Isolated DC-DC Converters
BOB12 Series -- 12 Watt

Features

- Wide 2 : 1 Input Voltage Range(9~18V,18~36V,36~75V)
- 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
- High Efficiency up to 88%
- 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 BOB12 Series are isolated 12W 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 2 : 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.(1) (%)	Capacitive Load, max.(2) (uF)
			Min. Load	Full. Load	No Load	Full Load		
BOB12-12S9	9~18V Nominal:12Vdc	2.5	0	3500	47	960	80	55100
BOB12-12S0		3.3	0	3500	56	882	82	28000
BOB12-12S1		5.1	0	2400	68	1275	84	19620
BOB12-12S2		12	0	1000	68	1220	86	3530
BOB12-12S3		15	0	800	64	1220	86	2300
BOB12-12D2		±12	0	±500	98	1220	86	1660
BOB12-12D3		±15	0	±400	65	1220	86	1100
BOB12-24S9	18~36V Nominal:24Vdc	2.5	0	3500	22	468	82	59800
BOB12-24S0		3.3	0	3500	24	609	83	36580
BOB12-24S1		5.1	0	2400	31	630	85	18000
BOB12-24S2		12	0	1000	25	602	87	3730
BOB12-24S3		15	0	800	23	595	88	2420
BOB12-24D2		±12	0	±500	26	595	88	1880
BOB12-24D3		±15	0	±400	25	595	88	1100
BOB12-48S9	36~75V Nominal:48Vdc	2.5	0	3500	21	237	81	56090
BOB12-48S0		3.3	0	3500	16	305	83	40550
BOB12-48S1		5.1	0	2400	14	315	85	20000
BOB12-48S2		12	0	1000	13	301	87	3960
BOB12-48S3		15	0	800	10	298	88	2750
BOB12-48D2		±12	0	±500	13	298	88	1990
BOB12-48D3		±15	0	±400	13	301	87	1100

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Input Specifications		
Input Voltage	12V nominal input	9-18Vdc
	24V nominal input	18-36Vdc
	48V nominal input	36-75Vdc
Input filter		Pi Type
Input surge voltage (100ms max.)	12V input	25Vdc
	24V input	50Vdc
	48V input	100Vdc
Input reflected ripple current	Nominal Vin and full load	100mAp-p typ.
Start up time	Nominal Vin and constant resistive load	75ms typ.
Remote ON/OFF	Converter: ON	Open or 3.5V＜Vr＜12V
	Converter: OFF	Short (3) or 0V＜Vr＜0.7V
Sourcing current of remote control pin	Nominal Vin	＜0.2 mA
Idle input current (at Remote OFF state)	Nominal Vin	＜6 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.
Output Specifications		
Output power		12 Watts max.
Voltage accuracy	Full load and nominal Vin	±1.2%
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	85mVp-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	350μs typ.
Transient response over shoot	di/dt=0.8A/μs	≤ ±5% of Vo

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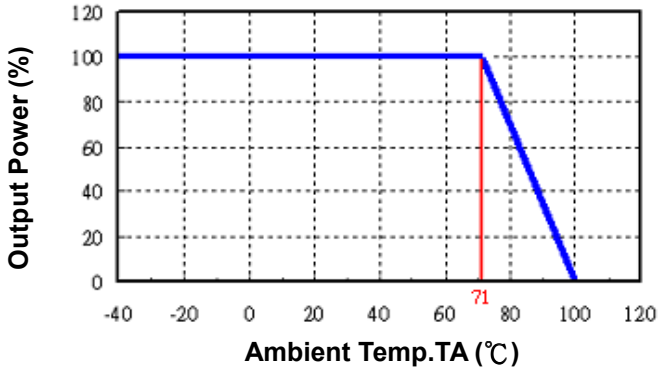
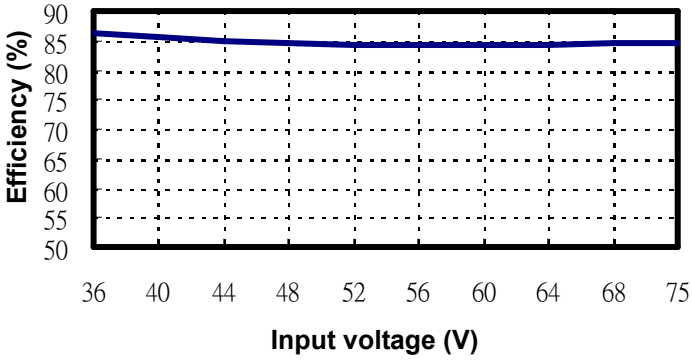
General Specifications		
Efficiency	Nominal input	See table
Isolation voltage	Input to output	1500Vdc
Isolation resistance	500Vdc	10^9 Ohms min.
Isolation capacitance		260pF typ.
Switching frequency		400kHz typ.
Reliability, calculated MTBF		2.11 × 10^6 Hrs

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	18g (0.62oz) typ.

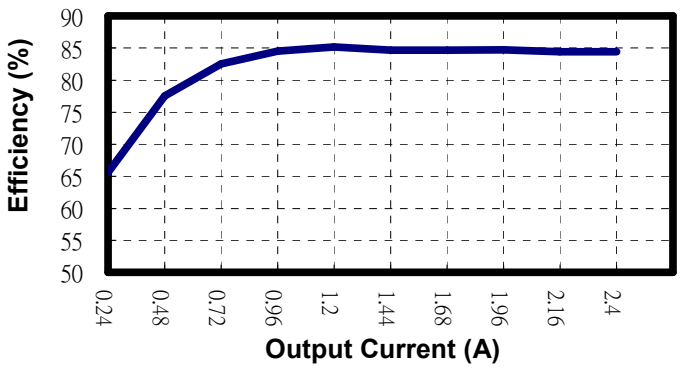
BOB12 Series
Power Derating Curve(4)



BOB12-48S1
Input voltage vs. Efficiency



BOB12-48S1
Output Current vs. Efficiency



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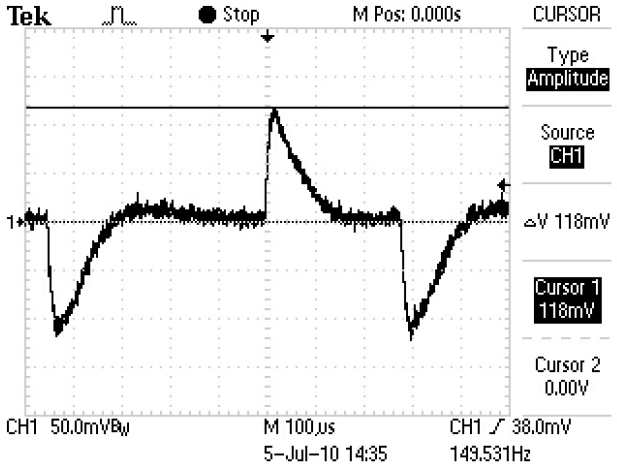
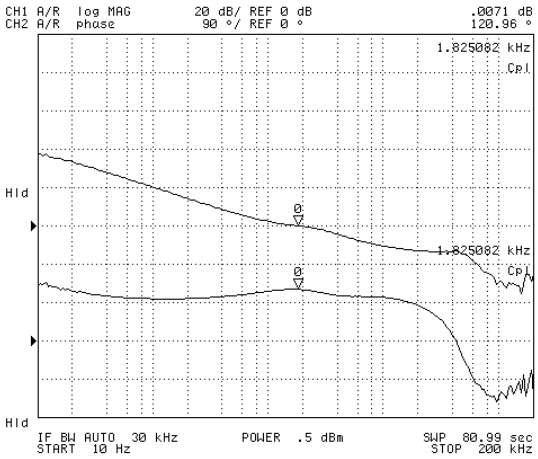
BOB12-48S1

Transient Response at 50%~100% Max Load



BOB12-48S1

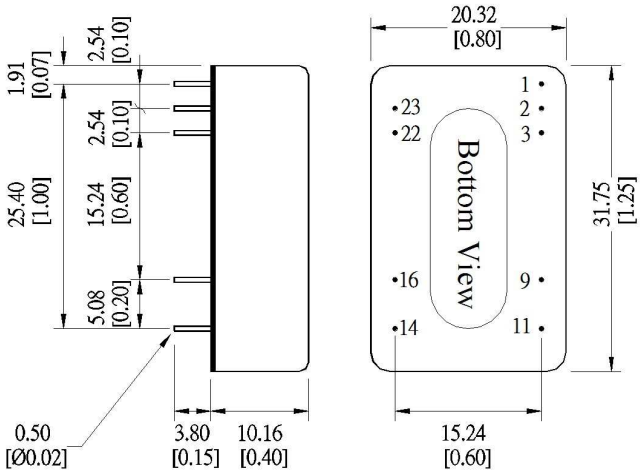
Loop Gain & Phase at Vi=48V,Full Load



Note

1. Typical value, tested at nominal input and full load.
2. For each output.
3. Short to -Vin (Pin 2,3).
4. Based on BOB12-48S1.

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 function	Common
11	No function	-Vout
14	+Vout	+Vout
16	-Vout	Common
22	+Vin	+Vin
23	+Vin	+Vin

Specifications subject to change without notice.