

승 인 원

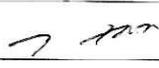
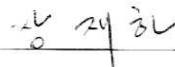
(APPROVAL SHEET)

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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승 인 :	상 무	장 재 하	



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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 [A]	0.4	
	Typ.	220V	0.25	
	Efficiency	110V [%]	68	
	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
	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	-	-	-	

서식번호 BR - 41 ('2005, 6, 1) REV-3

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

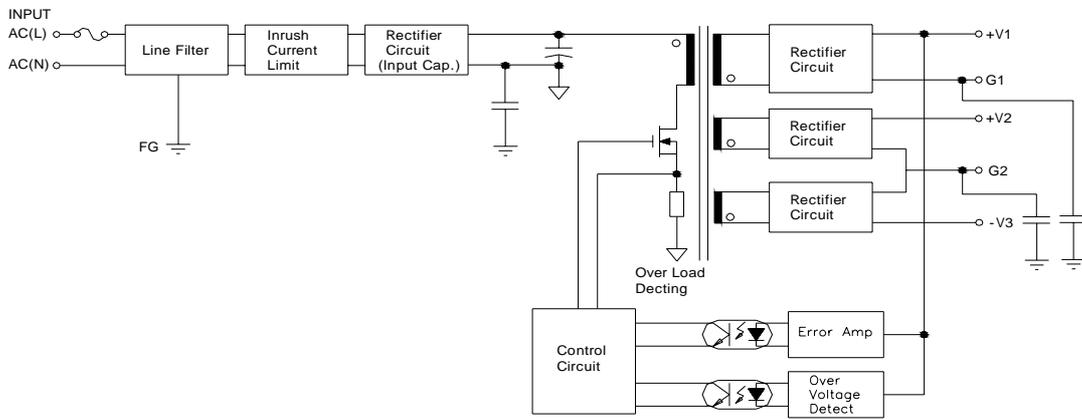
Product.	SMPS	Date.	2008.05.06
Model.	CSF15-EEW	Rev.	A
Customer.	STANDARD	Page.	5 / 5

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	[A]	20 (Ta=25°C , Cold Start)	
	220V		40 (Ta=25°C , Cold Start)	
Leakage Current	110V	[mA]	0.75	
	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	-	-	-	

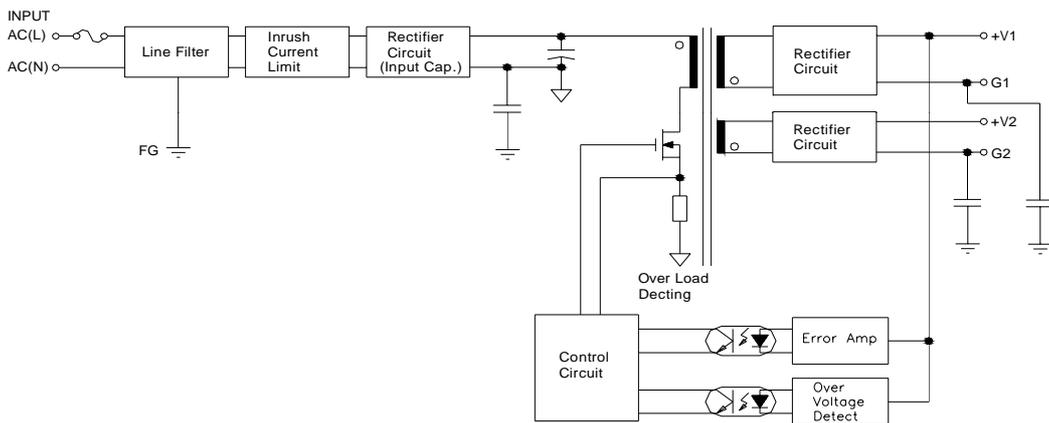
User's guide

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)

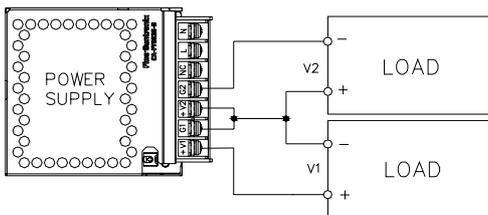


Fig 1. CH1 -CH2 A

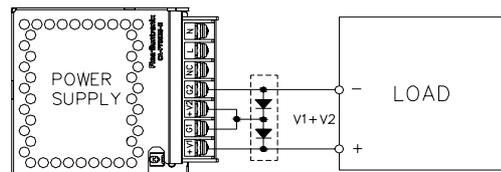


Fig 2. CH1 -CH2 B

User's guide

4-4. CSF15-DD,EE

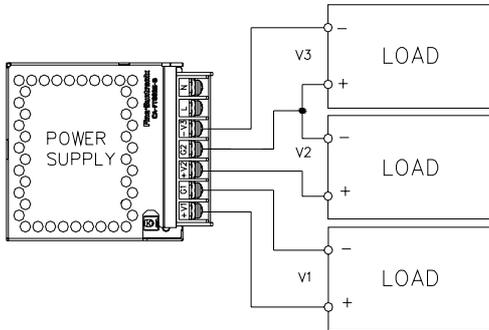


Fig 3. CH2-CH3 A

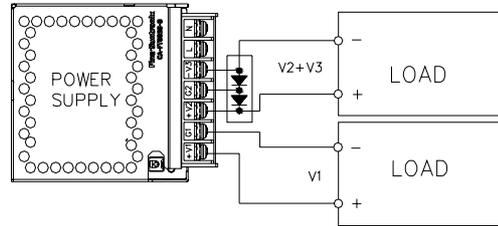


Fig 4. CH2-CH3 B

5. (Mounting method)

5-1.

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- o
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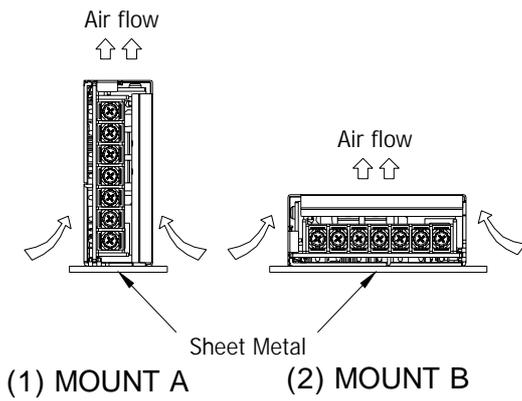


Fig 1.

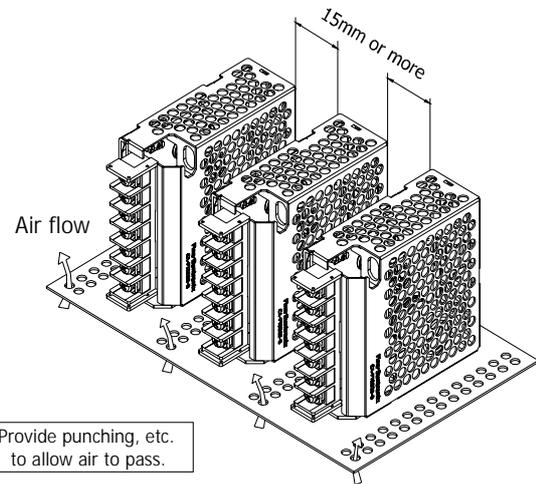


Fig 2.

6. Output derating curve

6-1.

curve

(Mount A, Mount B)

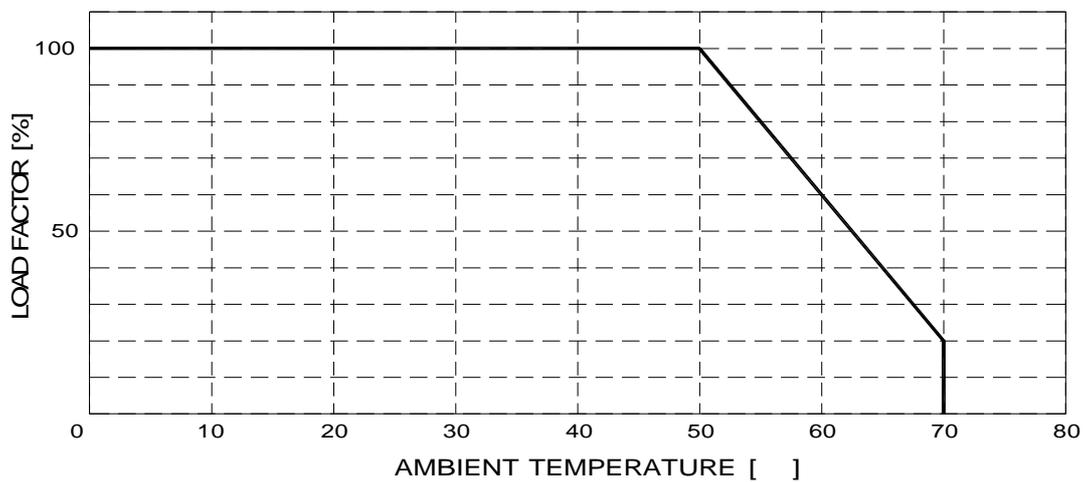
TOP CASE

output derating

User's guide

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

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



7.

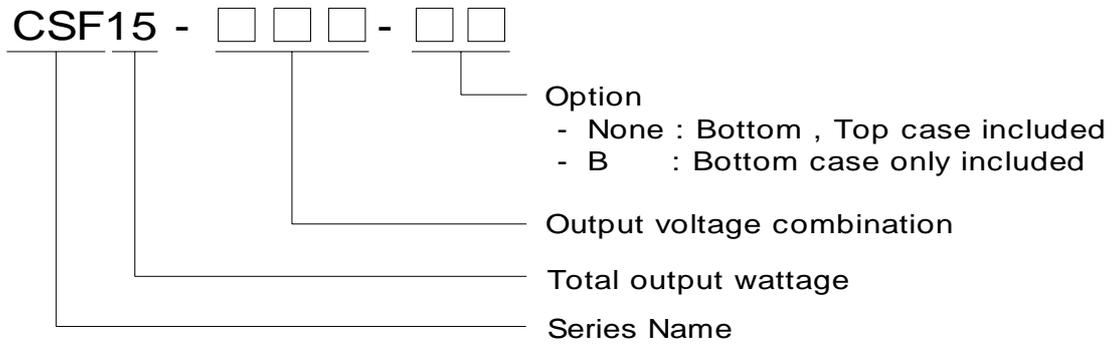
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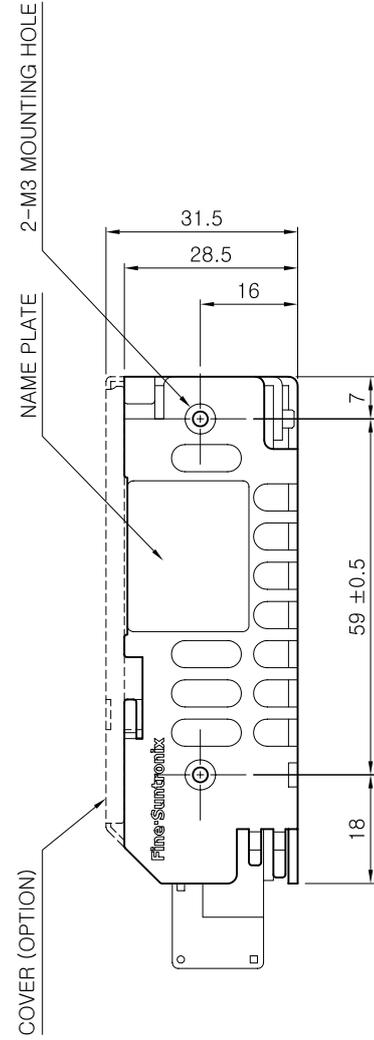
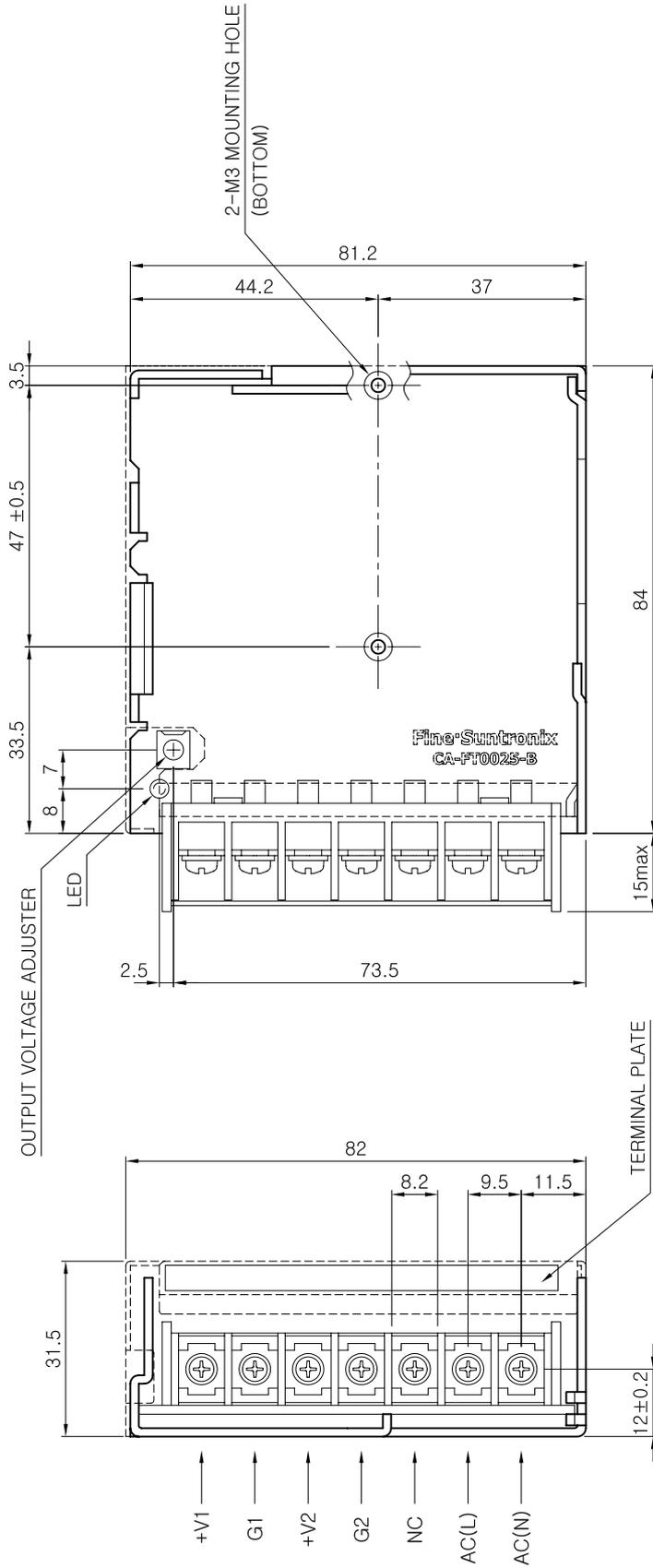
User's guide

9. ORDERING INFORMATION



Dimension

CSF15W Dual Output



※ NAME PLATE ; CSF15-DW Series

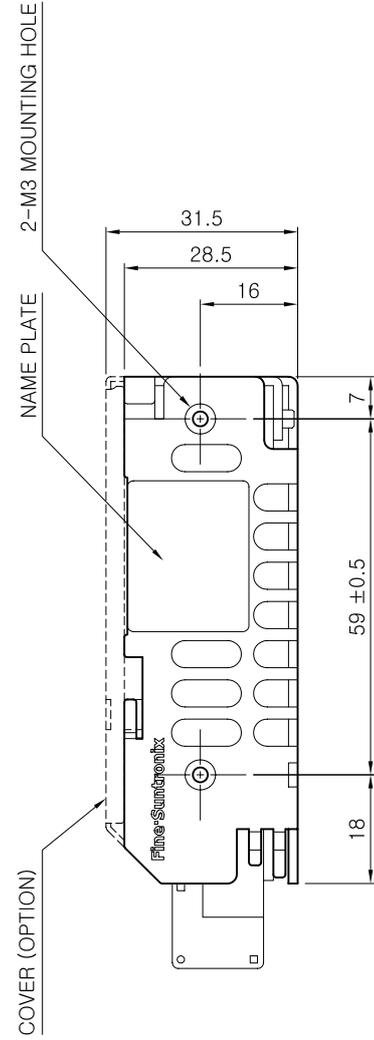
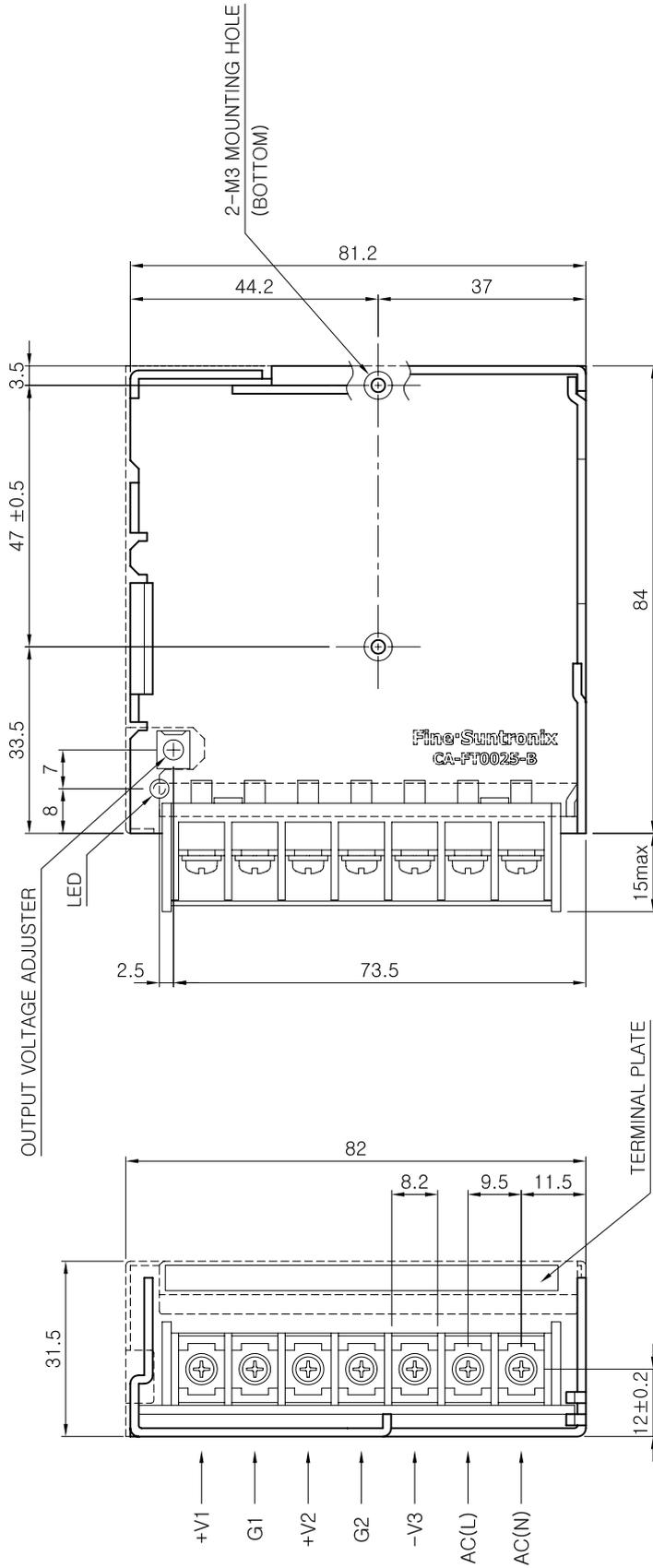
CSF15-BDW
 INPUT : AC100 - 240V
 ~ 0.4A 50/60Hz
 OUTPUT : CH1 5V \pm 0.1~2.0A
 CH2 12V \pm ~0.5A

S060219543
 Fine Suntronix
 Made in Korea

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

Dimension

CSF15W Triple Output



※ NAME PLATE ; CSF15-DE Series

CSF15-DD
 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 () : .