

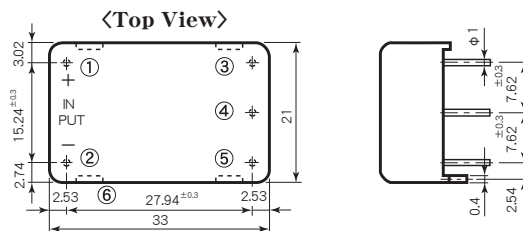
SS SERIES

2~3W DC/DC CONVERTERS Single Output & Dual Outputs



H10×W21×L33 (mm)

Pin Outs & Dimensions (±0.5mm)



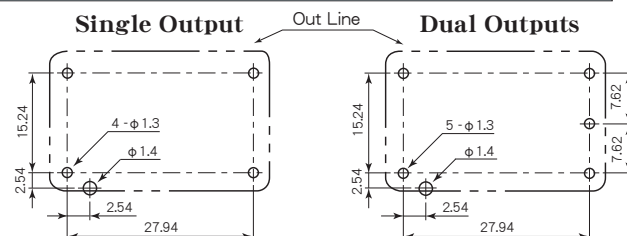
Pin Outs

Single Output		Dual Outputs	
①	+Vdc in	①	+Vdc in
②	-Vdc in	②	-Vdc in
③	+Vdc out	③	+Vdc out
④	No Pin	④	Common
⑤	-Vdc out	⑤	-Vdc out
⑥	Frame Ground	⑥	Frame Ground

Features

- 10mm in Height
- Built-in Input Filter
- Input-Output Isolation
- High Efficiency 75~82%
- Wide Input Voltage Range
- High Reliability
- Low No Load Current
- 5 Sided Metal Shielding
- Operating Ambient Temp. -40°C~+85°C
- Max. Case Temperature +100°C
- Conformity to RoHS Directive
- Not built-in aluminum and tantalum electrolytic capacitor
- 高さ10mm
- 入力フィルタ内蔵
- 入出力間絶縁
- 高効率 75~82%
- 広範囲な入力電圧
- 高信頼性
- 無負荷電流が少ない
- 5面メタルシールド
- 動作周囲温度 -40°C~+85°C
- 最大ケース温度 +100°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

Hole Configurations on PCB (Top View)



General Characteristics

- Input Voltage, Range
 - Output Voltage, Current
 - Output Voltage Accuracy
 - Efficiency
 - Line Regulation
 - Load Regulation
 - Reflected Input Ripple and Noise
 - Output Ripple
 - Output Noise
 - Short Circuit Protection
 - Temperature Coefficient
 - Operating Ambient Temp.
 - Storage Temperature
 - Isolation Voltage
 - Isolation Impedance
 - Weight
 - Humidity
 - Shock
 - Vibration
 - Surface Structure
 - Soldering Conditions
 - MTBF
 - Warranty
- (at Ta : 25°C, Full Load, Nominal Vin)
DC5, 12, 24, 48V (See Table 1)
See Table 1
±2%
±3%(5, 6V Vout only)
See Table 1
0.3% max. (at Vin Range)
Single : ±0.5% max. (0~100% Load)
Dual : ±3% max. (0~100% Load)
(3% Vin)/Vp-p max.
20mVp-p max.
100mVp-p max.
Built-in, Auto-restart (See Fig. 2)
0.02%/°C max.
-40°C~+85°C (See Fig. 1)
-30°C~+85°C (5V Vin only)
-40°C~+100°C
AC500V one minute
(Input-Output-Case)
100MΩ min. (at DC1000V)
(Input-Output-Case)
18g max.
20~95% RH
490m/s² (11msec 3directions)
10~55Hz 98m/s²
(30minutes 3directions)
5 Sided Steel Case
260°C, for 15 seconds max.
360°C, for 5 seconds max.
Single : 1,200,000H
Dual : 1,000,000H
(Ta : 25°C, 80% Load, Nominal Vin)
5 years

Selection Guide

Table 1

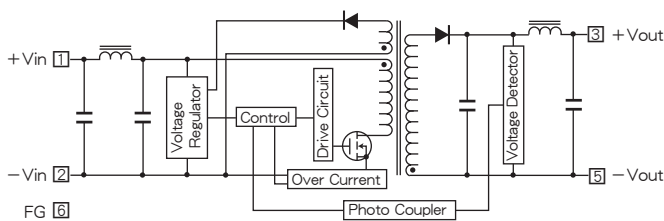
Model Number	Input Volt. (Range) (V. DC)	Output Voltage (V. DC)	Output Current (mA)	Efficiency (Typical) (%)
SS 5 - 5S400	5 (4.5~9)	5	400	76
SS 5 - 6S350		6	350	76
SS 5 - 12S200		12	200	78
SS 5 - 15S160		15	160	79
SS 5 - 24S100		24	100	75
SS 5 - 5D200		±5	±200	75
SS 5 - 12D100		±12	±100	76
SS 5 - 15D80		±15	±80	78
SS 12 - 5S500	12 (8~18)	5	500	79
SS 12 - 6S450		6	450	79
SS 12 - 12S250		12	250	80
SS 12 - 15S200		15	200	80
SS 12 - 24S125		24	125	80
SS 12 - 5D250		±5	±250	75
SS 12 - 12D125		±12	±125	82
SS 12 - 15D100		±15	±100	80
SS 24 - 5S500	24 (16~36)	5	500	79
SS 24 - 6S450		6	450	79
SS 24 - 12S250		12	250	81
SS 24 - 15S200		15	200	80
SS 24 - 24S125		24	125	80
SS 24 - 5D250		±5	±250	75
SS 24 - 12D125		±12	±125	82
SS 24 - 15D100		±15	±100	82
SS 48 - 5S500	48 (32~72)	5	500	78
SS 48 - 6S450		6	450	78
SS 48 - 12S250		12	250	80
SS 48 - 15S200		15	200	80
SS 48 - 24S125		24	125	80
SS 48 - 5D250		±5	±250	75
SS 48 - 12D125		±12	±125	80
SS 48 - 15D100		±15	±100	80

※ 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.

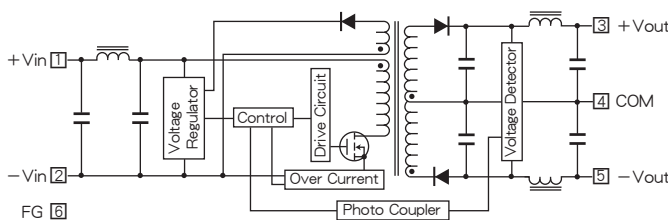
SS SERIES DATA SHEET

Block Diagram

Single Output



Dual Outputs



Characteristic Curves

Fig. 1 Derating Curve

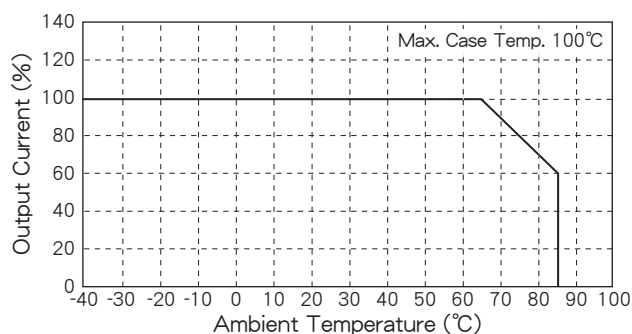


Fig. 2 Short Circuit Operating Area

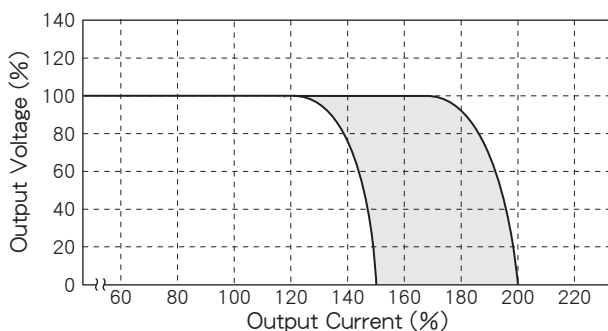


Fig. 3 Temperature Characteristic on Case Surface

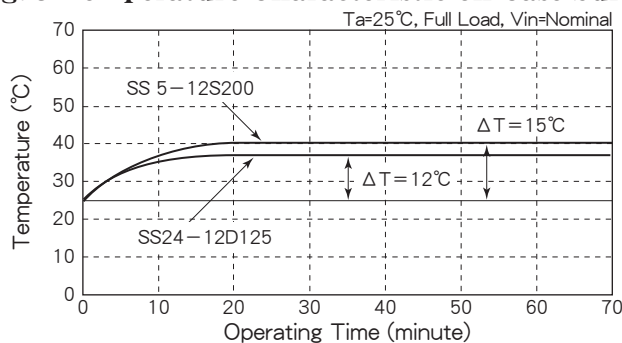


Fig. 4 No Load Current vs. Input Voltage

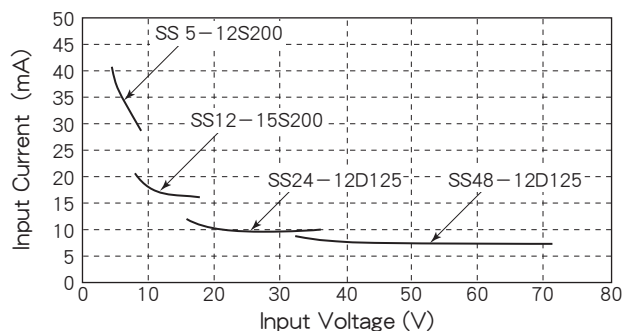


Fig. 5 Efficiency vs. Output Current (Single Output)

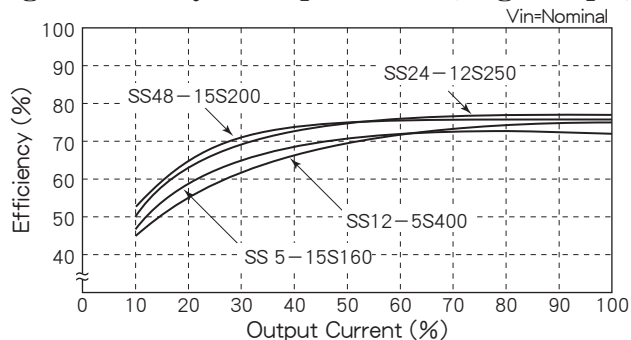
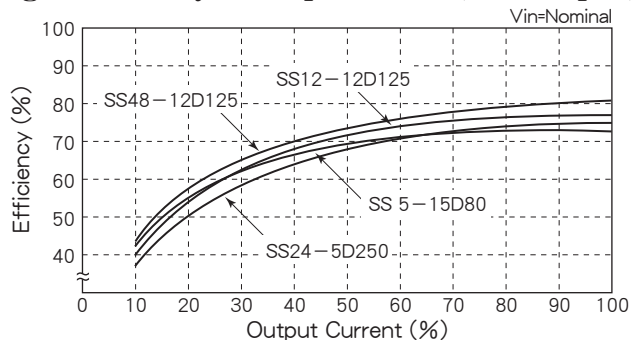


Fig. 6 Efficiency vs. Output Current (Dual Outputs)



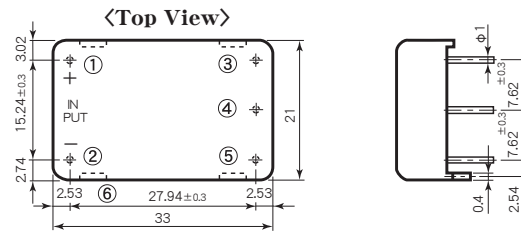
SSK SERIES

2~3W DC/DC CONVERTERS Single Output & Dual Outputs



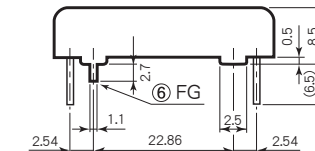
H8.5×W21×L33 (mm)

Pin Outs & Dimensions (±0.5mm)

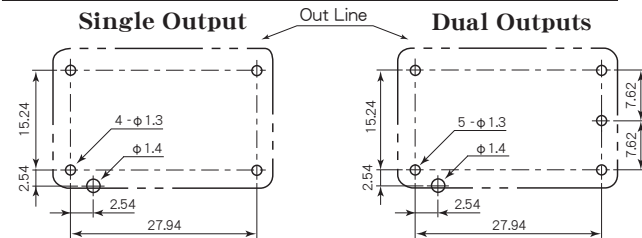


Pin Outs

Single Output	Dual Outputs
① +Vdc in	① +Vdc in
② -Vdc in	② -Vdc in
③ +Vdc out	③ +Vdc out
④ No Pin	④ Common
⑤ -Vdc out	⑤ -Vdc out
⑥ Frame Ground	⑥ Frame Ground



Hole Configurations on PCB (Top View)



Features

- Low Profile 8.5mm
- Built-in Input Filter
- Input-Output Isolation
- High Efficiency 70~81%
- Wide Input Voltage Range
- High Reliability
- Low No Load Current
- 5 Sided Metal Shielding
- Operating Ambient Temp. -40°C~+85°C
- Max. Case Temperature +100°C
- Conformity to RoHS Directive
- Not built-in aluminum and tantalum electrolytic capacitor
- 薄型 8.5mm
- 入力フィルタ内蔵
- 入出力間絶縁
- 高効率 70~81%
- 広範囲な入力電圧
- 高信頼性
- 無負荷電流が少ない
- 5 面メタルシールド
- 動作周囲温度 -40°C~+85°C
- 最大ケース温度 +100°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 (at Ta : 25°C, Full Load, Nominal Vin) DC5, 12, 24, 48V (See Table 1)
- Output Voltage, Current See Table 1
- Output Voltage Accuracy ±3%
- Efficiency See Table 1
- Line Regulation 0.3% max. (at Vin Range)
- Load Regulation Single : ±0.5% max. (0~100% Load)
Dual : ±3% max. (10~100% Load) (3% Vin)/Vp-p max.
- Reflected Input Ripple and Noise
- Output Ripple 20mVp-p max.
- Output Noise 100mVp-p max.
- Short Circuit Protection Built-in, Auto-restart (See Fig. 2)
- Temperature Coefficient 0.02%/°C max.
- Operating Ambient Temp. -40°C~+85°C (See Fig. 1)
-30°C~+85°C (5V Vin only)
- Storage Temperature -40°C~+100°C
- Isolation Voltage AC500V one minute (Input-Output-Case)
- Isolation Impedance 100MΩ min. (at DC1000V) (Input-Output-Case)
- Weight 15g max.
- Humidity 20~95% RH
- Shock 490m/s² (11msec 3directions)
- Vibration 10~55Hz 98m/s² (30minutes 3directions)
- Surface Structure 5 Sided Steel Case
- Soldering Conditions Soldering DIP
Soldering iron
- MTBF Single : 720,000H
Dual : 600,000H (Ta : 25°C, 80% Load, Nominal Vin)
- Warranty 5 years

Selection Guide

Table 1

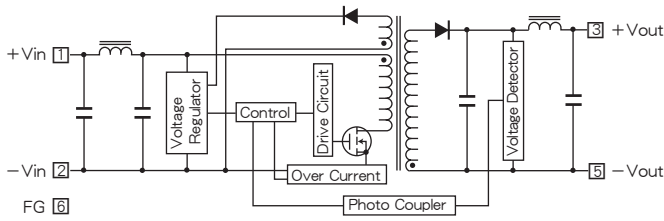
Model Number	Input Volt. (Range) (V. DC)	Output Voltage (V. DC)	Output Current (mA)	Efficiency (Typical) (%)
SSK 5 - 5S400	5 (4.5~9)	5	400	70
SSK 5 - 6S350		6	350	70
SSK 5 - 12S200		12	200	74
SSK 5 - 15S160		15	160	72
SSK 5 - 24S100		24	100	72
SSK 5 - 5D200		±5	±200	74
SSK 5 - 12D100		±12	±100	74
SSK 5 - 15D80		±15	±80	74
SSK 12 - 5S500	12 (8~18)	5	500	78
SSK 12 - 6S450		6	450	77
SSK 12 - 12S250		12	250	80
SSK 12 - 15S200		15	200	78
SSK 12 - 24S125		24	125	78
SSK 12 - 5D250		±5	±250	81
SSK 12 - 12D125		±12	±125	81
SSK 12 - 15D100		±15	±100	78
SSK 24 - 5S500	24 (16~36)	5	500	76
SSK 24 - 6S450		6	450	76
SSK 24 - 12S250		12	250	80
SSK 24 - 15S200		15	200	81
SSK 24 - 24S125		24	125	80
SSK 24 - 5D250		±5	±250	80
SSK 24 - 12D125		±12	±125	80
SSK 24 - 15D100		±15	±100	80
SSK 48 - 5S500	48 (32~72)	5	500	75
SSK 48 - 6S450		6	450	75
SSK 48 - 12S250		12	250	80
SSK 48 - 15S200		15	200	80
SSK 48 - 24S125		24	125	80
SSK 48 - 5D250		±5	±250	75
SSK 48 - 12D125		±12	±125	80
SSK 48 - 15D100		±15	±100	81

※ 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。
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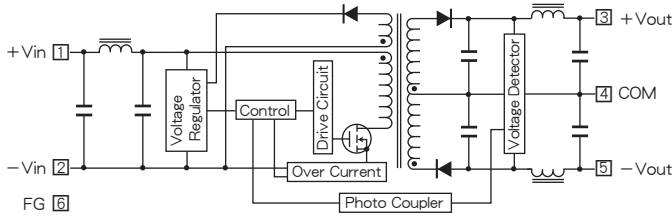
SSK SERIES DATA SHEET

Block Diagram

Single Output



Dual Outputs



Characteristic Curves

Fig. 1 Derating Curve

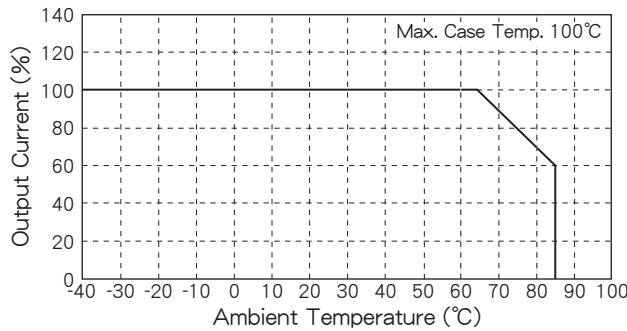


Fig. 2 Short Circuit Operating Area

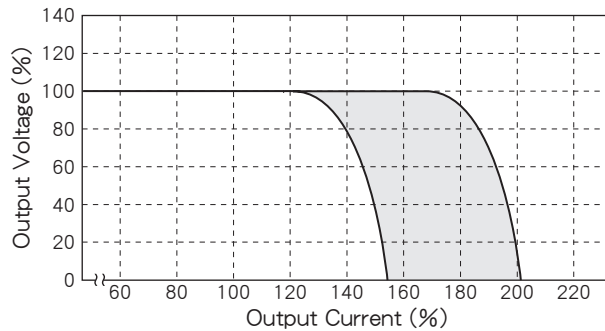


Fig. 3 Temperature Characteristic on Case Surface

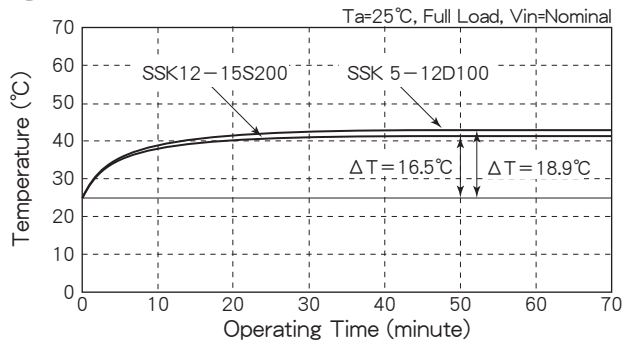


Fig. 4 No Load Current vs. Input Voltage

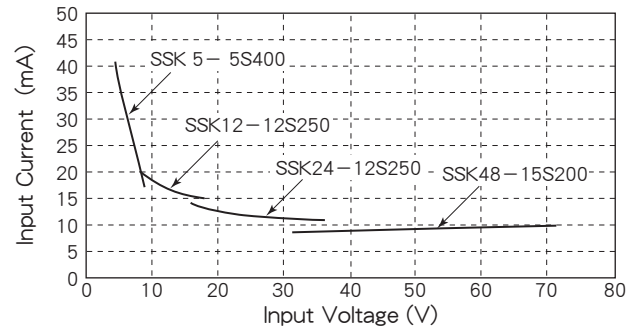


Fig. 5 Efficiency vs. Output Current (Single Output)

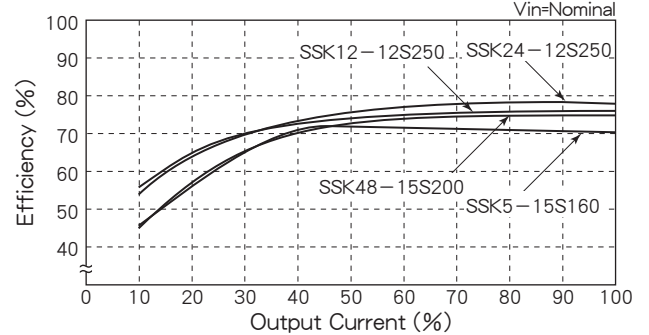
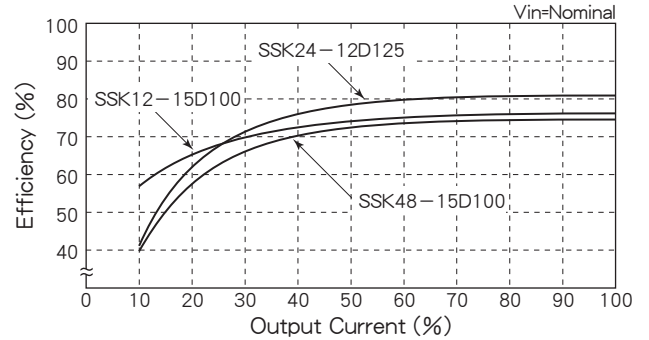


Fig. 6 Efficiency vs. Output Current (Dual Outputs)

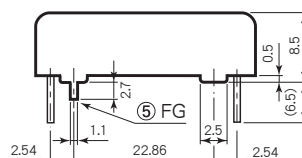
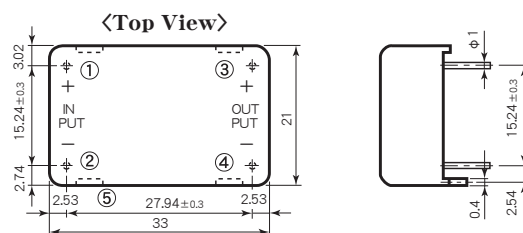


5~6W DC/DC CONVERTERS



H8.5×W21×L33 (mm)

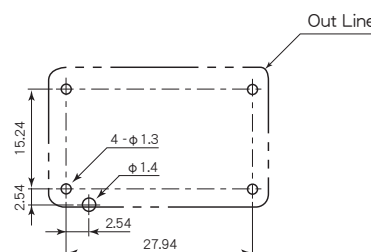
■ Pin Outs & Dimensions (±0.5mm)



Pin Outs

①	+Vdc in
②	-Vdc in
③	+Vdc out
④	-Vdc out
⑤	Frame Ground

■ Hole Configurations on PCB (Top View)



■ Features

- High Efficiency 81~88%
 - 8.5mm in Height
 - Compact, Light Weight
 - Built-in Input Filter
 - Wide Input Voltage Range
 - Input-Output Isolation
 - Low No Load Current
 - 5 Sided Metal Shielding
 - High Reliability
 - Operating Ambient Temperature
-40°C ~ +85°C
 - Max. Case Temperature
+100°C
 - Conformity to RoHS Directive
 - Not built-in aluminum and
tantalum electrolytic capacitor
 - 高効率 81~88%
 - 高さ8.5mm
 - 小形、軽量
 - 入力フィルタ内蔵
 - 広範囲な入力電圧
 - 入出力間絶縁
 - 無負荷電流が少ない
 - 5面メタルシールド
 - 高信頼性
 - 動作周囲温度
-40°C ~ +85°C
 - 最大ケース温度
+100°C
 - RoHS指令対応
 - アルミ電解コンデンサ及び
 tantalumコンデンサ不使用

■ General Characteristics

- | | |
|---------------------------------|---|
| | (at Ta : 25°C, Full Load, Nominal Vin) |
| ● Input Voltage, Range | DC5, 12, 24, 48V (See Table 1) |
| ● Output Voltage, Current | See Table 1 |
| ● Output Voltage Accuracy | ±2% (12, 15, 24V Vout)
±3% (3.3, 5, 6V Vout) |
| ● Efficiency | See Table 1 |
| ● Line Regulation | 0.3% max. (at Vin Range) |
| ● Load Regulation | ±0.5% max. (0~100% Load) |
| ● Reflected Input Ripple, Noise | (3% Vin)Vp-p max. |
| ● Output Ripple | 20mVp-p max. |
| ● Output Noise | 80mVp-p max. (0~20MHz)
150mVp-p max. (0~100MHz) |
| ● Short Circuit Protection | Built-in, Auto-restart (See Fig. 2) |
| ● Temperature Coefficient | 0.02%/°C max. |
| ● Operating Ambient Temp. | -40°C~+85°C (See Fig. 1)
-30°C~+85°C (5V Vin only) |
| ● Max. Case Temperature | +100°C |
| ● Storage Temperature | -40°C~+100°C |
| ● Isolation Voltage | AC500V one minute
(Input-Output-Case) |
| ● Isolation Impedance | 100MΩ min. (at DC1000V)
(Input-Output-Case) |
| ● Weight | 15g max. |
| ● Humidity | 20~95% RH |
| ● Shock | 490m/s ² (11msec 3directions) |
| ● Vibration | 10~55Hz 98m/s ²
(30minutes 3directions) |
| ● Surface Structure | 5 Sided Steel Case |
| ● Soldering Conditions | |
| Soldering DIP | 260°C, for 15 seconds max. |
| Soldering iron | 360°C, for 5 seconds max. |
| ● MTBF | 1,000,000H
(Ta : 25°C, 80% Load, Nominal Vin) |
| ● Warranty | 5 years |

■ Selection Guide

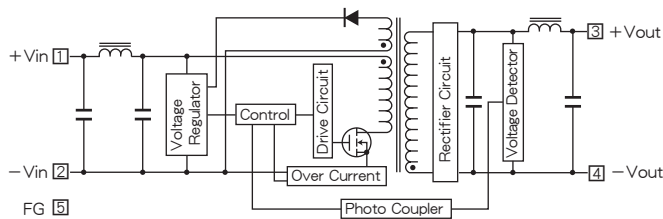
Table 1

Model Number	Input Volt. (Range) (V. DC)	Output Voltage (V. DC)	Output Current (mA)	Efficiency (Typical) (%)
SSV 5 - 3.3 S 1500	5 (4.5~9)	3.3	1500	81
SSV 5 - 5 S 1000		5	1000	83
SSV 5 - 6 S 800		6	800	83
SSV 5 - 12 S 400		12	400	83
SSV 5 - 15 S 320		15	320	83
SSV 5 - 24 S 200		24	200	83
SSV 12 - 3.3 S 1500	12 (8~18)	3.3	1500	83
SSV 12 - 5 S 1000		5	1000	85
SSV 12 - 6 S 900		6	900	85
SSV 12 - 12 S 500		12	500	87
SSV 12 - 15 S 400		15	400	87
SSV 12 - 24 S 250		24	250	87
SSV 24 - 3.3 S 1500	24 (16~36)	3.3	1500	83
SSV 24 - 5 S 1000		5	1000	85
SSV 24 - 6 S 900		6	900	85
SSV 24 - 12 S 500		12	500	87
SSV 24 - 15 S 400		15	400	87
SSV 24 - 24 S 250		24	250	87
SSV 48 - 3.3 S 1500	48 (32~72)	3.3	1500	84
SSV 48 - 5 S 1000		5	1000	86
SSV 48 - 6 S 900		6	900	86
SSV 48 - 12 S 500		12	500	88
SSV 48 - 15 S 400		15	400	88
SSV 48 - 24 S 250		24	250	88

※ 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.

SSV SERIES DATA SHEET

Block Diagram



Characteristic Curves

Fig. 1 Derating Curve

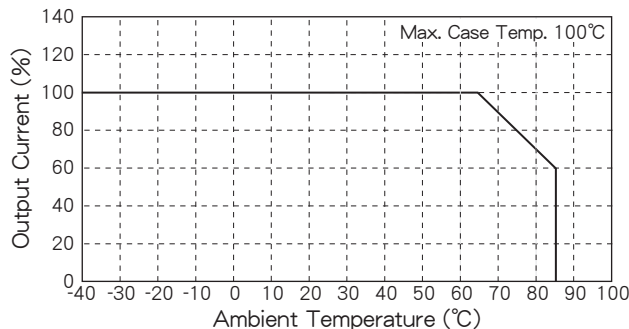


Fig. 2 Short Circuit Operating Area

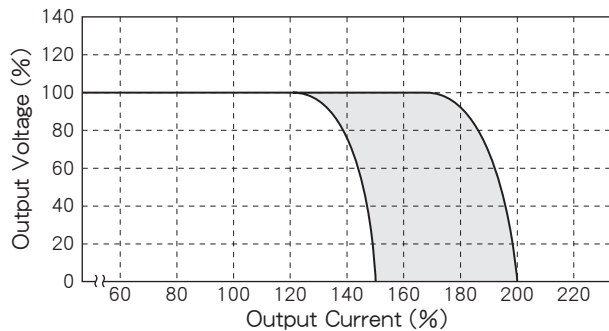


Fig. 3 Temperature Characteristic on Case Surface

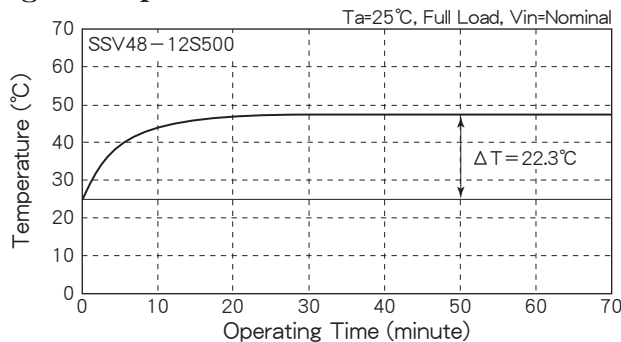


Fig. 4 Efficiency vs. Output Current

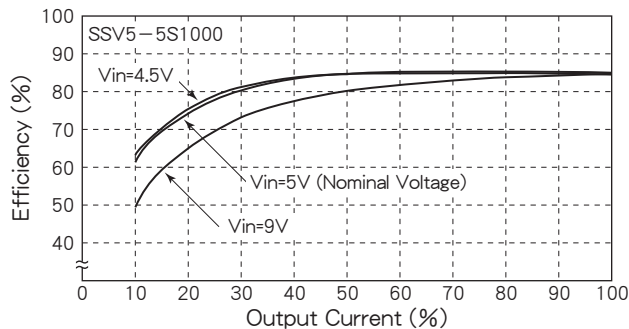


Fig. 5 Efficiency vs. Output Current

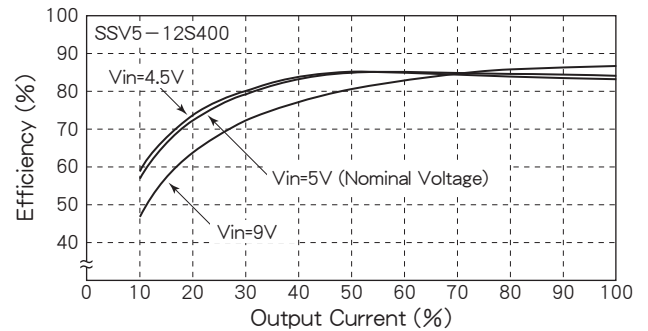


Fig. 6 Efficiency vs. Output Current

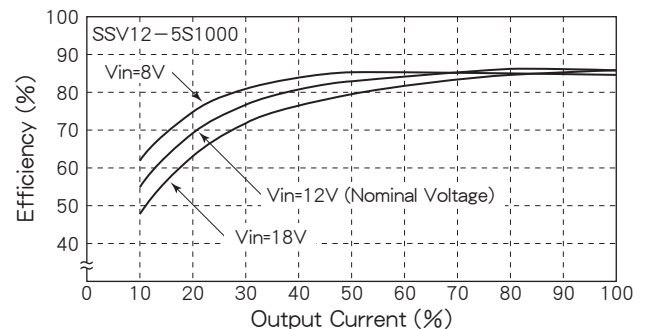


Fig. 7 Efficiency vs. Output Current

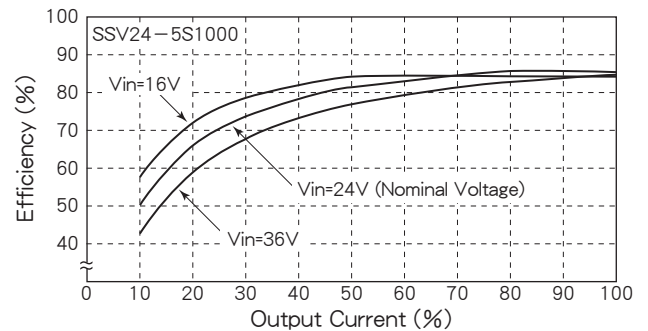


Fig. 8 Efficiency vs. Output Current

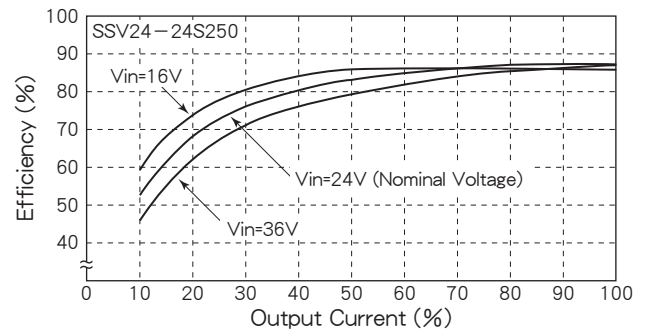
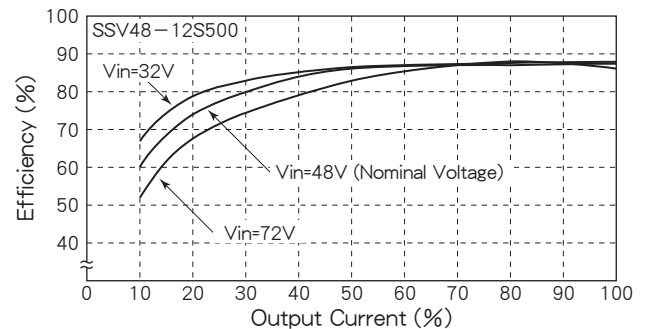


Fig. 9 Efficiency vs. Output Current

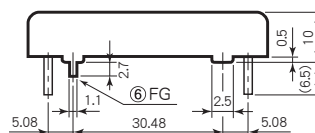
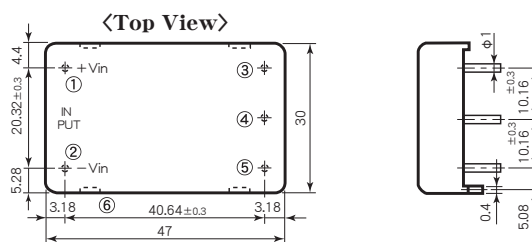


5~6W DC/DC CONVERTERS



H10×W30×L47 (mm)

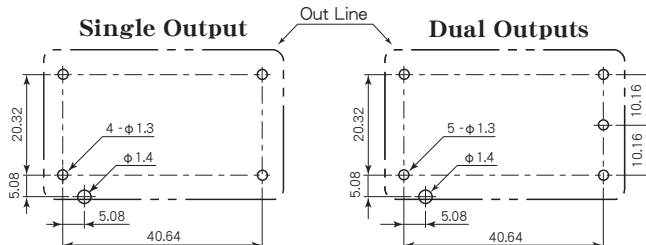
■ Pin Outs & Dimensions (±0.5mm)



Pin Outs

Single Output		Dual Outputs	
①	+Vdc in	①	+Vdc in
②	-Vdc in	②	-Vdc in
③	+Vdc out	③	+Vdc out
④	No Pin	④	Common
⑤	-Vdc out	⑤	-Vdc out
⑥	Frame Ground	⑥	Frame Ground

■ Hole Configurations on PCB (Top View)



■ Selection Guide

■ Features

- 10mm in Height
 - Built-in Input Filter
 - Input-Output Isolation
 - High Efficiency 79~87%
 - Wide Input Voltage Range
 - High Reliability
 - Low No Load Current
 - 5 Sided Metal Shielding
 - Operating Ambient Temp.
-40℃~+85℃
 - Max. Case Temperature
+100℃
 - Conformity to RoHS Directive
 - Not built-in aluminum and tantalum electrolytic capacitor
- 高さ10mm
 - 入力フィルタ内蔵
 - 入出力間絶縁
 - 高効率 79~87%
 - 広範囲入力電圧
 - 高信頼性
 - 無負荷電流が少ない
 - 5面メタルシールド
 - 動作周囲温度
-40℃~+85℃
 - 最大ケース温度
+100℃
 - 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 | DC5, 12, 24, 48V (See Table 1) |
| ● Output Voltage, Current | See Table 1 |
| ● Output Voltage Accuracy | ±2% |
| | ±3%(5, 6V Vout only) |
| ● Efficiency | See Table 1 |
| ● Line Regulation | 0.3% max. (at Vin Range) |
| ● Load Regulation | Single : ±0.5% max. (0~100% Load) |
| | Dual : ±3% max. (0~100% Load) |
| | (2% Vin)Vp-p max. |
| ● Reflected Input Ripple and Noise | |
| ● Output Ripple | 20mVp-p max. |
| ● Output Noise | 100mVp-p max. |
| ● Short Circuit Protection | Built-in, Auto-restart (See Fig. 2) |
| ● Temperature Coefficient | 0.02%/°C max. |
| ● Operating Ambient Temp. | -40°C~+85°C (See Fig. 1) |
| | -30°C~+85°C (5V Vin only) |
| | -40°C~+100°C |
| ● Storage Temperature | AC500V one minute |
| ● Isolation Voltage | (Input-Output-Case) |
| ● Isolation Impedance | 100MΩ min. (at DC1000V) |
| | (Input-Output-Case) |
| ● Switching Frequency | 230kHz typ. |
| ● Weight | 35g max. |
| ● Humidity | 20~95% RH |
| ● Shock | 490m/s ² (11msec 3directions) |
| ● Vibration | 10~55Hz 98m/s ² |
| | (30minutes 3directions) |
| ● Surface Structure | 5 Sided Steel Case |
| ● Soldering Conditions | |
| Soldering DIP | 260°C, for 15 seconds max. |
| Soldering iron | 360°C, for 5 seconds max. |
| ● MTBF | Single : 1,200,000H |
| | Dual : 1,000,000H |
| | (Ta : 25°C, 80% Load, Nominal Vin) |
| ● Warranty | 5 years |

■ Selection Guide

Table 1

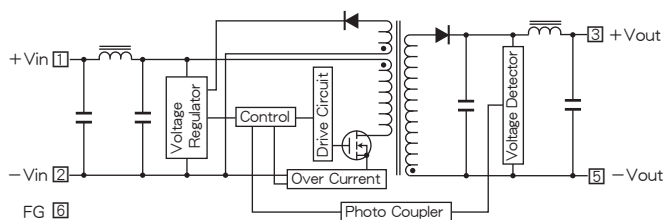
Model Number	Input Volt. (Range) (V. DC)	Output Voltage (V. DC)	Output Current (mA)	Efficiency (Typical) (%)
SQ 5 - 5S1000	5 (4.5~9)	5	1000	79
SQ 5 - 6S900		6	900	79
SQ 5 - 12S500		12	500	83
SQ 5 - 15S400		15	400	83
SQ 5 - 24S250		24	250	83
SQ 5 - 5D500		±5	±500	79
SQ 5 - 12D250		±12	±250	83
SQ 5 - 15D200		±15	±200	83
SQ12 - 5S1000	12 (8~18)	5	1000	83
SQ12 - 6S900		6	900	83
SQ12 - 12S500		12	500	85
SQ12 - 15S400		15	400	87
SQ12 - 24S250		24	250	85
SQ12 - 5D500		±5	±500	82
SQ12 - 12D250		±12	±250	86
SQ12 - 15D200		±15	±200	86
SQ24 - 5S1000	24 (16~36)	5	1000	81
SQ24 - 6S900		6	900	82
SQ24 - 12S500		12	500	85
SQ24 - 15S400		15	400	85
SQ24 - 24S250		24	250	85
SQ24 - 5D500		±5	±500	81
SQ24 - 12D250		±12	±250	85
SQ24 - 15D200		±15	±200	85
SQ48 - 5S1000	48 (32~72)	5	1000	81
SQ48 - 6S900		6	900	81
SQ48 - 12S500		12	500	85
SQ48 - 15S400		15	400	85
SQ48 - 24S250		24	250	85
SQ48 - 5D500		±5	±500	81
SQ48 - 12D250		±12	±250	85
SQ48 - 15D200		±15	±200	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.

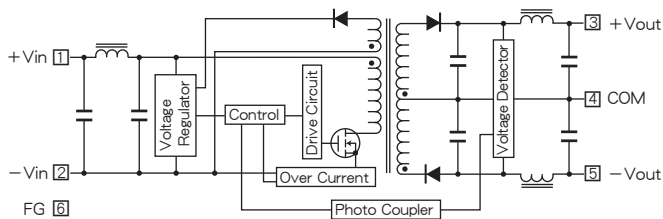
SQ SERIES DATA SHEET

Block Diagram

Single Output



Dual Outputs



Characteristic Curves

Fig. 1 Derating Curve

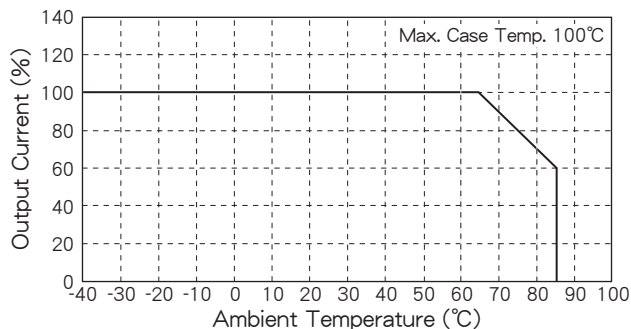


Fig. 2 Short Circuit Operating Area

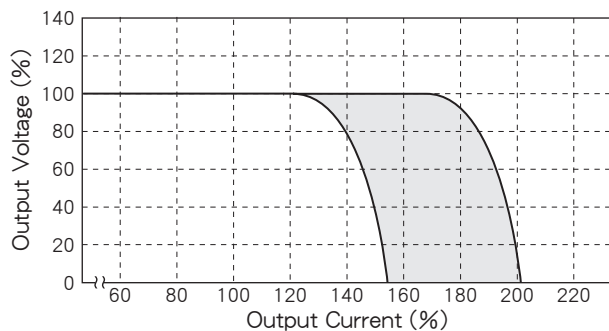


Fig. 3 Temperature Characteristic on Case Surface

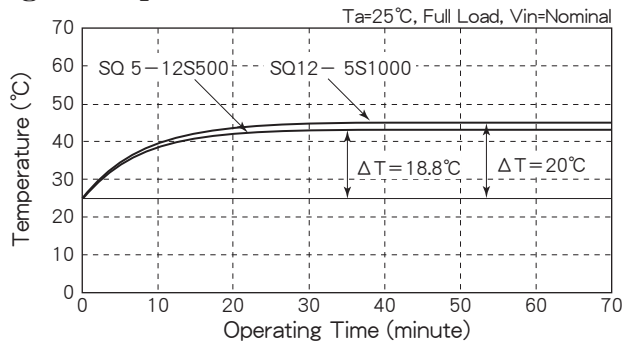


Fig. 4 No Load Current vs. Input Voltage

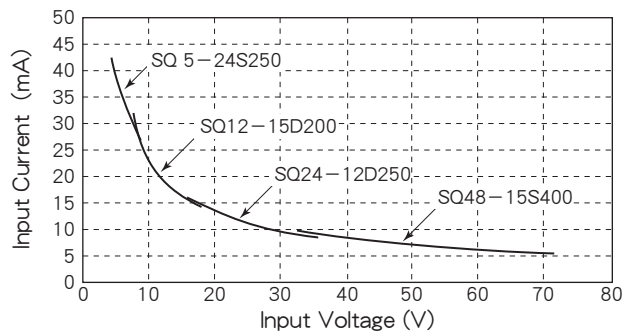


Fig. 5 Efficiency vs. Output Current

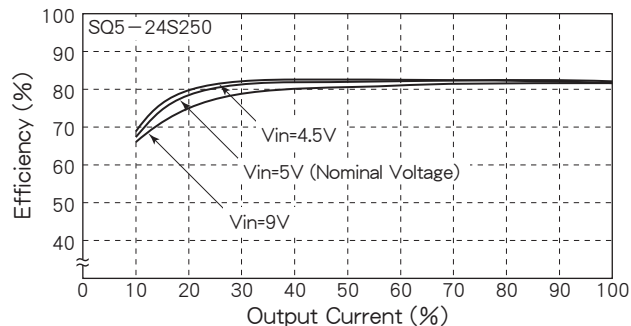


Fig. 6 Efficiency vs. Output Current

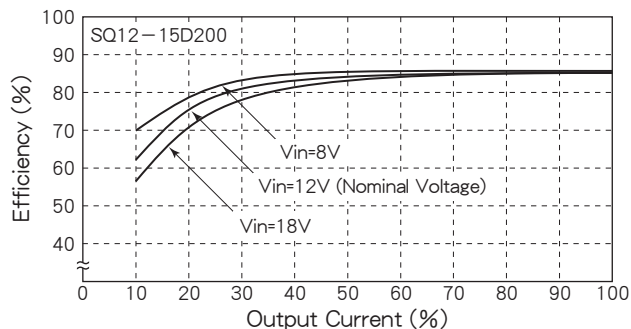


Fig. 7 Efficiency vs. Output Current

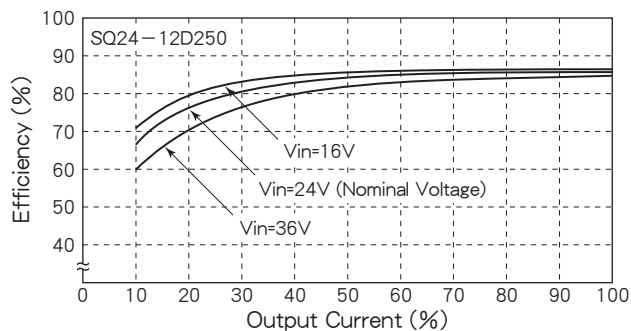
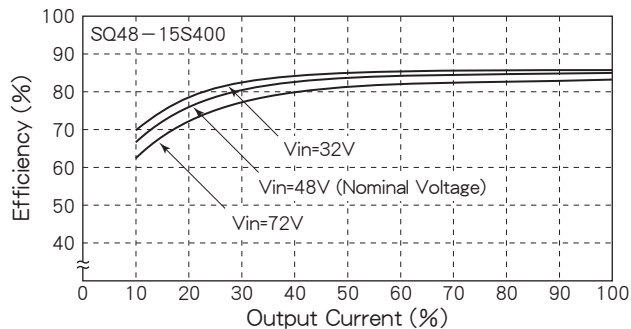


Fig. 8 Efficiency vs. Output Current



SQK SERIES

5~6W DC/DC CONVERTERS Single Output & Dual Outputs



H8.5×W30×L47 (mm)

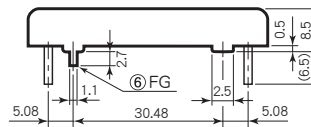
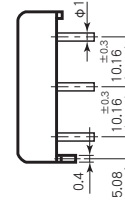
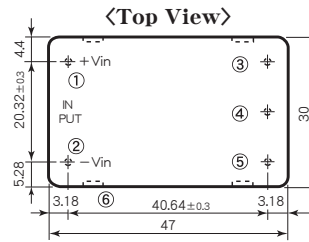
Features

- Low Profile 8.5mm
- Built-in Input Filter
- Input-Output Isolation
- High Efficiency 80~85%
- Wide Input Voltage Range
- High Reliability
- Low No Load Current
- 5 Sided Metal Shielding
- Operating Ambient Temp. -40°C~+85°C
- Max. Case Temperature +100°C
- Conformity to RoHS Directive
- Not built-in aluminum and tantalum electrolytic capacitor
- 薄型 8.5mm
- 入力フィルタ内蔵
- 入出力間絶縁
- 高効率 80~85%
- 広範囲な入力電圧
- 高信頼性
- 無負荷電流が少ない
- 5面メタルシールド
- 動作周囲温度 -40°C~+85°C
- 最大ケース温度 +100°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 (at Ta : 25°C, Full Load, Nominal Vin) DC5, 12, 24, 48V (See Table 1)
- Output Voltage, Current See Table 1
- Output Voltage Accuracy ±3%
- Efficiency See Table 1
- Line Regulation 0.3% max. (at Vin Range)
- Load Regulation Single : ±0.5% max. (0~100% Load)
- Dual : ±3% max. ±5% max. (±5V Vout only) (10~100% Load)
- Reflected Input Ripple and Noise (2% Vin)Vp-p max.
- Output Ripple 20mVp-p max.
- Output Noise 100mVp-p max.
- Short Circuit Protection Built-in, Auto-restart (See Fig. 2)
- Temperature Coefficient 0.02%/°C max.
- Operating Ambient Temp. -40°C~+85°C (See Fig. 1)
- Storage Temperature -30°C~+85°C (5V Vin only)
- Isolation Voltage -40°C~+100°C AC500V one minute (Input-Output-Case)
- Isolation Impedance 100MΩ min. (at DC1000V) (Input-Output-Case)
- Weight 30g max.
- Humidity 20~95% RH
- Shock 490m/s² (11msec 3directions)
- Vibration 10~55Hz 98m/s² (30minutes 3directions)
- Surface Structure 5 Sided Steel Case
- Soldering Conditions Soldering DIP 260°C, for 15 seconds max.
- Soldering iron 360°C, for 5 seconds max.
- MTBF Single : 720,000H
- Dual : 600,000H (Ta : 25°C, 80% Load, Nominal Vin)
- Warranty 5 years

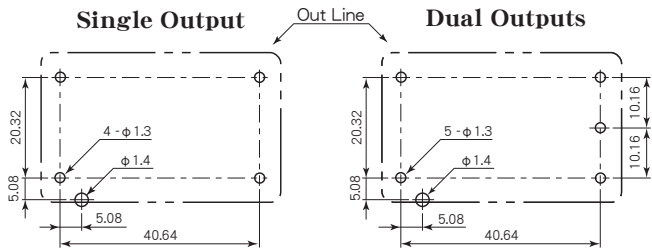
Pin Outs & Dimensions (±0.5mm)



Pin Outs

Single Output	Dual Outputs
① +Vdc in	① +Vdc in
② -Vdc in	② -Vdc in
③ +Vdc out	③ +Vdc out
④ No Pin	④ Common
⑤ -Vdc out	⑤ -Vdc out
⑥ Frame Ground	⑥ Frame Ground

Hole Configurations on PCB (Top View)



Selection Guide

Table 1

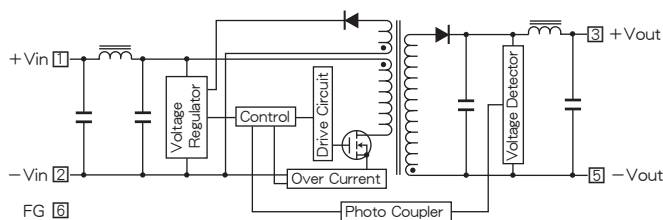
Model Number	Input Volt. (Range) (V. DC)	Output Voltage (V. DC)	Output Current (mA)	Efficiency (Typical) (%)
SQK 5-5S1000	5 (4.5~9)	5	1000	84
SQK 5-6S900		6	900	84
SQK 5-12S500		12	500	84
SQK 5-15S400		15	400	85
SQK 5-24S250		24	250	85
SQK 5-5D500		±5	±500	81
SQK 5-12D250		±12	±250	85
SQK 5-15D200		±15	±200	85
SQK 12-5S1000	12 (8~18)	5	1000	80
SQK 12-6S900		6	900	80
SQK 12-12S500		12	500	83
SQK 12-15S400		15	400	83
SQK 12-24S250		24	250	83
SQK 12-5D500		±5	±500	81
SQK 12-12D250		±12	±250	83
SQK 12-15D200		±15	±200	83
SQK 24-5S1000	24 (16~36)	5	1000	80
SQK 24-6S900		6	900	80
SQK 24-12S500		12	500	84
SQK 24-15S400		15	400	84
SQK 24-24S250		24	250	83
SQK 24-5D500		±5	±500	80
SQK 24-12D250		±12	±250	83
SQK 24-15D200		±15	±200	83
SQK 48-5S1000	48 (32~72)	5	1000	80
SQK 48-6S900		6	900	80
SQK 48-12S500		12	500	84
SQK 48-15S400		15	400	84
SQK 48-24S250		24	250	84
SQK 48-5D500		±5	±500	81
SQK 48-12D250		±12	±250	83
SQK 48-15D200		±15	±200	83

※ 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.

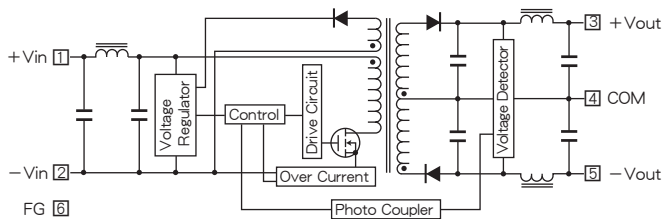
SQK SERIES DATA SHEET

■ Block Diagram

Single Output



Dual Outputs



■ Characteristic Curves

Fig. 1 Derating Curve

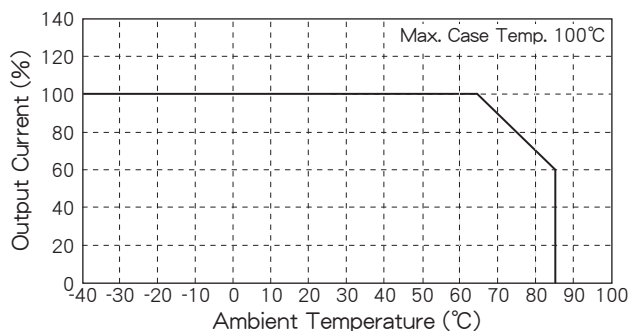


Fig. 2 Short Circuit Operating Area

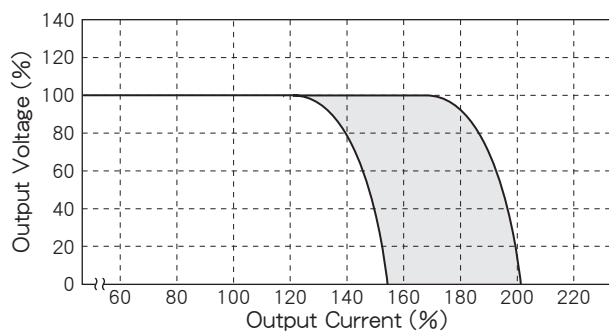


Fig. 3 Temperature Characteristic on Case Surface

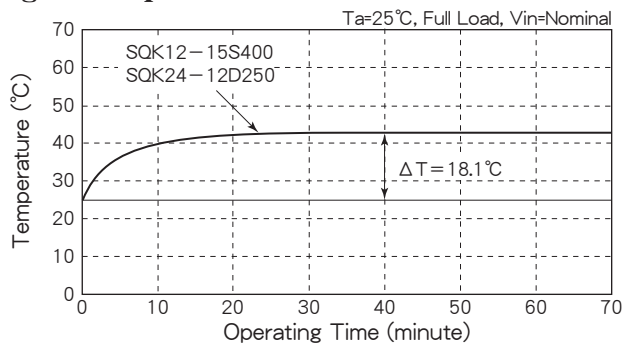


Fig. 4 No Load Current vs. Input Voltage

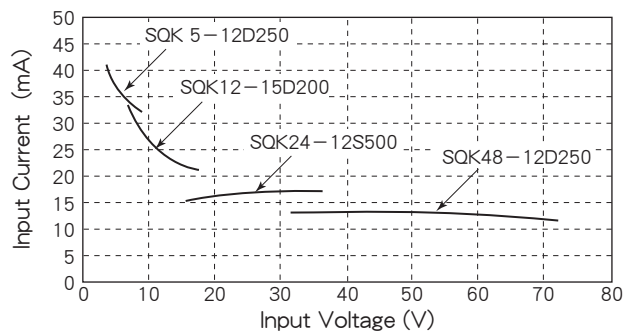


Fig. 5 Efficiency vs. Output Current (Single Output)

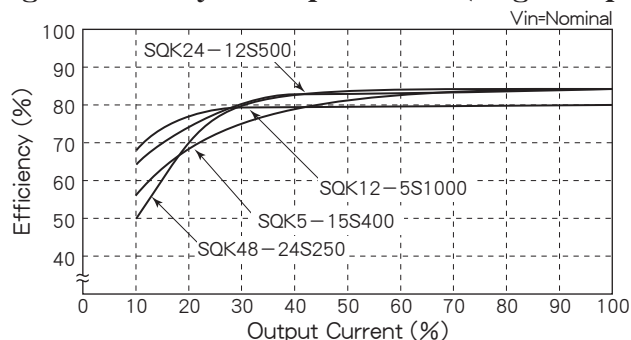
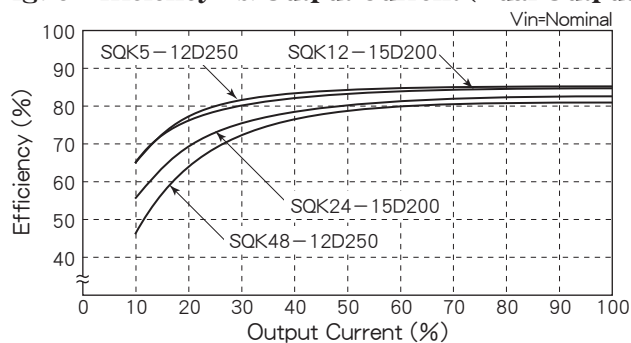


Fig. 6 Efficiency vs. Output Current (Dual Outputs)



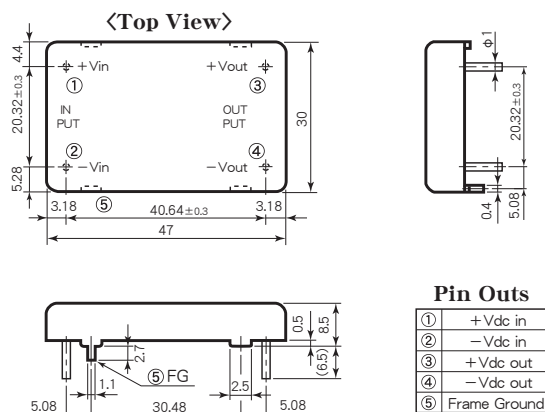
SQV SERIES

10~12W DC/DC CONVERTERS Single Output



H8.5×W30×L47 (mm)

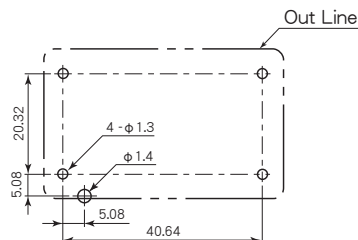
Pin Outs & Dimensions (±0.5mm)



Features

- High Efficiency 81~87%
- 8.5mm in Height
- Compact, Light Weight
- Built-in Input Filter
- Wide Input Voltage Range
- Input-Output Isolation
- Low No Load Current
- 5 Sided Metal Shielding
- High Reliability
- Operating Ambient Temperature -40°C~+85°C
- Max. Case Temperature +100°C
- Conformity to RoHS Directive
- Not built-in aluminum and tantalum electrolytic capacitor
- 高効率 81~87%
- 高さ8.5mm
- 小形、軽量
- 入力フィルタ内蔵
- 広範囲な入力電圧
- 入出力間絶縁
- 無負荷電流が少ない
- 5面メタルシールド
- 高信頼性
- 動作周囲温度 -40°C~+85°C
- 最大ケース温度 +100°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

Hole Configurations on PCB (Top View)



General Characteristics

- Input Voltage, Range (at Ta : 25°C, Full Load, Nominal Vin) DC5, 12, 24, 48V (See Table 1)
- Output Voltage, Current See Table 1
- Output Voltage Accuracy ±2% (12, 15, 24, 28V Vout) ±3% (3.3, 5, 6V Vout)
- Efficiency See Table 1
- Line Regulation 0.3% max. (at Vin Range)
- Load Regulation ±0.5% max. (0~100% Load)
- Reflected Input Ripple, Noise (2% Vin)/Vp-p max.
- Output Ripple 20mVp-p max.
- Output Noise 80mVp-p max. (0~20MHz) 150mVp-p max. (0~100MHz)
- Short Circuit Protection Built-in, Auto-restart (See Fig. 2)
- Temperature Coefficient 0.02%/°C max.
- Operating Ambient Temp. -40°C~+85°C (See Fig. 1) -30°C~+85°C (5V Vin only)
- Max. Case Temperature +100°C
- Storage Temperature -40°C~+100°C
- Isolation Voltage AC500V one minute (Input-Output-Case)
- Isolation Impedance 100MΩ min. (at DC1000V) (Input-Output-Case)
- Weight 30g max.
- Humidity 20~95% RH
- Shock 490m/s² (11msec 3directions)
- Vibration 10~55Hz 98m/s² (30minutes 3directions)
- Surface Structure 5 Sided Steel Case
- Soldering Conditions Soldering DIP 260°C, for 15 seconds max. Soldering iron 360°C, for 5 seconds max.
- MTBF 1,000,000H (Ta : 25°C, 80% Load, Nominal Vin)
- Warranty 5 years

Selection Guide

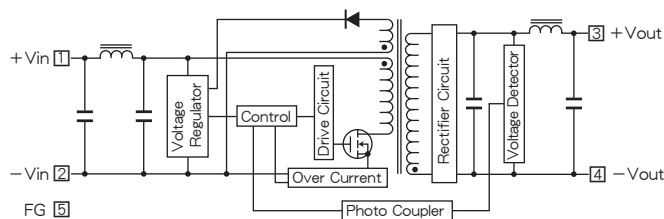
Table 1

Model Number	Input Volt. (Range) (V. DC)	Output Voltage (V. DC)	Output Current (mA)	Efficiency (Typical) (%)
SQV 5 - 3.3 S 3000	5 (4.5~9)	3.3	3000	81
SQV 5 - 5 S 2000		5	2000	82
SQV 5 - 6 S 1600		6	1600	82
SQV 5 - 12 S 800		12	800	85
SQV 5 - 15 S 640		15	640	83
SQV 5 - 24 S 400		24	400	83
SQV 5 - 28 S 350		28	350	83
SQV 12 - 3.3 S 3000	12 (8~18)	3.3	3000	83
SQV 12 - 5 S 2200		5	2200	85
SQV 12 - 6 S 2000		6	2000	85
SQV 12 - 12 S 1000		12	1000	87
SQV 12 - 15 S 800		15	800	87
SQV 12 - 24 S 500		24	500	87
SQV 12 - 28 S 400		28	400	87
SQV 24 - 3.3 S 3000	24 (16~36)	3.3	3000	83
SQV 24 - 5 S 2200		5	2200	85
SQV 24 - 6 S 2000		6	2000	85
SQV 24 - 12 S 1000		12	1000	87
SQV 24 - 15 S 800		15	800	87
SQV 24 - 24 S 500		24	500	87
SQV 24 - 28 S 400		28	400	87
SQV 48 - 3.3 S 3000	48 (32~72)	3.3	3000	83
SQV 48 - 5 S 2200		5	2200	85
SQV 48 - 6 S 2000		6	2000	85
SQV 48 - 12 S 1000		12	1000	87
SQV 48 - 15 S 800		15	800	87
SQV 48 - 24 S 500		24	500	87
SQV 48 - 28 S 400		28	400	87

※ 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.

SQV SERIES DATA SHEET

■ Block Diagram



■ Characteristic Curves

Fig. 1 Derating Curve

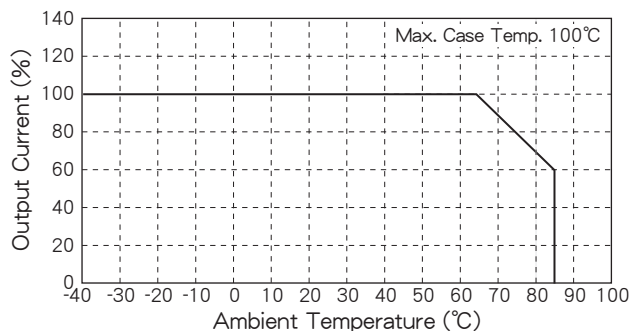


Fig. 2 Short Circuit Operating Area

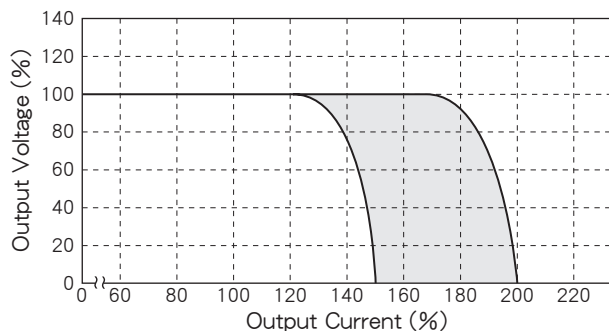


Fig. 3 Temperature Characteristic on Case Surface

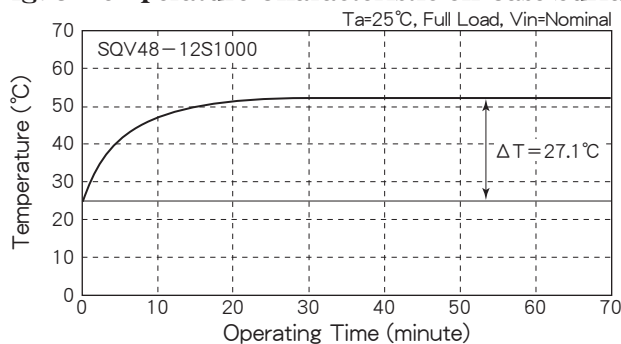


Fig. 4 Efficiency vs. Output Current

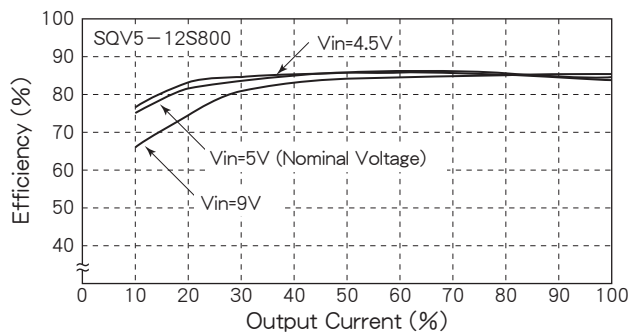


Fig. 5 Efficiency vs. Output Current

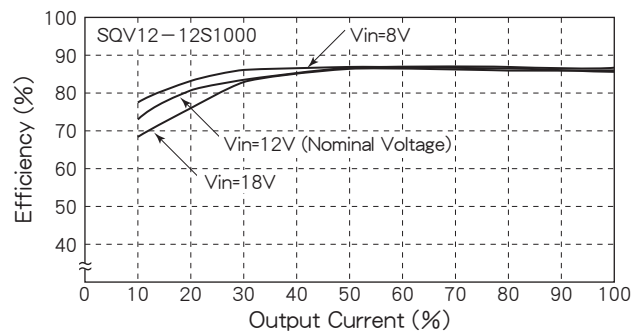


Fig. 6 Efficiency vs. Output Current

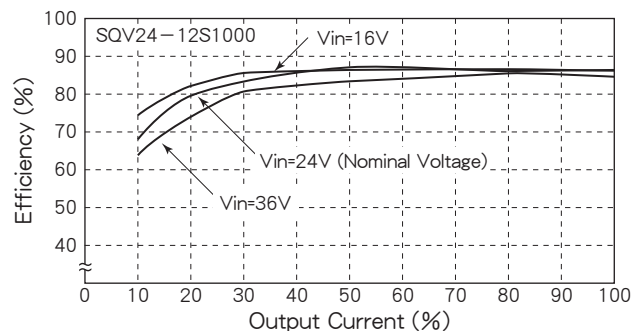


Fig. 7 Efficiency vs. Output Current

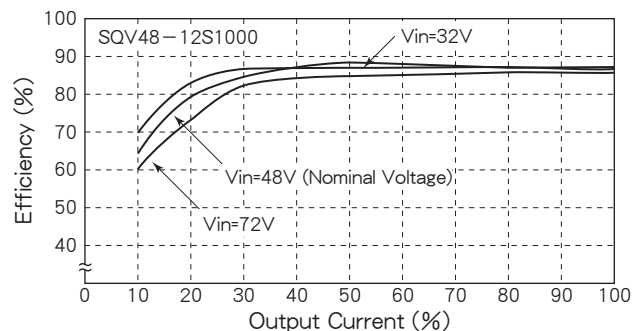
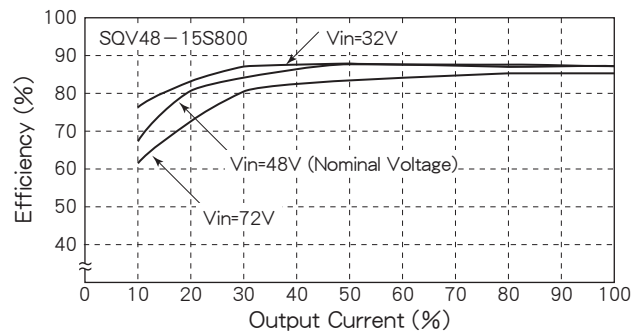


Fig. 8 Efficiency vs. Output Current



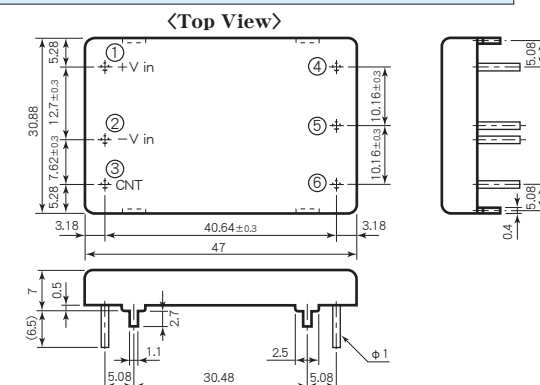
SQT SERIES

10~15W DC/DC CONVERTERS Single Output & Dual Outputs



H7×W31×L47 (mm)

■ Pin Outs & Dimensions (±0.5mm)

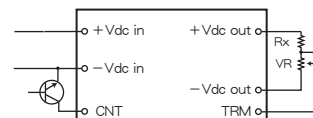


Pin Outs

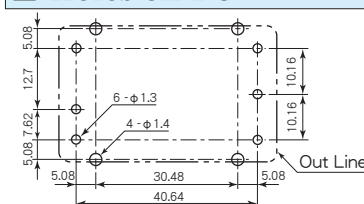
Single Output	Dual Outputs
① +Vdc in	① +Vdc in
② -Vdc in	② -Vdc in
③ CNT	③ CNT
④ +Vdc out	④ +Vdc out
⑤ -Vdc out	⑤ COM
⑥ TRM	⑥ -Vdc out

Application

ON/OFF Control and Vout Adjustment (Single Output)



■ Holes on PCB (Top View)



Vout (V)	VR (Ω)	Rx (Ω)
3.3V	50k	13k
5V	50k	3k
5.2V	50k	3k
6V	50k	6.8k
12V	50k	43k
15V	50k	62k
24V	50k	150k

■ Selection Guide

Table 1

Model Number	Input Volt. (Range) (V. DC)	Output Voltage (V. DC)	Output Current (A)	Efficiency 20% Load (typ.)(%)	Efficiency 80% Load (typ.)(%)
SQT 5-3.3S 3A	5 (4.5~9)	3.3	3	81	85
SQT 5-5S 2.2A		5	2.2	81	85
SQT 5-5.2S 2.1A		5.2	2.1	81	85
SQT 5-6S 1.9A		6	1.9	83	85
SQT 5-12S 1A		12	1	84	85
SQT 5-15S 0.8A		15	0.8	84	85
SQT 5-24S 0.5A		24	0.5	84	85
SQT 5-12D 0.5A		±12	±0.5	86	86
SQT 5-15D 0.4A		±15	±0.4	86	85
SQT12-3.3S 3.6A	12 (8~18)	3.3	3.6	80	85
SQT12-5S 2.6A		5	2.6	82	86
SQT12-5.2S 2.5A		5.2	2.5	82	85
SQT12-6S 2.3A		6	2.3	85	86
SQT12-12S 1.3A		12	1.3	85	87
SQT12-15S 1A		15	1	85	88
SQT12-24S 0.6A		24	0.6	84	87
SQT12-12D 0.6A		±12	±0.6	85	87
SQT12-15D 0.5A		±15	±0.5	84	87
SQT24-3.3S 3.6A	24 (16~36)	3.3	3.6	82	85
SQT24-5S 2.6A		5	2.6	82	87
SQT24-5.2S 2.5A		5.2	2.5	83	87
SQT24-6S 2.3A		6	2.3	83	87
SQT24-12S 1.3A		12	1.3	86	88
SQT24-15S 1A		15	1	84	87
SQT24-24S 0.6A		24	0.6	84	87
SQT24-12D 0.6A		±12	±0.6	85	87
SQT24-15D 0.5A		±15	±0.5	86	87
SQT48-3.3S 3.6A	48 (32~72)	3.3	3.6	80	85
SQT48-5S 2.6A		5	2.6	82	87
SQT48-5.2S 2.5A		5.2	2.5	82	87
SQT48-6S 2.3A		6	2.3	82	87
SQT48-12S 1.3A		12	1.3	84	87
SQT48-15S 1A		15	1	84	87
SQT48-24S 0.6A		24	0.6	84	87
SQT48-12D 0.6A		±12	±0.6	84	87
SQT48-15D 0.5A		±15	±0.5	84	87

※ 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.

■ Features

- 7mm in Height
- High Efficiency 78~87%
- Built-in Input Filter
- Wide Input Voltage Range
- Input-Output Isolation AC1500V
- Low No Load Current
- 5 Sided Metal Shielding
- Remote ON/OFF Control
- Operating Ambient Temperature -40°C~+85°C
- Adjustable Output Voltage ±5% (Single Output Only)
- Max. Case Temperature +100°C
- Conformity to RoHS Directive
- Not built-in aluminum and tantalum electrolytic capacitor
- 高さ7mm
- 高効率 78~88%
- 入力フィルタ内蔵
- 広範囲な入力電圧
- 入出力間絶縁 AC1500V
- 無負荷電流が少ない
- 5面メタルシールド
- リモートON/OFFコントロール
- 動作周囲温度 -40°C~+85°C
- 出力電圧調整可能 ±5% (単出力のみ)
- 最大ケース温度 +100°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

■ Specifications

● Input

- Input Voltage, Range
- Input Current (No Load)

(at Ta : 25°C, Full Load, Nominal Vin)

DC5, 12, 24, 48V (See Table 1)

5V : 30mA typ.

12V : 18mA typ.

24V : 10mA typ.

48V : 7mA typ.

(3% Vin)Vp-p max.

- Reflected Input Ripple, Noise

● Output

- Output Voltage, Current
- Output Voltage Accuracy

See Table 1

Single : ±2%

Dual : ±3%

±5% Adjustable (Used trimmer)

(Single Output only)

ON : Short or 0~0.8V

OFF : Open or 2~10V

(Between pin ②~③)

- Remote ON/OFF Control

- Efficiency

- Line Regulation

- Load Regulation

See Table 1

0.3% max. (at Vin Range)

Single : ±0.5% max. (0~100% Load)

Dual : ±3% max. (10~100% Load)

20mVp-p max.

80mVp-p max. (0~20MHz)

150mVp-p max. (0~100MHz)

Built-in, Auto-restart (See Fig. 2)

0.02%/°C max.

- Output Ripple

- Output Noise

- Short Circuit Protection

- Temperature Coefficient

● General

- Operating Ambient Temp.

- Max. Case Temperature

- Storage Temperature

- Isolation Voltage

-40°C~+85°C (See Fig. 1)

+100°C

-55°C~+100°C

AC1500V one minute

(Input-Output-Case)

100MΩ min. (at DC1000V)

(Input-Output-Case)

- Humidity

- MTBF

20~95% RH

1,000,000H

(Ta : 25°C, 80% Load, Nominal Vin)

- Switching Frequency

210kHz (±10%)

● Physical

- Weight

- Shock

- Vibration

30g max.

490m/s² (11msec 3directions)

10~55Hz 98m/s²

(30minutes 3directions)

5 Sided Steel Case

- Surface Structure

- Soldering Conditions

Soldering DIP

Soldering iron

- Warranty

260°C, for 15 seconds max.

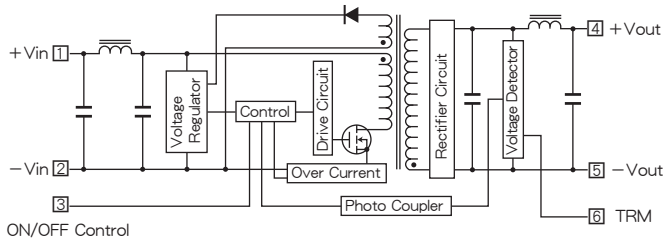
360°C, for 5 seconds max.

5 years

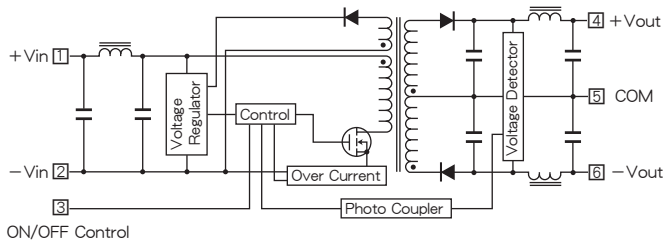
SQT SERIES DATA SHEET

Block Diagram

Single Output



Dual Outputs



Characteristic Curves

Fig. 1 Derating Curve

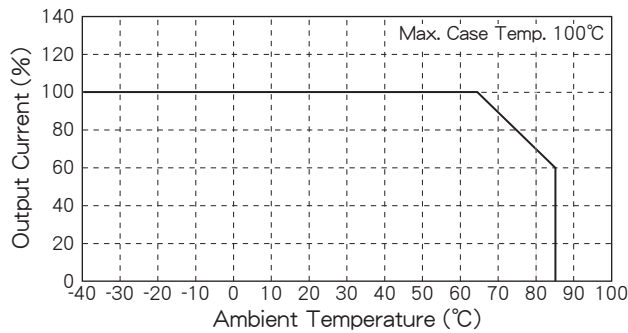


Fig. 2 Short Circuit Operating Area

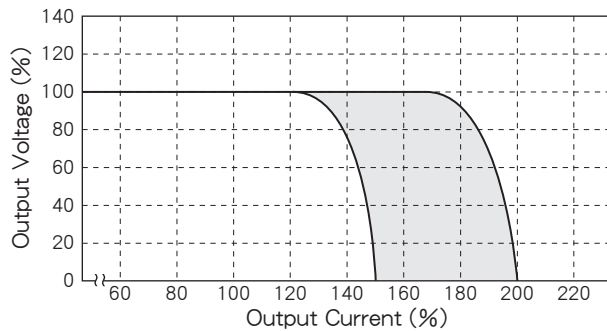


Fig. 3 Temperature Characteristic on Case Surface

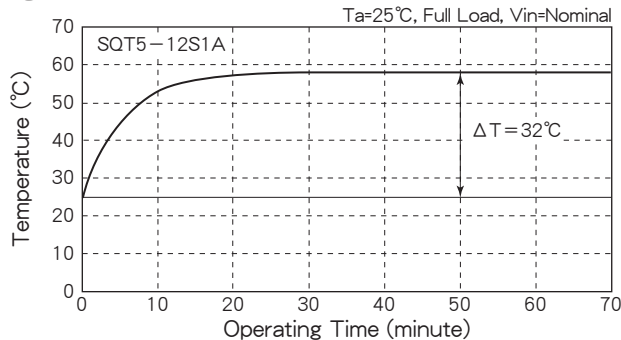


Fig. 4 Efficiency vs. Output Current

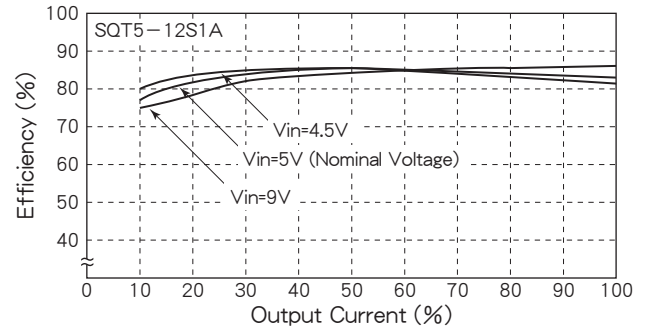


Fig. 5 Efficiency vs. Output Current

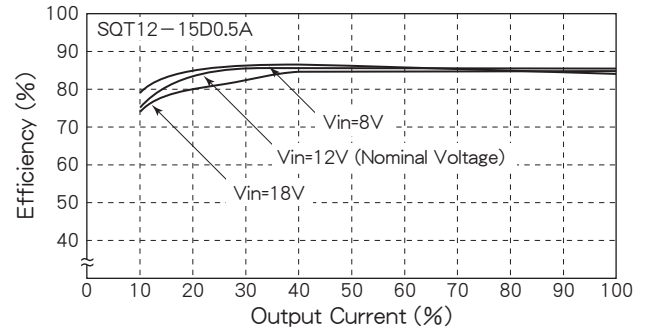
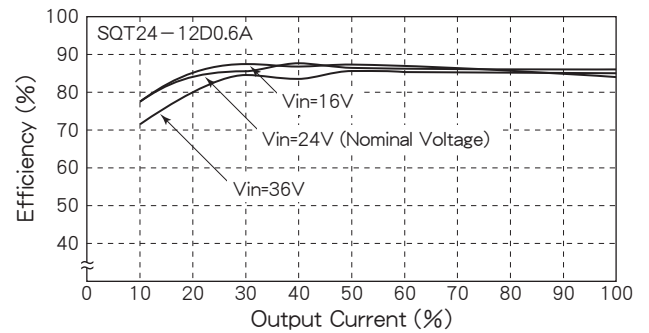


Fig. 6 Efficiency vs. Output Current

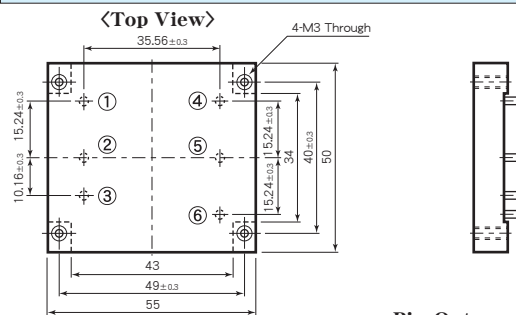


BHU SERIES

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



Pin Outs & Dimensions (±0.5mm)



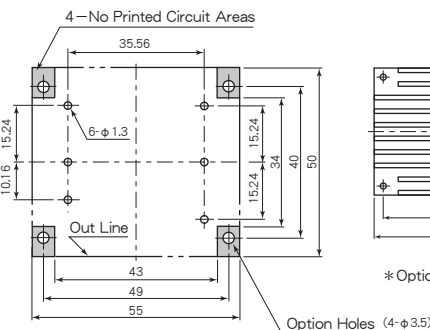
Pin Outs

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

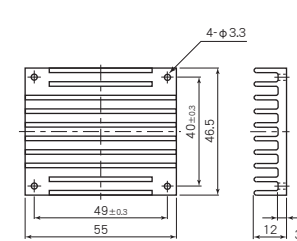
Features

- Low Profile 8.5mm
- 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. ±5%
- Output Over Voltage Protection 115~140% Operation
- Operating Ambient Temperature -40°C~+85°C
- Max. Case Temperature +105°C
- Conformity to RoHS Directive
- Not built-in aluminum and tantalum electrolytic capacitor
- 薄型 8.5mm
- 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 ±5%
- 出力過電圧保護回路内蔵 115~140% 動作
- 動作周囲温度 -40°C~+85°C
- 最大ケース温度 +105°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

Holes on PCB (Top View)



Option Heat Sink



* Option Heat Sink Model : A4-3080

General Characteristics

(at Ta : 25°C, Full Load, Nominal Vin)

- Input Voltage, Range DC5, 12, 24, 48V (See Table 1)
- Output Voltage, Current See Table 1
- Output Voltage Range ±5% Adjustable
- Efficiency See Table 1
- Line Regulation ±0.3% max. (at Vin Range)
- Load Regulation Single : ±0.5% max. (0~100% Load)
- Dual : ±3% max. (10~100% Load)
- Reflected Input Ripple, Noise (3% Vin)Vp-p max.
- Output Ripple 40mVp-p max.
- Output Noise 100mVp-p max. (48V Vout only)
- Short Circuit Protection 100mVp-p max.
- Over Voltage Protection 200mVp-p max. (48V Vout only)
- Remote ON/OFF Control Built-in, Auto-restart (See Fig. 2)
- Temperature Coefficient 115~140% Output Voltage
- Operating Ambient Temp. ON : Short or 0~0.8V
- Max. Case Temperature OFF : Open or 2~10V
- Storage Temperature (Between pin ② ~ ③)
- Isolation Voltage 0.02%/°C max.
- Weight AC1500V one minute
- Humidity (Input-Output-Case)
- Shock 100MΩ min. (at DC1000V)
- Vibration (Input-Output-Case)
- Surface Structure Main Body : 60g max.
- Soldering Conditions Heat Sink : 40g max.
- MTBF 20~95% RH
- Warranty 490m/s² (11msec 3directions)
- 10~55Hz 98m/s²
- 6 Sided Aluminum Case (30minutes 3directions)
- 260°C, for 15 seconds max.
- 360°C, for 5 seconds max.
- Single : 1,000,000H
- Dual : 700,000H
- (Ta : 25°C, 80% Load, Nominal Vin)
- 5 years

Selection Guide

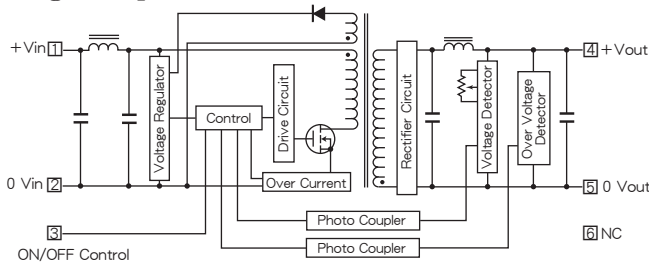
Table 1

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

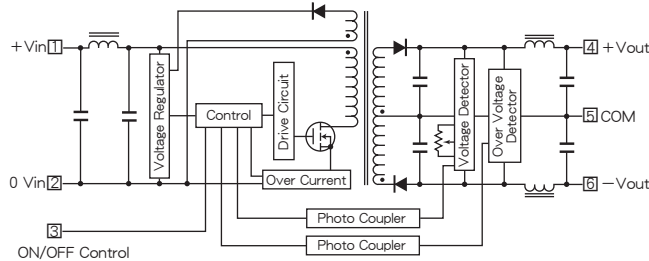
* 上記仕様以外にも対応可能ですので お問い合わせ下さい。
Please consult with us about other specification.

Block Diagram

Single Output



Dual Outputs



Characteristic Curves

Fig. 1 Derating Curve

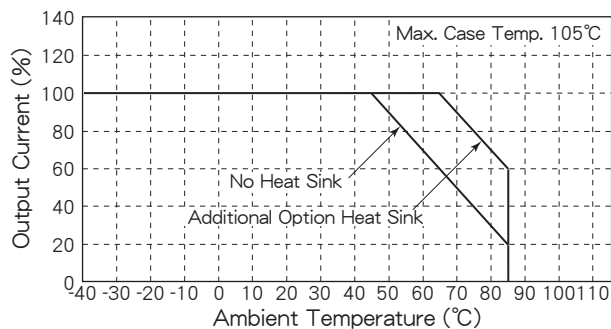


Fig. 2 Short Circuit Operating Area

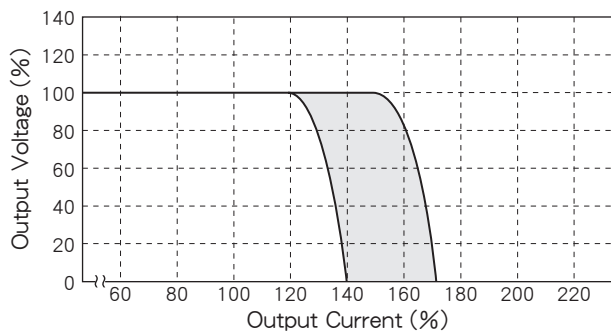


Fig. 3 Temperature Characteristic on Case Surface

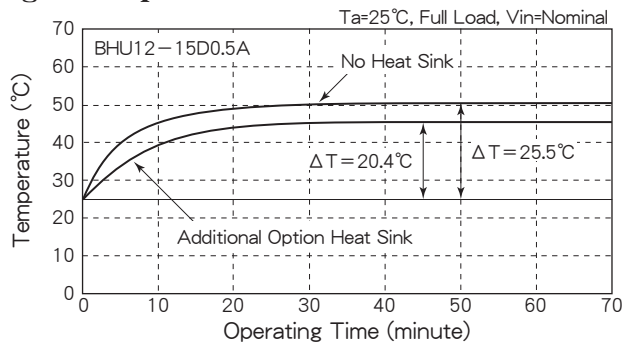


Fig. 4 Efficiency vs. Output Current

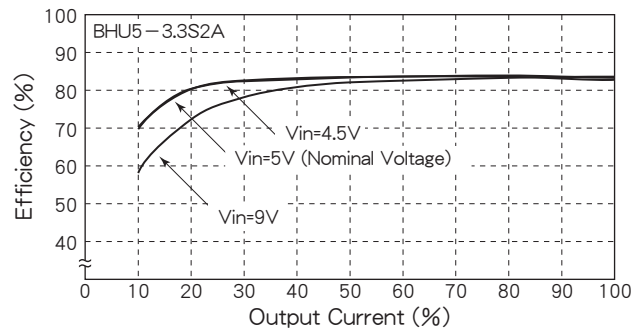


Fig. 5 Efficiency vs. Output Current

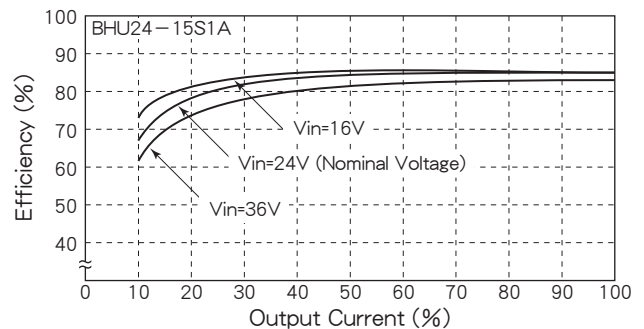


Fig. 6 Efficiency vs. Output Current

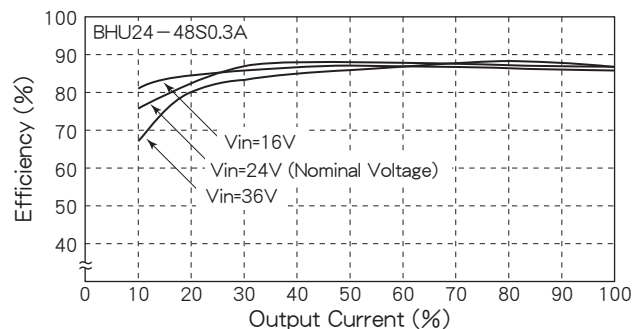


Fig. 7 Efficiency vs. Output Current

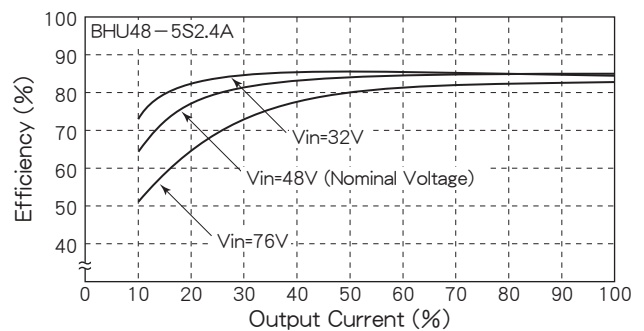
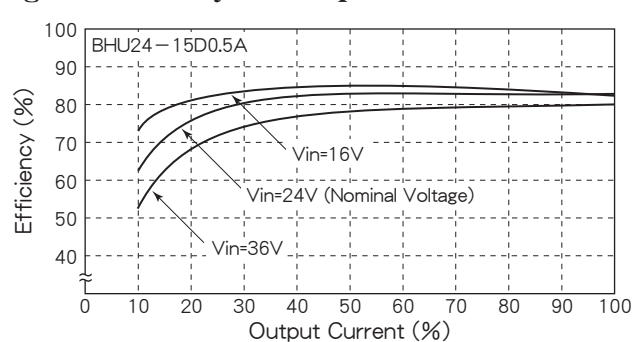
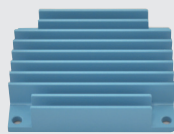


Fig. 8 Efficiency vs. Output Current



BRU SERIES

23~30W DC/DC CONVERTERS Single Output



H8.5×W50×L55 (mm)

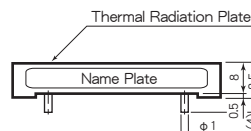
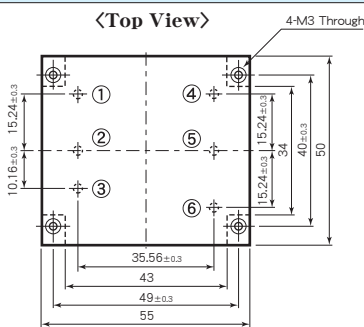
Features

- Low Profile 8.5mm
 - Built-in Input Filter
 - Input-Output Isolation (AC2000V)
 - High Efficiency 87~90%
 - Wide Input Voltage Range
 - High Reliability
 - 6 Sided Metal Shielding
 - Remote ON/OFF Control
 - Adjustable Output Volt. $\pm 5\%$
 - Input Low Voltage Protection
 - Input Over Voltage Protection
 - Output Over Voltage Protection
115~140% Operation
 - Thermal Protection
+110°C~+120°C
 - Operating Ambient Temperature
-40°C~+85°C
 - Max. Case Temperature
+105°C
 - Conformity to RoHS Directive
 - Not built-in aluminum and tantalum electrolytic capacitor
- 薄型 8.5mm
 - 入力フィルタ内蔵
 - 入出力間絶縁 (AC2000V)
 - 高効率 87~90%
 - 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 $\pm 5\%$
 - 入力低電圧保護回路内蔵
 - 入力過電圧保護回路内蔵
 - 出力過電圧保護回路内蔵
115~140% 動作
 - 過熱保護回路内蔵
+110°C~+120°C
 - 動作周囲温度
-40°C~+85°C
 - 最大ケース温度
+105°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
 - Output Voltage, Current
 - Output Voltage Accuracy
 - Output Voltage Range
 - Efficiency
 - Line Regulation
 - Load Regulation
 - Reflected Input Ripple, Noise
 - Output Ripple
 - Output Noise
 - Short Circuit Protection
 - Over Voltage Protection
 - Remote ON/OFF Control
 - Temperature Coefficient
 - Operating Ambient Temp.
 - Max. Case Temperature
 - Storage Temperature
 - Isolation Voltage
 - Isolation Impedance
 - Weight
 - Humidity
 - Shock
 - Vibration
 - Surface Structure
 - Soldering Conditions
Soldering DIP
Soldering iron
 - MTBF
 - Warranty
- (at T_a : 25°C, Full Load, Nominal V_{in})
DC12, 24, 48, 100V (See Table 1)
See Table 1
 $\pm 2\%$
 $\pm 3\%$ (3.3, 5, 6V V_{out} only)
 $\pm 5\%$ Adjustable (Used trimmer)
See Table 1
 $\pm 0.3\%$ max. (at V_{in} Range)
 $\pm 0.5\%$ max. (0~100% Load)
(3% V_{in}) V_{p-p} max.
40mV V_{p-p} max.
100mV V_{p-p} max. (48V V_{out} only)
100mV V_{p-p} max.
200mV V_{p-p} max. (48V V_{out} only)
Built-in, Auto-restart (See Fig. 2)
115~140% Output Voltage
ON: Short or 0~0.8V
OFF: Open or 2~10V
(Between pin ② ~ ③)
0.02%/°C max.
-40°C~+85°C (See Fig. 1)
+105°C
-50°C~+115°C
AC2000V one minute
(Input-Output-Case)
100M Ω min. (at DC1000V)
(Input-Output-Case)
Main Body: 60g max.
Heat Sink: 40g max.
20~95% RH
490m/s² (11msec 3directions)
10~55Hz 98m/s²
(30minutes 3directions)
6 Sided Aluminum Case
260°C, for 15 seconds max.
360°C, for 5 seconds max.
500,000H
(T_a : 25°C, 80% Load, Nominal V_{in})
5 years

Pin Outs & Dimensions (± 0.5 mm)

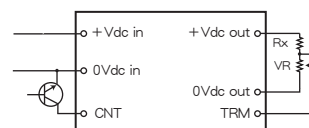


Pin Outs

①	+Vdc in
②	0 Vdc in
③	ON/OFF Control
④	+Vdc out
⑤	0 Vdc out
⑥	TRIM

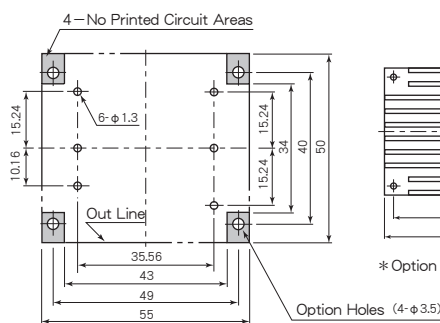
Application

ON/OFF Control and V_{out} Adjustment

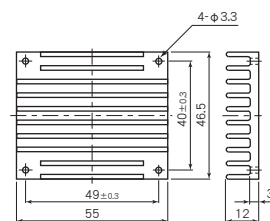


V_{out} (V)	3.3V	5V	6V	12V	15V	24V	28V	48V
VR (Ω)	50k	50k	50k	50k	50k	50k	50k	50k
Rx (Ω)	10k	33k	47k	47k	62k	110k	130k	220k

Holes on PCB (Top View)



Option Heat Sink



* Option Heat Sink Model: A4-3080

Selection Guide

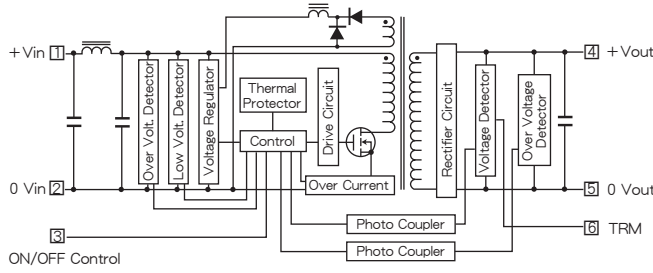
Table 1

Model Number	Input Volt. (Range) (V. DC)	Output Voltage (V. DC)	Output Current (A)	Efficiency (Typical)(%)	
				20% Load	80% Load
BRU12-3.3S 7A	12 (8~18)	3.3	7	84	87
		5	6	84	90
		6	5	84	90
		12	2.5	84	90
		15	2	84	90
		24	1.25	84	90
		28	1.07	84	90
		48	0.6	84	90
BRU24-3.3S 7A	24 (16~36)	3.3	7	84	87
		5	6	84	90
		6	5	84	90
		12	2.5	84	90
		15	2	84	90
		24	1.25	84	90
		28	1.07	84	90
		48	0.6	84	90
BRU48-3.3S 7A	48 (32~76)	3.3	7	84	87
		5	6	84	90
		6	5	84	90
		12	2.5	84	90
		15	2	84	90
		24	1.25	84	90
		28	1.07	84	90
		48	0.6	84	90
BRU100-3.3S 7A	100 (64~144)	3.3	7	84	87
		5	6	84	90
		6	5	84	90
		12	2.5	84	90
		15	2	84	90
		24	1.25	84	90
		28	1.07	84	90
		48	0.6	84	90

* 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.

BRU SERIES DATA SHEET

Block Diagram



Characteristic Curves

Fig. 1 Derating Curve

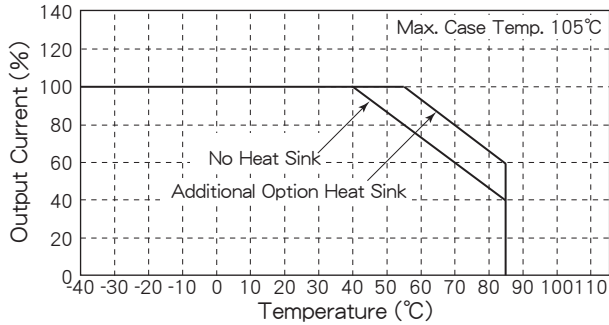


Fig. 2 Short Circuit Operating Area

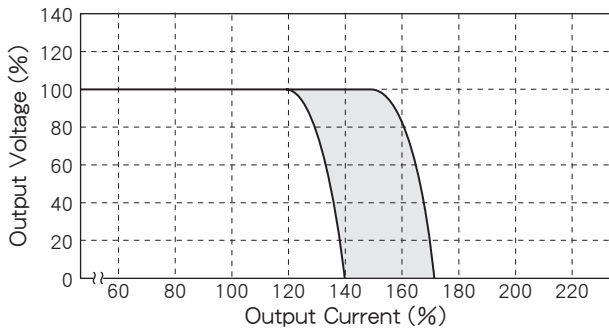


Fig. 3 Temperature Characteristic on Case Surface

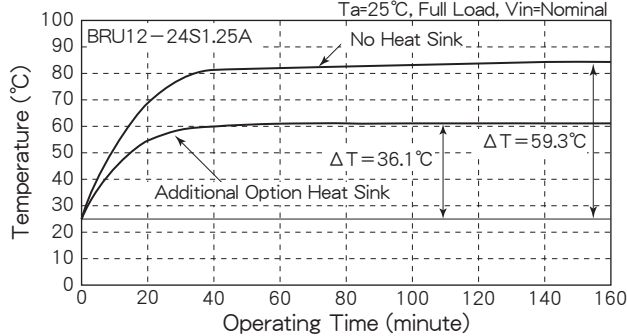


Fig. 4 Efficiency vs. Output Current (Vin=12V)

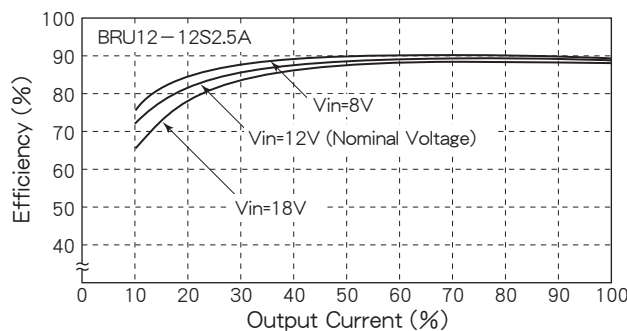


Fig. 5 Efficiency vs. Output Current (Vin=12V)

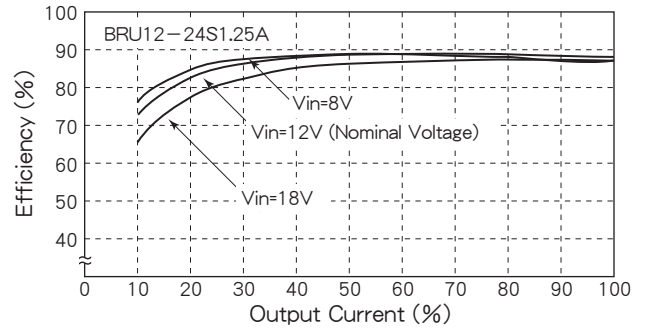


Fig. 6 Efficiency vs. Output Current (Vin=24V)

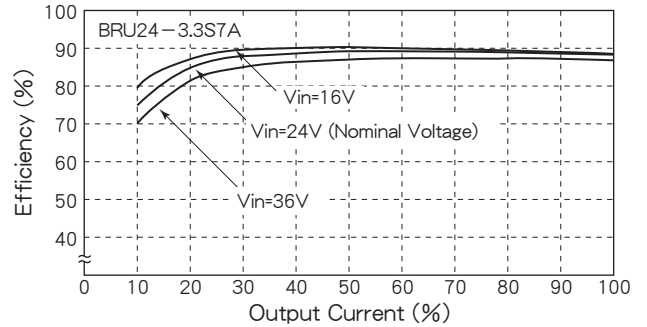


Fig. 7 Efficiency vs. Output Current (Vin=24V)

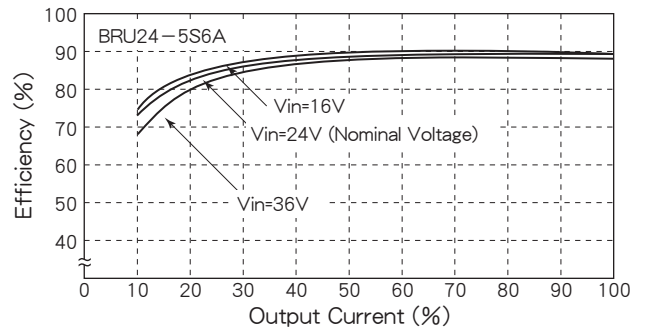


Fig. 8 Efficiency vs. Output Current (Vin=48V)

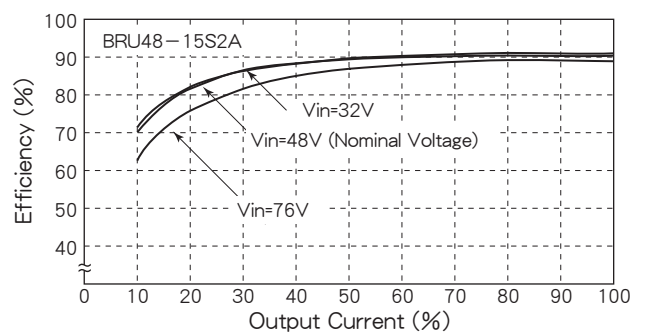
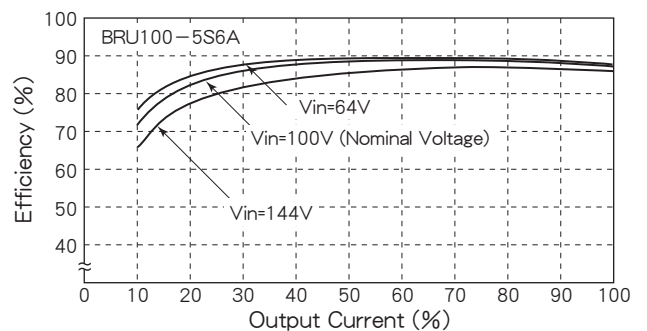


Fig. 9 Efficiency vs. Output Current (Vin=100V)



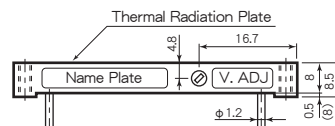
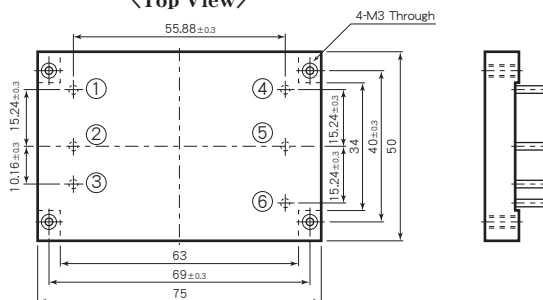
20~50W DC/DC CONVERTERS



H8.5×W50×L75 (mm)

■ Pin Outs & Dimensions (±0.5mm)

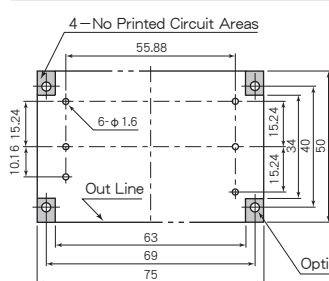
〈Top View〉



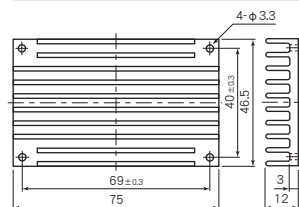
Pin Outs

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

■ Holes on PCB (Top View)



■ Option Heat Sink



* Option Heat Sink Model : A4-3079

■ Selection Guide

Table 1

Model Number	Input Volt. (Range) (V. DC)	Output Voltage (V. DC)	Output Current (A)	Efficiency (Typical)(%)	
				30% Load	80% Load
BPU12-3.3S 12A	12 (8~18)	3.3	12	87	85
BPU12-5S 10A		5	10	86	89
BPU12-6S 8.4A		6	8.4	87	87
BPU12-12S 4.2A		12	4.2	84	88
BPU12-15S 3.3A		15	3.3	83	88
BPU12-24S 2.1A		24	2.1	83	88
BPU12-3.3D 3A		±3.3	±3	80	81
BPU12-5D 3A		±5	±3	80	82
BPU12-12D 1.5A		±12	±1.5	81	83
BPU12-15D 1.2A		±15	±1.2	81	84
BPU24-3.3S 12A	24 (16~36)	3.3	12	84	85
BPU24-5S 10A		5	10	85	88
BPU24-6S 8.4A		6	8.4	87	89
BPU24-12S 4.2A		12	4.2	84	89
BPU24-15S 3.3A		15	3.3	85	89
BPU24-24S 2.1A		24	2.1	84	89
BPU24-3.3D 3A		±3.3	±3	80	81
BPU24-5D 3A		±5	±3	80	82
BPU24-12D 1.5A		±12	±1.5	81	84
BPU24-15D 1.2A		±15	±1.2	82	85
BPU48-3.3S 12A	48 (32~72)	3.3	12	85	86
BPU48-5S 10A		5	10	85	88
BPU48-6S 8.4A		6	8.4	85	88
BPU48-12S 4.2A		12	4.2	85	88
BPU48-15S 3.3A		15	3.3	85	90
BPU48-24S 2.1A		24	2.1	85	90
BPU48-3.3D 3A		±3.3	±3	80	81
BPU48-5D 3A		±5	±3	80	82
BPU48-12D 1.5A		±12	±1.5	81	84
BPU48-15D 1.2A		±15	±1.2	82	85
BPU100-3.3S 12A	100 (64~144)	3.3	12	84	87
BPU100-5S 10A		5	10	86	89
BPU100-6S 8.4A		6	8.4	84	89
BPU100-12S 4.2A		12	4.2	85	90
BPU100-15S 3.3A		15	3.3	85	90
BPU100-24S 2.1A		24	2.1	85	90
BPU100-3.3D 3A		±3.3	±3	80	81
BPU100-5D 3A		±5	±3	80	82
BPU100-12D 1.5A		±12	±1.5	81	84
BPU100-15D 1.2A		±15	±1.2	82	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.

■ Features

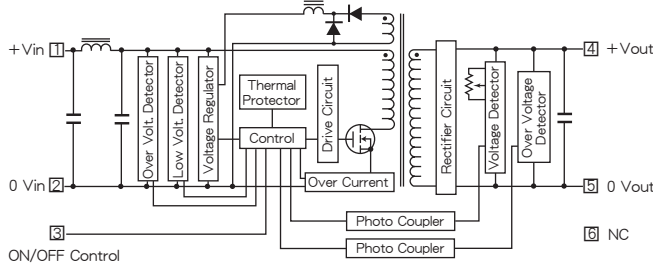
- Low Profile 8.5mm
 - 6 Sided Metal Shielding
 - Built-in Input Filter
 - Wide Input Voltage Range
 - Input-Output Isolation
 - Adjustable Output Volt. $\pm 5\%$
 - High Efficiency 81~90%
 - Remote ON/OFF Control
 - Input Low Voltage Protection
 - Input Over Voltage Protection
 - Output Over Voltage Protection
 - 115~140% Operation
 - Thermal Protection
 - +110°C~+120°C
 - Operating Ambient Temperature
 - 40°C~+85°C
 - Max. Case Temperature +105°C
 - High Reliability
 - Conformity to RoHS Directive
 - Not built-in aluminum and tantalum electrolytic capacitor
 - 薄型 8.5mm
 - 6面メタルシールド
 - 入力フィルタ内蔵
 - 広範囲な入力電圧
 - 入出力間絶縁
 - 可変出力電圧 $\pm 5\%$
 - 高効率 81~90%
 - リモートON/OFFコントロール
 - 入力低電圧保護回路内蔵
 - 入力過電圧保護回路内蔵
 - 出力過電圧保護回路内蔵
 - 115~140% 動作
 - 過熱保護回路内蔵
 - +110°C~+120°C
 - 動作周囲温度
 - 40°C~+85°C
 - 最大ケース温度 +105°C
 - 高信頼性
 - RoHS指令対応
 - アルミ電解コンデンサ及び
タングラムコンデンサ不使用

■ General Characteristics

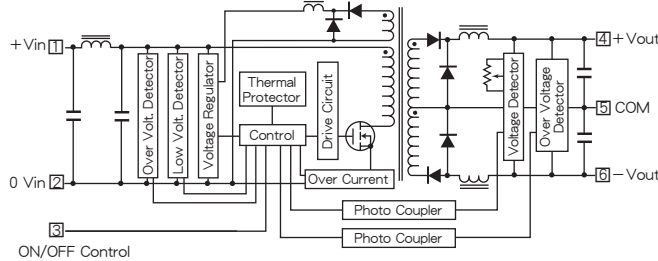
- | | |
|---------------------------------|--|
| | (at Ta : 25°C, Full Load, Nominal Vin) |
| ● Input Voltage, Range | DC12, 24, 48, 100V (See Table 1) |
| ● Output Voltage, Current | See Table 1 |
| ● Output Voltage Range | ±5% Adjustable |
| ● Efficiency | See Table 1 |
| ● Line Regulation | ±0.3% max. (at Vin Range) |
| ● Load Regulation | Single : ±0.5% max. (0~100% Load)
Dual : ±3% max. (10~100% Load) |
| ● Reflected Input Ripple, Noise | (3% Vin)Vp-p max. |
| ● Output Ripple | 40mVp-p max. |
| ● Output Noise | 100mVp-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 pin ② ~ ③) |
| ● Temperature Coefficient | 0.02%/°C max. |
| ● Operating Ambient Temp. | -40°C ~ +85°C (See Fig. 1) |
| ● Max. Case Temperature | +105°C |
| ● Storage Temperature | -40°C ~ +115°C |
| ● Isolation Voltage | AC1500V 1 min.
AC2000V 1 min. (100V Vin only) |
| ● Isolation Impedance | (Input-Output-Case)
100MΩ min. (at DC1000V)
(Input-Output-Case) |
| ● Weight | Main Body : 100g max.
Heat Sink : 55g max. |
| ● Humidity | 20~95% RH |
| ● Shock | 490m/s ² (11msec 3directions) |
| ● Vibration | 10~55Hz 98m/s ²
(30minutes 3directions) |
| ● Surface Structure | 6 Sided Aluminum Case |
| ● Soldering Conditions | |
| Soldering DIP | 260°C, for 15 seconds max. |
| Soldering iron | 360°C, for 5 seconds max. |
| ● MTBF | Single : 500,000H
Dual : 600,000H
(Ta : 25°C, 80% Load, Nominal Vin) |
| ● Warranty | 5 years |

Block Diagram

Single Output



Dual Outputs



Characteristic Curves

Fig. 1 Derating Curve

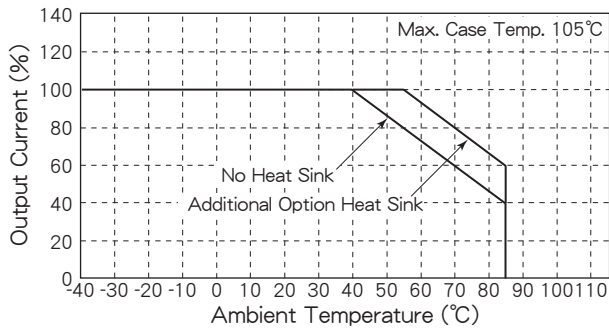


Fig. 2 Short Circuit Operating Area

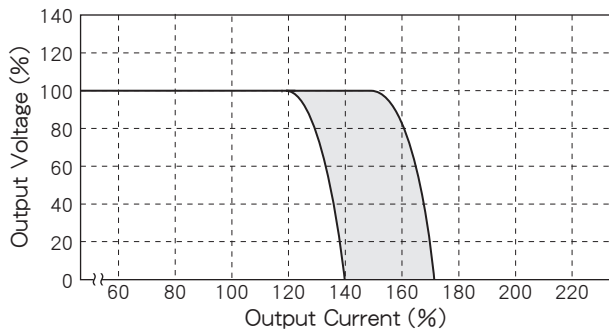


Fig. 3 Temperature Characteristic on Case Surface

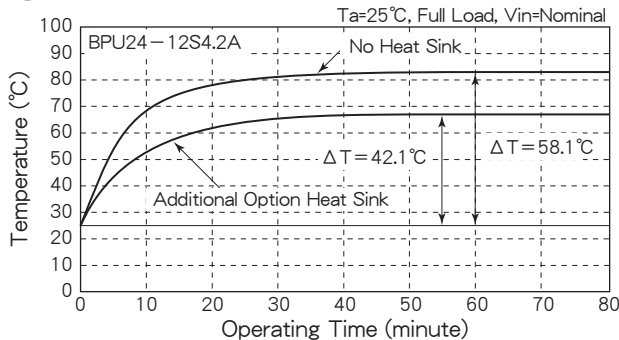


Fig. 4 Efficiency vs. Output Current (Vin=12V)

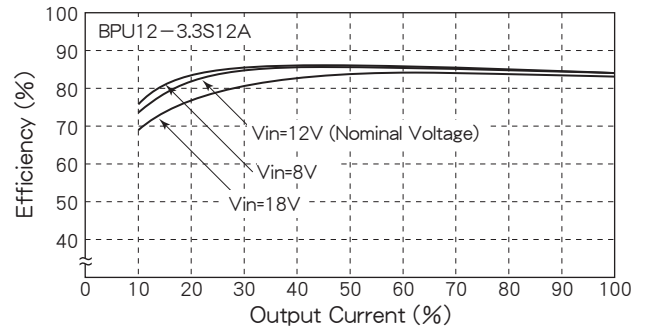


Fig. 5 Efficiency vs. Output Current (Vin=24V)

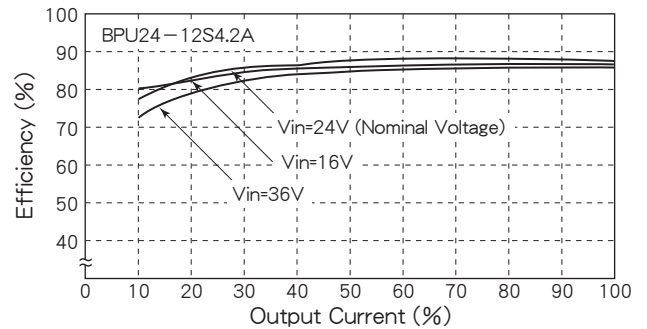


Fig. 6 Efficiency vs. Output Current (Vin=100V)

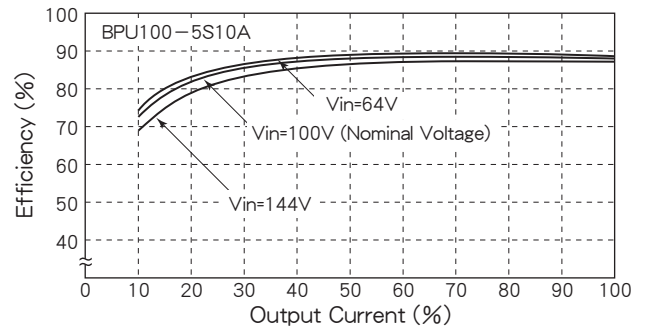


Fig. 7 Efficiency vs. Output Current (Vin=100V)

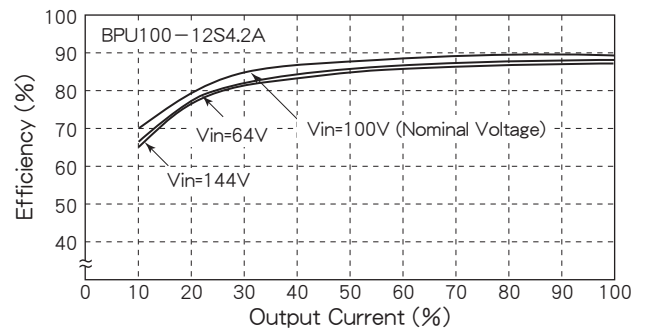
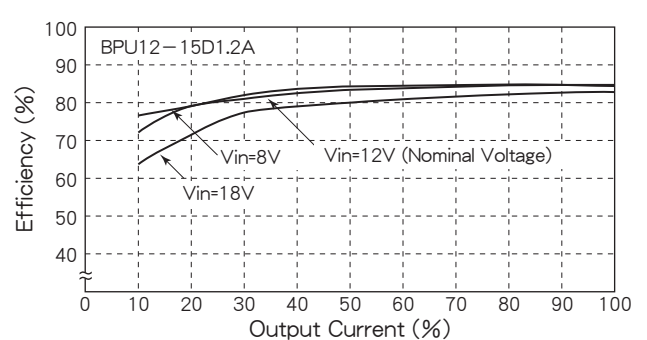


Fig. 8 Efficiency vs. Output Current (Vin=12V)



BTU SERIES

80~100W DC/DC CONVERTERS Single Output



H12.8 x W50 x L98 (mm)

Features

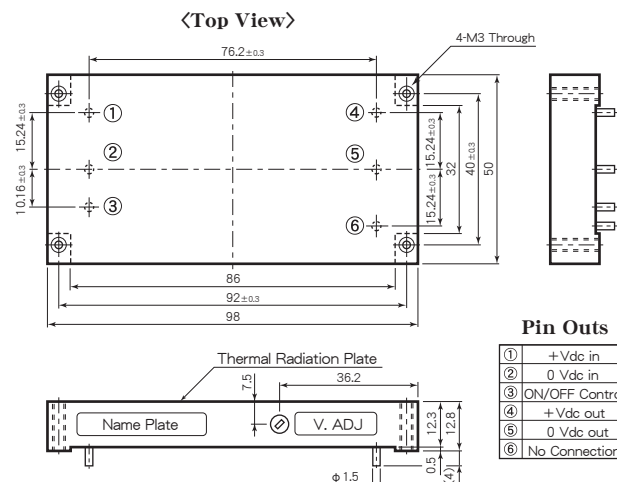
- Low Profile 12.8mm
 - Built-in Input Filter
 - Input-Output Isolation
 - High Efficiency 88~91%
 - Wide Input Voltage Range
 - High Reliability
 - 6 Sided Metal Shielding
 - Remote ON/OFF Control
 - Adjustable Output Voltage $\pm 5\%$
 - Input Low Voltage Protection
 - Input Over Voltage Protection
 - Output Over Voltage Protection 115~140% Operation
 - Thermal Protection $+110^{\circ}\text{C} \sim +120^{\circ}\text{C}$
 - 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 88~91%
 - 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 $\pm 5\%$
 - 入力低電圧保護回路内蔵
 - 入力過電圧保護回路内蔵
 - 出力過電圧保護回路内蔵 115~140% 動作
 - 過熱保護回路内蔵 $+110^{\circ}\text{C} \sim +120^{\circ}\text{C}$
 - 動作周囲温度 $-40^{\circ}\text{C} \sim +85^{\circ}\text{C}$
 - 最大ケース温度 105°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

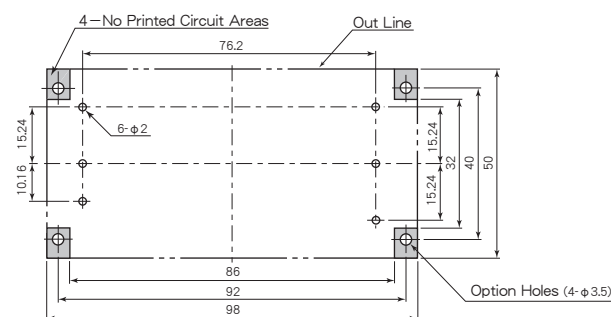
(at $T_a : 25^{\circ}\text{C}$, Full Load, Nominal V_{in})

- Input Voltage, Range DC12, 24, 48, 100V (See Table 1)
- Output Voltage, Current See Table 1
- Output Voltage Range $\pm 5\%$ Adjustable
- Efficiency See Table 1
- Line Regulation $\pm 0.3\%$ max. (at V_{in} Range)
- Load Regulation $\pm 0.5\%$ max. (0~100% Load)
- Reflected Input Ripple, Noise $(3\% V_{in})/V_{p-p}$ max.
- Output Ripple 40mVp-p max.
- Output Noise 100mVp-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 pin ② ~ ③)
0.02%/°C max.
 $-40^{\circ}\text{C} \sim +85^{\circ}\text{C}$ (See Fig. 1)
 $+105^{\circ}\text{C}$
 $-55^{\circ}\text{C} \sim +125^{\circ}\text{C}$
- Temperature Coefficient AC1500V 1 min.
- Operating Ambient Temp. AC2000V 1 min. (100V V_{in} only)
- Max. Case Temperature (Input-Output-Case) 100M Ω min. (at DC1000V)
- Storage Temperature (Input-Output-Case) Main Body : 170g max.
- Isolation Voltage Heat Sink : 73g max.
- Isolation Impedance 20~95% RH
- Weight 490m/s² (11msec 3directions)
- Humidity 10~55Hz 98m/s²
- Shock (30minutes 3directions)
- Vibration 6 Sided Aluminum Case
- Surface Structure 260°C, for 15 seconds max.
- Soldering Conditions 360°C, for 5 seconds max.
- Soldering DIP 400,000H
- Soldering iron (Ta : 25°C, 80% Load, Nominal Vin)
- MTBF 5 years
- Warranty

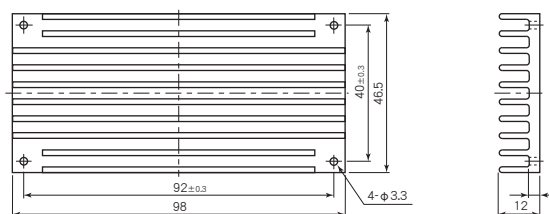
Pin Outs & Dimensions ($\pm 0.5\text{mm}$)



Hole Configurations on P.C.B. (Top View)



Option Heat Sink



* Option Heat Sink Model : A3-7292

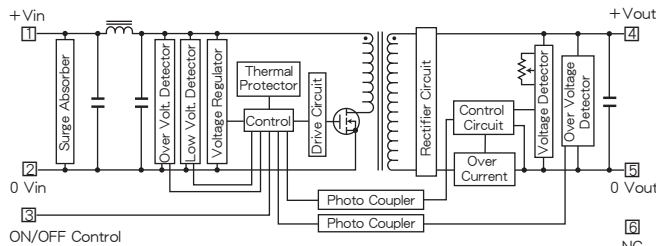
Selection Guide

Table 1

Model Number	Input Volt. (Range) (V. DC)	Output Voltage (V. DC)	Output Current (A)	Efficiency (Typical)(%)	
				20% Load	80% Load
BTU 12- 3.3S 24A	12 (8~18)	3.3	24	88	88
BTU 12- 5S 20A		5	20	87	89
BTU 12- 6S16.7A		6	16.7	87	89
BTU 12- 12S 8.4A		12	8.4	87	89
BTU 12- 15S 6.7A		15	6.7	86	89
BTU 12- 24S 4.2A	24 (16~36)	24	4.2	85	89
BTU 24- 3.3S 24A		3.3	24	88	88
BTU 24- 5S 20A		5	20	88	90
BTU 24- 6S16.7A		6	16.7	88	90
BTU 24- 12S 8.4A		12	8.4	86	90
BTU 24- 15S 6.7A	48 (32~72)	15	6.7	86	90
BTU 24- 24S 4.2A		24	4.2	86	90
BTU 48- 3.3S 24A		3.3	24	87	88
BTU 48- 5S 20A		5	20	87	90
BTU 48- 6S16.7A		6	16.7	87	90
BTU 48- 12S 8.4A	100 (64~144)	12	8.4	87	91
BTU 48- 15S 6.7A		15	6.7	86	91
BTU 48- 24S 4.2A		24	4.2	86	91
BTU100- 3.3S 24A		3.3	24	85	88
BTU100- 5S 20A		5	20	86	90
BTU100- 6S16.7A		6	16.7	86	90
BTU100- 12S 8.4A		12	8.4	86	91
BTU100- 15S 6.7A		15	6.7	86	91
BTU100- 24S 4.2A		24	4.2	86	89

* 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.

Block Diagram



Characteristic Curves

Fig. 1 Derating Curve

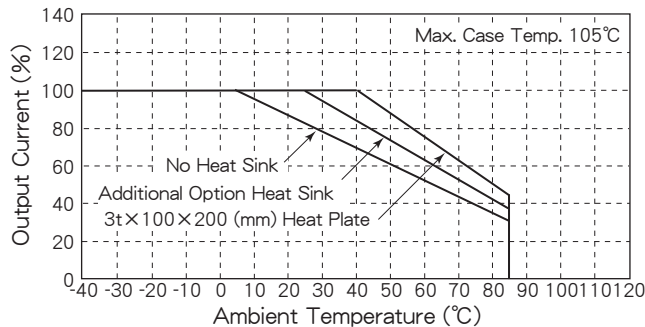


Fig. 2 Short Circuit Operating Area

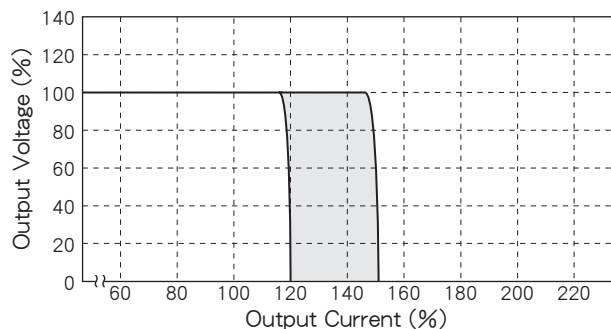


Fig. 3 Temperature Characteristic on Case Surface

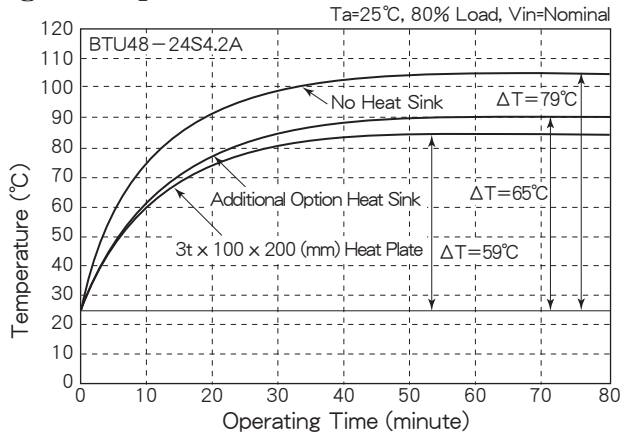


Fig. 4 Efficiency vs. Output Current (Vin=12V)

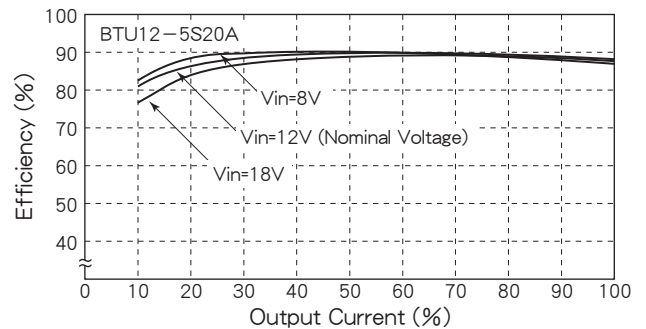


Fig. 5 Efficiency vs. Output Current (Vin=12V)

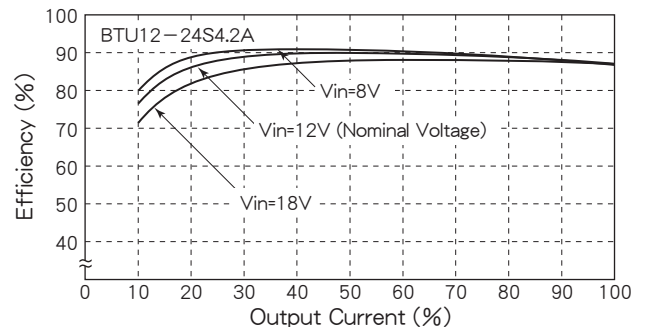


Fig. 6 Efficiency vs. Output Current (Vin=24V)

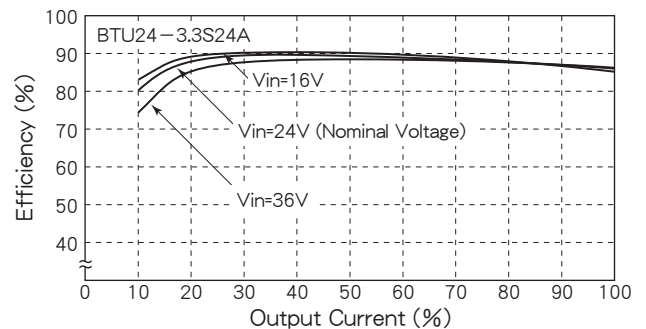


Fig. 7 Efficiency vs. Output Current (Vin=48V)

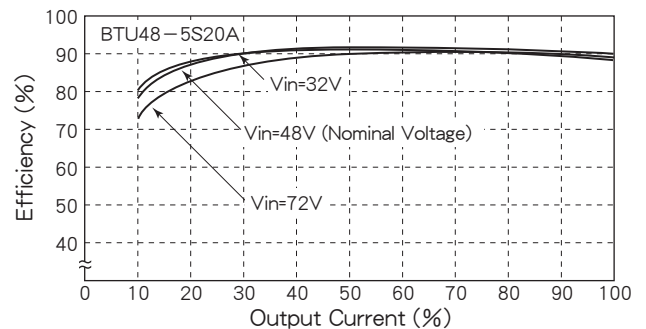
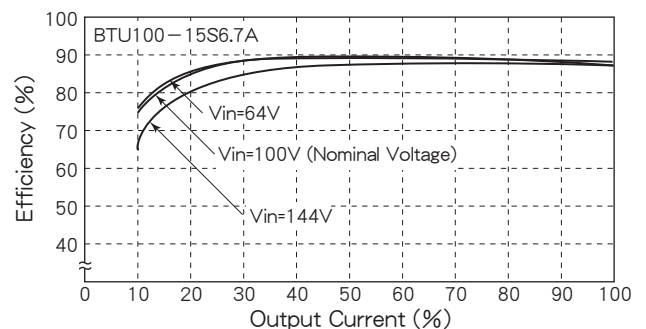


Fig. 8 Efficiency vs. Output Current (Vin=100V)



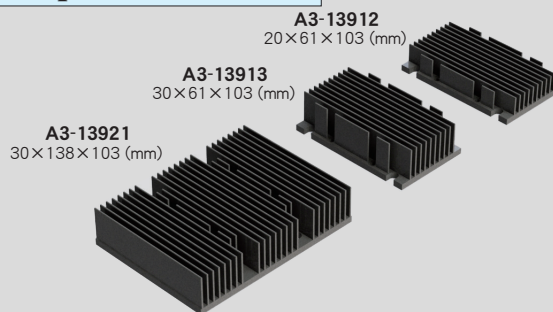
KMP SERIES

105~200W DC/DC CONVERTERS Single Output



H20×W60×L105 (mm)

■ Option Heat Sink



■ Features

- Built-in Input Filter
- Input-Output Isolation
- High Efficiency 87~91%
- Wide Input Voltage Range
- High Reliability
- 6 Sided Metal Shielding
- Adjustable Output Volt. $\pm 8\%$
- Input Low Voltage Protection
- Input Over Voltage Protection
- Output Over Voltage Protection
- Thermal Protection
+110°C~+120°C
- Remote ON/OFF Control
- Operating Ambient Temperature
-40°C~+85°C
- Conformity to RoHS Directive
- Not built-in aluminum and tantalum electrolytic capacitor
- 入力フィルタ内蔵
- 入出力間絶縁
- 高効率 87~91%
- 広範囲な入力電圧
- 高信頼性
- 6面メタルシールド
- 可変出力電圧 $\pm 8\%$
- 入力低電圧保護回路内蔵
- 入力過電圧保護回路内蔵
- 出力過電圧保護回路内蔵
- 過熱保護回路内蔵
+110°C~+120°C
- リモートON/OFFコントロール
- 動作周囲温度
-40°C~+85°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 (at T_a : 25°C, Full Load, Nominal V_{in})
DC12, 24, 48, 100, 140V (See Table 1)
- Output Voltage, Current See Table 1
- Output Voltage Accuracy $\pm 2\%$
 $\pm 3\%$ (3.3, 5, 6V V_{out} only)
- Output Voltage Range $\pm 8\%$ Adjustable (Used trimmer)
- Efficiency See Table 1
- Line Regulation $\pm 0.3\%$ max. (at V_{in} Range)
- Load Regulation $\pm 1\%$ max.
 $\pm 1.5\%$ max. (3.3, 5, 6V V_{out} only)
- Reflected Input Ripple, Noise (5% V_{in}) Vp-p max.
80mVp-p max.
- Output Ripple (0.5% V_{out} +100mV)p-p max.
- Output Noise Built-in, Auto-restart (See Fig. 5)
- Short Circuit Protection 115~140% Output Voltage
- Over Voltage Protection ON : Short or 0~0.8V
- Remote ON/OFF Control OFF : Open or 2~10V
(Between pin ② ~ ③)
- Temperature Coefficient 0.02%/°C max.
- Operating Ambient Temp. -40°C~+85°C (See Fig. 1)
- Max. Case Temperature +105°C
- Storage Temperature -55°C~+125°C
- Isolation Voltage AC2000V one minute
(Input-Output-Case)
- Isolation Impedance 100M Ω min. (at DC1000V)
(Input-Output-Case)
- Weight Main Body : 300g max.
Heat Sink
A3-13912 : 145g max.
A3-13913 : 185g max.
A3-13921 : 430g max.
- Humidity 20~95% RH
- Shock 490m/s² (11msec 3directions)
- Vibration 10~55Hz 98m/s²
(30minutes 3directions)
- Surface Structure Aluminum Case
- Soldering Conditions Soldering DIP 260°C, for 15 seconds max.
Soldering iron 360°C, for 5 seconds max.
- MTBF 400,000H
(T_a : 25°C, 80% Load, Nominal V_{in})
- Warranty 5 years

■ Selection Guide

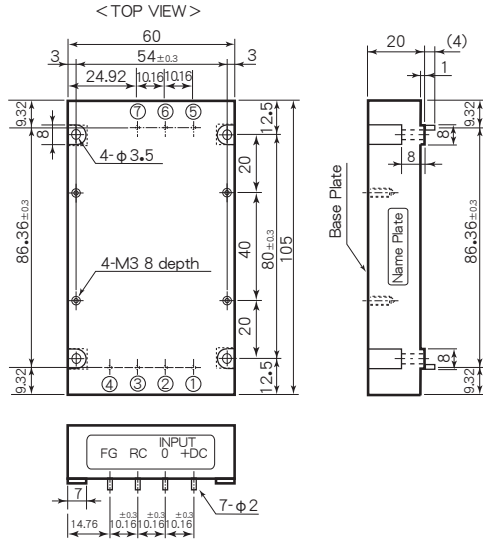
Table 1

Model Number	Input Volt. (Range) (V. DC)	Output Voltage (V. DC)	Output Current (A)	Efficiency (Typical)(%)		
				20% Load	50% Load	80% Load
KMP12 - 3.3S 32A	12 (8~18) at 50% Load (9~18) at 100% Load	3.3	32	85	88	87
KMP12 - 5S 32A		5	32	86	90	89
KMP12 - 6S26.6A		6	26.6	86	90	89
KMP12 - 12S13.4A		12	13.4	87	90	89
KMP12 - 13.8S11.6A		13.8	11.6	87	90	89
KMP12 - 15S10.7A		15	10.7	87	90	89
KMP12 - 24S 6.7A		24	6.7	87	90	89
KMP12 - 28S 5.8A		28	5.8	87	90	89
KMP12 - 48S 3.4A		48	3.4	87	90	89
KMP24 - 3.3S 40A		3.3	40	88	91	90
KMP24 - 5S 32A	24 (16~36)	5	32	90	92	91
KMP24 - 6S26.6A		6	26.6	90	92	91
KMP24 - 12S16.7A		12	16.7	90	92	91
KMP24 - 13.8S14.5A		13.8	14.5	90	92	91
KMP24 - 15S13.4A		15	13.4	90	92	91
KMP24 - 24S 8.4A		24	8.4	90	92	91
KMP24 - 28S 7.2A		28	7.2	90	92	91
KMP24 - 48S 4.2A		48	4.2	90	92	91
KMP48 - 3.3S 40A		3.3	40	88	91	90
KMP48 - 5S 32A	48 (36~76)	5	32	91	92	91
KMP48 - 6S26.6A		6	26.6	91	92	91
KMP48 - 12S16.7A		12	16.7	91	92	91
KMP48 - 13.8S14.5A		13.8	14.5	91	92	91
KMP48 - 15S13.4A		15	13.4	91	92	91
KMP48 - 24S 8.4A		24	8.4	91	92	91
KMP48 - 28S 7.2A		28	7.2	91	92	91
KMP48 - 48S 4.2A		48	4.2	91	92	91
KMP100 - 3.3S 40A		3.3	40	85	91	90
KMP100 - 5S 32A	100 (64~144)	5	32	87	92	91
KMP100 - 6S26.6A		6	26.6	87	92	91
KMP100 - 12S16.7A		12	16.7	87	92	91
KMP100 - 13.8S14.5A		13.8	14.5	87	92	91
KMP100 - 15S13.4A		15	13.4	87	92	91
KMP100 - 24S 8.4A		24	8.4	87	92	91
KMP100 - 28S 7.2A		28	7.2	87	92	91
KMP100 - 48S 4.2A		48	4.2	87	92	91
KMP140 - 3.3S 40A		3.3	40	85	91	90
KMP140 - 5S 32A	140 (90~200)	5	32	87	92	91
KMP140 - 6S26.6A		6	26.6	87	92	91
KMP140 - 12S16.7A		12	16.7	87	92	91
KMP140 - 13.8S14.5A		13.8	14.5	87	92	91
KMP140 - 15S13.4A		15	13.4	87	92	91
KMP140 - 24S 8.4A		24	8.4	87	92	91
KMP140 - 28S 7.2A		28	7.2	87	92	91
KMP140 - 48S 4.2A		48	4.2	87	92	91

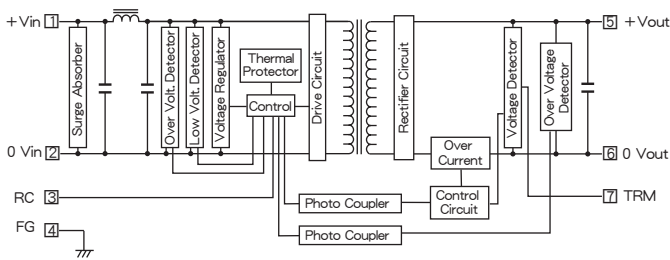
* 上記仕様以外にも対応可能ですのでお問い合わせください。
Please consult with us about other specification.

KMP SERIES DATA SHEET

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

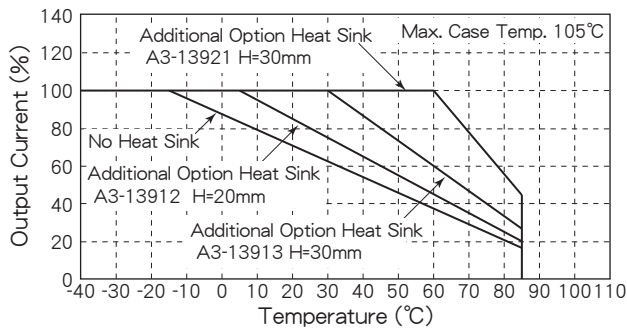


Block Diagram



Characteristic Curves

Fig. 1 Derating Curve



Option Heat Sink

Fig. 2 Temperature Characteristic on Case Surface

* Option Heat Sink Model : A3-13912

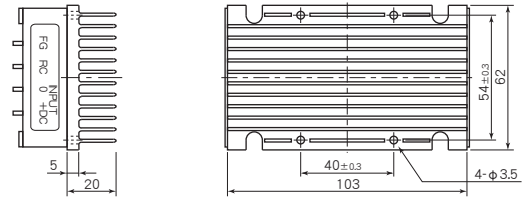


Fig. 3 Temperature Characteristic on Case Surface

* Option Heat Sink Model : A3-13913

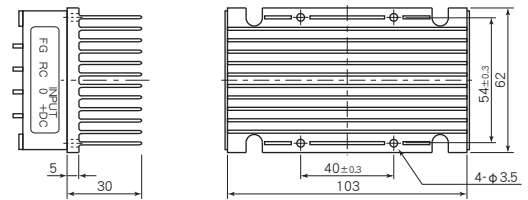
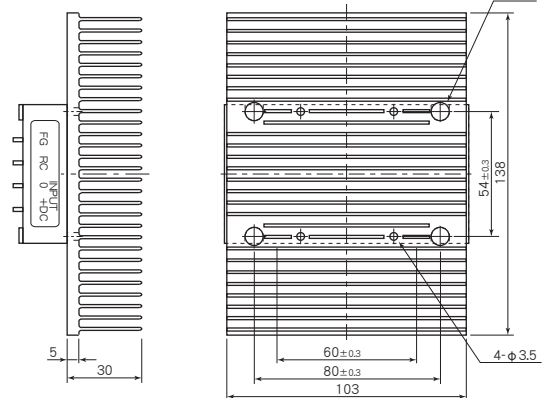


Fig. 4 Temperature Characteristic on Case Surface

* Option Heat Sink Model : A3-13921



KMP SERIES DATA SHEET

Fig. 5 Short Circuit Operating Area

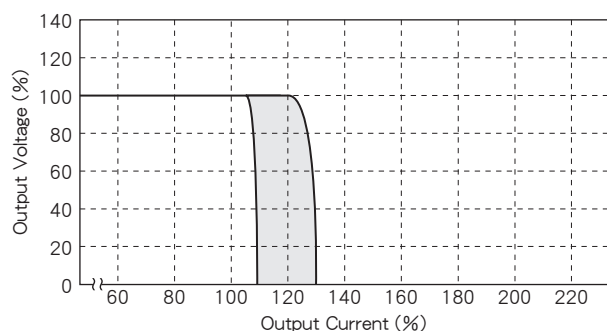


Fig. 6 Efficiency vs. Output Current

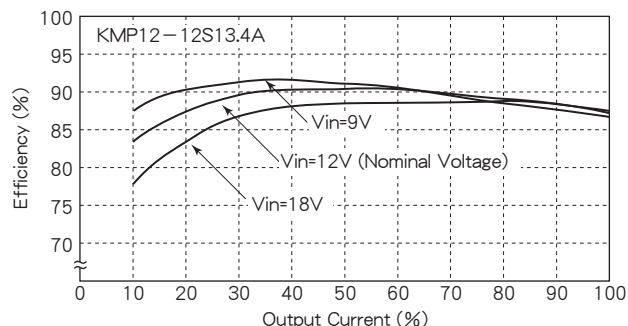


Fig. 7 Efficiency vs. Output Current

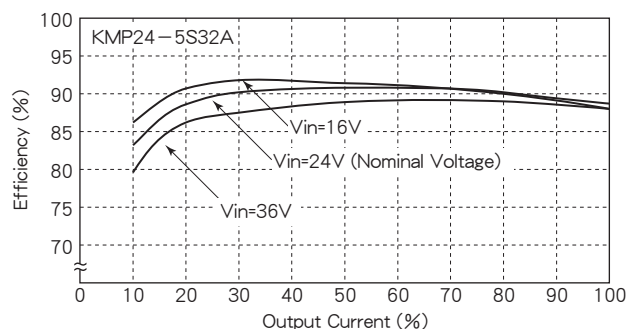


Fig. 8 Efficiency vs. Output Current

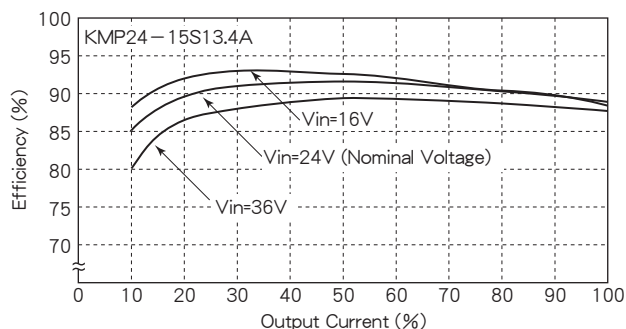


Fig. 9 Efficiency vs. Output Current

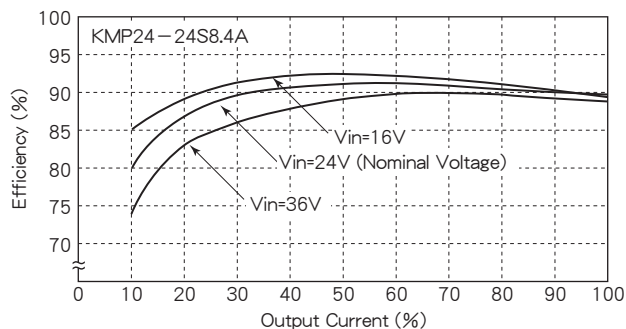


Fig. 10 Efficiency vs. Output Current

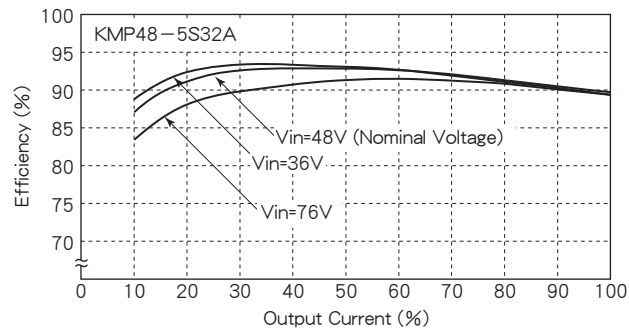


Fig. 11 Efficiency vs. Output Current

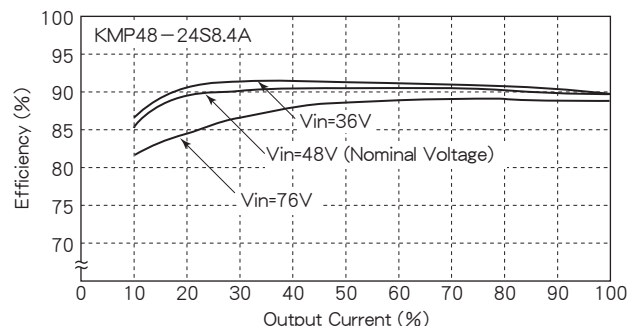


Fig. 12 Efficiency vs. Output Current

