BXA40 Series

Single output

ARTESYN TECHNOLOGIES

DC/DC CONVERTERS | 40W Wide Input DC/DC Converters | 1

- **Pin-compatible with NFC40 Series**
- **Meets telecom power supply interface standard ETS300-132-2**
- **EN60950, CSA C22.2 No. 950 and UL1950 safety approvals**
- **EN61000-4-2, -3, -4, -5, -6 immunity compliant**
- **Fixed frequency operation at 350kHz typ.**
- **MTBF in excess of 500,000 hours**
- **Basic insulation system with 1500V isolation**
- **Remote sense on low voltage logic outputs**
- **Output voltage trim**

The BXA40 Series providing up to 40 Watts, has been conceived as an applications specific range of DC/DC converters, specifically addressing telecommunications, industrial electronics, test equipment, mobile telecommunications and distributed power applications. The series offers two wide input voltage ranges, 18-36VDC and 36-75VDC, and is available with single outputs from 2.9V to 12V. The BXA40 series is designed to meet ETSI telecoms interface standards ETS300-132-2. Together with internal filtering, safety approval to IEC950 and basic insulation, the 48VDC models are ideal for telecommunications applications. The 24V models are particularly suited to industrial and test equipment applications, featuring EN61000-4-2, -3, -4, -5 and -6 immunity compliance. Other features include low output ripple, overvoltage protection, indefinite short circuit protection, remote enable and remote sense.

CE (LVD) VDE

2 YEAR WARRANTY

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

SPECIFICATIONS

OUTPUT SPECIFICATIONS

Voltage adjustability		±10%
Line regulation	Low line to high line	±0.3%
Load regulation	Full load to no load	±1.0%
Ripple and noise (20MHz bandwidth)	2.9V and 3.3V 5V 12V All models	30mV pk-pk 50mV pk-pk 100mV pk-pk 20mV rms
Temperature coefficient		±0.02%/°C
Overvoltage protection	(See Note 9)	135% Vout
Short circuit protection	(See Note 10)	Continuous
Transient response	25% to 100% load (See Note 11)	4.0%
Voltage accuracy		±1.0% ≤5V, ±2.0% ≥12V
Remote sense (See Note 8)		Compensated line drops up to 0.5V on 5V models Compensated line drop up to 300mV on 2.9V and 3.3V models

INPUT SPECIFICATIONS

Input voltage range	24Vin nominal 48Vin nominal	18 to 36VDC 36 to 75VDC
Reverse voltage protection		(See Note 5)
Max. input rise and fall time	48V	5V/ms ETS300-132
Start-up time		30ms typ.
Remote ON/OFF Logic compatibility ON OFF		 CMOS/TTL Open-circuit <1VDC

EMC CHARACTERISTICS

Conducted emissions	EN55022, FCC part 15, (See Notes 4 and 13)	Level B
Radiated emissions	EN55022, FCC part 15	Level A
ESD air	EN61000-4-2, level 3	Perf. criteria 1
ESD contact	EN61000-4-2, level 4	Perf. criteria 1
Surge	EN61000-4-5, level 3	Perf. criteria 1
Fast transients	EN61000-4-4, level 3	Perf. criteria 1
Radiated immunity	EN61000-4-3, level 3	Perf. criteria 1
Conducted immunity	EN61000-4-6, level 3	Perf. criteria 1

GENERAL SPECIFICATIONS

Efficiency		See table
Isolation voltage	Input/output Input/case	1500VDC 1500VDC
Switching frequency	Fixed	350kHz typ.
Approvals and standards (pending)		EN60950, UL1950 CSA C22.2 No. 950
Case material		Aluminum substrate with plastic case
Material flammability		UL94V-0
Weight		85g (3.0oz)
MTBF	MIL-HDBK-217F	500,000 hours
Size		2.2 x 2.2 x 0.5 inches 55.9 x 55.9 x 12.7 mm

ENVIRONMENTAL SPECIFICATIONS

Thermal performance	Baseplate operating temperature Non-operating	-40°C to +105°C -55°C to +105°C
Thermal impedance (See Note 6)	No air flow, no heatsink No air flow, with heatsink	8.5°C/W 7.2°C/W

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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 (MAX.)	INPUT CURRENT (1)	TYPICAL EFFICIENCY	REGULATION		MODEL NUMBER (12)
					LINE (2)	LOAD (3)	
18-36VDC	3.3V	7A	70mA	75%	0.3%	1.0%	BXA40-24S3V3-SM (8)
18-36VDC	5V	8A	40mA	81%	0.3%	1.0%	BXA40-24S05-M (8)
36-75VDC	2.9V	6.9A	40mA	77%	0.3%	1.0%	BXA40-48S2V9-SM (8)
36-75VDC	5V	8.0A	30mA	82%	0.3%	1.0%	BXA40-48S05-M (8)
36-75VDC	12V	3.3A	30mA	87%	0.3%	1.0%	BXA40-48S12-M

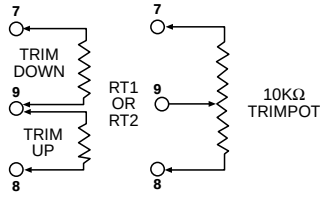
Notes

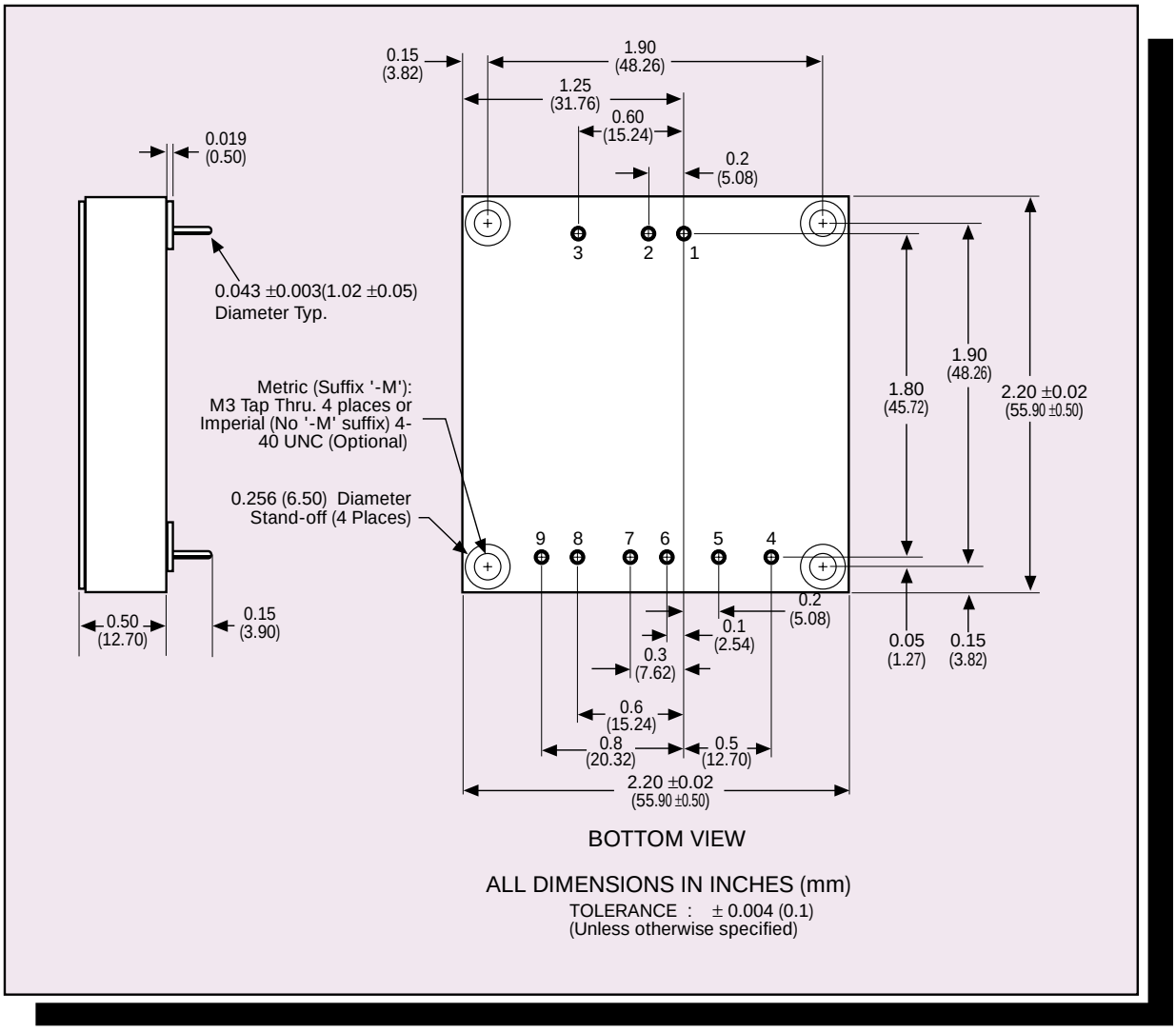
1 Nominal line, at no load.
2 Low line to high line at full load.
3 Full load to no-load at nominal line.
4 For conducted noise operation of the BXA40 to VDE0871, VDE0878 and EN55022 level B, see BXA40 Design Note 101.
5 Reverse voltage protection can be implemented by putting a slow blow fuse on the positive input rail. Rate the fuse at 200VDC,1.5A for 48VDC inputs and 100V, 4.5A for 24VDC input units.
6 The maximum operating ambient temperature, without derating depends on internal power dissipation and hence efficiency and cooling method. Download BXA40 Design Note 101 which provides detailed thermal calculations and design-in hints from the Artesyn website.
7 Do not exceed a dv/dt rate of 100V per second at the trim pin input if output current is less than 0.4% Io max.
8 Remote sense is offered as standard on the 2.9V and 3.3V products. The BXA40-24S05 and BXA40-48S05 come with remote sense as an option. Remote sense design is designated by the suffix '-S' e.g. **BXA40-48S05-SM** (for units with metric inserts), **BXA40-48S05-S** (for units with imperial inserts). For models without remote sense option, pin 5 and pin 6 are absent.
9 Overvoltage protection is 118% on 3.3V output model.
10 For 2.9V output, no short circuit protection above 90°C baseplate temp.
11 Transient response, 25% to 100% load, 10% for 2.9V and 3.3V models.
12 Units with the suffix '-M' at the end of the model number are offered as standard with metric threaded inserts (M3). To order units with imperial threaded inserts (4-40 UNC) please remove the suffix '-M' from the model number. These inserts are used for bolting the unit to a PCB and/or fixing heatsinks.
13 An external filter capacitor is necessary for safe operation of the 24V input models. It is also suggested that an external filter capacitor be used on the 48V input models. A 4µF (or greater) film capacitor such as: ITW Paktron Capstick series, part number 405K100CS4 4µF/100V is recommended, if filtering is not used. See BXA40 Design Note 101.
14 A top mounted heatsink kit is available for the BXA40. The heatsink may be oriented parallel to or perpendicular to the direction of the pins, thus providing optimum flexibility for cooling requirements. The order number for the top mounted heatsink kit with metric screws is '**NFC40-HTSK-T**'. The order number for the top mounted heatsink kit with imperial screws is '**NFC40-HTSK-I**'. See Design Note 101 for ambient temperature derating calculations.

PIN CONNECTIONS	
PIN NUMBER	SINGLE OUTPUT
1	+ Input
2	– Input
3	Control
4	No Connection
5	- Sense (8)
6	+ Sense (8)
7	+ Output
8	Common
9	Trim

EXTERNAL OUTPUT TRIMMING

Output can be externally trimmed
by ±10% using either method shown below.





International Safety Standard Approvals

VDE0805/EN60950/IEC950 File No. 14501-3336-7009
Licence No. 6296

UL1950 File No. E174104

CSA C22.2 No. 950 File No. LR41062C