

Features

- DIP16, Mini DIP16 or SMD package style
- 1kVDC, 2kVDC or 3kVDC isolation
- Continuous short circuit protected
- Low ripple and noise
- IEC/EN60950-1 certified
- Efficiency up to 83%

Regulated Converters

RW2

2 Watt MINI DIP16, DIP16 or SMD Single & Dual Output



IEC/EN60950-1 certified

Description

High power-density, 2:1 input voltage range and a wide temperature range of -40°C to +85°C are just some of the characteristics of this versatile DIP16 converter, ideal for highly sophisticated industrial designs where a regulated converter is required but space is at a premium. Three different case styles and isolation options are available.

Selection Guide

| Part Number | Input Voltage Range [VDC] | Output Voltage [VDC] | Output Current [mA] | Efficiency typ. ⁽¹⁾ [%] | max. Capacitive Load ⁽²⁾ [µF] |
|-------------|---------------------------|----------------------|---------------------|------------------------------------|--|
| RW2-053.3S | 4.5-9 | 3.3 | 500 | 68 | 4700 |
| RW2-0505S | 4.5-9 | 5 | 400 | 73 | 1000 |
| RW2-0512S | 4.5-9 | 12 | 166 | 75 | 1000 |
| RW2-0515S | 4.5-9 | 15 | 134 | 75 | 1000 |
| RW2-123.3S | 9-18 | 3.3 | 500 | 69 | 4700 |
| RW2-1205S | 9-18 | 5 | 400 | 75 | 1000 |
| RW2-1212S | 9-18 | 12 | 166 | 80 | 1000 |
| RW2-1215S | 9-18 | 15 | 134 | 80 | 1000 |
| RW2-243.3S | 18-36 | 3.3 | 500 | 70 | 4700 |
| RW2-2405S | 18-36 | 5 | 400 | 78 | 1000 |
| RW2-2412S | 18-36 | 12 | 166 | 83 | 1000 |
| RW2-2415S | 18-36 | 15 | 134 | 83 | 1000 |
| RW2-483.3S | 36-72 | 3.3 | 500 | 73 | 4700 |
| RW2-4805S | 36-72 | 5 | 400 | 76 | 1000 |
| RW2-4812S | 36-72 | 12 | 166 | 81 | 1000 |
| RW2-4815S | 36-72 | 15 | 134 | 81 | 1000 |
| RW2-0505D | 4.5-9 | ±5 | ±200 | 73 | ±680 |
| RW2-0509D | 4.5-9 | ±9 | ±111 | 74 | ±680 |
| RW2-0512D | 4.5-9 | ±12 | ±83 | 75 | ±680 |
| RW2-0515D | 4.5-9 | ±15 | ±67 | 75 | ±680 |
| RW2-1205D | 9-18 | ±5 | ±200 | 75 | ±680 |
| RW2-1209D | 9-18 | ±9 | ±111 | 78 | ±680 |
| RW2-1212D | 9-18 | ±12 | ±83 | 80 | ±680 |
| RW2-1215D | 9-18 | ±15 | ±67 | 80 | ±680 |
| RW2-2405D | 18-36 | ±5 | ±200 | 78 | ±680 |
| RW2-2409D | 18-36 | ±9 | ±111 | 81 | ±680 |
| RW2-2412D | 18-36 | ±12 | ±83 | 83 | ±680 |
| RW2-2415D | 18-36 | ±15 | ±67 | 83 | ±680 |
| RW2-4805D | 36-72 | ±5 | ±200 | 78 | ±680 |
| RW2-4809D | 36-72 | ±9 | ±111 | 81 | ±680 |
| RW2-4812D | 36-72 | ±12 | ±83 | 83 | ±680 |
| RW2-4815D | 36-72 | ±15 | ±67 | 83 | ±680 |

Notes:

Note1: Efficiency is tested at nominal input and full load at +25°C ambient

Note2: Maximum capacitive load is defined as the capacitive load that will allow start up in under 1 second without damage on the converter

Model Numbering



Notes:

Note3: „/H2“ = 2kVDC isolation; „/H3“ = 3kVDC isolation; without suffix standard 1kVDC isolation
 Note4: add suffix „/SMD“ for SMD package or „/B“ for Mini DIP16 THT package;
 without suffix = standard DIP16 package (refer to “DIP16”)

Ordering Examples:

| | | | | | |
|-------------------|----------|---------|--------|-----------------|--------------------|
| RW2-2405S/B: | 18-36Vin | 5Vout | Single | 1kVDC Isolation | Mini DIP16 Package |
| RW2-1212D/H2: | 9-18Vin | ±12Vout | Dual | 2kVDC Isolation | DIP16 Package |
| RW2-0515D/H3/SMD: | 4.5-9Vin | ±15Vout | Dual | 3kVDC Isolation | SMD Package |
| RW2-4812S/H2/B | 36-72Vin | 12Vout | Single | 2kVDC Isolation | Mini DIP16 Package |

Specifications (measured @ Ta= 25°C, nom. Vin, full load and after warm-up unless otherwise stated)

| BASIC CHARACTERISTICS | | | | |
|------------------------------|-----------------|--------|------|---------|
| Parameter | Condition | Min. | Typ. | Max. |
| Input Voltage Range | 5VDC | 4.5VDC | | 9VDC |
| | nom. Vin= 12VDC | 9VDC | | 18VDC |
| | 24VDC | 18VDC | | 36VDC |
| | 48VDC | 36VDC | | 72VDC |
| Minimum Load (5) | | 10% | | |
| Internal Operating Frequency | | 100KHz | | 700kHz |
| Output Ripple and Noise | 20MHz BW | | | 50mVp-p |

Notes:
 Note5: Operation below 10% load won't harm the converter, but specifications may not be met.

| REGULATIONS | | |
|-----------------|------------------|------------|
| Parameter | Condition | Value |
| Output Accuracy | | ±2.0% typ. |
| Line Regulation | | ±0.5% max. |
| Load Regulation | 20% to 100% load | 0.5% typ. |

| PROTECTION | | | |
|-----------------------|---|---|---------------------|
| Parameter | Type | | Value |
| Isolation Voltage (6) | standard without suffix | tested for 1 second | 1kVDC |
| | | rated for 1 minute | 500VAC/60Hz |
| | /H2 version | tested for 1 second rated for 1 minute | 2kVDC 1kVAC/60Hz |
| /H3 version | tested for 1 second rated for 1 minute | 3kVDC 1.5kVAC/60Hz | |
| Isolation Resistance | | | 1GΩ min. |
| Isolation Capacitance | | | 30pF max. |
| Insulation Grade | | | functional |

Notes:
 Note6: For repeat Hi-Pot testing, reduce the time and/or the test voltage
 Note7: Refer to local safety regulations if input over-current protection is also required. Recommended fuse: slow blow type

Specifications (measured @ Ta= 25°C, nom. Vin, full load and after warm-up unless otherwise stated)

ENVIRONMENTAL

| Parameter | Condition | | Value |
|-----------------------------|---|----------------|---|
| Operating Temperature Range | full load @ free air convection (see graph) | | -40°C to +85°C |
| Maximum Case Temperature | | | +100°C |
| Operating Altitude | | | 2000m |
| Operating Humidity | non-condensing | | 95% RH max. |
| Pollution Degree | | | PD2 |
| MTBF | according to MIL-HDBK-217F, G.B. | +25°C +85°C | 4366 x 10 ³ hours 658 x 10 ³ hours |

Derating Graph

(@ Chamber and free air convection)



SAFETY AND CERTIFICATIONS

| Certificate Type (Safety) | Report / File Number | Standard |
|---|----------------------|---|
| Information Technology Equipment, General Requirements for Safety | SPCLVD1605077-10 | IEC60950-1:2005, 2nd Edition + A2:2013 EN60950-1:2006 + A2:2013 |
| Medical Electric Equipment, General Requirements for Safety and Essential Performance | WD-SE-R-180675-A0 | IEC60601-1:2005, 3rd Edition + A1:2012 EN60601-1:2006 + A12:2014 |
| EAC | RU-AT.AB49.B.09571 | TP TC 004/2011 |
| RoHS 2+ | TWNC00635328 | RoHS-2011/65/EU |

EMC Compliance

| EMC Compliance | Condition | Standard / Criterion |
|--|---|--------------------------------------|
| Electromagnetic compatibility of multimedia equipment - Emission requirements ⁽⁸⁾ | with external filter (see filter suggestion below) | EN55032, Class A EN55032, Class B |

EMC Filtering Suggestions according to EN55032



Notes:

Note8: Filter suggestions are valid for indicated part numbers only.
For other part numbers, please contact RECOM tech support for advice.

Component List Class A

| Models | C1 | C2 | L1 |
|------------------|-----------|-------|-------------------------------------|
| RW2-1212S/H2/SMD | 10µF/100V | 330pF | 5.6µH choke RLS-567 |
| RW2-2405S/H2 | MLCC | | |

Component List Class B

| Models | C1 | C2 | L1 |
|------------------|-----------|-------|------------------------------------|
| RW2-1212S/H2/SMD | 10µF/100V | 330pF | 22µH choke RLS-226 |
| RW2-2405S/H2 | MLCC | | |

Specifications (measured @ Ta= 25°C, nom. Vin, full load and after warm-up unless otherwise stated)

DIMENSION AND PHYSICAL CHARACTERISTICS

| Parameter | Type | Value |
|-------------------|------------|--|
| Material | case | non-conductive black plastic, (UL94 V-0) |
| | potting | epoxy, (UL94 V-0) |
| | PCB | FR4, (UL94 V-0) |
| Dimension (LxWxH) | Mini DIP16 | 22.1 x 12.55 x 8.50mm |
| | DIP16 | 24.2 x 14.50 x 9.70mm |
| | SMD | 24.2 x 14.50 x 10.20mm |
| Weight | | 6.4g typ. |

Dimension Drawing (mm)

DIP16



Pinning information

| Pin # | Single | Dual |
|-------|--------|-------|
| 1 | -Vin | -Vin |
| 7 | NC | NC |
| 8 | NC | Com |
| 9 | +Vout | +Vout |
| 10 | -Vout | -Vout |
| 16 | +Vin | +Vin |

Tolerance: xx.x= ±0.5mm
xx.xx= ±0.35mm

Mini DIP16 (/B)



Pinning information

| Pin # | Single | Dual |
|-------|--------|-------|
| 1 | -Vin | -Vin |
| 7 | NC | NC |
| 8 | NC | Com |
| 9 | +Vout | +Vout |
| 10 | -Vout | -Vout |
| 16 | +Vin | +Vin |

Tolerance: xx.x= ±0.5mm
xx.xx= ±0.35mm

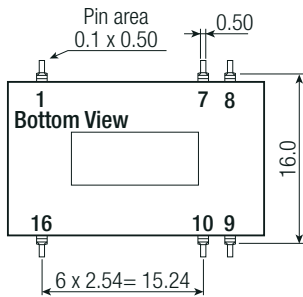
continued on next page

Specifications (measured @ Ta= 25°C, nom. Vin, full load and after warm-up unless otherwise stated)

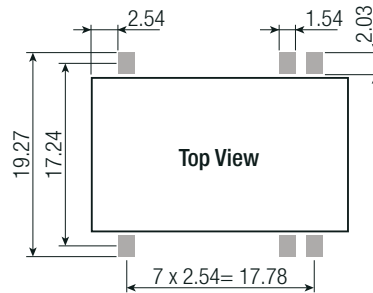
Dimension Drawing SMD (mm)



SMD (/SMD)



Recommended Footprint Details



Pinning information

| Pin # | Single | Dual |
|-------|--------|-------|
| 1 | -Vin | -Vin |
| 7 | NC | NC |
| 8 | NC | Com |
| 9 | +Vout | +Vout |
| 10 | -Vout | -Vout |
| 16 | +Vin | +Vin |

Tolerance: xx.x=±0.5mm
xx.xx=±0.35mm

| PACKAGING INFORMATION | | |
|-----------------------------|-----------------------------|-----------------------|
| Parameter | Type | Value |
| Packaging Dimension (LxWxH) | tube | 530.0 x 21.0 x 18.0mm |
| Packaging Quantity | DIP16 and SMD Mini DIP16 | 20pcs 22pcs |
| Storage Temperature Range | | -55°C to +125°C |
| Storage Humidity | non-condensing | 95% RH max. |

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