

## **EXB50 SERIES**

Single output



- Industry standard footprint
- Wide operating temperature -40°C to +70°C (natural convection)
- 60% to 110% output trim
- No minimum load
- Overvoltage and overtemperature protection
- Remote sense compensation
- Remote on/off

The EXB50 series of 50 Watt single-output isolated DC/DC converters is specifically designed to meet the power needs of low-voltage silicon. Housed in an open-frame package with an industry-standard footprint, these latestgeneration converters offer efficiencies as high as 91%. The series comprises three 24V-input models with 5V, 3.3V and 2V outputs, and six 48V-input models with 12V, 5V, 3.3V 2.5V, 2.0V and 1.8V outputs. All models feature a wide input range, trimmable output voltage and a 10A current rating (except the 12V). Remote sense and remote on/off facilities are included as standard, and the converters are comprehensively protected against over-current, over-voltage and over-temperature conditions.





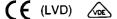
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#### [ 2 YEAR WARRANTY ]









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

OUTPUT SPECIFICATI	IONS
Voltage adjustability	60% to 110%
Set point accuracy	±1.5% max.
Line regulation	Low line to high line 0.1% max.
Load regulation	Full load to min. load 0.2% max.
Total error band	±3.0%
Minimum load	0%
Overshoot	At turn-on and turn-off None
Undershoot	None
Ripple and noise (See Note 1)	5Hz to 20MHz 100mV pk-pk 20mV rms
Transient response (See Notes 2 and 8)	24V models 48V models 2.0% peak deviation, 200µs recovery to within total error band
Remote sense	(See Note 9) 10% o/p voltage change
INPUT SPECIFICATIO	NS
Input voltage range (See Note 14)	24Vin nominal 18 to 36VDC 48Vin nominal 36 to 75VDC 100V 100ms Transient
Input current	24V: No load       85mA max.         24V: Remote OFF       20mA max.         48V: No load       60mA max.         48V: Remote OFF       10mA max.
Input current (max.) (See Note 4)	24V models 3.25A max. @ lo max. and Vin = 18 to 36V 48V models 1.7A max. @ lo max. and Vin = 36 to 75V
Input reflected ripple (See Note 6)	24V models 20mA (pk-pk) typ. 48V models 50mA (pk-pk) typ.
Remote ON/OFF Logic compatibility ON OFF	(See Note 15) Open collector ref to -input Open circuit or >2VDC <1.2VDC

INPUT SPECIFICATION	S CONTD.	
Undervoltage lockout	24Vin: power up 24Vin power down 48Vin: power up 48Vin: power down	17Vmax 15Vmin 33.2Vmax 30.9Vmin
Start-up time (See Note 7)	Power up Remote ON/OFF	30ms 25ms
EMC CHARACTERISTIC	CS	
Conducted emissions Radiated emissions Immunity: ESD air ESD contact Radiated field enclosure Conducted (DC power) Conducted (signal)	EN55022 (See Note EN55022 (See Note EN55022 (See Note 13) EN61000-4-2 8kV (I EN61000-4-3 10V/r EN61000-4-6 10V (I EN61000-4-6 10V (I	3) Level B Level A NP), 15kV (RP) NP), 8kV (RP) n (NP) NP)
GENERAL SPECIFICAT	IONS	
Efficiency		See table
Basic insulation	Input/output	1500VDC
Switching frequency	Fixed	300kHz typ.
Approvals and standards (See Note 5) Material flammability	IEC60950/EN6 (	0950, UL/cUL1950 CSA C22.2 No. 950 UL94V-0
Weight		50g (1.77oz)
MTBF	MIL-HDBK-217F @ : 100% load ground b	
ENVIRONMENTAL SPE	CIFICATIONS	
Thermal performance (See Notes 11 & 12)	Operating ambient temperature (natural Non-operating	-40°C to +70°C convection) -55°C to +125°C
ETS 300 019-2-3	. С	lasses T3.1 to T3.5
Altitude (See Note 10)		Derate max. output current by 20% Derate max. output current by 50%



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# 20 to 50 Watt C converters

OUTPUT POWER (MAX.)	INPUT VOLTAGE	OVP	OUTPUT VOLTAGE	OUTPUT CURRENT (MIN.)	OUTPUT CURRENT (MAX.)	EFFICIENCY (TYP.)	REGU LINE	JLATION LOAD	MODEL NUMBER
20W	18-36VDC	2.4VDC	2.0V	0A	10A	86.5%	±0.1%	±0.2%	EXB50-24S2V0
33W	18-36VDC	3.9VDC	3.3V	0A	10A	89%	±0.1%	±0.2%	EXB50-24S3V3
50W	18-36VDC	6.0VDC	5.0V	0A	10A	90%	±0.1%	±0.2%	EXB50-24S05
18W	36-75VDC	2.15VDC	1.8V	0A	10A	85.7%	±0.1%	±0.2%	EXB50-48S1V8 <sup>(15)</sup>
20W	36-75VDC	2.45VDC	2.0V	0A	10A	87.5%	±0.1%	±0.2%	EXB50-48S2V0 <sup>(15)</sup>
25W	36-75VDC	2.95VDC	2.5V	0A	10A	87.5%	±0.1%	±0.2%	EXB50-48S2V5 <sup>(15)</sup>
33W	36-75VDC	4.00VDC	3.3V	0A	10A	90.0%	±0.1%	±0.2%	EXB50-48S3V3 <sup>(15)</sup>
50W	36-75VDC	6.15VDC	5.0V	0A	10A	91.0%	±0.1%	±0.2%	EXB50-48S05 <sup>(15)</sup>
50W	36-75VDC	14.2VDC	12.0V	0A	4.2A	90.0%	±0.1%	±0.2%	EXB50-48S12 <sup>(15)</sup>

#### **Notes**

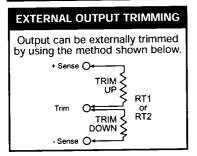
- Measured as per recommended set-up. 150mV pk-pk for EXB50-48S12
- $di/dt = 0.1A/\mu s$ , Vin = 24/48VDC, Tc = 25°C, load change = 0.5 lo max. to 0.75 lo max. and 0.75 lo max. to 0.5 lo max.
- The EXB50 meets level A and level B conducted emissions only with external
- components connected before the input pins to the converter.
  Recommended input fusing is a 6.3A HRC 200V rated fuse on the 24V and 3.15A HRC 200V rated fuse on the 48V.
- This product is only for inclusion by professional installers within other equipment and must not be operated as a stand alone product.

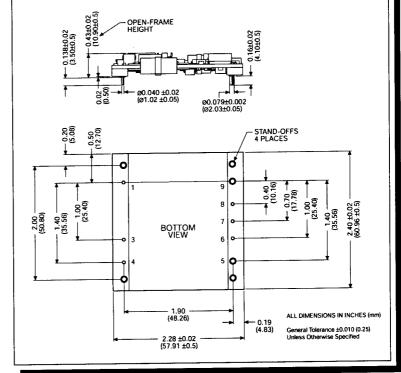
  Simulated source impedance of 12µH. 12µH inductor in series with +Vin.
- Start-up into resistive load.
- EXB50-24S2V0 model has 5.0% max. deviation and 300µs recovery.
- Maximum output deviation is 10% inclusive of trim.
- 10 Contact factory for operation at higher altitude.
  11 See Application Note 113 for Derating Curves.
- 12 Wide operating temperature on the EXB50-24S05 is -40°C to +  $60^{\circ}$ C
- 13 Input transient (48V) ETS300 132-2 ETR283
- Applies to 3V3 version only. Please add suffix 'R03' to the model number e.g. EXB50-48S3V3R03. This is also active low remote on/off.
- 15 Active low remote on/off available. Add suffix '-R' to part number.

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

PROTECTION	
Short circuit protection	Continuous
Overvoltage protection	Non-latching clamp
Thermal protection	120°C hot spot temperature with automatic recovery
TELECOM SPECIFICATION	
Central office interface A	ETS300-132-2, input voltage and current requirements

PIN CONNECTIONS			
PIN NO	FUNCTION		
1	- Vin		
2	No Pin		
3	Remote ON/OFF		
4	+ Vin		
5	+ Vout		
6	+ Sense		
7	Trim		
8	- Sense		
9	- Vout		





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