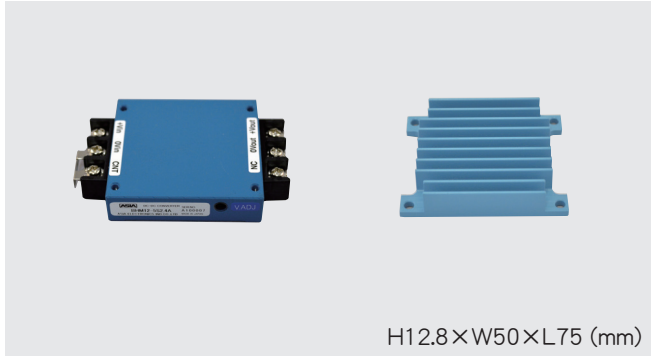


# BHM SERIES

## 7~15W DC/DC CONVERTERS Single Output & Dual Outputs



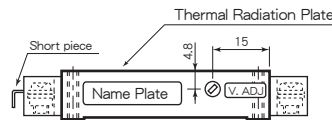
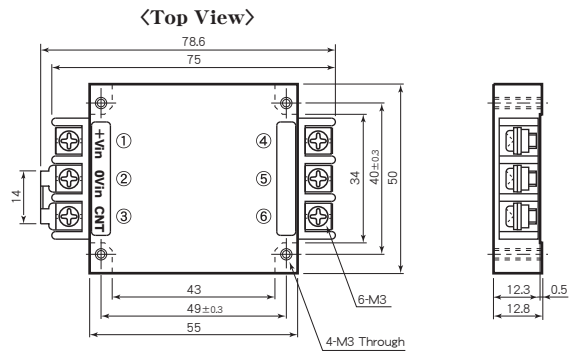
### Features

- Low Profile 12.8mm
  - Built-in Input Filter
  - Input-Output Isolation
  - High Efficiency 77~88%
  - Wide Input Voltage Range
  - High Reliability
  - 6 Sided Metal Shielding
  - Remote ON/OFF Control
  - Adjustable Output Volt.  $\pm 5\%$
  - Output Over Voltage Protection  
115~140% Operation
  - Operating Ambient Temperature  
 $-40^{\circ}\text{C} \sim +85^{\circ}\text{C}$
  - Max. Case Temperature  
 $+105^{\circ}\text{C}$
  - Conformity to RoHS Directive
  - Not built-in aluminum and tantalum electrolytic capacitor
- 薄型 12.8mm
  - 入力フィルタ内蔵
  - 入出力間絶縁
  - 高効率 77~88%
  - 広範囲な入力電圧
  - 高信頼性
  - 6面メタルシールド
  - リモートON/OFFコントロール
  - 可変出力電圧  $\pm 5\%$
  - 出力過電圧保護回路内蔵  
115~140% 動作
  - 動作周囲温度  
 $-40^{\circ}\text{C} \sim +85^{\circ}\text{C}$
  - 最大ケース温度  
 $+105^{\circ}\text{C}$
  - RoHS指令対応
  - アルミ電解コンデンサ及び  
タンタルコンデンサ不使用

### General Characteristics

- Input Voltage, Range  
DC 5, 12, 24, 48V (See Table 1)
- Output Voltage, Current  
See Table 1
- Output Voltage Range  
See Table 1,  $\pm 5\%$  Adjustable
- Efficiency  
See Table 1
- Line Regulation  
 $\pm 0.3\%$  max. (at Vin Range)
- Load Regulation  
Single :  $\pm 0.5\%$  max. (0~100% Load)  
Dual :  $\pm 3\%$  max. (10~100% Load)
- Reflected Input Ripple, Noise  
(3% Vin)Vp-p max.
- Output Ripple  
40mVp-p max.  
(48V Vout : 100mVp-p max.)
- Output Noise  
100mVp-p max.  
(48V Vout : 200mVp-p max.)
- Short Circuit Protection  
Built-in, Auto-restart (See Fig 2)
- Over Voltage Protection  
115~140% Output Voltage
- Remote ON/OFF Control  
ON : Short or 0~0.8V  
OFF : Open or 2~10V  
(Between terminal ② ~ ③)
- Temperature Coefficient  
0.02%/ $^{\circ}\text{C}$  max.
- Operating Ambient Temp.  
 $-40^{\circ}\text{C} \sim +85^{\circ}\text{C}$  (See Fig 1)  
 $-30^{\circ}\text{C} \sim +85^{\circ}\text{C}$  (5V Vin)
- Max. Case Temperature  
 $+105^{\circ}\text{C}$
- Storage Temperature  
 $-40^{\circ}\text{C} \sim +115^{\circ}\text{C}$
- Isolation Voltage  
AC1500V one minute  
(Input-Output-Case)
- Isolation Impedance  
100M $\Omega$  min. (at DC1000V)  
(Input-Output-Case)
- Weight  
Main Body : 100g max.  
Heat Sink : 40g max.
- Humidity  
20~95% RH
- Shock  
490m/s<sup>2</sup> (11msec 3directions)
- Vibration  
10~55Hz 98m/s<sup>2</sup>  
(30minutes 3directions)
- Surface Structure  
6 Sided Aluminum Case
- MTBF  
Single : 1,000,000H  
Dual : 700,000H  
(Ta:25 $^{\circ}\text{C}$ , 80%Load, Nominal Vin)
- Warranty  
5 years

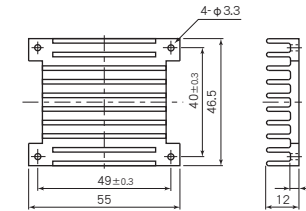
### Terminal Outs & Dimensions ( $\pm 0.5\text{mm}$ )



### Terminal Outs

Single Output		Dual Outputs	
① +Vdc in	② 0 Vdc in	① +Vdc in	② 0 Vdc in
③ ON/OFF Control		③ ON/OFF Control	
④ +Vdc out	⑤ 0 Vdc out	④ +Vdc out	⑤ Common
⑥ No Connection		⑥ -Vdc out	

### Option Heat Sink



\* Option Heat Sink Model : A3-13988

### Selection Guide

Table 1

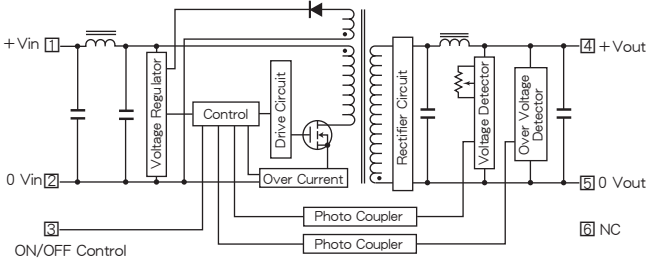
Model Number	Input Volt. (Range) (V. DC)	Output Voltage (V. DC)	Output Current (A)	Efficiency (Typical) (%)
BHM 5-3.3 S 2 A	5 (4.5~9)	3.3	2	83
BHM 5-5 S 2 A		5	2	82
BHM 5-6 S 1.8 A		6	1.8	82
BHM 5-12 S 1 A		12	1	84
BHM 5-15 S 0.8 A		15	0.8	83
BHM 5-24 S 0.5 A		24	0.5	83
BHM 5-28 S 0.4 A		28	0.4	83
BHM 5-5 D 1 A		$\pm 5$	$\pm 1$	77
BHM 5-12 D 0.5 A		$\pm 12$	$\pm 0.5$	81
BHM 5-15 D 0.4 A		$\pm 15$	$\pm 0.4$	81
BHM 12-3.3 S 2.4 A	12 (8~18)	3.3	2.4	83
BHM 12-5 S 2.4 A		5	2.4	85
BHM 12-6 S 2.2 A		6	2.2	85
BHM 12-12 S 1.3 A		12	1.3	85
BHM 12-15 S 1 A		15	1	85
BHM 12-24 S 0.65 A		24	0.65	85
BHM 12-28 S 0.5 A		28	0.5	85
BHM 12-48 S 0.3 A		48	0.3	85
BHM 12-5 D 1.2 A		$\pm 5$	$\pm 1.2$	78
BHM 12-12 D 0.65 A		$\pm 12$	$\pm 0.65$	83
BHM 12-15 D 0.5 A	$\pm 15$	$\pm 0.5$	83	
BHM 24-3.3 S 2.4 A	24 (16~36)	3.3	2.4	84
BHM 24-5 S 2.4 A		5	2.4	86
BHM 24-6 S 2.2 A		6	2.2	86
BHM 24-12 S 1.3 A		12	1.3	86
BHM 24-15 S 1 A		15	1	86
BHM 24-24 S 0.65 A		24	0.65	86
BHM 24-28 S 0.5 A		28	0.5	86
BHM 24-48 S 0.3 A		48	0.3	85
BHM 24-5 D 1.2 A		$\pm 5$	$\pm 1.2$	78
BHM 24-12 D 0.65 A		$\pm 12$	$\pm 0.65$	83
BHM 24-15 D 0.5 A	$\pm 15$	$\pm 0.5$	83	
BHM 48-3.3 S 2.4 A	48 (32~76)	3.3	2.4	83
BHM 48-5 S 2.4 A		5	2.4	86
BHM 48-6 S 2.2 A		6	2.2	86
BHM 48-12 S 1.3 A		12	1.3	88
BHM 48-15 S 1 A		15	1	88
BHM 48-24 S 0.65 A		24	0.65	86
BHM 48-28 S 0.5 A		28	0.5	86
BHM 48-5 D 1.2 A		$\pm 5$	$\pm 1.2$	80
BHM 48-12 D 0.65 A		$\pm 12$	$\pm 0.65$	85
BHM 48-15 D 0.5 A		$\pm 15$	$\pm 0.5$	85

\* 上記仕様以外にも対応可能ですのでお問い合わせ下さい。  
Please consult with us about other specification.

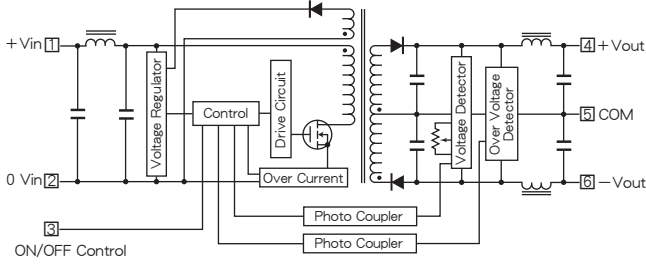
# BHM SERIES DATA SHEET

## Block Diagram

### Single Output



### Dual Outputs



## Characteristic Curves

Fig 1 Derating Curve

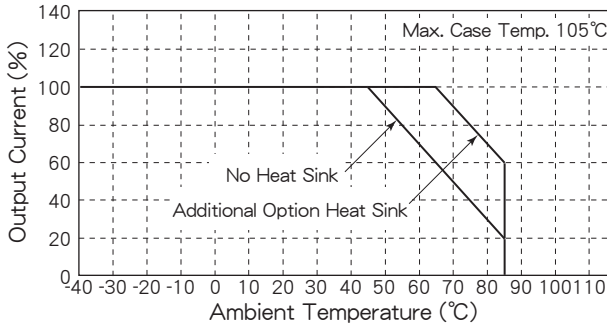


Fig 2 Short Circuit Operating Area

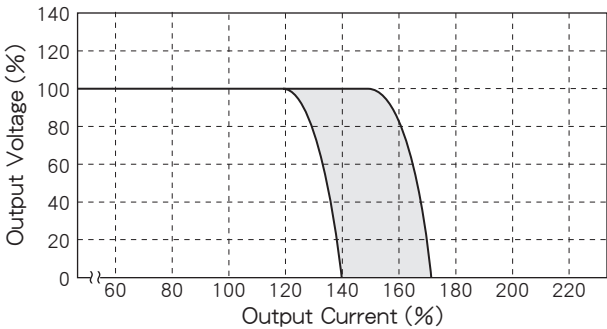


Fig 3 Temperature Characteristic on Case Surface

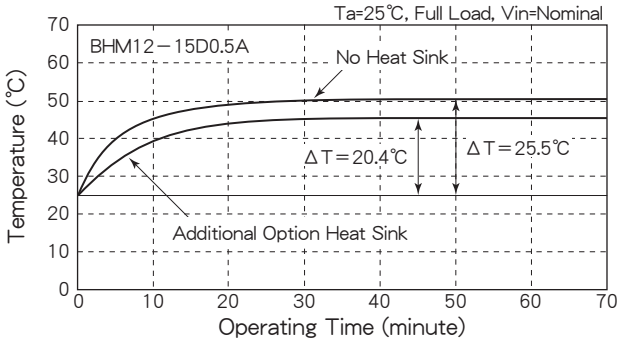


Fig 4 Efficiency vs. Output Current

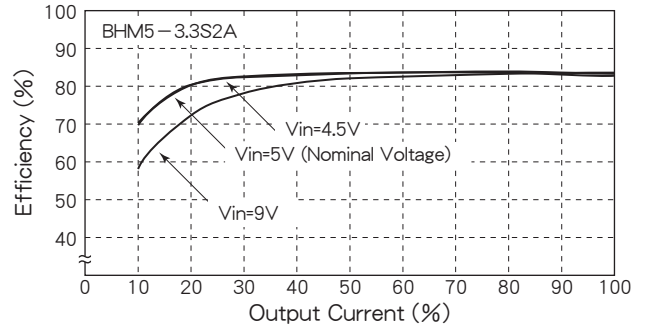


Fig 5 Efficiency vs. Output Current

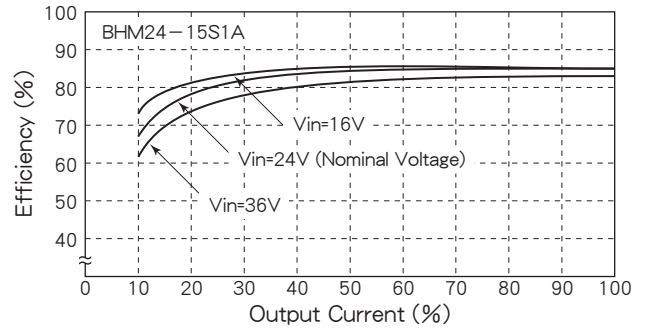


Fig 6 Efficiency vs. Output Current

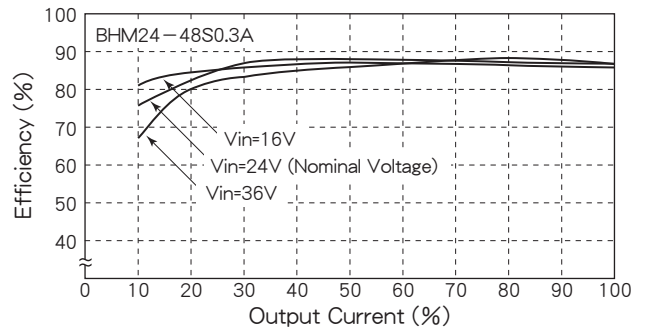


Fig 7 Efficiency vs. Output Current

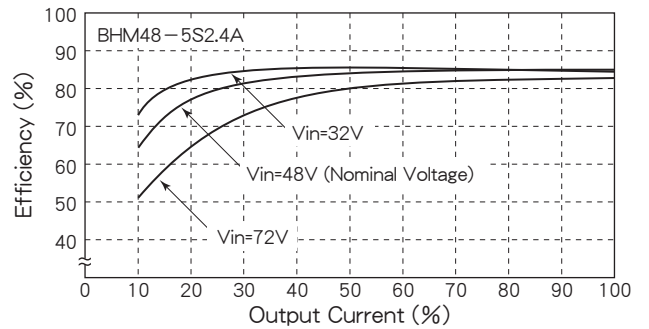


Fig 8 Efficiency vs. Output Current

