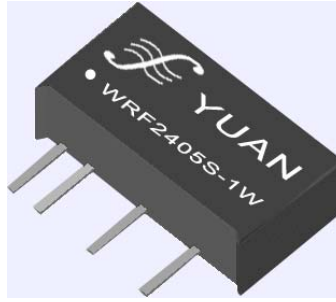


WRFXXXXS/D-1W SERIES DC-DC CONVERTER

- **SHORT CIRCUIT PROTECTION**
- **SIP/DIP PACKAGE STYLE**
- **SINGLE OUTPUT VOLTAGE**
- **INDUSTRIAL STANDARD PIN-OUT**
- **NO HEAT SINK REQUIRED**
- **3KVDC ISOLATION**
- **REGULATED OUTPUT VOLTAGE**
- **PCB MOUNTING**



ROHS COMPLIANT

Application:

- **Specialy for electric load management terminal**
- **RS485/RS232/RS422/USB/IEEE1394 interface**
- **Isolation static**

ELECTRICAL SPECIFICATIONS:

(All specifications tested typically @ 25°C, humidity<75%, nominal input and rated output unless otherwise noted.)

OUTPUT SPECIFICATIONS

| Items: | Testing condition | Min | Typ | Max |
|--------------------------|---|---|---------|------------|
| Output accuracy: | At full load and nominal Vin | | | ±2% |
| Output power: | | | | 1W |
| Line regulation: | Input voltage from low to full load | +/- 0,5 % max., (3.3 VDC output +/- 1 % max) | | |
| Load regulation: | No load to full load | +/- 0,5 % typ., +/- 1 % max. | | |
| Ripple and noise: | | | | 50mVp-p |
| Temperature drift: | | | | ±0.02 %/°C |
| Minimum load | | | | 10% |
| Switching frequency | | | 120K HZ | |
| Over load protection | % of FL at nominal input, refer to figure | | | |
| Short circuit protection | Continuous >30seconds, Automatic Recovery | | | |

INPUT SPECIFICATIONS

| Items: | Testing condition | Min | Typ | Max |
|---------------------|---------------------|--------------|-----|-----|
| Input voltage range | 5VDC nominal input | 4.5-5.5VDC | | |
| | 12VDC nominal input | 10.8-13.2VDC | | |
| | 15VDC nominal input | 13.5-16.5VDC | | |
| | 24VDC nominal input | 21.6-26.4VDC | | |
| Input filter | Ceramic capacitance | | | |

COMMON SPECIFICATIONS

| Items | Min | Typ. | Max |
|-----------------------------|---------------------|-----------------|--------|
| Operating temperature range | -25°C | | +71°C |
| Storage temperature range | -55°C | | +105°C |
| Humidity | | | <90% |
| Cooling | Free Air Convection | | |
| Isolation voltage (VDC) | Input to Output | | 3,000 |
| Isolation resistance (ohms) | | 10 ⁹ | |
| Isolation capacitance (pF) | | | 60 |
| Efficiency (%) | See Product List | 58 | 70 |

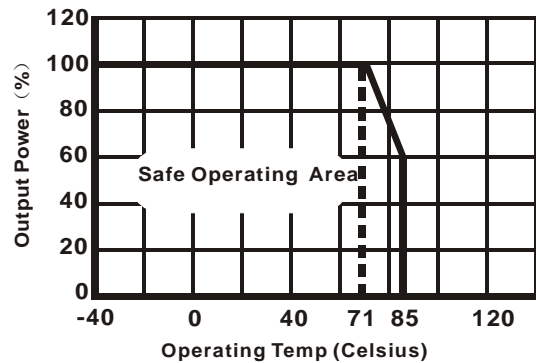
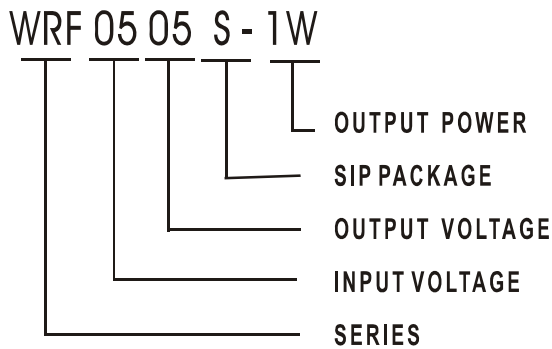
WRFXXXXS/D-1W SERIES DC-DC CONVERTER

| | |
|-----------------------|---|
| Case material | Non-conductive black plastic |
| Potting material | Epoxy Resin UL94-V0 |
| Packing material | Tube |
| Dimension (mm / inch) | SIP:19.60*6.00*10.00 (0.77*0.23*0.39) DIP:20.40*10.0*8.20 (0.80*0.39*0.32) |
| Weight (g) | 10 |
| MTBF (Hrs) | >1,000,000 |

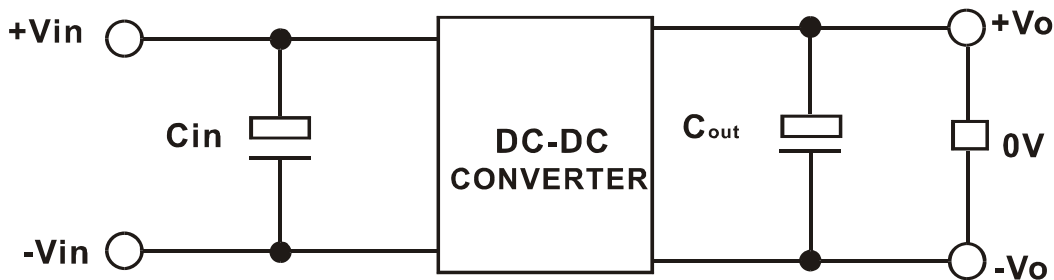
| Part No. | Vin(VDC) | Iin(No-Load) mA | Iin(Full-Load) mA | Vout (VDC) | Iout,Max(mA) | Eff. |
|-------------|----------|-----------------|-------------------|------------|--------------|------|
| WRF0503S-1W | 5 | 22 | 220 | 3,3 | 200 | 60 |
| WRF0505S-1W | 5 | 28 | 300 | 5 | 200 | 66 |
| WRF0512S-1W | 5 | 25 | 312 | 12 | 84 | 64 |
| WRF1205S-1W | 12 | 16 | 130 | 5 | 200 | 64 |
| WRF1212S-1W | 12 | 22 | 123 | 12 | 84 | 68 |
| WRF1209S-1W | 12 | 16 | 123 | 9 | 111 | 68 |
| WRF2405S-1W | 24 | 7 | 64 | 5 | 200 | 65 |
| WRF2409S-1W | 24 | 10 | 63 | 9 | 111 | 66 |
| WRF2412S-1W | 24 | 10 | 63 | 12 | 84 | 66 |

NOMENCLATURE

TEMPERATURE DERATING GRAPH



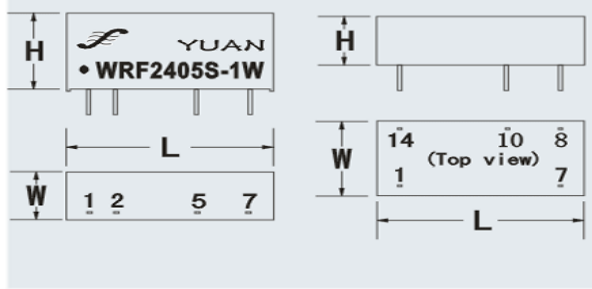
TYPICAL CONNECTION



WRFXXXXS/D-1W SERIES DC-DC CONVERTER

OUTLINE DIMENSION

| SIZE | SIP(LxWxH) | DIP(LxWxH) |
|------|-------------|-------------|
| 1W | 19.6x6.0x10 | 20.4x10x6.5 |
| 2W | 19.6x7.0x10 | 20.4x10x6.5 |



| PKG | Vin | GND | -Vo | 0V | +Vo |
|-----|-----|-----|-----|----|-----|
| FS | 1 | 2 | - | 5 | 7 |
| FD | 14 | 1 | - | 10 | 8 |

Note: NC Pin can't be connected to any external circuit.

PINS DESCRIPTION

| Pin /SIP | Connection | Pin /DIP |
|----------|--------------------------|----------|
| 1 | V _{in+} Input | 14 |
| 2 | V _{in-} Input | 1 |
| 5 | GND Output | 10 |
| 7 | V _{out+} Output | 8 |
| | NC | 7 |