PRELIMINARY

BOTHHAND ENTERPRISE INC.

Isolated DC-DC Converters
BOA5W Series -- 5 Watt

Features

- Wide 4 : 1 Input Voltage Range(9~36V,18~75V)
- Input / Output Isolation Voltage: 1.5K Vdc
- Extended Operating Temperature Range: -40°C to +85°C
- Output Short Circuit Protection:
  Continuous & Auto Recovery
- Over Voltage Protection: Clamp Mode
- Meet EN55022, Class A (Radiation)
- Shielded Metal Case with Insulated Baseplate
- Lead Free Design, RoHS Compliant
- 24pin DIP Package with Industry-Standard Footprint
- Customer Design Available

RoHS compliant

Description

The BOB5W Series are isolated 5W DC/DC converters. Designed with highly efficiency, allow the operating temperature range of these units to be -40°C to +85°C in a 24 pin DIP package with industry-standard footprint. Further features include wide 4 : 1 input voltage range, short-circuit protection and over voltage protection.

Applications

These converters are well suitable for battery operated equipment, measurement equipment, telecom, wireless network, Industry control system, everywhere where isolated, tightly regulated voltages and compact size are required.

Technical Specification

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

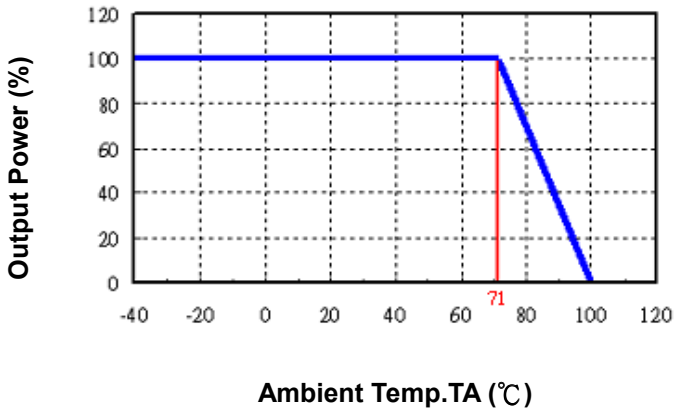
Model Number	Input Voltage Range	Output Voltage (Vdc)	Output Current (mA)		Input Current (mA)		Eff. (2) (%)	Capacitive Load, max. (3) (uF)
			Min. Load (1)	Full. Load	No Load	Full Load		
BOA5-24S0W	9~36V Nominal:24Vdc	3.3	34	1200	4.6	226	77	6800
BOA5-24S1W		5	4	1000	9.7	274	80	7030
BOA5-24S2W		12	0	500	7.1	316	83	1220
BOA5-24S3W		15	0	400	10	321	82	430
BOA5-24D1W		±5	0	±500	9.2	271	81	4620
BOA5-24D2W		±12	0	±250	11.7	316	83	330
BOA5-24D3W		±15	0	±200	13	316	83	200
BOA5-48S0W	18~75V Nominal:48Vdc	3.3	49.4	1200	2.8	116	75	4400
BOA5-48S1W		5	0	1000	4.9	139	79	5460
BOA5-48S2W		12	0	500	5	160	82	660
BOA5-48S3W		15	0	400	5.2	160	82	330
BOA5-48D1W		±5	0	±500	5.4	139	79	1660
BOA5-48D2W		±12	0	±250	6.8	160	82	220
BOA5-48D3W		±15	0	±200	7.4	160	82	147

Input Specifications			
Input Voltage	24V nominal input		9-36Vdc
	48V nominal input		18-75Vdc
Input filter			Pi Type
Input surge voltage	24V input		50Vdc
(100ms max.)	48V input		100Vdc
Input reflected ripple current	Nominal Vin and full load		160mAp-p typ.
Start up time	Nominal Vin and constant resistive load		530ms typ.
Environmental Specifications			
Operating ambient temperature			-40°C to +85°C (with derating)
Maximum case temperature			+100°C
Storage temperature range			-55°C to +105°C
Relative humidity			5% to 95% RH
Temperature coefficient			±0.02% / °C max.
EMC Characteristics			
EMI	EN55022 (radiation)		Meet class A
Output Specifications			
Output power			6 Watts max.
Voltage accuracy	Full load and nominal Vin		±2%
Minimum load			See table
Line regulation	LL to HL at full load		±0.5%
Load Regulation	25% load to full load	Single	±1%
	Balanced load	Dual	±1%
	Unbalanced load 25% to 100% full load		±5%
Ripple and Noise	20MHz bandwidth		80mVp-p max.
Over voltage protection (Zener Diode Clamp)	3.3Vout models		3.9V
	5Vout models		6.2V
	12Vout models		15V
	15Vout models		18V
Capacitive load			See table
Over load protection	% of full load at nominal input		150% typ.
Short circuit protection			Continuous, automatic recovery
Transient response settling time	50% load step change		560μs typ.
Transient response over shoot	di/dt=0.8A/μs		≤ ±5% of Vo

General Specifications		
Efficiency	Nominal input	See table
Isolation voltage	Input to output	1500Vdc
Isolation resistance	500Vdc	10^9 Ohms min.
Isolation capacitance		300pF typ.
Switching frequency		300kHz typ.
Reliability, calculated MTBF		2.40 × 10^6 Hrs
Physical Specifications		
Case material		Nickel-coated copper
Base material		Non-conductive black plastic
Potting material		Silicon rubber (UL94V-0)
Dimensions		1.25 × 0.80 × 0.40 Inch (31.75 × 20.32 × 10.16 mm)
Weight		17.2g (0.59oz) typ.

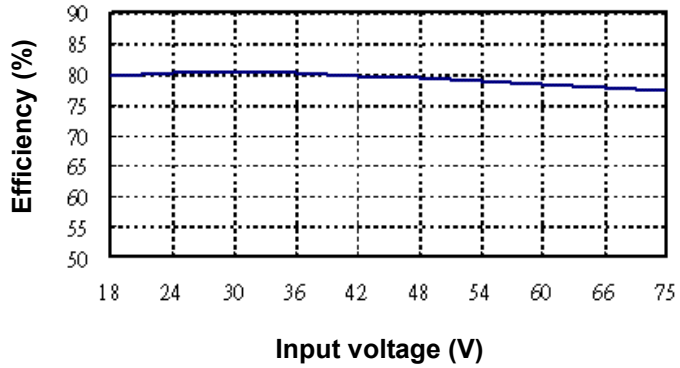
BOA5WSeries

Power Derating Curve(4)



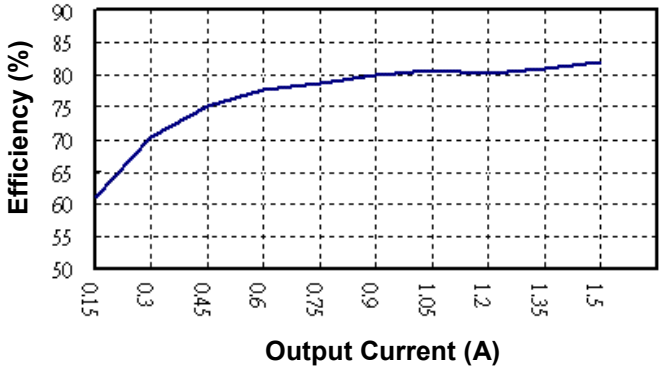
BOA5-48S1W

Input voltage vs. Efficiency



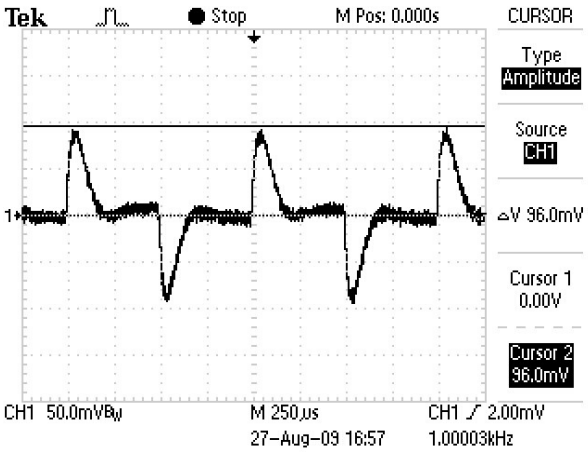
BOA5-48S1W

Output Current vs. Efficiency



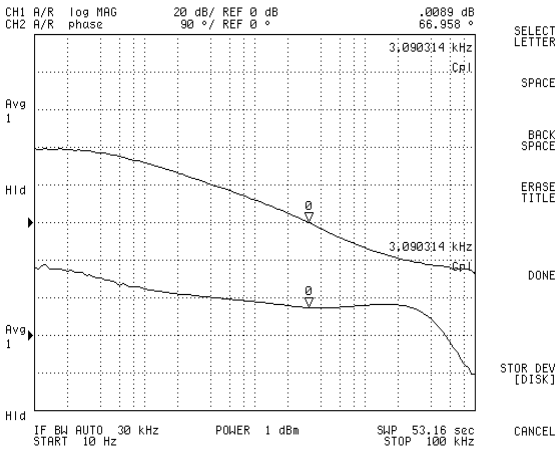
BOA5-48S1W

Transient Response at 50%~100% Max Load



BOA5-48S1W

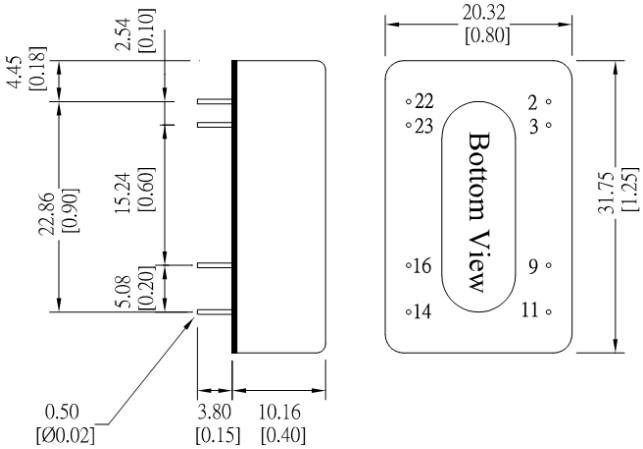
Loop Gain & Phase at Vi=48V,Full Load



Note

1. Io below this value will not damage these converters, however, they may not meet all listed specifications.
2. Typical value, tested at nominal input and full load.
3. For each output.
4. Based on BOA5-48S1W.

Mechanical Dimensions



Unit: mm [inch]
Tolerance:±0.5[0.02]

Pin Assignment		
Pin	Single	Dual
2	-Vin	-Vin
3	-Vin	-Vin
9	No pin	Common
11	No function	-Vout
14	+Vout	+Vout
16	-Vout	Common
22	+Vin	+Vin
23	+Vin	+Vin

Specifications subject to change without notice.