

# FD SERIES

## 80~100W DC/DC CONVERTERS Single Output

FDU type



H20×W60×L120 (mm)

FDS type



H20×W60×L120 (mm)

### Features

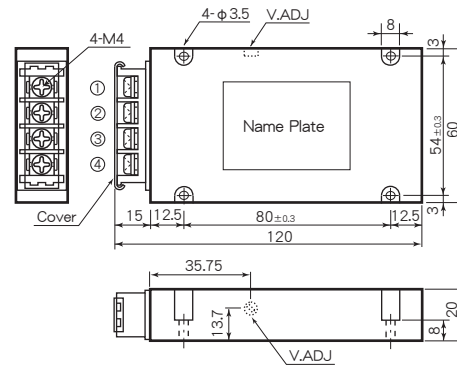
- Built-in Input Filter
- Input-Output Isolation
- High Efficiency 85~92%
- Wide Input Voltage Range
- High Reliability
- Long Life by Mounting on Chassis or Using Heat Sink
- Adjustable Output Voltage  $\pm 5\%$
- Input Low Voltage Protection
- Input Over Voltage Protection
- Output Over Voltage Protection
- Thermal Protection  
+110°C~+120°C
- 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 85~92%
- 広範囲な入力電圧
- 高信頼性
- シャーシや放熱板への取り付けにより長寿命化
- 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
- 過熱保護回路内蔵  
+110°C~+120°C
- 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 Ta : 25°C, Full Load, Nominal Vin)  
DC12, 24, 48, 100, 140V (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 Vin Range)
- Load Regulation  $\pm 0.5\%$  max.  
 $\pm 1\%$  max. (3.3, 5V Vout only)  
(0~100% Load)
- Reflected Input Ripple, Noise (5% Vin) Vp-p max.
- Output Ripple 40mVp-p max.
- Output Noise (0.5% Vout+100mV) p-p max.
- Short Circuit Protection Built-in, Auto-restart (See Fig. 2)
- Over Voltage Protection 115~140% Output Voltage
- 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 $\Omega$  min. (at DC1000V)  
(Input-Output-Case)
- Weight 350g 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 Aluminum Case
- MTBF 400,000H  
(Ta : 25°C, 80% Load, Nominal Vin)
- Warranty 5 years

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

FDU type

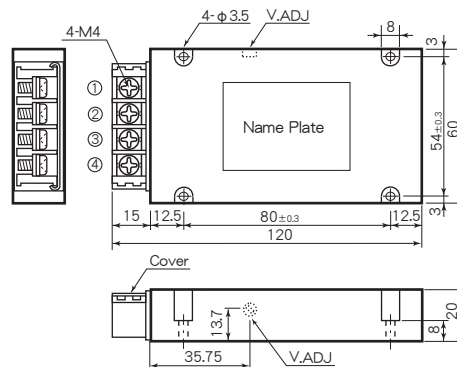


Terminal Outs

- ① +Vdc in
- ② 0 Vdc in
- ③ +Vdc out
- ④ 0 Vdc out

Ⓢ Voltage Adjustable Trimmer

FDS type



Terminal Outs

- ① +Vdc in
- ② 0 Vdc in
- ③ +Vdc out
- ④ 0 Vdc out

Ⓢ Voltage Adjustable Trimmer

### Selection Guide

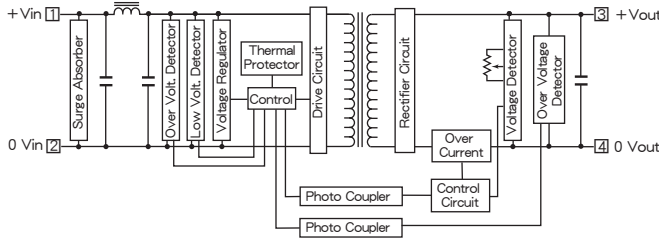
Table 1

Model Number	Input Volt. (Range) (V. DC)	Output Voltage (V. DC)	Output Current (A)	Efficiency (Typical)(%)		
				20% Load	80% Load	
FDU(FDS) 12- 3.3S 24A	12 (8~18)	3.3	24	85	85	
FDU(FDS) 12- 5S 20A		5	20	87	89	
FDU(FDS) 12- 6S 16.7A		6	16.7	87	89	
FDU(FDS) 12- 12S 8.4A		12	8.4	88	90	
FDU(FDS) 12- 13.8S 7.2A		13.8	7.2	88	89	
FDU(FDS) 12- 15S 6.7A		15	6.7	88	89	
FDU(FDS) 12- 24S 4.2A		24	4.2	88	89	
FDU(FDS) 24- 3.3S 24A		24 (16~36)	3.3	24	88	90
FDU(FDS) 24- 5S 20A			5	20	88	91
FDU(FDS) 24- 6S 16.7A			6	16.7	88	91
FDU(FDS) 24- 12S 8.4A	12		8.4	88	91	
FDU(FDS) 24- 13.8S 7.2A	13.8		7.2	88	91	
FDU(FDS) 24- 15S 6.7A	15		6.7	88	91	
FDU(FDS) 24- 24S 4.2A	24		4.2	88	91	
FDU(FDS) 48- 3.3S 24A	48 (32~72)		3.3	24	87	88
FDU(FDS) 48- 5S 20A			5	20	89	92
FDU(FDS) 48- 6S 16.7A			6	16.7	88	92
FDU(FDS) 48- 12S 8.4A		12	8.4	88	91	
FDU(FDS) 48- 13.8S 7.2A		13.8	7.2	88	91	
FDU(FDS) 48- 15S 6.7A		15	6.7	88	91	
FDU(FDS) 48- 24S 4.2A		24	4.2	88	91	
FDU(FDS)100- 3.3S 24A		100 (64~144)	3.3	24	87	88
FDU(FDS)100- 5S 20A			5	20	88	90
FDU(FDS)100- 6S 16.7A			6	16.7	88	90
FDU(FDS)100- 12S 8.4A	12		8.4	88	91	
FDU(FDS)100- 13.8S 7.2A	13.8		7.2	88	91	
FDU(FDS)100- 15S 6.7A	15		6.7	88	91	
FDU(FDS)100- 24S 4.2A	24		4.2	88	91	
FDU(FDS)140- 3.3S 24A	140 (90~200)		3.3	24	87	88
FDU(FDS)140- 5S 20A			5	20	88	90
FDU(FDS)140- 6S 16.7A			6	16.7	88	90
FDU(FDS)140- 12S 8.4A		12	8.4	88	91	
FDU(FDS)140- 13.8S 7.2A		13.8	7.2	88	91	
FDU(FDS)140- 15S 6.7A		15	6.7	88	91	
FDU(FDS)140- 24S 4.2A		24	4.2	88	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.

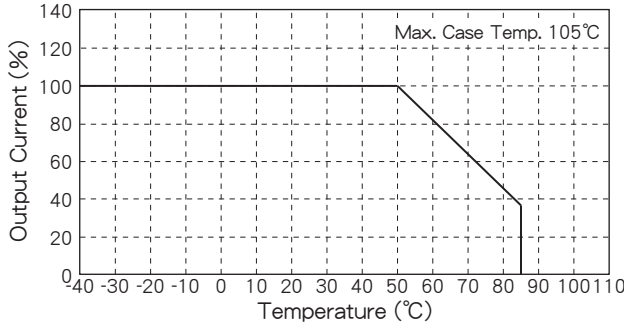
# FD SERIES DATA SHEET

## Block Diagram

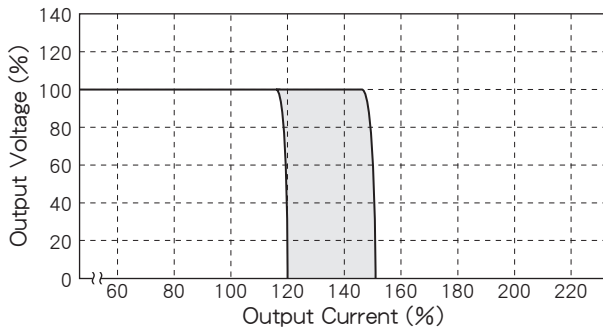


## Characteristic Curves

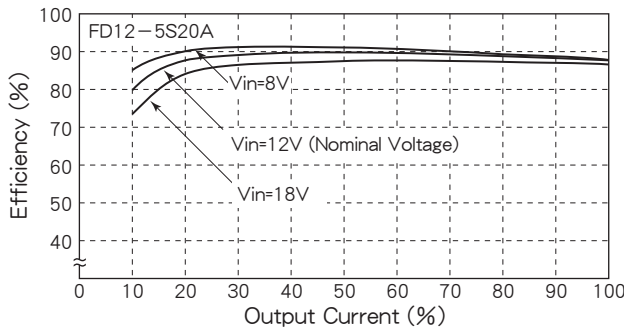
**Fig. 1 Derating Curve**



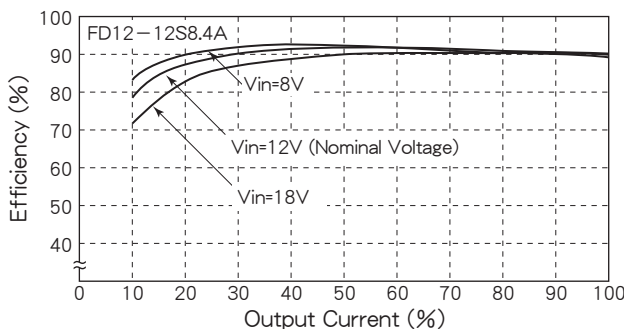
**Fig. 2 Short Circuit Operating Area**



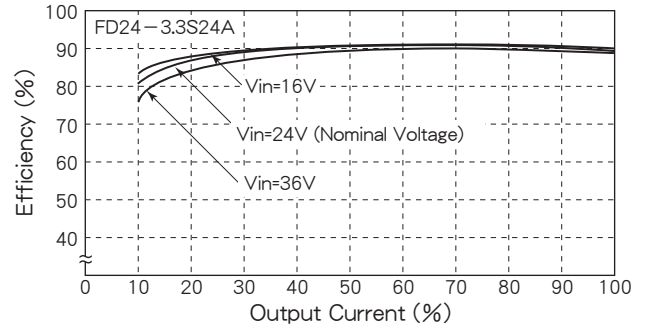
**Fig. 3 Efficiency vs. Output Current**



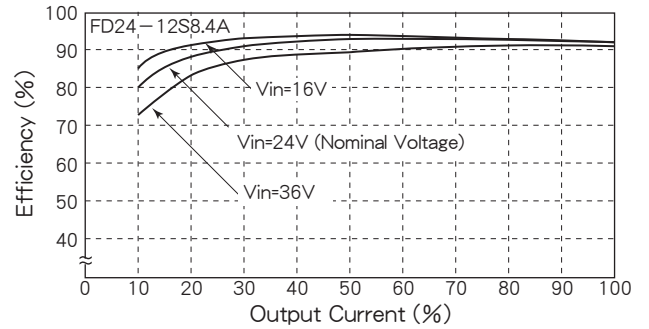
**Fig. 4 Efficiency vs. Output Current**



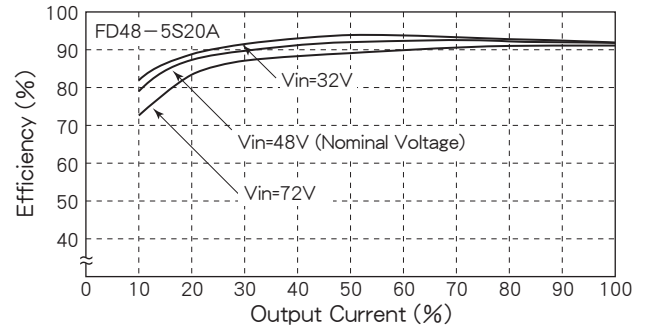
**Fig. 5 Efficiency vs. Output Current**



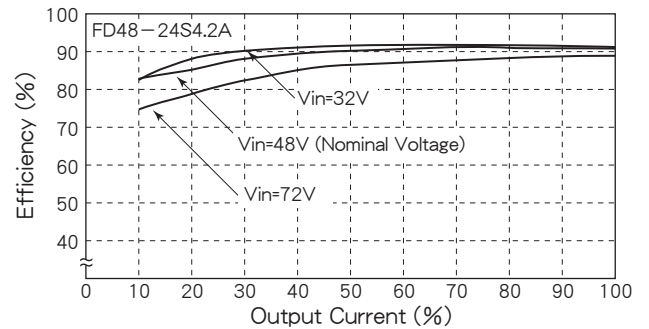
**Fig. 6 Efficiency vs. Output Current**



**Fig. 7 Efficiency vs. Output Current**



**Fig. 8 Efficiency vs. Output Current**



**Fig. 9 Efficiency vs. Output Current**

