

HRS50 Series

WIDE INPUT DC-DC CONVERTER



FEATURES 48V, 72V, 96V Inputs / Single Output

- High Efficiency
- Industrial Standard Half Brick Size
- Six-Sided Shield
- Optional Heat Sink Available
- Fixed Frequency Operation
- Wide 2:1 Input Range
- Precision Thermal Protection (Accuracy $\pm 3^{\circ}\text{C}$)
- Short Circuit and Over Current Protection (Hiccup, Auto-Restart)
- Under Voltage Protection (UVLO) (Auto-Resart)
- Output Over Voltage Protection (Latch Up, Shut Down)
- Remote On/Off Control (CNT)
- Output Voltage Variation (TRM)
- Fully Isolated 1500Vdc
- 2 Years Warranty

ELECTRICAL SPECIFICATIONS

Input

- Input Range DC 48V(36 - 76), 72V(50 - 100), 96V(65 - 150)
- Efficiency 86 - 89% Typ.
- Remote On/Off Control TTL Compatible - On : Short to-Vin Off : Open

Output

- Output Voltages 3.3V, 5V, 12V, 15V, 24V
- Output Voltages Tolerance $\pm 2.0\%$
- Line Regulation $\pm 0.5\%$ Max.
- Load Regulation $\pm 1.0\%$ Max.
- Ripple and Noise
 - Bandwidth : 20MHz
 - Magnitude : 1.5% of Vout

Protection Circuit

- Over Current Protection Work Over 105% of Rating (Hiccup)
- Under Voltage Protection Auto-Restart
- Output Over Voltage Protection Work at 115 - 140% of Rating
- Thermal Shut Down 100°C , Auto-Restart About 90°C

Electrically Isolated

- Isolation
 - Input-Output / AC1500V
 - Input-Case / AC1000V
 - Output-Case / AC1000V
- Isolation Resistance 100M Ω

ENVIRONMENTAL

- Operating Temperature Range $-40^{\circ}\text{C} \sim 85^{\circ}\text{C}$
- Operating Humidity (Non-Condensing) 20% \sim 90%RH
- Storage Temperature Range $-40^{\circ}\text{C} \sim 105^{\circ}\text{C}$
- Storage Humidity (Non-Condensing) 10% \sim 95%RH
- EMI / RFI Six-Sided Shield
- MTBF (MIL-HDBK-217F) 4.5×10^5 hrs

ORDERING INFORMATION

| Input | Output | Maximum Power | Ripple & Noise Max. | Efficiency Typ. | Model Number |
|-----------|-------------|---------------|---------------------|-----------------|--------------|
| 36 - 76V | 3.3V@15.00A | 49.50W | 75mVp-p | 86% | HRS50-48-3R3 |
| 36 - 76V | 5V@10.00A | 50.00W | 75mVp-p | 90% | HRS50-48-5 |
| 36 - 76V | 12V@4.10A | 49.20W | 120mVp-p | 91% | HRS50-48-12 |
| 36 - 76V | 15V@3.30A | 49.50W | 150mVp-p | 91% | HRS50-48-15 |
| 36 - 76V | 24V@2.10A | 50.40W | 240mVp-p | 89% | HRS50-48-24 |
| 50 - 100V | 3.3V@15.00A | 49.50W | 75mVp-p | 88% | HRS50-72-3R3 |
| 50 - 100V | 5V@10.00A | 50.00W | 75mVp-p | 89% | HRS50-72-5 |
| 50 - 100V | 12V@4.10A | 49.20W | 120mVp-p | 89% | HRS50-72-12 |
| 50 - 100V | 15V@3.30A | 49.50W | 150mVp-p | 90% | HRS50-72-15 |
| 50 - 100V | 24V@2.10A | 50.40W | 240mVp-p | 88% | HRS50-72-24 |
| 65 - 150V | 3.3V@15.00A | 49.50W | 75mVp-p | 86% | HRS50-96-3R3 |
| 65 - 150V | 5V@10.00A | 50.00W | 75mVp-p | 89% | HRS50-96-5 |
| 65 - 150V | 12V@4.10A | 49.20W | 120mVp-p | 89% | HRS50-96-12 |
| 65 - 150V | 15V@3.30A | 49.50W | 150mVp-p | 89% | HRS50-96-15 |
| 65 - 150V | 24V@2.10A | 50.40W | 240mVp-p | 87% | HRS50-96-24 |

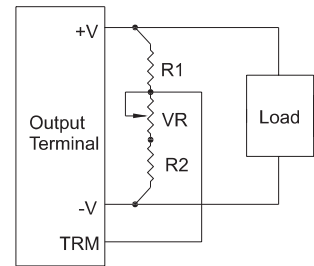
PIN ASSIGNMENTS

| Single Output |
|---------------|
| 1. +Vin |
| 2. CNT |
| 3. Case |
| 4. - Vin |
| 5. - Vout |
| 6. No Pin |
| 7. TRM |
| 8. No Pin |
| 9. +Vout |

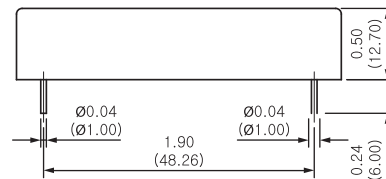
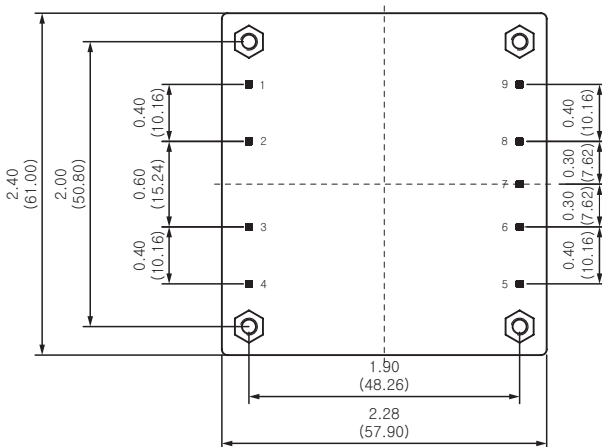
EXTERNAL PARTS

| Model | Output Voltage | VR | R1 | R2 |
|-------|----------------|------|-------|------|
| HRS50 | 3.3V | 500Ω | 1kΩ | 560Ω |
| | 5V | 1kΩ | 1kΩ | 680Ω |
| | 12V | 1kΩ | 3.9kΩ | 680Ω |
| | 15V | 1kΩ | 5.6kΩ | 750Ω |
| | 24V | 2kΩ | 24kΩ | 2kΩ |

TRIM METHOD



DIMENSIONS



NOTE 1 All dimension are in inches (mm)
 2 Weight : 75g or less
 3 Case Material : Al