

EXQ60D Series



Dual positive output

DC/DC CONVERTERS | 60W High Efficiency DC/DC Converters

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- Two positive outputs
- Output voltage tracking
- High efficiency
- Approved to EN60950 (TÜV Rheinland), UL/cUL1950
- Operating baseplate temperature of -40°C to +100°C
- Up to 100% load imbalance
- Trim function
- No minimum load
- Complies with ETS 300 019-1-3/2-3
- Fully compliant with ETS 300 386-1



The EXQ60 is a new high efficiency, open frame, isolated 60 Watt converter series in an industry standard quarter-brick footprint. The EXQ60 delivers very high output current at low voltages, and excellent useable power density for today's high end applications. The first two models in the series feature an input voltage range of 33 to 75VDC and are available in output voltages of 5V/3.3V and 3.3V/2.5V. The output voltage on each model is adjustable from 90% to 110% of the nominal value. Typical efficiencies for the models are 91% for the 5V/3.3V and 90% for the 3.3V/2.5V version. The EXQ60 series also has a remote on/off capability. Overcurrent and overvoltage protection features are included as standard. With full international safety approval including EN60950, (TÜV Rheinland) and UL/cUL1950, the EXQ60 reduces compliance costs and time to market.



2 YEAR WARRANTY

All specifications are typical at nominal input, full load at 25°C unless otherwise stated

SPECIFICATIONS

OUTPUT SPECIFICATIONS

| | | |
|-------------------------------------|---------------------------|--|
| Voltage adjustability | Both outputs | ±10% |
| Setpoint accuracy | Both outputs (See Note 1) | ±1% max. |
| Output voltage | 5V/3.3V | 4.75V < Vo1 < 5.23V 3.20V < Vo2 < 3.43V |
| (over all line and load conditions) | 3.3V/2.5V | 3.18V < Vo1 < 3.48V 2.39V < Vo2 < 2.60V |
| Minimum load | Both outputs | 0% |
| Ripple and noise | 20MHz bandwidth | 60mV pk-pk max., 20mV rms max. |
| Transient response | 50% to 75% and back | 120mV/80mV |
| peak dev. settling time | to 1.0%, no external cap. | 100µs |
| Short circuit protection | | Both outputs |
| Tracking | | Outputs track start-up and shutdown |

INPUT SPECIFICATIONS

| | | |
|-----------------------|---------------|-------------|
| Input voltage range | 48Vin nominal | 33 to 75VDC |
| Input current | No load | 60mA max. |
| | Remote OFF | 20mA max. |
| UVLO turn ON voltage | | 33V (typ) |
| UVLO turn OFF voltage | | 30V (typ) |
| Start-up time | Nominal line | 8ms (typ) |

Active high remote ON/OFF

Logic compatibility

(See Note 4)

Open Collector ref. to -input

Open circuit or >4VDC

<1.2VDC

EMC CHARACTERISTICS

| | | |
|--------------------------|------------------------------|---------------------|
| ETS 300 386-1 table 5 | | |
| Conducted emissions | EN55022 with external filter | Level A |
| | EN55022 with external filter | Level B |
| Radiated emissions | EN55022 | Level B |
| Immunity: | | |
| ESD air | EN61000-4-2 | 8kV (NP), 15kV (RP) |
| ESD contact | EN61000-4-2 | 6kV (NP), 8kV (RP) |
| Radiated field enclosure | EN61000-4-3 | 10V/m (NP) |
| Conducted (DC power) | EN61000-4-6 | 10V (NP) |
| Conducted (signal) | EN61000-4-6 | 10V (NP) |
| Input transients | ETS 300 132-2, ETR 283 | |

GENERAL SPECIFICATIONS

| | | |
|-------------------------|---|--------------------------------------|
| Efficiency | | See table |
| Operational insulation | Input/output | 1500VDC |
| | Input/baseplate | 1500VDC |
| Input fuse | | 5.0A slow blow |
| Switching frequency | Fixed | 400kHz (5V/3V3) 325kHz (3V3/2V5) |
| Approvals and standards | | UL/cUL1950, EN60950 TÜV Rheinland |
| Weight | | 45g (1.6 oz) |
| MTBF | MIL-HDBK-217F @ 25°C, 100% load ground benign | >270,000 hours |

ENVIRONMENTAL SPECIFICATIONS

| | | |
|---------------------|---------------------------------|-----------------|
| Thermal performance | Operating baseplate temperature | -40°C to +100°C |
| | Non-operating | -40°C to +125°C |



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For the most current data and application support visit www.artesyn.com/powergroup/products.htm

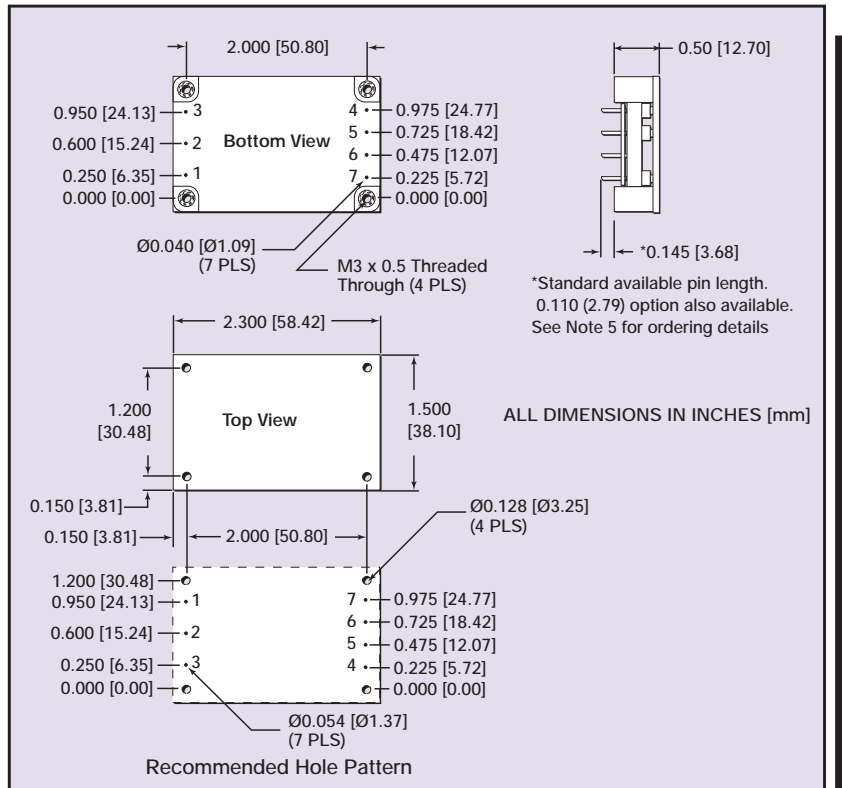
| INPUT VOLTAGE | OUTPUT VOLTAGE | | OUTPUT CURRENT | | OVP | | TYPICAL EFFICIENCY | MODEL NUMBER (4, 5) |
|---------------|----------------|------|----------------|-----|------|------|--------------------|---------------------|
| | OP1 | OP2 | 1 | 2 | 1 | 2 | | |
| 33-75VDC | 5V | 3.3V | 12A | 15A | 5.9V | 4.0V | 91.5% | EXQ60-48D05-3V3 |
| 33-75VDC | 3.3V | 2.5V | 12A | 16A | 4.0V | 3.0V | 90.5% | EXQ60-48D3V3-2V5 |

Notes

- 1 Io1 = 6A, Io2 = 9A
- 2 User must provide recommended fuses in order to comply with safety approvals.
- 3 Maximum continuous output power.
60 Watts for D05-3V3 models
40 Watts for D3V3-2V5 models.
- 4 Active low remote on/off is available. Standard product is active high.
When ordering active low parts, designate with the Suffix '-R',
e.g. EXQ60-48D3V3-2V5-R.
- 5 When ordering 0.110" pin lengths designate with suffix '-K'. If the product is already a '-R' suffix product then the suffix will be '-RK'

CAUTION: Hazardous internal voltages and high temperatures. Ensure that unit is not user accessible.

| PIN CONNECTIONS | |
|-----------------|---------------|
| PIN NUMBER | FUNCTION |
| 1 | +Vin |
| 2 | Remote On/Off |
| 3 | -Vin |
| 4 | OP2 |
| 5 | Output Return |
| 6 | Trim |
| 7 | OP1 |



International Safety Standard Approvals



UL/cUL : UL1950 File No. E135734



TÜV Rheinland Certificate No. R2279036
CB Scheme No. US-TUVR-1157