

# 승 인 원


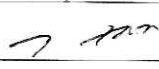
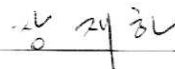
## (APPROVAL SHEET)

품 목	SMPS
품 명	CSF15-DE,DW
Rev. No.	A

승 인 (APPROVED)	검 토 Inspected by :
	심 사 Checked by :
	승 인 Approved by :
	날 짜 Date :

상기와 같이 승인원을 제출하오니 검토하시어 승인하여 주시기 바랍니다.

2008 년 05 월 29 일

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# SPECIFICATIONS

Product.	SMPS	Date.	2008.05.06
Model.	CSF15-DD	Rev.	A
Customer.	STANDARD	Page.	1 / 5

MODEL/CHANNEL		Unit.	CH1	CH2	CH3
INF 2008.0	Voltage , Frequency	[V]	AC100-240V (AC85-264V or DC120-370V), 50/60Hz (47-440Hz or DC), Universal input voltage		
	Current	110V [A]	0.4		
	Typ.	220V	0.25		
	Efficiency	110V [%]	69		
	Typ.	220V	67		
	Power factor	110V -	-		
	Typ.	220V	-		
Inrush Current	110V [A]	20 ( Ta=25°C , Cold Start )			
Typ.	220V	40 ( Ta=25°C , Cold Start )			
Leakage Current	110V [mA]	0.75			
Max.	220V	0.75			
OUTPUT	Norminal Voltage	[V]	5	12	12
	Setting Voltage Range	[V]	4.95 ~ 5.05	11.5 ~ 12.5	11.5 ~ 12.5
	current	[A]	0.1 ~ 2.0	0.3	0.2
	Line Regulations	[mV]	25	120	120
	Load Regulations	[mV]	50	120	120
	Cross Regulations	[mV]	50	120	120
	Temperature Drift	[mV]	75	180	180
	Ripple Max.	[mV]	80	120	120
	Ripple & Noise Max.	[mV]	120	150	150
	Turn-on Time Typ.	[ms]	800 (AC IN 100V, Io=100%)		
	Hold-up Time Typ.	[ms]	16 (AC IN 100V, Io=100%)		
Function	Over Voltage Protection	[V]	Works at 115%~140% of rating(except for CH2,CH3)		
	Over Current Protection	[A]	Works at over 110% of rating and recovers automatically		
	Remote ON.OFF	-	-		
	Remote Sensing	-	-		
	Power Fail Signal	-	-		
	Parallel/Series Operation	-	Series operation is passible		
	Cooling / O.T.P	-	Convection cooling		
Electrical Isolation	(1) Input - Output	-	AC 3.0KV 1min, cut-off: 20mA / DC 500V 100MΩ		
	(2) Input - F.G	-	AC 2.0KV 1min, cut-off: 20mA / DC 500V 100MΩ		
	(3) Output - F.G	-	AC 0.5KV 1min, cut-off:100mA / DC 500V 100MΩ		
Environment	Operating temp. & Humidity	-	- 10 ~ 70°C(Required Derating), 20 ~ 90% RH (Non Condensing)		
	Storage temp. & Humidity	-	- 20 ~ 75°C, 20 ~ 90% RH (Non Condensing)		
	Vibration	-	10~55Hz at 1G 3minutes period, 30minutes along X,Y and Z axis		
Dimension	Size(WxHxD) / Weight	mm / g	82 X 31.5 X 84(99)	/	210
Safety	-	-	Complied with UL60950-1, EN60950-1		
Emission	Conducted Emission	-	Complied with EN55022-A		
PFHC	-	-	-		

# SPECIFICATIONS

Product.	SMPS	Date.	2008.05.06
Model.	CSF15-EE	Rev.	A
Customer.	STANDARD	Page.	2 / 5

MODEL/CHANNEL		Unit.	CH1	CH2	CH3	
INPUT	Voltage , Frequency	[V]	AC100-240V (AC85-264V or DC120-370V), 50/60Hz (47-440Hz or DC), Universal input voltage			
	Current	110V		0.4		
	Typ.	220V		0.25		
	Efficiency	110V		68		
	Typ.	220V		67		
	Power factor	110V	-	-		
	Typ.	220V	-	-		
	Inrush Current	110V		20 ( Ta=25°C , Cold Start )		
Typ.	220V		40 ( Ta=25°C , Cold Start )			
Leakage Current	110V		0.75			
Max.	220V		0.75			
OUTPUT	Norminal Voltage	[V]	5	15	15	
	Setting Voltage Range	[V]	4.95 ~ 5.05	14.4 ~ 15.6	14.4 ~ 15.6	
	current	[A]	0.1 ~ 2.0	0.3	0.2	
	Line Regulations	[mV]	25	150	150	
	Load Regulations	[mV]	50	150	150	
	Cross Regulations	[mV]	50	150	150	
	Temperature Drift	[mV]	75	225	225	
	Ripple Max.	[mV]	80	120	120	
	Ripple & Noise Max.	[mV]	120	150	150	
	Turn-on Time Typ.	[ms]	800 (AC IN 100V, Io=100%)			
	Hold-up Time Typ.	[ms]	16 (AC IN 100V, Io=100%)			
Function	Over Voltage Protection	[V]	Works at 115%~140% of rating(except for CH2,CH3)			
	Over Current Protection	[A]	Works at over 110% of rating and recovers automatically			
	Remote ON.OFF	-	-			
	Remote Sensing	-	-			
	Power Fail Signal	-	-			
	Parallel/Series Operation	-	Series operation is passible			
	Cooling / O.T.P	-	Convection cooling			
Electrical Isolation	(1) Input - Output	-	AC 3.0KV 1min, cut-off: 20mA / DC 500V 100MΩ			
	(2) Input - F.G	-	AC 2.0KV 1min, cut-off: 20mA / DC 500V 100MΩ			
	(3) Output - F.G	-	AC 0.5KV 1min, cut-off:100mA / DC 500V 100MΩ			
Environment	Operating temp. & Humidity	-	- 10 ~ 70°C(Required Derating), 20 ~ 90% RH (Non Condensing)			
	Storage temp. & Humidity	-	- 20 ~ 75°C, 20 ~ 90% RH (Non Condensing)			
	Vibration	-	10~55Hz at 1G 3minutes period, 30minutes along X,Y and Z axis			
Dimension	Size(WxHxD) / Weight	mm / g	82 X 31.5 X 84(99)	/	210	
Safety	-	-	Complied with UL60950-1, EN60950-1			
Emission	Conducted Emission	-	Complied with EN55022-A			
PFHC	-	-	-			



# SPECIFICATIONS

Product.	SMPS	Date.	2008.05.06
Model.	CSF15-BDW	Rev.	A
Customer.	STANDARD	Page.	3 / 5

MODEL/CHANNEL		Unit.	CH1	CH2
INPUT	Voltage , Frequency	[V]	AC100-240V (AC85-264V or DC120-370V), 50/60Hz (47-440Hz or DC), Universal input voltage	
	Current	110V	0.4	
	Typ.	220V	0.25	
	Efficiency	110V	68	
	Typ.	220V	67	
	Power factor	110V	-	
	Typ.	220V	-	
	Inrush Current	110V	20 ( Ta=25°C , Cold Start )	
Typ.	220V	40 ( Ta=25°C , Cold Start )		
Leakage Current	110V	0.75		
Max.	220V	0.75		
OUTPUT	Norminal Voltage	[V]	5	12
	Setting Voltage Range	[V]	4.95 ~ 5.05	11.5 ~ 12.5
	current	[A]	0.1 ~ 2.0	0.5
	Line Regulations	[mV]	25	120
	Load Regulations	[mV]	50	120
	Cross Regulations	[mV]	50	120
	Temperature Drift	[mV]	75	180
	Ripple Max.	[mV]	80	120
	Ripple & Noise Max.	[mV]	120	150
	Turn-on Time Typ.	[ms]	800 (AC IN 100V, Io=100%)	
	Hold-up Time Typ.	[ms]	16 (AC IN 100V, Io=100%)	
	Function	Over Voltage Protection	[V]	Works at 115%~140% of rating(except for CH2,CH3)
Over Current Protection		[A]	Works at over 110% of rating and recovers automatically	
Remote ON.OFF		-	-	
Remote Sensing		-	-	
Power Fail Signal		-	-	
Parallel/Series Operation		-	Series operation is passible	
Cooling / O.T.P		-	Convection cooling	
Electrical Isolation	(1) Input - Output	-	AC 3.0KV 1min, cut-off: 20mA / DC 500V 100MΩ	
	(2) Input - F.G	-	AC 2.0KV 1min, cut-off: 20mA / DC 500V 100MΩ	
	(3) Output - F.G	-	AC 0.5KV 1min, cut-off:100mA / DC 500V 100MΩ	
Environment	Operating temp. & Humidity	-	- 10 ~ 70°C(Required Derating), 20 ~ 90% RH (Non Condensing)	
	Storage temp. & Humidity	-	- 20 ~ 75°C, 20 ~ 90% RH (Non Condensing)	
	Vibration	-	10~55Hz at 1G 3minutes period, 30minutes along X,Y and Z axis	
Dimension	Size(WxHxD) / Weight	mm / g	82 X 31.5 X 84(99)	/ 210
Safety	-	-	Complied with UL60950-1, EN60950-1	
Emission	Conducted Emission	-	Complied with EN55022-A	
PFHC	-	-	-	

# SPECIFICATIONS

Product.	SMPS	Date.	2008.05.06
Model.	CSF15-DDW	Rev.	A
Customer.	STANDARD	Page.	4 / 5

MODEL/CHANNEL		Unit.	CH1	CH2	
INPUT	Voltage , Frequency		[V]	AC100-240V (AC85-264V or DC120-370V), 50/60Hz (47-440Hz or DC), Universal input voltage	
	Current	110V	[A]	0.4	
	Typ.	220V		0.25	
	Efficiency	110V	[%]	70	
	Typ.	220V		69	
	Power factor	110V	-	-	
	Typ.	220V		-	
	Inrush Current	110V	[A]	20 ( Ta=25°C , Cold Start )	
Typ.	220V	40 ( Ta=25°C , Cold Start )			
Leakage Current	110V	[mA]	0.75		
	Max.		220V	0.75	
OUTPUT	Norminal Voltage		[V]	12	12
	Setting Voltage Range		[V]	11.88 ~ 12.12	11.5 ~ 12.5
	current		[A]	0.1 ~ 0.7	0.7
	Line Regulations		[mV]	60	120
	Load Regulations		[mV]	120	120
	Cross Regulations		[mV]	120	120
	Temperature Drift		[mV]	180	180
	Ripple Max.		[mV]	120	120
	Ripple & Noise Max.		[mV]	150	150
	Turn-on Time Typ.		[ms]	800 (AC IN 100V, Io=100%)	
	Hold-up Time Typ.		[ms]	16 (AC IN 100V, Io=100%)	
Function	Over Voltage Protection		[V]	Works at 115%~140% of rating(except for CH2,CH3)	
	Over Current Protection		[A]	Works at over 110% of rating and recovers automatically	
	Remote ON.OFF		-	-	
	Remote Sensing		-	-	
	Power Fail Signal		-	-	
	Parallel/Series Operation		-	Series operation is passible	
	Cooling / O.T.P		-	Convection cooling	
Electrical Isolation	(1) Input - Output		-	AC 3.0KV 1min, cut-off: 20mA / DC 500V 100MΩ	
	(2) Input - F.G		-	AC 2.0KV 1min, cut-off: 20mA / DC 500V 100MΩ	
	(3) Output - F.G		-	AC 0.5KV 1min, cut-off:100mA / DC 500V 100MΩ	
Environment	Operating temp. & Humidity		-	- 10 ~ 70°C(Required Derating), 20 ~ 90% RH (Non Condensing)	
	Storage temp. & Humidity		-	- 20 ~ 75°C, 20 ~ 90% RH (Non Condensing)	
	Vibration		-	10~55Hz at 1G 3minutes period, 30minutes along X,Y and Z axis	
Dimension	Size(WxHxD) / Weight		mm / g	82 X 31.5 X 84(99) / 210	
Safety	-		-	Complied with UL60950-1, EN60950-1	
Emission	Conducted Emission		-	Complied with EN55022-A	
PFHC	-		-	-	

# SPECIFICATIONS

Product.	SMPS	Date.	2008.05.06
Model.	CSF15-EEW	Rev.	A
Customer.	STANDARD	Page.	5 / 5

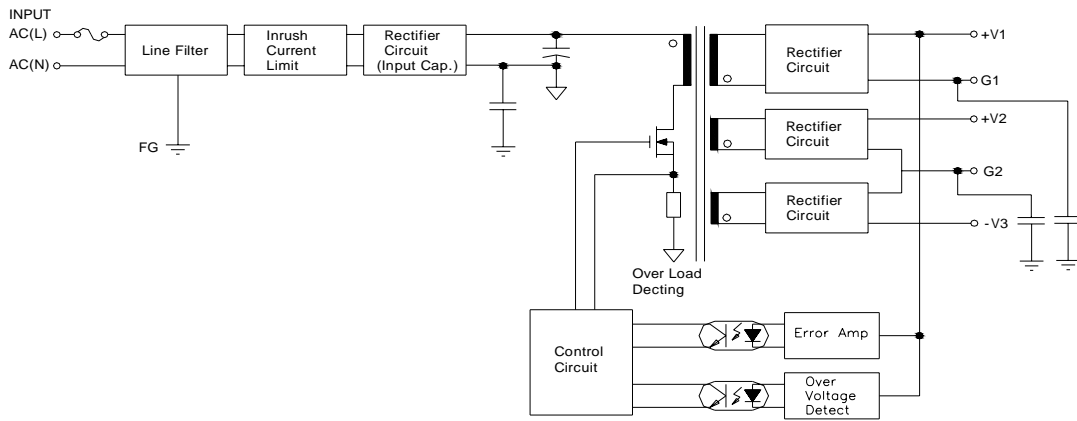
MODEL/CHANNEL		Unit.	CH1	CH2
INPUT	Voltage , Frequency	[V]	AC100-240V (AC85-264V or DC120-370V), 50/60Hz (47-440Hz or DC), Universal input voltage	
	Current	110V	0.4	
	Typ.	220V	0.25	
	Efficiency	110V	70	
	Typ.	220V	69	
	Power factor	110V	-	
	Typ.	220V	-	
Inrush Current	110V	20 ( Ta=25°C , Cold Start )		
	220V	40 ( Ta=25°C , Cold Start )		
Leakage Current	110V	0.75		
	Max. 220V	0.75		
OUTPUT	Norminal Voltage	[V]	15	15
	Setting Voltage Range	[V]	14.85 ~ 15.15	14.4 ~ 15.6
	current	[A]	0.1 ~ 0.5	0.5
	Line Regulations	[mV]	75	150
	Load Regulations	[mV]	150	150
	Cross Regulations	[mV]	150	150
	Temperature Drift	[mV]	225	225
	Ripple Max.	[mV]	120	120
	Ripple & Noise Max.	[mV]	150	150
	Turn-on Time Typ.	[ms]	800 (AC IN 100V, Io=100%)	
	Hold-up Time Typ.	[ms]	16 (AC IN 100V, Io=100%)	
Function	Over Voltage Protection	[V]	Works at 115%-140% of rating(except for CH2,CH3)	
	Over Current Protection	[A]	Works at over 110% of rating and recovers automatically	
	Remote ON.OFF	-	-	
	Remote Sensing	-	-	
	Power Fail Signal	-	-	
	Parallel/Series Operation	-	Series operation is passible	
	Cooling / O.T.P	-	Convection cooling	
Electrical Isolation	(1) Input - Output	-	AC 3.0KV 1min, cut-off: 20mA / DC 500V 100MΩ	
	(2) Input - F.G	-	AC 2.0KV 1min, cut-off: 20mA / DC 500V 100MΩ	
	(3) Output - F.G	-	AC 0.5KV 1min, cut-off:100mA / DC 500V 100MΩ	
Environment	Operating temp. & Humidity	-	- 10 ~ 70°C (Required Derating), 20 ~ 90% RH (Non Condensing)	
	Storage temp. & Humidity	-	- 20 ~ 75°C, 20 ~ 90% RH (Non Condensing)	
	Vibration	-	10~55Hz at 1G 3minutes period, 30minutes along X,Y and Z axis	
Dimension	Size(WxHxD) / Weight	mm / g	82 X 31.5 X 84(99)	/ 210
Safety	-	-	Complied with UL60950-1, EN60950-1	
Emission	Conducted Emission	-	Complied with EN55022-A	
PFHC	-	-	-	



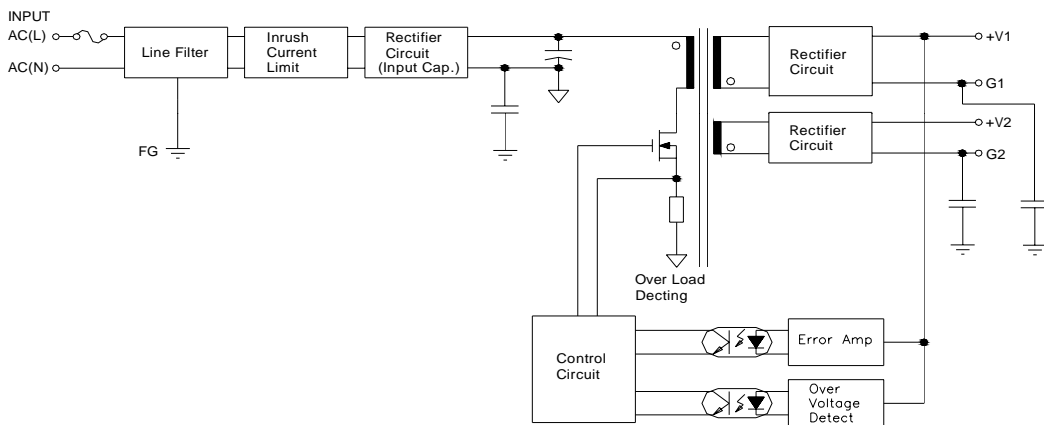
# User's guide

## 1. Block Diagram

### 1-1. CSF15-DE Series



### 1-2. CSF15-DW Series



## 2. Terminal Connection

### 2-1. CSF15-DE Series

Mark	Pin Connection	Function
L	AC L	SMPS AC Terminal ( Fuse in Line)
N	AC N	SMPS AC Terminal
+V1	DC Output	DC (+) Terminal
G1	GND	DC GND Terminal
+V2	DC Output	DC (+) Terminal
G2	GND	DC GND Terminal
-V3	DC Output	DC (-) Terminal

### 2-2. CSF15-DW Series

Mark	Pin Connection	Function
L	AC L	SMPS AC Terminal ( Fuse in Line)
N	AC N	SMPS AC Terminal
+V1	DC Output	DC (+) Terminal
G1	GND	DC GND Terminal
+V2	DC Output	DC (+) Terminal
G2	GND	DC GND Terminal

# User's guide

## 3. Function

3-1. (Adjustable output voltage range)

o 가 10%

3-2. (O.C.P : Over Current Protection)

o 가 110%  
 o SMPS 가  
 o short 가

3-3. ( O.V.P : Over Voltage Protection)

o 115% 가 SMPS  
 o DC 3 A/S

## 4. / ( Series operation / Parallel operation)

4-1.

4-2.

- 가 , 가  
 EX) 15V, 2A / 15V, 1A 30V, 1A  
 -

4-3. CSF15-DDW,EEW (BDW 가)

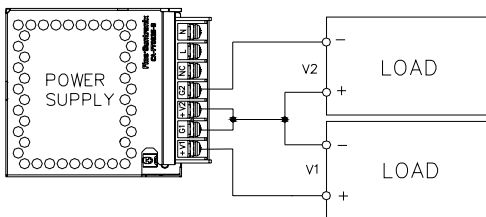


Fig 1. CH1 -CH2 A

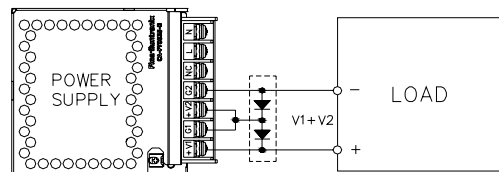


Fig 2. CH1 -CH2 B

# User's guide

## 4-4. CSF15-DD,EE

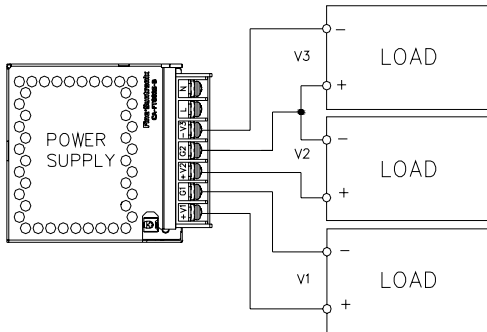


Fig 3. CH2-CH3 A

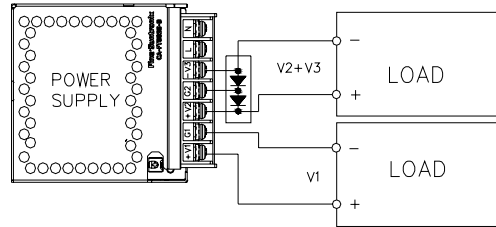


Fig 4. CH2-CH3 B

## 5. (Mounting method)

### 5-1.

- o
- o
- o

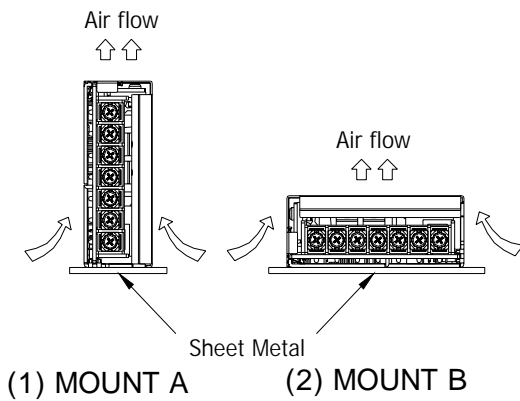


Fig 1.

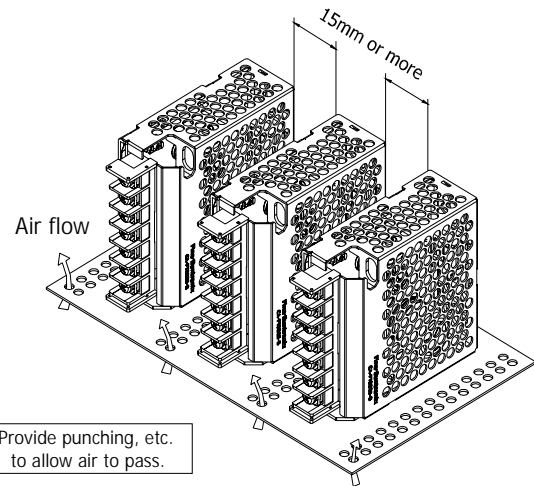


Fig 2.

## 6. Output derating curve

### 6-1.

curve

(Mount A, Mount B)

TOP CASE

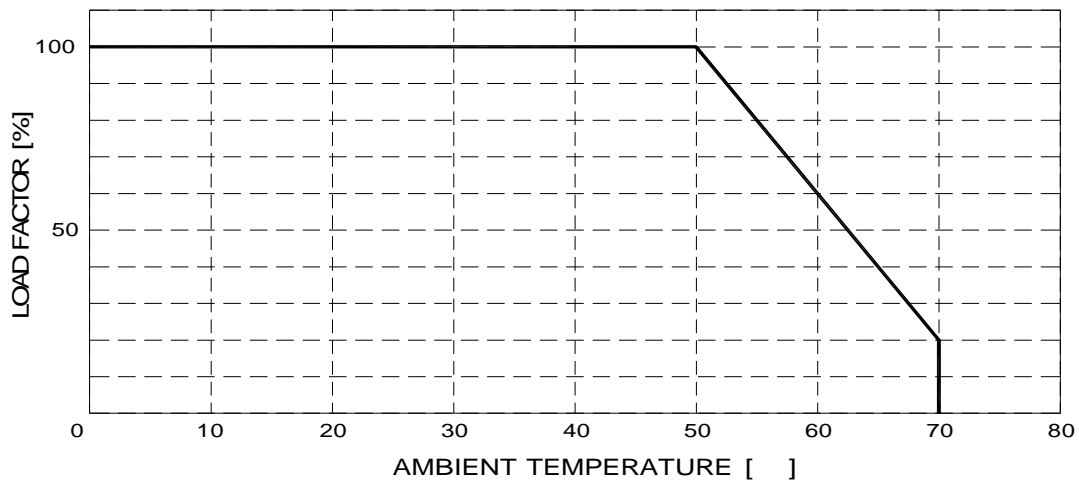
output derating

# User's guide

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## 6-2. Output de-rating curve ( Mount B with top case, No air flow )

### 6-2-1. CSF15-DD,EE,BDW,DDW,EEW



7.

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- 가  
- 가  
- 가  
- 가

8.

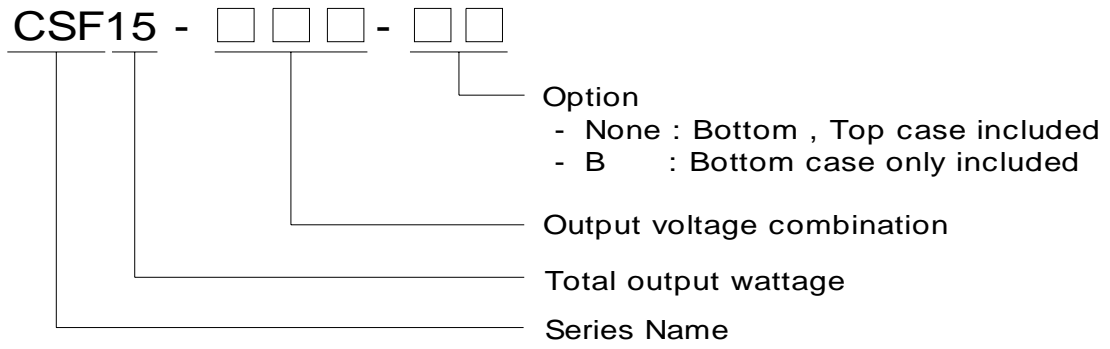
o  
o 2



# User's guide

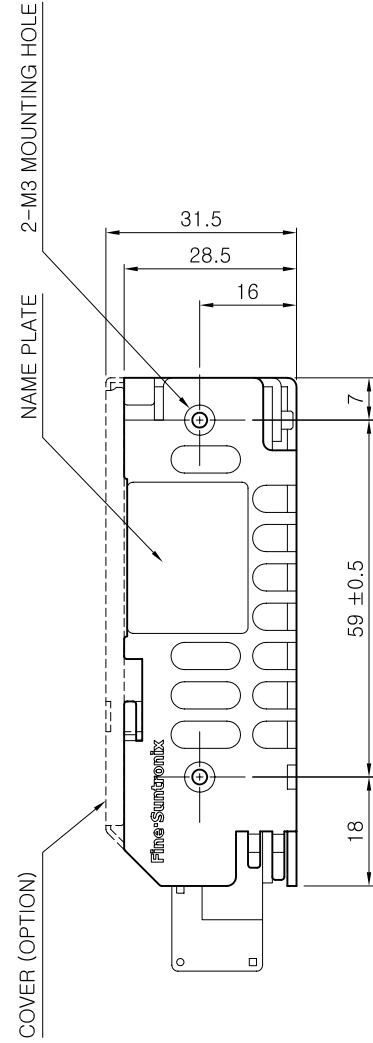
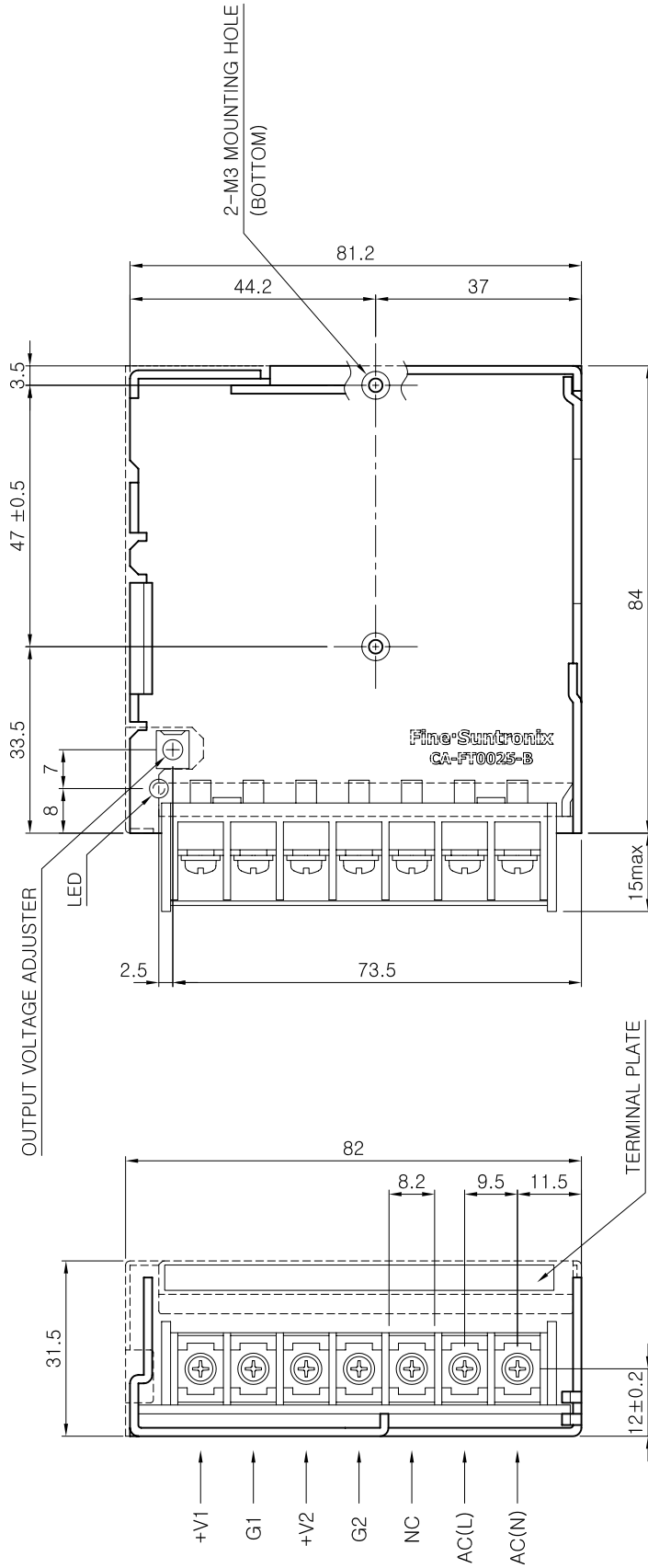
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## 9. ORDERING INFORMATION



# Dimension

# CSF15W Dual Output



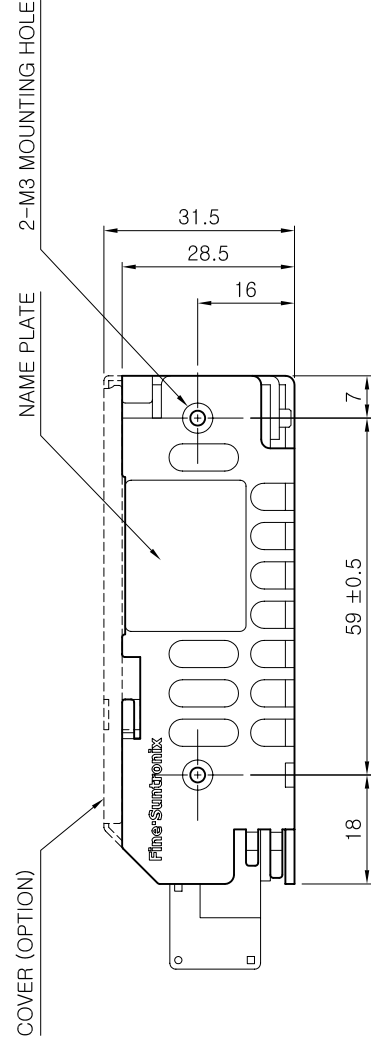
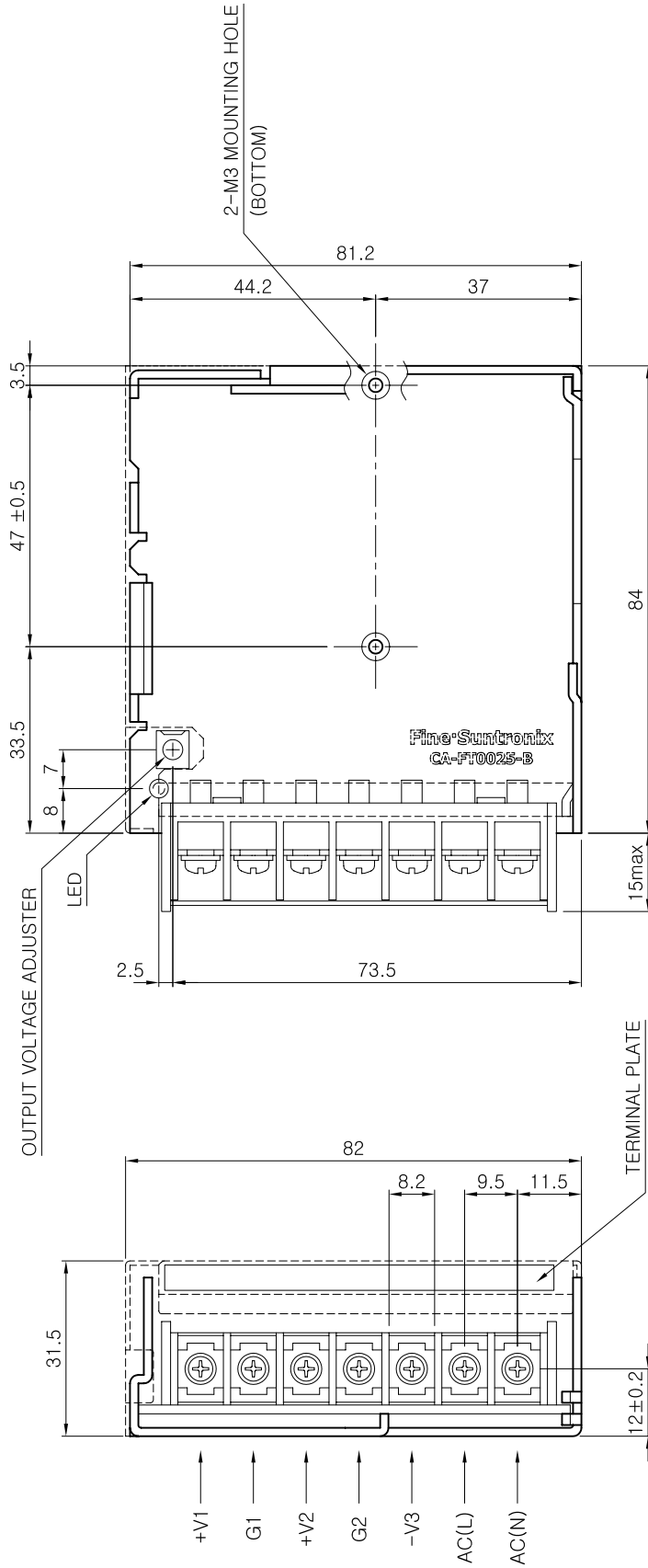
※ NAME PLATE ; CSF15-DW Series

<b>CSF15-BDW</b>	
INPUT : AC100 - 240V	
~ 0.4A 50/60Hz	
OUTPUT : CH1 5V $\pm$ 0.1~2.0A	
CH2 12V $\pm$ 0.5A	
S060219543	
Fine Suntronix	
Made in Korea	

- \* Weight : 210g
- \* Tolerance : ±1
- \* Dimensions in mm

# Dimension

# CSF15W Triple Output



※ NAME PLATE ; CSF15-DE Series

<b>CSF15-DD</b>	
INPUT : AC100 - 240V	
~ 0.4A 50/60HZ	
OUTPUT : CH1 5V --- 0.1-2.0A	
CH2 12V --- -0.3A	
CH3 12V --- -0.2A	
S060219543	
Fine Suntronix	
Made in Korea	

- \* Weight : 210g
- \* Tolerance : ±1
- \* Dimensions in mm

---

## INPUT ( )

- o Input Voltage ( ): AC( ) (110VAC, 220VAC ) DC( )  
(5VDC, 12VDC )
- o Input Current ( ): 가
- o Input Wattage ( ): SMPS
- o Input Frequency ( ): AC( ) 50Hz, 60Hz( 60Hz)
- o Input Efficiency ( ):
- o Inrush Current ( ):
- o Leakage Current ( ): 1 Capacitor
- o Power Factor ( ):

## OUTPUT ( )

- o Output Voltage ( ): DC( )
- o Output Current ( ): DC( )
- o Output Wattage ( ): SMPS가 DC ( X )
- o Line Regulation ( ): AC( ) DC( )  
DC( )
- o Load Regulation ( ): min~100% DC( )
- o Cross Regulation ( ): SMPS min~100%  
DC( )
- o Temperature Drift ( ): SMPS DC( )
- o Ripple & Noise ( ): DC( )
- o Turn on Time ( ): DC( ) 90%
- o Hold up Time ( ): DC( ) 90%



---

**FUNCTION ( )**

o Over Current Protection (OCP, ) : SMPS  
SMPS

o Over Voltage Protection (OVP, ) : SMPS가 DC( )  
SMPS가 DC( )

o Over Temperature Protection (OTP, ) : SMPS 가

o Remote ON/OFF (RC or CNT, ) : SMPS ON/OFF

o Remote Sensing (+S, -S, ) : SMPS 가

o Load Detect (LD, ) :

o Adjustable Output Voltage (V.R, ) : SMPS  
가 TRM

o Power Fail Signal (P.F, )

1) P.F : 가

2) P.F : SMPS

o Low Voltage alarm (LV alarm, ) : SMPS

o Power alarm (PR alarm, ) : SMPS AC , FAN  
(P.F, LV alarm, FAN alarm )

o Parallel / Series Operation ( / ) : SMPS  
가

o Voltage Balance (VB, ) : 가

o Current Balance (CB, ) : 가  
가

o Frame Gnd(FG), AC Gnd(ACG) : Frame Ground, AC Ground

---

**ELECTRICAL ISOLATION ( )**

o Electrically Isolated Input-Output ( - ) : AC( )  
DC( ) .

o Electrically Isolated Input-Case, FG ( - , ) : AC( )  
,

o Electrically Isolated Output-Case, FG ( - , ) : DC( )  
.

**ENVIRONMENT ( )**

o Operating Temp and Humidity ( & ) : SMPS  
.

o Storage Temp and Humidity ( & ) : SMPS ,  
.

o Vibration ( ) : SMPS가 .

**ETC ( )**

o Safety ( ) :

o Safety Regulation ( ) :

o Line Conducted RF Voltage ( ) : .