50 WATT QUARTER BRICK

Regulated, 2:1 Input Range
DC/DC Converters

FEATURES

- UL and CE Approved
- Single Output Up to 20A
- No Minimum Load
- Adjustable Output Voltage
- High Efficiency (Up to 91%)
- Compact 2.28" x 1.45" x 0.50" Quarter Brick Package

Specifications

Typical @ 25°C Under Full Load and Nominal Input Voltage, Unless Otherwise Specified.

INPUT

- Input Voltages: 48Vdc
- Input Filter: LC Type
- Start Up Time: Nominal Vin and Constant Resistive Load
- Power Up: 25mS Typ
- Remote ON/OFF: 25mS Typ
- Remote on/off (Note 3): Short or OV<Vr<1.2V
- DC-DC ON: Open or 3.5V<Vr<15V
- DC-DC Off: Short or OV<Vr<1.2V

OUTPUT

- Voltage Accuracy (FL and Nominal Vin): ±1.5%
- Voltage Adjustability: ±10%, -20%
- Line Regulation (LL to HL at FL): ±0.2%
- Load Regulation, (NL to FL): 1.8Vdc 5.4mV
- Ripple and Noise: 2.5Vdc 7.5mV, 3.3Vdc 10mV, 5Vdc 15mV
- Ripple and Noise (20MHz BW): Measured with a 1uF M/C & a 10uF/T/C
- Temperature Coefficient (at FL): ±0.02%/°C, max
- Transient Response, 25% load step change: 200μS

GENERAL

- Efficiency: See Table
- Isolation Voltage: 1600Vdc, min.
- Isolation Resistance: 10° Ohms, min.
- Protection: Over Voltage Protection (Non-latching hiccup)
- Over current protection threshold: 120% Vout max.
- Short circuit protection: hiccup, automatic recovery

ENVIRONMENTAL

- Operating Base Plate Temperature Range: -40° C to + 100° C
- Storage Temperature Range: -55° C to + 125° C
- Humidity, Max, Non-Condensing: 95%

PHYSICAL

- Case Material: Aluminum base-plate
- Weight: 42g (1.46 oz.)
- Dimensions: 2.28" x 1.45" x 0.50" Package (57.9 X 36.83 X 12.7 mm)

EMC CHARACTERISTICS

<table>
<thead>
<tr>
<th>Conducted emissions</th>
<th>EN55022</th>
<th>Level A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Radiated emissions</td>
<td>EN55022</td>
<td>Level B</td>
</tr>
<tr>
<td>ESD</td>
<td>EN61000-4-2</td>
<td>Perf. Criteria2</td>
</tr>
<tr>
<td>Radiated immunity</td>
<td>EN61000-4-3</td>
<td>Perf. Criteria2</td>
</tr>
<tr>
<td>Fast transient</td>
<td>EN61000-4-4</td>
<td>Perf. Criteria2</td>
</tr>
<tr>
<td>Surge</td>
<td>EN61000-4-5</td>
<td>Perf. Criteria2</td>
</tr>
<tr>
<td>Conducted immunity</td>
<td>EN61000-4-6</td>
<td>Perf. Criteria2</td>
</tr>
</tbody>
</table>

NOTE:

1. Maximum output deviation is 10% inclusive of trim. If remote sense is not being used, the +Vsense should be connected to its corresponding +OUTPUT and likewise the -sense should be connected to its corresponding -OUTPUT.
2. An external filter capacitor is required for normal operation. The capacitor should be capable of handling 1A ripple current for 48V models. Suggest: Nippon chemi-con KMF series, 220μ F/100V, ESR 90Ω.
3. The negative/positive logic and pin length are optional (see table). The pin voltage is referenced to negative input.
4. Heat sink is optional.
5. The OFQ50 meets level A & level B conducted emissions only with external components connected before the input pin to the converter.
6. Typical value at nominal input voltage and full load.
7. BASEPLATE GROUNDING: Base-plate should be grounded at one of the four screw bolts prior to operation.
8. The converter is provided with basic insulation.
Selection Guide

PIN CONNECTIONS

<table>
<thead>
<tr>
<th>PIN NO.</th>
<th>Define</th>
<th>Dimension</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>INPUT</td>
<td>0.040 (1.016mm)</td>
</tr>
<tr>
<td>2</td>
<td>ON/OFF</td>
<td>0.060 (1.57mm)</td>
</tr>
<tr>
<td>3</td>
<td>INPUT</td>
<td>0.040 (1.016mm)</td>
</tr>
<tr>
<td>4</td>
<td>OUTPUT</td>
<td>0.040 (1.016mm)</td>
</tr>
<tr>
<td>5</td>
<td>SENSE</td>
<td>0.040 (1.016mm)</td>
</tr>
<tr>
<td>6</td>
<td>TRIM</td>
<td>0.040 (1.016mm)</td>
</tr>
<tr>
<td>7</td>
<td>SENSE</td>
<td>0.040 (1.016mm)</td>
</tr>
<tr>
<td>8</td>
<td>OUTPUT</td>
<td>0.040 (1.016mm)</td>
</tr>
</tbody>
</table>

Tolerance: ±0.02 (±0.5)

All Dimensions in inches (mm)

External Output Trimming

Output can be externally trimmed by following the method shown below:

- **TRIM UP**: Connect a resistor (R_U) between pins 6 and 7.
- **TRIM DOWN**: Connect a resistor (R_D) between pins 5 and 6.

Mechanical Specifications

Pin Pitch tolerance ±0.014 (0.35)

PRODUCT OPTIONS TABLE

<table>
<thead>
<tr>
<th>OPTION</th>
<th>SUFFIX</th>
</tr>
</thead>
<tbody>
<tr>
<td>Negative remote ON/OFF logic, 0.20” pin length (standard)</td>
<td>–</td>
</tr>
<tr>
<td>Negative remote ON/OFF logic, 0.145” pin length</td>
<td>–L</td>
</tr>
<tr>
<td>Negative remote ON/OFF logic, 0.11” pin length</td>
<td>–K</td>
</tr>
<tr>
<td>Positive remote ON/OFF logic, 0.20” pin length</td>
<td>–P</td>
</tr>
<tr>
<td>Positive remote ON/OFF logic, 0.145” pin length</td>
<td>–S</td>
</tr>
<tr>
<td>Positive remote ON/OFF logic, 0.11” pin length</td>
<td>–M</td>
</tr>
</tbody>
</table>

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