

Features

- 2:1 Wide Input Voltage Range
- 40 Watts Output Power
- 1.6kVDC Isolation
- Fixed Operating Frequency
- Six-Sided Continuous Shield
- Design Meet Safety Standard
- Standard 76.2 x66.0x10.2mm Package
- Efficiency to 90%

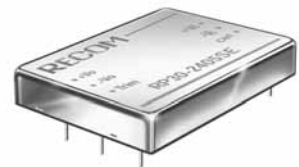
POWERLINE
DC/DC-Converter

RP40- S_D_TE Series

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

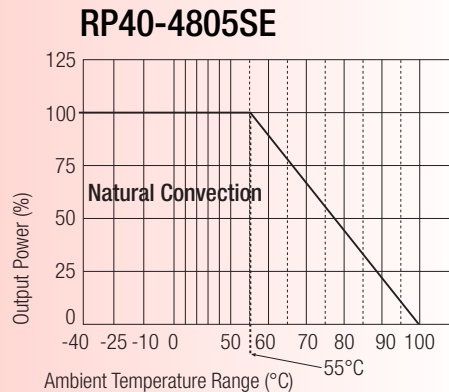
| Part Number | Input | Output | Output | Input ⁽⁴⁾ | Efficiency ⁽⁵⁾ | Capacitive ⁽⁶⁾ |
|----------------|-------|---------|---------------|----------------------|---------------------------|---------------------------|
| | Range | Voltage | Current | Current | % | Load max. |
| | VDC | VDC | mA | mA | | µF |
| RP40-123.3SE | 9-18 | 3.3 | 10000 | 3530 | 85 | 25800 |
| RP40-1205SE | 9-18 | 5 | 8000 | 4170 | 87 | 13600 |
| RP40-1212SE | 9-18 | 12 | 3400 | 4100 | 88 | 2400 |
| RP40-1215SE | 9-18 | 15 | 2700 | 4100 | 88 | 1550 |
| RP40-243.3SE | 18-36 | 3.3 | 10000 | 1720 | 84 | 25800 |
| RP40-2405SE | 18-36 | 5 | 8000 | 2010 | 87 | 13600 |
| RP40-2412SE | 18-36 | 12 | 3400 | 1980 | 90 | 2400 |
| RP40-2415SE | 18-36 | 15 | 2700 | 2000 | 88 | 1550 |
| RP40-483.3SE | 36-75 | 3.3 | 10000 | 850 | 85 | 25800 |
| RP40-4805SE | 36-75 | 5 | 8000 | 980 | 89 | 13600 |
| RP40-4812SE | 36-75 | 12 | 3400 | 1000 | 89 | 2400 |
| RP40-4815SE | 36-75 | 15 | 2700 | 1000 | 88 | 1550 |
| RP40-1205DE | 9-18 | ±5 | +7000 / -1000 | 4330 | 81 | 12000 / 1700 |
| RP40-1212DE | 9-18 | ±12 | ±1800 | 4550 | 83 | ±1200 |
| RP40-1215DE | 9-18 | ±15 | ±1400 | 4430 | 83 | ±750 |
| RP40-2405DE | 18-36 | ±5 | +7000 / -1000 | 2130 | 82 | 12000 / 1700 |
| RP40-2412DE | 18-36 | ±12 | ±1800 | 2170 | 87 | ±1200 |
| RP40-2415DE | 18-36 | ±15 | ±1400 | 2140 | 86 | ±750 |
| RP40-4805DE | 36-75 | ±5 | +7000 / -1000 | 1060 | 84 | 12000 / 1700 |
| RP40-4812DE | 36-75 | ±12 | ±1800 | 1100 | 86 | ±1200 |
| RP40-4815DE | 36-75 | ±15 | ±1400 | 1100 | 86 | ±750 |
| RP40-123.305DE | 9-18 | 3.3 / 5 | 4000 / 4000 | 3730 | 78 | 10300 / 6800 |
| RP40-243.305DE | 18-36 | 3.3 / 5 | 4000 / 4000 | 1840 | 79 | 10300 / 6800 |
| RP40-483.305DE | 36-75 | 3.3 / 5 | 4000 / 4000 | 910 | 80 | 10300 / 6800 |
| RP40-120512TE | 9-18 | 5 / ±12 | 4000 / ±850 | 4490 | 79 | 6800 / ±590 |
| RP40-120515TE | 9-18 | 5 / ±15 | 4000 / ±680 | 4430 | 80 | 6800 / ±380 |
| RP40-240512TE | 18-36 | 5 / ±12 | 4000 / ±850 | 2180 | 81 | 6800 / ±590 |
| RP40-240515TE | 18-36 | 5 / ±15 | 4000 / ±680 | 2160 | 82 | 6800 / ±380 |
| RP40-480512TE | 36-75 | 5 / ±12 | 4000 / ±850 | 1060 | 83 | 6800 / ±590 |
| RP40-480515TE | 36-75 | 5 / ±15 | 4000 / ±680 | 1060 | 83 | 6800 / ±380 |

**40 Watt
Single, Dual,
Positive Dual &
Triple Output**



RECOM

Derating-Graph (Ambient Temperature)

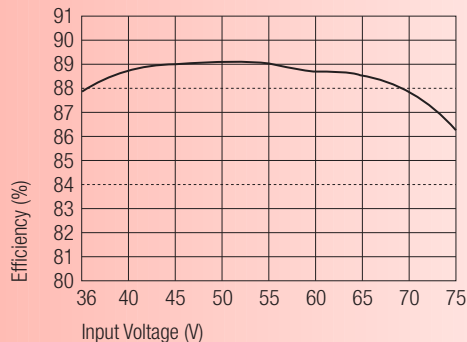


Derating graphs are valid only for the shown part numbers. If you need detailed derating-information about a part-number not shown here please contact our technical customer service at info@recom-development.at

Typical Characteristics

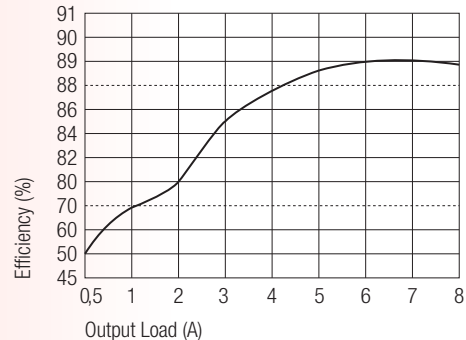
RP40-4805SE

Efficiency VS Input Voltage



RP40-4805SE

Efficiency VS Output Load



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

| | | |
|--|-------------------|-------------------------|
| Input Voltage Range | 12V nominal input | 9-18VDC |
| | 24V nominal input | 18-36VDC |
| | 48V nominal input | 36-75VDC |
| Input Filter | | Pi Type |
| Input Surge Voltage (100 ms max.) | 12V Input | 36VDC |
| | 24V Input | 50VDC |
| | 48V Input | 100VDC |
| Input Reflected Ripple (nominal Vin and full load) | | 40mAp-p |
| Start Up Time (nominal Vin and constant resistor load) | | 25ms typ. |
| Remote ON/OFF (see note 7) | DC-DC ON | Open or 3.5V < Vr < 12V |
| | DC-DC OFF | Short or 0V < Vr < 1.2V |
| Remote OFF input current | Nominal input | 30mA |
| Output Power | | 40W max. |
| Output Voltage Accuracy (full Load and nominal Vin) | Single & Dual | ±2% |
| | Triple 3.3V, 5V | ±2% |
| | Auxiliary | ±5% |

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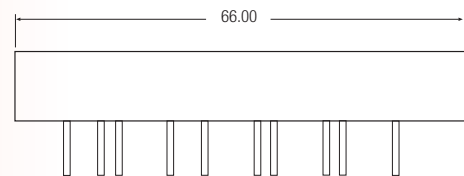
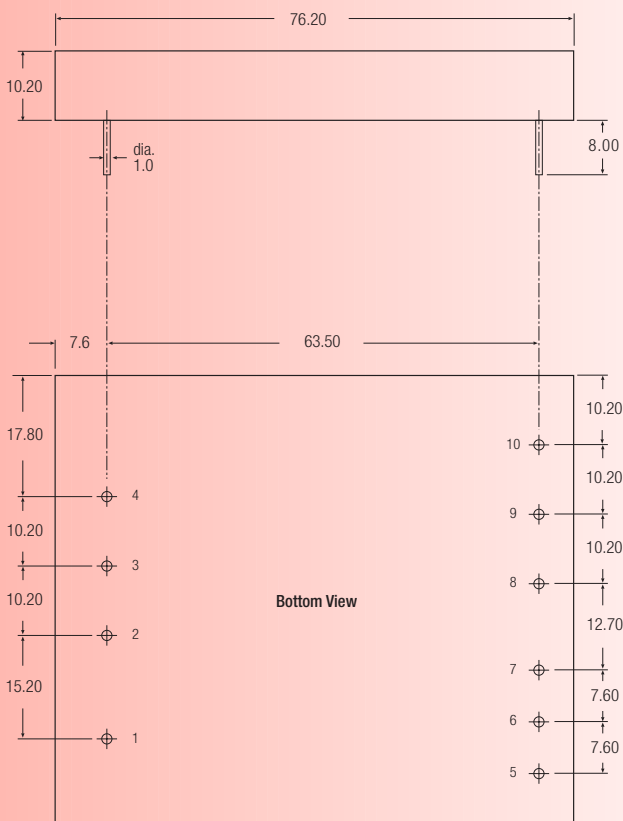
Specifications (typical at nominal input and 25°C unless otherwise noted)

| | | |
|---|--------------------|---------------------------------------|
| Voltage Adjustability | | ±10% |
| Minimum Load | RP40-xx3.305DE | 20% min. |
| | others | 10% of FL |
| Line Regulation (LL-HL at full load) | Single | ±0.5% |
| | Dual | ±1% |
| | Triple 3.3V, 5V | ±2% |
| | Auxiliary | ±5% |
| Load Regulation (25% to 100% FL) | Single | ±0.5% |
| | Dual | ±1% |
| | Triple 3.3V, 5V | ±2% |
| | Auxiliary | ±5% |
| Cross Regulation (Note 8) | Dual | ±1% |
| | Triple 3.3V, 5V | ±1% |
| | Auxiliary | ±5% |
| Ripple and Noise (20MHz bandwidth) | | 1%/p-p of Vout max. |
| Temperature Coefficient | | ±0.02%/°C, max. |
| Transient Response (25% load step change) | | 500µS |
| Over Voltage Protection | 3.3V | 3.9V |
| Zener diode clamp (only single) | 5V | 6.2V |
| | 12V | 15V |
| | 15V | 18V |
| | | |
| Short Circuit Protection | | Hiccup, automatic recovery |
| Efficiency | | see „Selection Guide“ table |
| Isolation Voltage | | 1.600VDC min. |
| Isolation Resistance | | 10 ⁹ Ω min. |
| Isolation Capacitance | | 500pF max. |
| Operating Frequency | | 185kHz typ. |
| Operating Temperature Range | | -40°C to +85°C(with derating) |
| Maximum Case Temperature | | +100°C |
| Storage Temperature Range | | -55°C to +105°C |
| Thermal Impedance | Natural convection | 7.3°C/Watt |
| Thermal Shock | | MIL-STD-810D |
| Vibration | | 10-55Hz, 2G, 30 Min. along X, Y and Z |
| Relative Humidity | | 5% to 95% RH |
| Case Material | | Nickel-Coated copper |
| Base Material | | Non-conductive black plastic FR4 |
| Potting Material | | Epoxy (UL94-V0) |
| Conducted Emissions | EN55022 | Level A |
| Radiated Emissions | EN55022 | Level A |
| ESD | EN61000-4-2 | Perf. Criteria 2 |
| Radiated Immunity | EN61000-4-3 | Perf. Criteria 2 |
| Fast Transient | EN61000-4-4 | Perf. Criteria 2 |
| Surge | EN61000-4-5 | Perf. Criteria 2 |
| Conducted Immunity | EN61000-4-6 | Perf. Criteria 2 |
| Weight | | 48g |
| Dimensions | | 76.2 x 66.0 x 10.2mm |
| MTBF (see note 2) | | 1.315 x 10 ⁶ Hours |

Notes :

1. The RP40 series required a minimum 10% loading on the output to maintain specified regulation. Operation under no-load condition will not damage these devices, however they may not meet all listed specification.
2. BELLCORE TR-NWT-000332. Case I: 50% Stress, Temperature at 40°C (Ground fixed and controlled environment).
3. Simulated source impedance of 12uH. 12uH inductor in series with +Vin.
4. Maximum value at nominal input voltage and full load of standard type.
5. Typical value at nominal input voltage and full load.
6. Test by minimum Vin and constant resistor load.
7. The ON/OFF control pin voltage is referenced to negative input
8. Cross regulation:
Dual output—Asymmetrical load 25% to 100% full load
Triple output – 3.3V / 5V 100% load and one of auxiliary 100% load, other auxiliary load change from 25% to 100% load
9. See application notes for EMI-filtering.

Package Style and Pinning (mm)



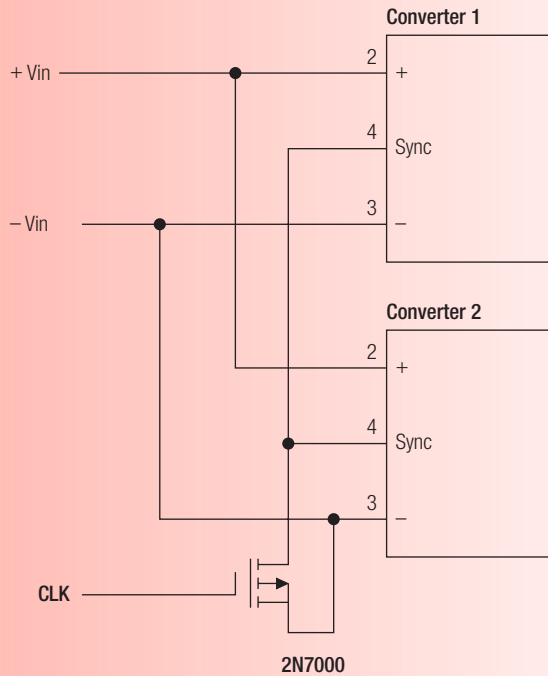
Pin Connections

| Pin # | Single | DUAL | Triple | 3.3V / 5V |
|-------|-----------|-------|----------------|-----------|
| 1 | CTRL | CTRL | CTRL | CTRL |
| 2 | +Vin | +Vin | +Vin | +Vin |
| 3 | -Vin | -Vin | -Vin | -Vin |
| 4 | SYNC | SYNC | SYNC | SYNC |
| 5 | Trim Down | +Vout | +Aux | 3.3V |
| 6 | Trim | Com | Com (Aux) | Com |
| 7 | Trim Up | -Vout | -Aux | +5V |
| 8 | +Vout | Trim | +Vout(Primary) | Trim |
| 9 | -Vout | NC | Com(Primary) | NC |
| 10 | No Pin | NC | Trim | NC |

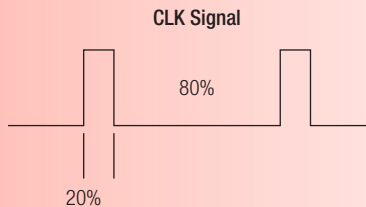
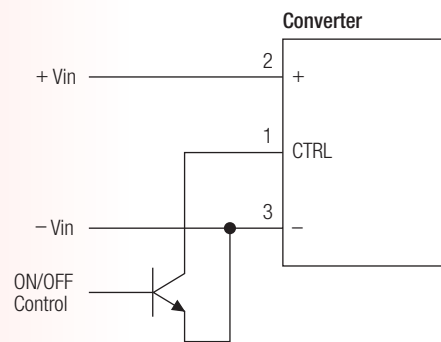
NC = No Connection

Pin Pitch Tolerance ± 0.35 mm

Application of Synchronization



1. The unit is capable of external synchronization from an independent time base with a switching rate between 200kHz and 215 kHz.
2. The amplitude of the synchronizing pulse train is TTL compatible.
3. The duty cycle of the CLK should be 20% high and 80% low.
4. Synchronization is referenced to negative input (-Vin).



External Output Trimming

Output can be externally trimmed by using the method shown below.

- () for dual output trim
- [] for triple output trim
- { } for RP40-xx3.305DE only trim 3.3V / 5V

