

## Features

- Wide 4 : 1 Input Voltage Range(9~36V, 18~75V)
- Remote On/Off
- 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



## Description

The BOB3W Series are isolated 3W 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, remote on/off control, 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. <sup>(2)</sup> (%)	Capacitive Load, max. <sup>(3)</sup> (uF)
			Min. Load <sup>(1)</sup>	Full. Load	No Load	Full Load		
BOB3-24S0W	9~36V Nominal:24Vdc	3.3	15	750	6	146	75	1000
BOB3-24S1W		5	4	600	4	170	77	860
BOB3-24S2W		12	0	250	11	165	80	220
BOB3-24S3W		15	0	200	11	168	79	191
BOB3-24D1W		±5	0	±300	9	168	78	477
BOB3-24D2W		±12	0	±125	15	167	79	147
BOB3-24D3W		±15	0	±100	18	171	77	94
BOB3-48S0W		18~75V Nominal:48Vdc	3.3	18	750	3	74	74
BOB3-48S1W	5		15	600	2	85	77	1900
BOB3-48S2W	12		0	250	5	83	79	247
BOB3-48S3W	15		0	200	6	85	77	169
BOB3-48D1W	±5		0	±300	6	86	77	399
BOB3-48D2W	±12		0	±125	8	85	78	110
BOB3-48D3W	±15		0	±100	10	87	76	69

Input Specifications			
Input Voltage	24V nominal input	9-36Vdc	
	48V nominal input	18-75Vdc	
Input filter			Pi Type
Input surge voltage (100ms max.)	24V input	50Vdc	
	48V input	100Vdc	
Input reflected ripple current	Nominal Vin and full load	60mA <sub>p-p</sub> typ.	
Start up time	Nominal Vin and constant resistive load	540ms typ.	
Remote ON/OFF	Converter: ON	Open or $3.5V < V_r < 12V$	
	Converter: OFF	Short <sup>(4)</sup> or $0V < V_r < 1.2V$	
Sourcing current of remote control pin	Nominal Vin	< 0.2 mA	
Idle input current (at Remote OFF state)	Nominal Vin	< 2.5 mA	
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	3 Watts max.		
Voltage accuracy	Full load and nominal Vin	±2%	
Minimum load	See table		
Line regulation	LL to HL at full load	±0.5%	
	25% load to full load	Single	±0.5%
Load Regulation	Balanced load	Dual	±0.5%
	Unbalanced load 25% to 100% full load		±3%
Ripple and Noise	20MHz bandwidth	60mV <sub>p-p</sub> max.	
Over voltage protection (Zener Diode Clamp)	3.3V <sub>out</sub> models	3.9V	
	5V <sub>out</sub> models	6.2V	
	12V <sub>out</sub> models	15V	
	15V <sub>out</sub> models	18V	
Capacitive load	See table		
Over load protection	% of full load at nominal input	155% typ.	
Short circuit protection	Continuous, automatic recovery		
Transient response settling time	50% load step change	520μs typ.	
Transient response over shoot	di/dt=0.8A/μs	≤ ±5% of V <sub>o</sub>	

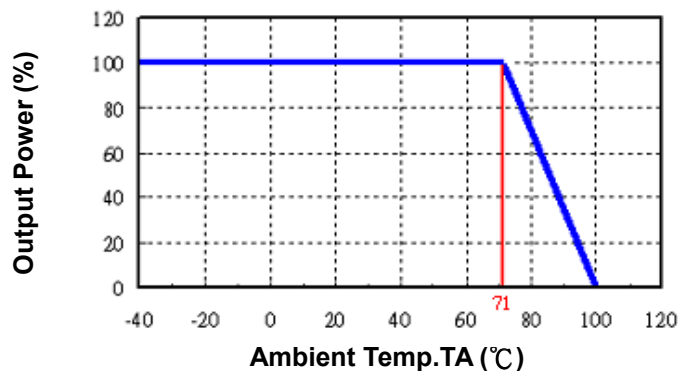
### General Specifications

Efficiency	Nominal input	See table
Isolation voltage	Input to output	1500Vdc
Isolation resistance	500Vdc	10 <sup>9</sup> Ohms min.
Isolation capacitance		300pF typ.
Switching frequency		300kHz typ.
Reliability, calculated MTBF		2.53 × 10 <sup>6</sup> Hrs

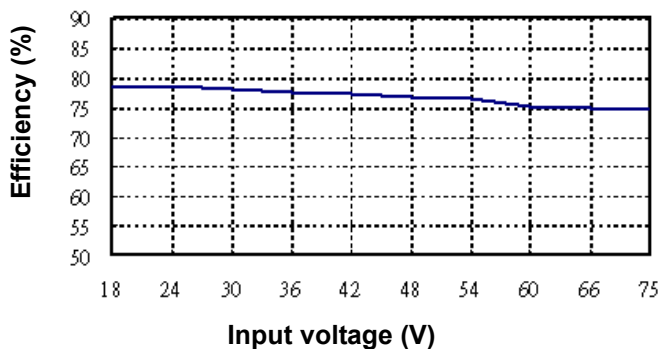
### Physical Specifications

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.

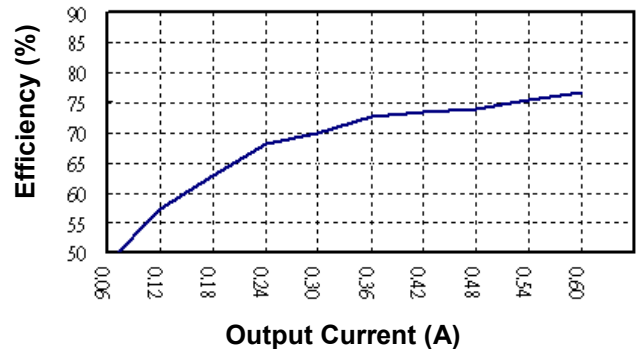
**BOB3W Series**  
Power Derating Curve(5)



**BOB3-48S1W**  
Input voltage vs. Efficiency

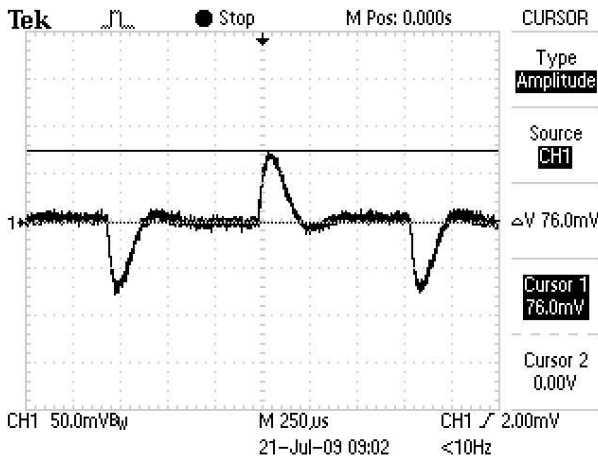


**BOB3-48S1W**  
Output Current vs. Efficiency



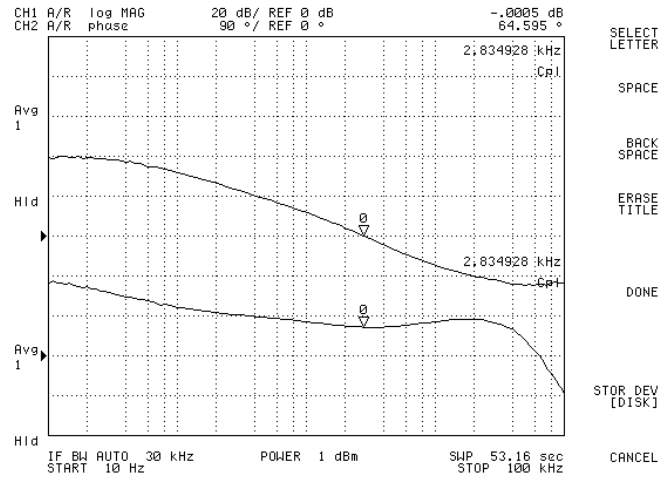
### BOB3-48S1 W

#### Transient Response at 50%~100% Max Load



### BOB3-48S1W

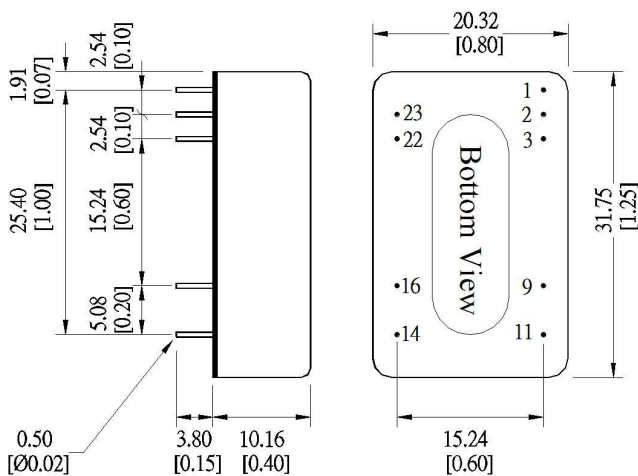
#### Loop Gain & Phase at Vi=48V, Full Load



### 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. Short to -Vin (Pin 2,3).
5. Based on BOB3-48S1W.

### Mechanical Dimensions



Unit: mm [inch]  
Tolerance: ±0.5 [0.02]

Pin Assignment		
Pin	Single	Dual
1	Remote On/Off	Remote On/Off
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