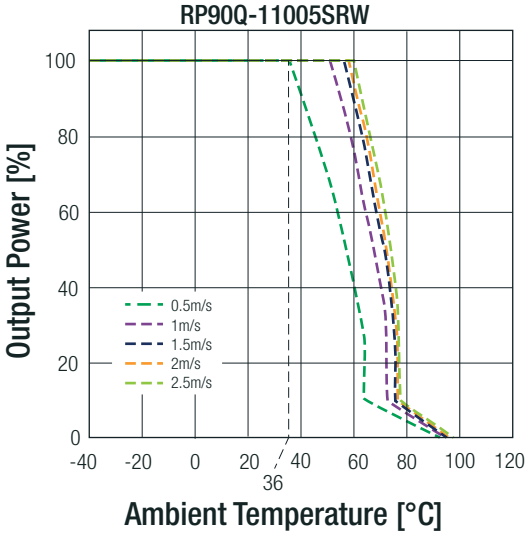

RP90Q-4805SRW



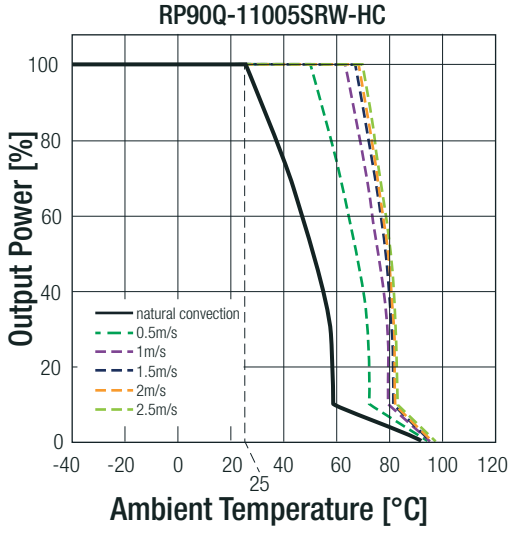

RP90Q-4805SRW-HC




RP90Q-11005SRW




RP90Q-11005SRW-HC




**Notes:**

Note5: 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 support service at techsupportAT@recom-power.com

## Specifications (measured @Ta = 25°C, resistive load, nominal Vin and rated Iout unless otherwise noted)

| SAFETY AND CERTIFICATIONS | | |
|---|---|---|
| **Certificate Type (Safety)** | **Report / File Number** | **Standard** |
| IEC/EN Information Technology Equipment - General Requirments for Safety | TW1608086-001 | IEC60950-1, 2nd Edition, 2005<br>EN60950-1, 2nd Edition, 2006 |
| Railway Applications - Electrical Equipment used on rolling stock | TW1608078-001 | EN50155, 2007 |
| EAC | RU-AT.49.09571 | TP TC 004/2011 |
| RoHS 2+ | | RoHS 2011/65/EU |

| **EMI Compliance** | **Condition** | **Standard / Criterion** |
|---|---|---|
| Information technology equipment - Radio disturbance characteristics - Limits and methods of measurement | with external filter | EN55022, Class A and Class B |
| Industrial, scientific and medical equipment - Radio frequency disturbance characteristics - Limits and methods of measurement | | EN55011, Class A and Class B |
| ESD Electrostatic discharge immunity test | Air ±8kV and Contact ±6kV | EN61000-4-2, Criteria A |
| Radiated, radio-frequency, electromagnetic field immunity test | 20 V/m | EN61000-4-3, Criteria A |
| Fast Transient and Burst Immunity(6) | ±2kV | EN61000-4-4, Criteria A |
| Surge Immunity(6) | EN55024 & EN50155 ±2kV | EN61000-4-5, Criteria A |
| Immunity to conducted disturbances, induced by radio-frequency fields | 10 Vr.m.s | EN61000-4-6, Criteria A |
| Power Magnetic Field Immunity | 100A/m continuous; 1000A/m 1s | EN61000-4-8, Criteria A |

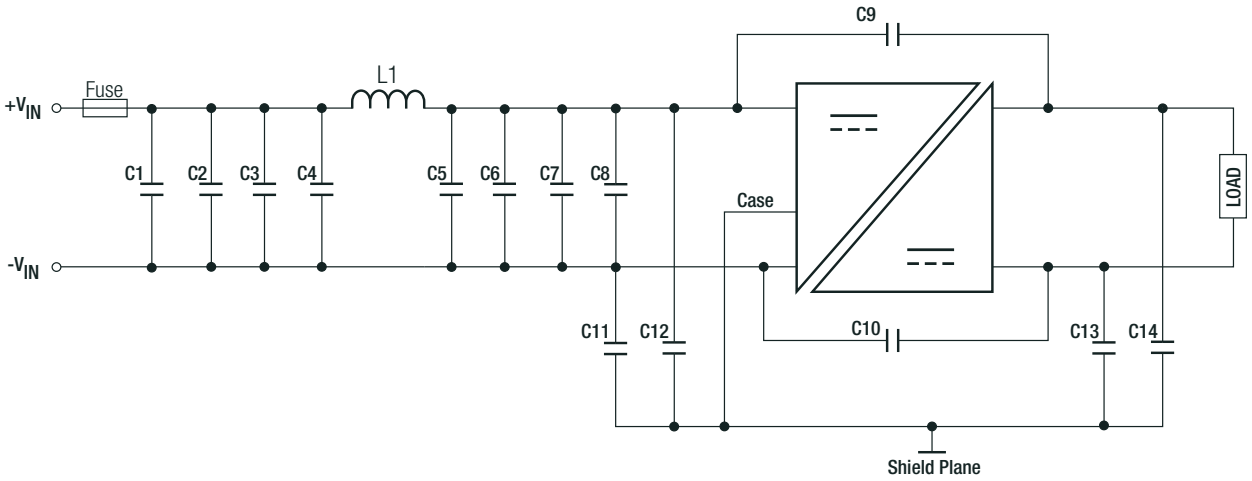
**Notes:**

Note6: An external input filter capacitor is required if the module has to meet EN61000-4-4 and EN61000-4-5.

The **24Vin** and **48Vin** version recommend 2pcs of aluminium elecrolytic capacitor to connect in parallel.
Recom suggest: Nippon Chemi-con KY series, 220µF/100V.

The **110Vin** version recommend 2pcs of aluminium electrolytic capacitor to connect in parallel.
Recom suggest: Nippon Chemi-con KXJ series, 150µF/200V

### EMI Filtering according to EN55022/11 Class A and EN50121-1 (24Vin and 48Vin)




| MODEL | C1 | C2, C3, C4 | C5 | C6, C7, C8 | C9 to C14 | L1 |
|---|---|---|---|---|---|---|
| RP90Q-24xxSRW | N/A | 6.8µF, 50V 1812 MLCC | N/A | 6.8µF, 50V 1812 MLCC | 1000pF, 3kV 1808 MLCC | 0.68µH, 17A SMD Inductor |
| RP90Q-48xxSRW | 4.7µF, 100V 1812 MLCC | 4.7µF, 100V 1812 MLCC | 4.7µF, 100V 1812 MLCC | 4.7µF, 100V 1812 MLCC | 1000pF, 3kV 1808 MLCC | 3.3µH, 10A SMD Inductor |

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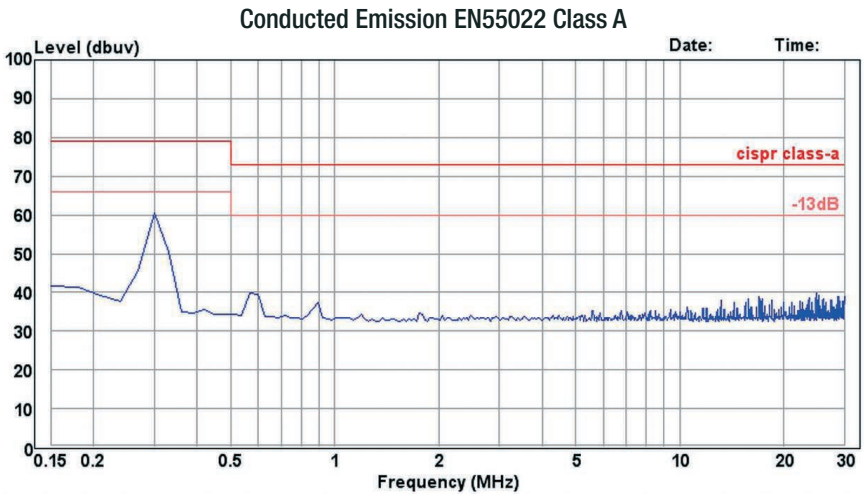
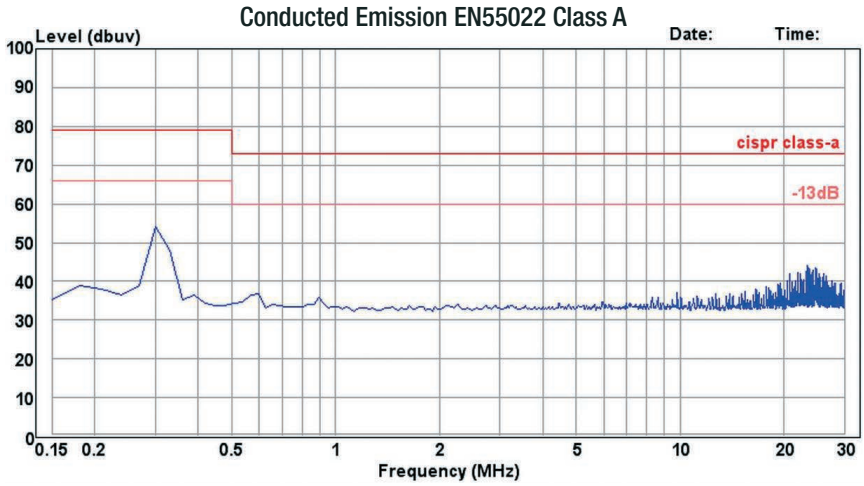
## Specifications (measured @Ta = 25°C, resistive load, nominal Vin and rated Iout unless otherwise noted)

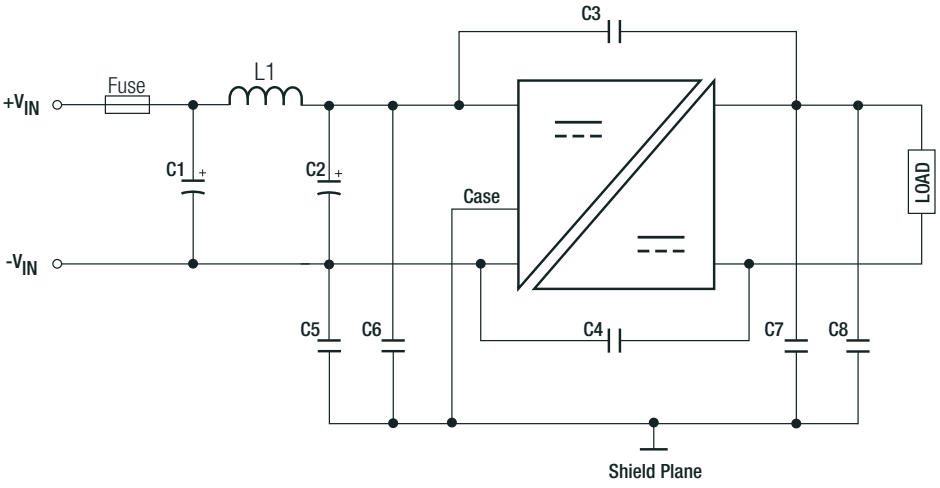
RP90Q-2405SRW




RP90Q-4805SRW




EMI Filtering according to EN55022/11 Class A and EN50121-1 (110Vin)




| MODEL | C1, C2 | C3 to C8 | L1 |
|---|---|---|---|
| RP90Q-110xxSRW | 39µF, 250V<br>Al cap. (lie down) Rubycon BXF | 1000pF, 3kV<br>1808 MLCC | 30.1µH, 5A<br>SMD Inductor |

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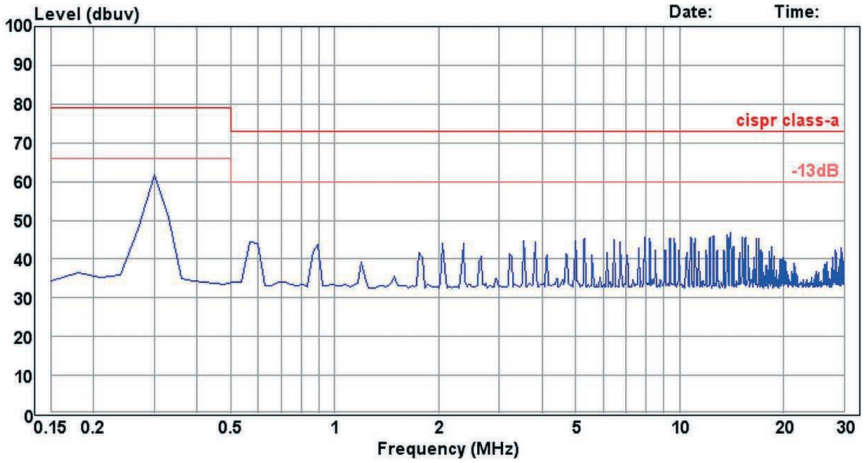
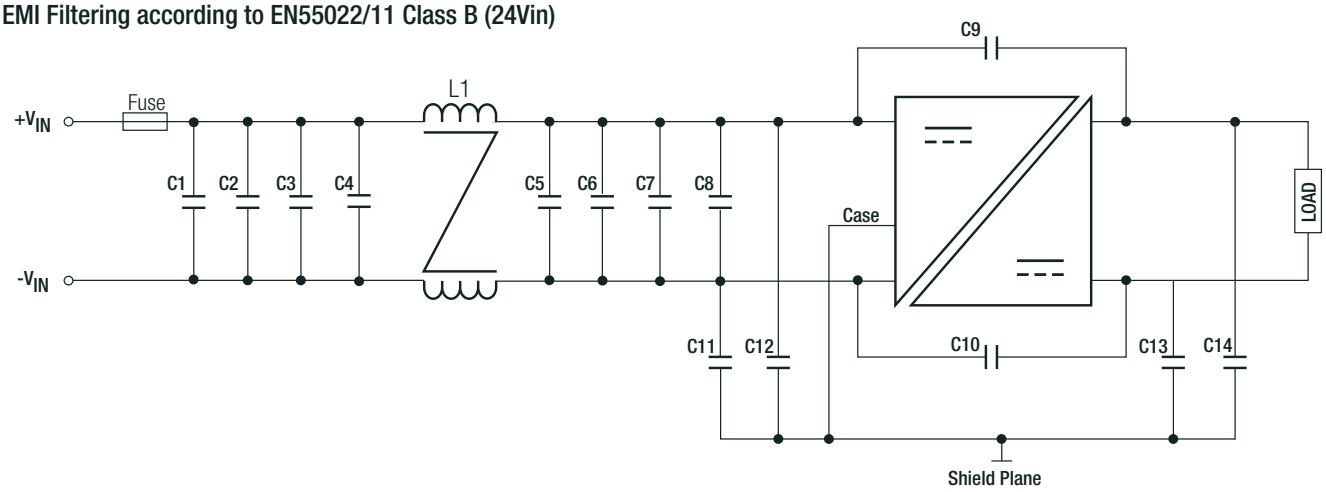
## Specifications (measured @Ta = 25°C, resistive load, nominal Vin and rated Iout unless otherwise noted)

RP90Q-11005SRW

Conducted Emission EN55022 Class A



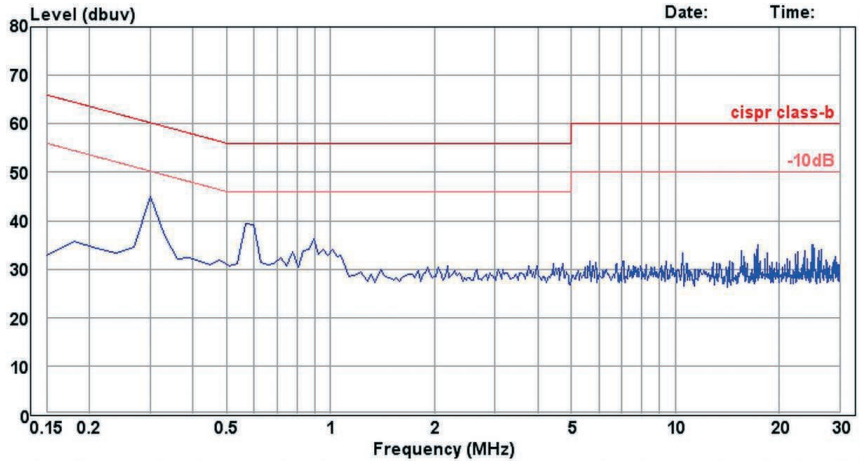

EMI Filtering according to EN55022/11 Class B (24Vin)




| MODEL | C1 to C8 | C9, C10, C13, C14 | C11, C12 | L1 |
|---|---|---|---|---|
| RP90Q-24xxSRW | 10µF, 50V<br>1812 MLCC | 1000pF, 3kV<br>1808 MLCC | 2200pF, 3kV<br>1812 MLCC | 285µH<br>CMC |

RP90Q-2405SRW

Conducted Emission EN55022 Class B

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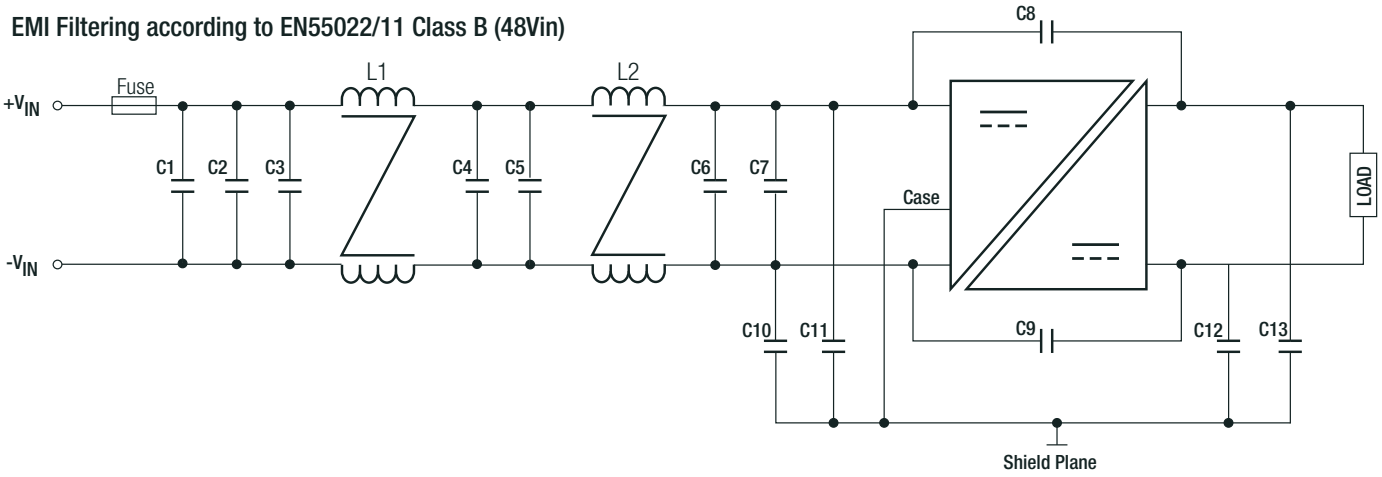
## Specifications (measured @Ta = 25°C, resistive load, nominal Vin and rated Iout unless otherwise noted)

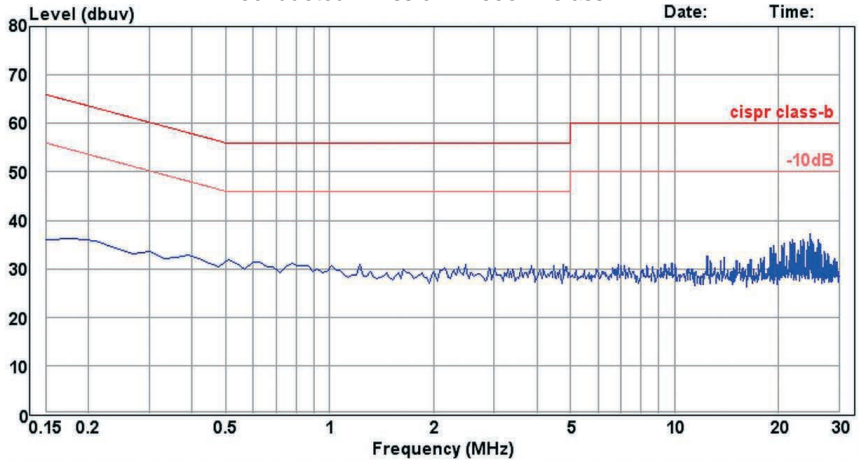
### EMI Filtering according to EN55022/11 Class B (48Vin)



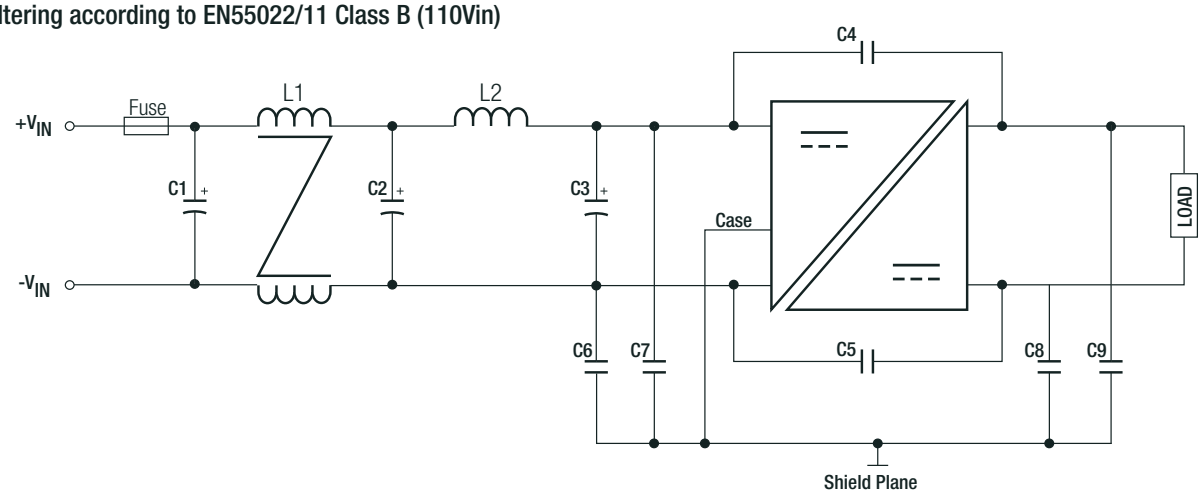

| MODEL | C1 to C7 | C8 to C13 | L1 | L2 |
|---|---|---|---|---|
| RP90Q-48xxSRW | 4.7µF, 100V<br>1812 MLCC | 1000pF, 3kV<br>1808 MLCC | 620µH<br>CMC | 285µH<br>CMC |

### RP90Q-4805SRW

Conducted Emission EN55022 Class B




### EMI Filtering according to EN55022/11 Class B (110Vin)




| MODEL | C1, C2, C3 | C4 to C9 | L1 | L2 |
|---|---|---|---|---|
| RP90Q-110xxSRW | 39µF, 250V<br>Al cap. (lie down) Rubycon BXF | 1000pF, 3kV<br>1808 MLCC | 735µH<br>CMC | 30.1µH, 5A<br>SMD Inductor |

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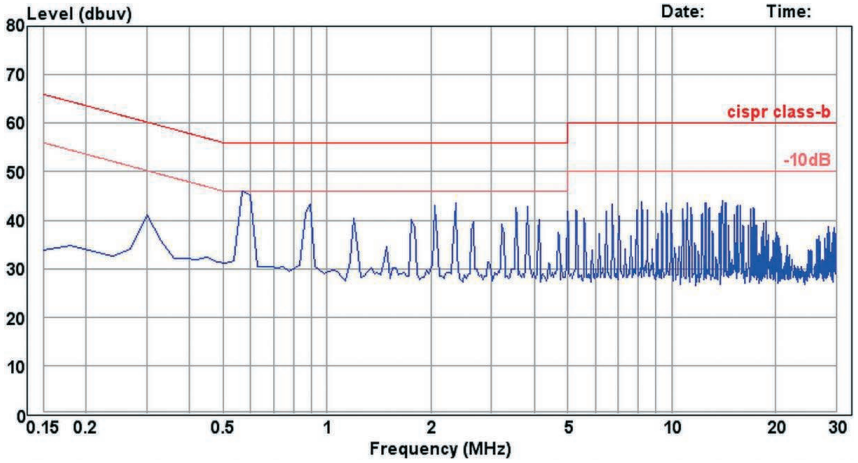
## Specifications (measured @Ta = 25°C, resistive load, nominal Vin and rated Iout unless otherwise noted)

RP90Q-110xxSRW

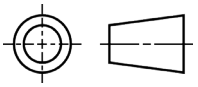
Conducted Emission EN55022 Class B

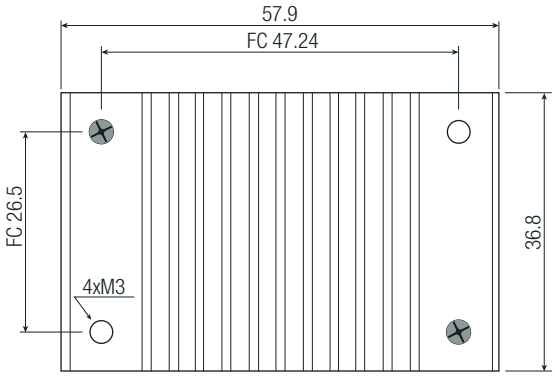



## DIMENSIONS and PHYSICAL CHARACTERISTICS

| Parameter | Type | Value |
|---|---|---|
| Material | Case | Plastic |
| | Baseplate | Aluminium |
| | Potting | Silicone (UL94 V-0) |
| Packaging Dimension (LxWxH) | without Heat-sink | 57.9 x 36.6 x 12.7mm |
| | with Heat-sink | 57.9 x 36.6 x 18.8mm |
| Packaging Weight | without Heat-sink | 64g |
| | with Heat-sink | 88g |

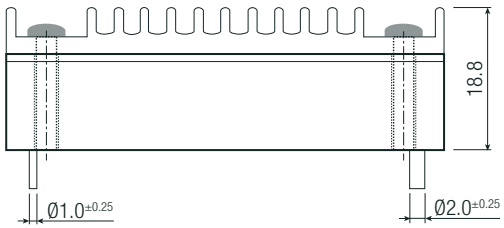
### Dimension Drawing (mm)
### Heat-sink

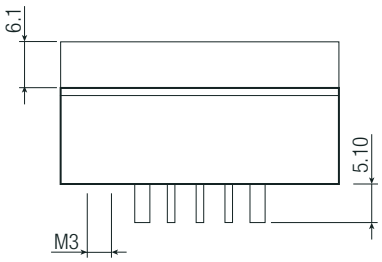





**Notes:**

Note7: Max. tightening torque for Heat-sink: 0.34Nm

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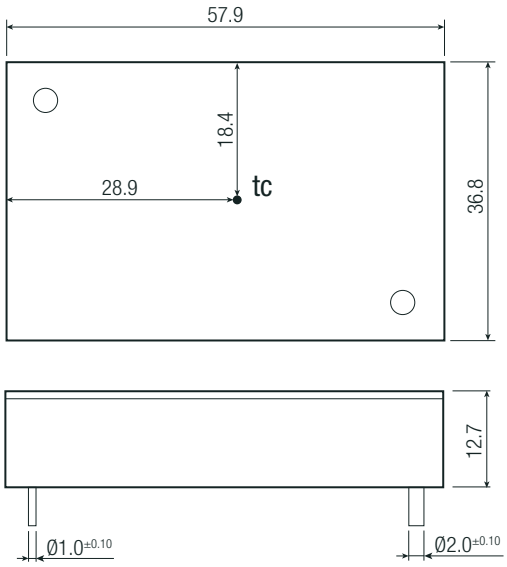
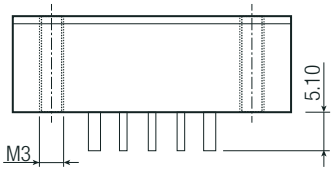
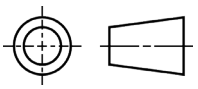
## Specifications (measured @Ta = 25°C, resistive load, nominal Vin and rated Iout unless otherwise noted)

### Dimension Drawing (mm)



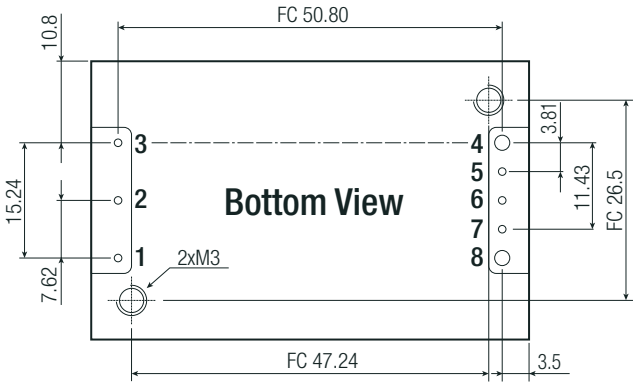



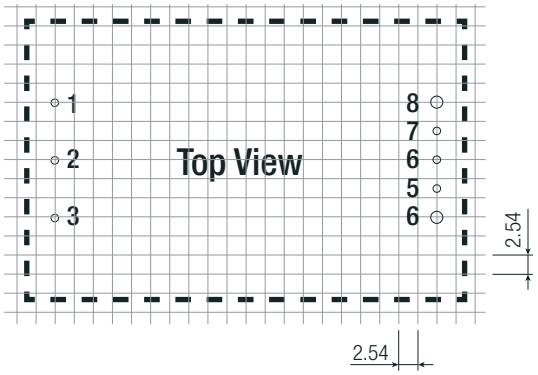



### Pin Connections

| Pin # | Single |
|---|---|
| 1 | +Vin |
| 2 | CTRL |
| 3 | -Vin |
| 4 | -Vout |
| 5 | -Sense |
| 6 | Trim |
| 7 | +Sense |
| 8 | +Vout |

FC= Fixing Centers for Heat-sink
Pin Pitch Tolerance ±0.25mm
Pin Dimension Tolerance ±0.1mm
XX.X ± 0.5mm
XX.XX ± 0.25mm




## PACKAGING INFORMATION

| Parameter | Type | | Value |
|---|---|---|---|
| Packaging Dimension | tray | without Heat-sink<br>with Heat-sink | 157.0 x 88.0 x 12.8mm<br>157.0 x 88.0 x 24.8mm |
| Packaging Quantity | | | 2pcs |
| Storage Temperature Range | | | -55°C to +125°C |
| Storage Humidity | | | 5% - 95% RH |

The product information and specifications may be subject to changes even without prior written notice.The product has been designed for various applications; its suitability lies in the responsibility of each customer. The products are not authorized for use in safety-critical applications without RECOM's explicit written consent. A safety-critical application is an application where a failure may reasonably be expected to endanger or cause loss of life, inflict bodily harm or damage property. The applicant shall indemnify and hold harmless RECOM, its affiliated companies and its representatives against any damage claims in connection with the unauthorized use of RECOM products in such safety-critical applications.

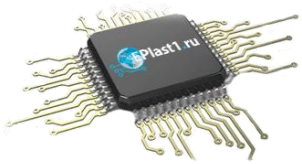
Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits,General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.




**Как с нами связаться**

**Телефон:** 8 (812) 309 58 32 (многоканальный)
**Факс:** 8 (812) 320-02-42
**Электронная почта:** org@eplast1.ru
**Адрес:** 198099, г. Санкт-Петербург, ул. Калинина, дом 2, корпус 4, литера А.