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REPORT

On

COMPONENT - POWER SUPPLIES, INFORMATION TECHNOLOGY EQUIPMENT,
INCLUDING ELECTRICAL BUSINESS EQUIPMENT

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DESCRIPTION

PRODUCT COVERED:

* USR - Switching Power Supply (DC-DC Converter), Model BXA-Series, may be followed by -1, -F, -1F or -XX, may be followed by -4; where -1 indicates fitted with heatsink, -F indicates fitted with input filter, XX is any alphanumeric combination indicating minor mechanical or electrical changes which do not affect safety, -4 indicates operation at -40C.

ELECTRICAL RATING:

Model	V	A	Input, (dc)		V	Output, (dc)	
			W			A	W
BXA15 12S05	9 - 18	2.7	20		5	3.0	15
BXA15 12S12	9 - 18	2.7	20		12	1.25	15
BXA15 12S15	9 - 18	2.7	20		15	1.0	15
BXA15 24S05	18 - 36	1.2	20		5	3.0	15
BXA15 24S12	18 - 36	1.2	20		12	1.25	15
BXA15 24S15	18 - 36	1.2	20		15	1.0	15
BXA15 48S05	36 - 75	0.6	20		5	3.0	15
BXA15 48S12	36 - 75	0.6	20		12	1.25	15
BXA15 48S15	36 - 75	0.6	20		15	1.0	15
BXA15 12D12	9 - 18	2.7	20		+12	0.625	7.5
					-12	0.625	7.5
BXA15 24D12	18 - 36	1.2	20		+12	0.625	7.5
					-12	0.625	7.5
BXA15 24D15	18 - 36	1.2	20		+15	0.5	7.5
					-15	0.5	7.5
BXA15 48D05	36 - 75	0.6	20		+5	1.5	7.5
					-5	1.5	7.5
BXA15 48D12	36 - 75	0.6	20		+12	0.625	7.5
					-12	0.625	7.5
BXA15 48D15	36 - 75	0.6	20		+15	0.5	7.5
					-15	0.5	7.5

Model	Input, (dc)			Output, (dc)		
	V	A	W	V	A	W
*BXA15 24T05-12	18 - 36	1.2	20	+5	1.5	7.5
*				+12	0.3	3.6
*				-12	0.3	3.6
*BXA15 24T05-15	18 - 36	1.2	20	+5	1.5	7.5
*				+15	0.25	3.75
*				-15	0.25	3.75
*BXA15 48T05-12	36 - 75	0.6	20	+5	1.5	7.5
*				+12	0.3	3.6
*				-12	0.3	3.6
*BXA15 48T05-15	36 - 75	0.6	20	+5	1.5	7.5
*				+15	0.25	3.75
*				-15	0.25	3.75
BXA30 12S05	9 - 18	5.0	40	5	5.0	25
BXA30 12S12	9 - 18	5.0	40	12	2.5	30
BXA30 12S15	9 - 18	5.0	40	15	2.0	30
BXA30 24S05	18 - 36	2.0	40	5	5.0	25
BXA30 24S12	18 - 36	2.0	40	12	2.5	30
BXA30 24S15	18 - 36	2.0	40	15	2.0	30
BXA30 48S3V3	36 - 75	1.0	40	3.3	6.0	20
BXA30 48S05	36 - 75	1.0	40	5	5.0	25
BXA30 48S12	36 - 75	1.0	40	12	2.5	30
BXA30 48S15	36 - 75	1.0	40	15	2.0	30
*BXA30 12D12	9 - 18	5.0	40	+12	1.25	15
*				-12	1.25	15
*BXA30 24D12	18 - 36	2.0	40	+12	1.25	15
*				-12	1.25	15
*BXA30 24D15	18 - 36	2.0	40	+15	1.0	15
*				-15	1.0	15
*BXA30 48D05	36 - 75	1.0	40	+5	2.5	12.5
*				-5	2.5	12.5
*BXA30 48D12	36 - 75	1.0	40	+12	1.25	15
8				-12	1.25	15
*BXA30 48D15	36 - 75	1.0	40	+15	1.0	15
*				-15	1.0	15

Model	Input, (dc)			Output, (dc)		
	V	A	W	V	A	W
BXA30 24T05-12	18 - 36	2.0	40	+5	3.0	15
				+12	0.625	7.5
				-12	0.625	7.5
BXA30 24T05-15	18 - 36	2.0	40	+5	3.0	15
				+15	0.5	7.5
				-15	0.5	7.5
BXA30 48T05-12	36 - 75	1.0	40	+5	3.0	15
				+12	0.625	7.5
				-12	0.625	7.5
BXA30 48T05-15	36 - 75	1.0	40	+5	3.0	15
				+15	0.5	7.5
				-15	0.5	7.5
BXA30-48T3V2-12-A, BXA30-8897	36 - 72	1.0	40	3.2	2.7	8.64
				12.3	0.53	6.36
				-12.3	0.53	6.36
BXA30 48S05-NT	32 - 75	1.1	40	5	5.0	25
BXA30 48S05-NT1	32 - 75	1.1	40	5	5.0	25
*BXA38-48T3V2-11-A, BXA30-8981	36 - 75	1.0	40	3.2	2.7	-
				11.8	0.55	-
				-11.8	0.55	-

***TECHNICAL CONSIDERATIONS (NOT FOR UL REPRESENTATIVE'S USE):**

Use - For use only in complete equipment where the acceptability of the combination is determined by Underwriters Laboratories Inc.

Special Considerations - The following items are considerations that were used when evaluating this product.

For all models, except those listed separately, the component was submitted by the manufacturer for a maximum Base Plate Temperature of 100°C. Models BXA30-48T3V2-11-A and BXA30-8981, were submitted for a maximum baseplate temperature of 110°C.

The materials used in the transformer were considered to be Class A. However, engineering considerations were made to allow the materials to exceed the temperature limits of Class due to the use of potting material, R/C (QMFZ2), IPN Industries Inc., Type EGE-XX303HK, rated 94V-0, with an Relative Thermal Index (RTI) of 150°C, and the Enclosure, R/C (QMFZ2), General Electric, Type Valox 553, rated 94-V0, with a RTI of 125°C. The transformers for models with Prefix BXA15 12-xxx, BXA15 24-xxx, BXA30 12-xxx, and BXA30 24-xxx provides only OPERATIONAL insulation between the input and output. All other models provide BASIC insulation. Abnormal Fault Conditions were conducted between the input and output of model providing BASIC insulation with acceptable results.

The equipment is: For building in, Class III.

The unit is a component within a system. End-use customer has to ensure proper earthing of base plate.

Conditions of Acceptability - When installed in the end product, consideration shall be given to the following:

- *1. This component has been judged on the basis of the required spacings in the Standard for Information Technology Equipment, Including Electrical Business Equipment, CAN/CSA-C22.2 No. 60950-1-03, First Edition, including revisions through revision date July 7, 2006 & UL 60950-1, First Edition, including revisions through revision date October 31, 2007.

2. * The transformers for models with Prefix BXA15 12-xxx, BXA15 24-xxx, BXA30 12-xxx, BXA30 24-xxx, BXA30-48T3V2-11-A, BXA30-8981, provide only OPERATIONAL insulation between the input and output. All other models provide BASIC insulation. Abnormal Fault Conditions were conducted between the input and output of model providing BASIC insulation with acceptable results.
3. The secondary output circuits are not hazardous energy levels.
4. The end-user must provide a 2 A fuse for 48 V input, 4 A fuse for 24 V input or a 8 A fuse for 12 V input in the unearthed input power lead.
5. The materials used in the transformer were considered to be Class A. However, engineering considerations were made to allow the materials to exceed the temperature limits of Class due to the use of potting material, R/C (QMFZ2), IPN Industries Inc., Type EGE-XX303HK, rated 94V-0, with an Relative Thermal Index (RTI) of 150°C, and the Enclosure, R/C (QMFZ2), General Electric, Type Valox 420-SEO, rated 94V-0, with a RTI of 130°C.
6. BXA 15 Series: The maximum continuous output power should not exceed 15 W. BXA 30 Series: For models BXA 30-12S05, BXA30-24S05, BXA30-48S05 and BXA30-48D05 the maximum output should not exceed 25 W. For the BXA30-48S3V3 the maximum output should not exceed 20 W. For all other models the maximum output should not exceed 30 W.



[2 YEAR WARRANTY]



BXA30 SERIES

Triple output

- Pin-compatible with BXA15 series
- Designed to meet telecom power supply interface standard ETS300-132-2
- UL, CSA and VDE approvals
- VDE0878 and EN55022 conducted emissions level A
- EN61000-4-2, -3, -4, -5, -6 immunity compliant
- Fixed frequency operation at 350kHz
- MTBF in excess of 7,005,000 hours (demonstrated)
- Basic insulation system

The BXA30 triple output Series, comprising 4 different models, 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. Designed to meet ETSI telecoms interface standards ETS300-132-2 and BTR2511, together with internal filtering to EN55022 level A, safety approval to EN60950 and UL1950, and basic insulation of 1500VDC, the 48VDC models are ideal for telecommunications applications. The 24V models are particularly suited to industrial, mobile telecom and test equipment applications, featuring EN61000-4-2, -3, -4, -5 and -6 immunity compliant. Other features include low output ripple, overvoltage protection, short circuit protection, remote enable.

SPECIFICATION

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

OUTPUT SPECIFICATIONS			
Output power			30W
Line regulation (See Note 1)	Main output Auxiliary output	±0.5% ±2.0%	
Load regulation (See Note 2)	Main output Auxiliary output	±1.0% ±3.0%	
Ripple and noise (20MHz bandwidth)	Main output Auxiliary outputs	75mV pk-pk 15mV rms 100mV pk pk 20mV rms	
Temperature coefficient			±0.02%/°C
Overvoltage protection	Transient, all outputs	135% Vout init.	
Short circuit protection	All outputs (See BXA15/30 Design Note 101)	Yes	
Transient response	25% to 100% load, all outputs	10%	
Voltage accuracy	Main output Auxiliary output	±1.5% ±3.0%	
Load cross regulation	20%-100% load Main: output Auxiliary: output 50%-100% load, main, >20% aux. Main output Auxiliary output	1.0% 10% 1.0% 4.0%	
Minimum load (See Note 10)	Main output for auxiliary regulation	≥10%	
INPUT SPECIFICATIONS			
Input voltage range	24Vin nominal 48Vin nominal	18 to 36VDC 36 to 75VDC	
Reverse voltage prot.	(See Note 6)	Yes	
Max. input rise and fall time	48V	5V/ms ETS300-132	
Remote ON/OFF Logic compatibility ON OFF		CMOS/TTL Open circuit <1VDC	

EMC CHARACTERISTICS			
Conducted emissions	EN55022, FCC part 15 (Note 3) Level A EN55022, FCC part 15 (Note 4) Level B VDE0878 (Note 3) (48V)	Level A	
Radiated emissions	EN55022, FCC part 15	Level A	
ESD air	EN61000-4-2, level 3	Perf. criteria 2	
ESD contact	EN61000-4-2, level 4	Perf. criteria 2	
Surge	EN61000-4-5, level 3	Perf. criteria 2	
Fast transients	EN61000-4-4, level 3	Perf. criteria 2	
Radiated immunity	EN61000-4-3, level 3	Perf. criteria 2	
Conducted immunity	EN61000-4-6, level 3	Perf. criteria 2	
GENERAL SPECIFICATIONS			
Efficiency			See table
Isolation voltage	Input/output	1500VDC	
Basic insulation	Input/case, 48V models	1500VDC	
Switching frequency	Fixed	350kHz, nom.	
Approvals and standards (See Note 11)		VDE0805, EN60950 EN41003, IEC950, UL1950 CSA C22.2 No. 950	
Case material		Aluminum substrate with plastic case	
Material flammability		UL94V-0	
Weight		130g (4.6oz)	
MTBF (See Note 9)	Demonstrated @ 25°C	7,005,000 hours	
ENVIRONMENTAL SPECIFICATIONS			
Thermal performance	Baseplate operating temperature, (See Notes 5, 7) Non-operating	-25°C to +100°C -55°C to +100°C	
Thermal impedance	Free air convection, baseplate to air With heatsink (See Note 7)	6.5°C/W 5.2°C/W	

30 Watt Wide input DC/DC converters


INPUT VOLTAGE	OUTPUT VOLTAGE	OUTPUT CURRENT (MAX.)	OUTPUT CURRENT (MIN.)	INPUT CURRENT NO LOAD	TYPICAL EFFICIENCY	MODEL NUMBER
18-36VDC	5/±12VDC	3/±0.625A	0.3/±0.062A	70mA rms	81%	BXA30-24T05-12
18-36VDC	5/±15VDC	3/±0.5A	0.3/±0.05A	70mA rms	81%	BXA30-24T05-15
36-75VDC	5/±12VDC	3/±0.625A	0.3/±0.062A	40mA rms	83%	BXA30-48T05-12
36-75VDC	5/±15VDC	3/±0.5A	0.3/±0.05A	40mA rms	83%	BXA30-48T05-15

Notes


- 1 Nominal line to high line. Nominal line to low line.
- 2 20%FL to full load. The value stated is for balanced loads.
- 3 An optional internal filter is available, which will meet VDE0871 level A, VDE0878 level A and EN55022 level A. Add the suffix '-F' to the model number, e.g. **BXA30-48T05-12-F**. See BXA15 and BXA30 Design Note 100.
- 4 For conducted noise operation of the BXA30 to VDE0871, VDE0878 and EN55022 level B, see BXA15 and BXA30 Design Note 100.
- 5 For extended operating temperature, include the heatsink option, '-1' in the model number. Maximum heatsink height is 12.5mm, e.g. **BXA30-48T05-15-1**.
- 6 Reverse voltage protection can be implemented by putting a slow blow fuse on the negative input rail. Rate the fuse for 100VDC at 1.5A for 48V models; 50VDC at 3A for 24V models.
- 7 The maximum operating ambient temperature, without derating depends on internal power dissipation and cooling method. BXA15 and BXA30 Design Note 100 provides detailed thermal calculations and design-in details.
- 8 Visit the Artesyn website to download a copy of Design Note 100.
- 9 Test results to-date are 1,590,000 hours @ 46°C. The MTBF figure shown includes a calculated acceleration factor of 4.1 based on an activation energy of -0.55 eV.
- 10 The load on the main output must exceed 10% to ensure operation of the unit to specification.
- 11 This product is only for inclusion by professional installers within other equipment and must not be operated as a stand alone product.

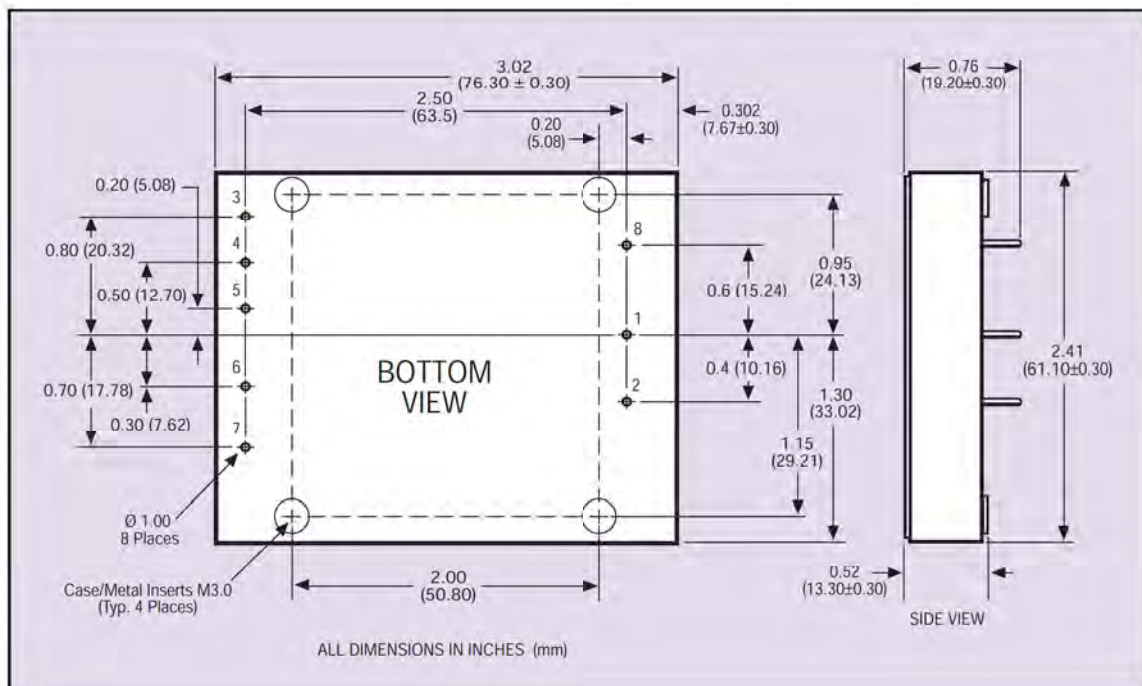
PIN CONNECTIONS	
PIN NUMBER	TRIPLE OUTPUT
1	+ Vin
2	- Vin
3	+ Auxiliary Output
4	Output Common
5	- Auxiliary Output
6	+ Main Output
7	N/C
8	Remote On/Off

International Safety Standard Approvals

 VDE0805/EN60950/IEC950 File No. 14501-3336-7006
Licence No. 6231

UL1950 File No. E174104

 CSA C22.2 No. 950 File No. LR41062C



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