DC-DC Converters
BWC60 Series -- 60Watt

Features

- Wide 2 : 1 Input Voltage Range(18~36V,36~75V)
- Remote On/Off
- Input / Output Isolation Voltage: 1.5K Vdc
- High Efficiency: up to 91%
- Output Short Circuit Protection:
  Hiccup & Auto Recovery
- Over Voltage Protection: Clamp Mode
- Over Temperature Protection
- Shielded Metal Case with Insulated Baseplate
- Lead Free Design, RoHS Compliant
- Adjustable Output Voltage
- Customer Design Available

RoHS compliant

Description

The BWC60 Series are isolated 60W DC/DC converters. Designed with highly efficiency, allow the operating temperature range of these units to be -40°C to +85°C in a 50.8×50.8×10.2mm shielded metal case. Further features include wide 2 : 1 input voltage range, remote on/off control, short-circuit protection, over voltage protection and over temperature 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		
BWC60-24S0	18~36V Nominal:24VDC	3.3	0	14000	120	2292	88	47000
BWC60-24S1		5	0	12000	160	2907	90	36000
BWC60-24S2		12	0	5000	45	2941	89	6800
BWC60-24S3		15	0	4000	45	2907	90	4700
BWC60-48S0	36~75V Nominal:48VDC	3.3	0	14000	65	1132	89	47000
BWC60-48S1		5	0	12000	90	1453	90	36000
BWC60-48S2		12	0	5000	30	1453	90	6800
BWC60-48S3		15	0	4000	30	1437	91	4700

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Input Specifications		
Input voltage	24V nominal input	18-36Vdc
	48V nominal input	36-75Vdc
Input filter		Pi type
Input surge voltage	24V input	50Vdc
(100ms max.)	48V input	100Vdc
Input reflected ripple current	Nominal Vin and full load	66mAp-p typ.
Start up time	Nominal Vin and constant resistive load	160ms 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	＜20 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		95% RH max.
Temperature coefficient		±0.02% / °C max.
Output Specifications		
Output power		60 Watts max.
Voltage accuracy	Full load and nominal Vin	±1%
Minimum load		0mA
Line regulation	LL to HL at full load	±0.2%
Load Regulation	25% load to full load	±0.5% (±0.8% for 3.3Vout)
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	110% min.
Thermal shutdown		110°C typ.
Short circuit protection		Hiccup, automatic recovery
Transient response settling time	50% load step change	160μs typ.
Transient response over shoot	di/dt=0.8A/μs	≤ ±5% of Vo

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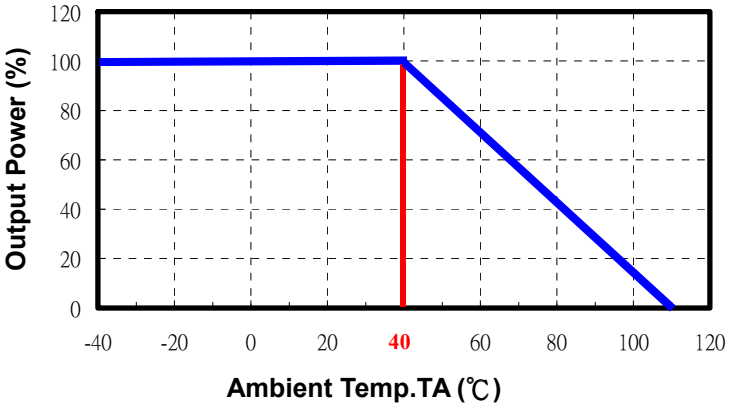
General Specifications

Efficiency	Nominal input	See table
Isolation voltage	Input to output	1500Vdc
Isolation resistance	500Vdc	10^9 Ohms min.
Isolation capacitance		1200pF typ.
Switching frequency		300kHz typ.
Reliability, calculated MTBF		7.48×10^5 Hrs

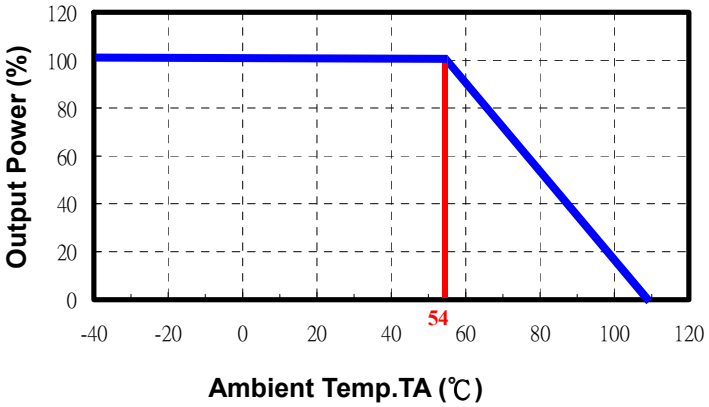
Physical Specifications

Case material	Nickel-coated copper
Base material	FR4 PCB
Potting material	Silicon rubber (UL94 V-0)
Dimensions	2.00 × 2.00 × 0.40 Inch (50.8 × 50.8 × 10.2 mm)
Weight	60g (2.11oz) typ.

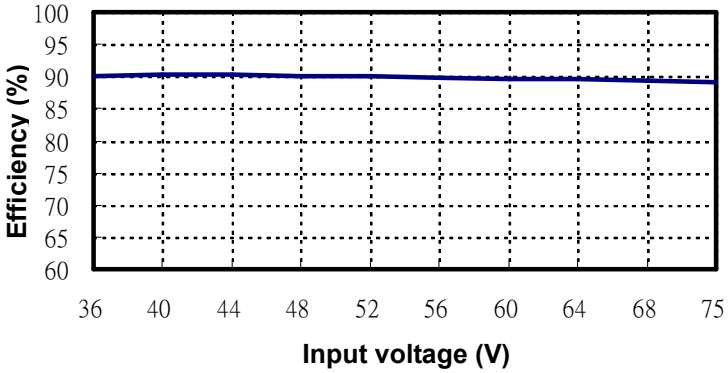
BWC60 Series
Power Derating Curve without Heatsink(4)



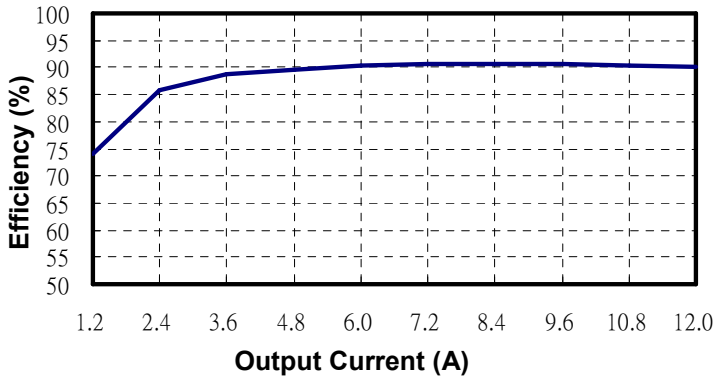
BWC60 Series
Power Derating Curve with Heatsink (4)



BWC60-48S1
Input voltage vs. Efficiency



BWC60-48S1
Output Current vs. Efficiency



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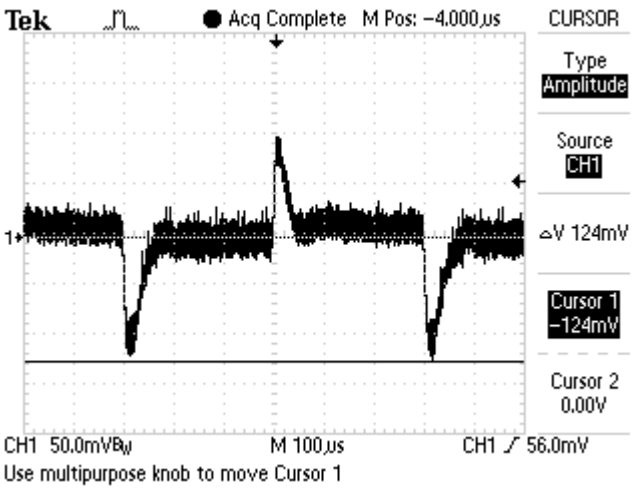
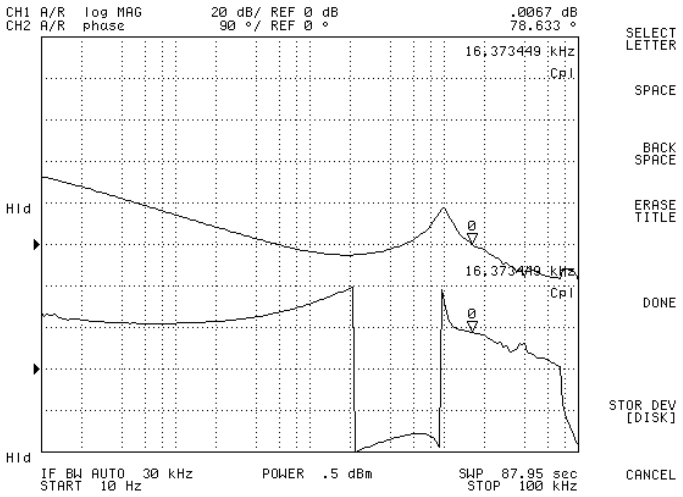
BWC60-48S1

Transient Response at 50%~100% Max Load



BWC60-48S1

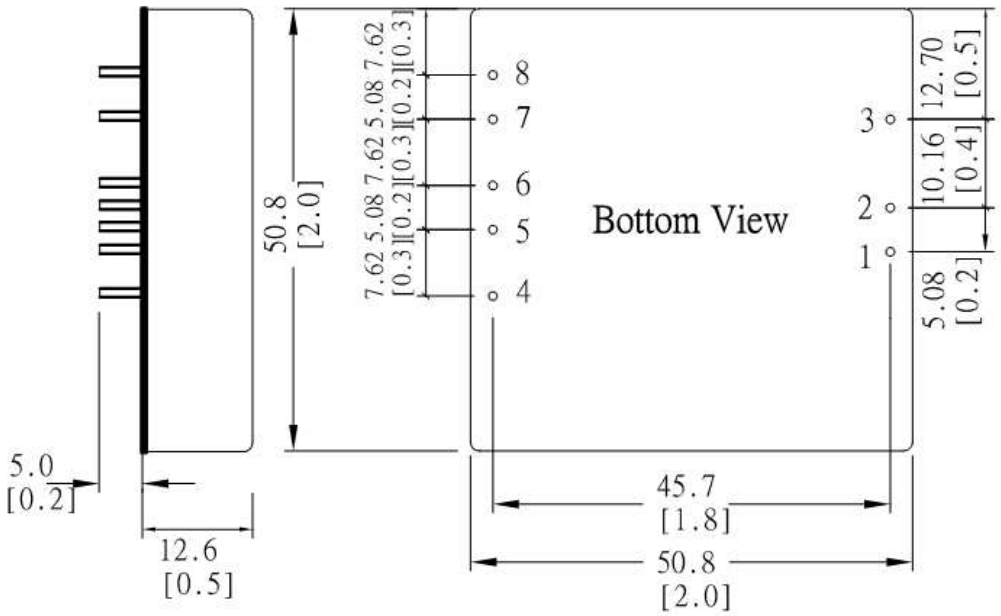
Loop Gain & Phase at Vi=48V,Full Load



Note

1. Typical value, tested at nominal input and full load.
2. For each output.
3. Short to -Vin (Pin 2).
4. Based on BWC60-48S1.

Mechanical Dimensions



Pin Assignment	
Pin	Single
1	+Vin
2	-Vin
3	Remote On/Off
4	-Sense
5	+Sense
6	+Vout
7	-Vout
8	Trim

Unit: mm [inch]
Tolerance:±0.5[±0.02]

Specifications subject to change without notice.

Heat-sink (Option)

Material: Aluminum

Weight: 19g (0.67oz) (without converter)

Note:
The product label on converter has to be removed before mounting the heat-sink.
For volume orders, converters will be supplied with heat-sink already mounted. Please contact factory for quotation.