

# 승 인 원 (APPROVAL SHEET)

품 목	SMPS
품 명	CSF50-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.

2009 년 01 월 13 일

작 성 : 전 임 조 흥 래 *조흥래*

검 토 :

승 인 : 상 무 장 재 하 *장재하*



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# SPECIFICATIONS

<b>Product.</b>	SMPS	<b>Date.</b>	2009. 01. 13.
<b>Model.</b>	CSF50-BDW	<b>Rev.</b>	A
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MODEL/CHANNEL		Unit.	CH1	CH2		
<b>INPUT</b>	Voltage , Frequency	[V]	AC100 - 240(AC 85 - 264), 50/60Hz(47 - 440)or DC125~370V(Universal Input)			
	Current	110V			1.2	
	Typ.	220V			0.7	
	Efficiency	110V			75	
	Typ.	220V				
	Power factor	110V	-		-	
	Typ.	220V				
Inrush Current	110V	[A]	20 ( Ta=25 , Cold Start )			
Typ.	220V		40 ( Ta=25 , Cold Start )			
Leakage Current	110V				0.75	
Typ.	220V	[mA]			0.75	
<b>OUTPUT</b>	Norminal Voltage	[V]	5.0	12.0		
	Setting Voltage Range	[V]	4.95 5.05	11.4 12.6		
	current	[A]	0.5 5.0	2.0		
	Line Regulations	[mV]	50	120		
	Load Regulations	[mV]	100	240		
	Cross Regulations	[mV]	-	-		
	Temperature Drift	[mV]	75	180		
	Ripple Max.	[mV]	80	120		
	Ripple & Noise Max.	[mV]	120	150		
	Turn -on Time Typ.	[ms]	1000 (AC IN 110V/220V, Io=100%)			
	Hold -up Time Typ.	[ms]	17 (AC IN 110V/220V, Io=100%)			
<b>Function</b>	Over Voltage Protection	[V]	Works at 115 140% of rating			
	Over Current Protection	[A]	Works at over 105% of rating and recovers automatically			
	Remote ON.OFF	-	-	-		
	Remote Sensing	-	-	-		
	Power Fail Signal	-	-	-		
	Parallel/Series Operation	-	-	-		
	Cooling / O.T.P	-	-	-		
<b>Electrical Isolation</b>	(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			
<b>Environment</b>	Operating temp. & Humidity	-	- 10 70 (Required Derating), 20 90% RH (Non Condensing)			
	Storage temp. & Humidity	-	- 20 75 , 20 90% RH (Non Condensing)			
	Vibration	-	10 55Hz at 1G 3minutes period, 30minutes along X,Y and Z axis			
<b>Dimension</b>	Size(WxHxD) / Weight	mm / g	82 x 35.5 x 135 (150)		/	360
<b>Safety</b>	-	-	Built to meet UL60950-1, EN60950-1			
<b>Emission</b>	Conducted Emission	-	Built to meet EN55022-B			
	-	-				

# SPECIFICATIONS

<b>Product.</b>	SMPS	<b>Date.</b>	2009. 01. 13.
<b>Model.</b>	CSF50-BEW	<b>Rev.</b>	A
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MODEL/CHANNEL		Unit.	CH1	CH2		
<b>INPUT</b>	Voltage , Frequency	[V]	AC100 - 240(AC 85 - 264), 50/60Hz(47 - 440)or DC125~370V(Universal Input)			
	Current	110V	1.2			
	Typ.	220V	0.7			
	Efficiency	110V	76			
	Typ.	220V				
	Power factor	110V	-			
	Typ.	220V	-			
Inrush Current	110V	[A]	20 ( Ta=25 , Cold Start )			
Typ.	220V		40 ( Ta=25 , Cold Start )			
Leakage Current	110V	[mA]	0.75			
Typ.	220V		0.75			
<b>OUTPUT</b>	Norminal Voltage	[V]	5.0	15.0		
	Setting Voltage Range	[V]	4.95 5.05	14.25 15.75		
	current	[A]	0.5 5.0	1.7		
	Line Regulations	[mV]	50	150		
	Load Regulations	[mV]	100	240		
	Cross Regulations	[mV]	-	-		
	Temperature Drift	[mV]	75	225		
	Ripple Max.	[mV]	80	120		
	Ripple & Noise Max.	[mV]	120	150		
	Turn -on Time Typ.	[ms]	1000 (AC IN 110V/220V, Io=100%)			
	Hold -up Time Typ.	[ms]	17 (AC IN 110V/220V, Io=100%)			
<b>Function</b>	Over Voltage Protection	[V]	Works at 115 140% of rating			
	Over Current Protection	[A]	Works at over 105% of rating and recovers automatically			
	Remote ON.OFF	-	-	-		
	Remote Sensing	-	-	-		
	Power Fail Signal	-	-	-		
	Parallel/Series Operation	-	-	-		
	Cooling / O.T.P	-	-	-		
<b>Electrical Isolation</b>	(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			
<b>Environment</b>	Operating temp. & Humidity	-	- 10 70 (Required Derating), 20 90% RH (Non Condensing)			
	Storage temp. & Humidity	-	- 20 75 , 20 90% RH (Non Condensing)			
	Vibration	-	10 55Hz at 1G 3minutes period, 30minutes along X,Y and Z axis			
<b>Dimension</b>	Size(WxHxD) / Weight	mm / g	82 x 35.5 x 135 (150)		/ 360	
<b>Safety</b>	-	-	Built to meet UL60950-1, EN60950-1			
<b>Emission</b>	Conducted Emission	-	Built to meet EN55022-B			
	-	-				

# SPECIFICATIONS

<b>Product.</b>	SMPS	<b>Date.</b>	2009. 01. 13.
<b>Model.</b>	CSF50-BHW	<b>Rev.</b>	A
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MODEL/CHANNEL		Unit.	CH1	CH2			
<b>INPUT</b>	Voltage , Frequency	[V]	AC100 - 240(AC 85 - 264), 50/60Hz(47 - 440)or DC125~370V(Universal Input)				
	Current	110V			1.2		
	Typ.	220V			0.7		
	Efficiency	110V			77		
	Typ.	220V					
	Power factor	110V	-		-		
	Typ.	220V					
Inrush Current	110V	[A]	20 ( Ta=25 , Cold Start )				
Typ.	220V		40 ( Ta=25 , Cold Start )				
Leakage Current	110V				0.75		
Typ.	220V	[mA]			0.75		
<b>OUTPUT</b>	Norminal Voltage	[V]	5.0	24.0			
	Setting Voltage Range	[V]	4.95 5.05	22.80 25.2			
	current	[A]	0.5 5.0	1.0			
	Line Regulations	[mV]	50	240			
	Load Regulations	[mV]	100	480			
	Cross Regulations	[mV]	-	-			
	Temperature Drift	[mV]	75	360			
	Ripple Max.	[mV]	80	150			
	Ripple & Noise Max.	[mV]	120	250			
	Turn -on Time Typ.	[ms]	1000 (AC IN 110V/220V, Io=100%)				
	Hold -up Time Typ.	[ms]	17 (AC IN 110V/220V, Io=100%)				
<b>Function</b>	Over Voltage Protection	[V]	Works at 115 140% of rating				
	Over Current Protection	[A]	Works at over 105% of rating and recovers automatically				
	Remote ON.OFF	-	-	-			
	Remote Sensing	-	-	-			
	Power Fail Signal	-	-	-			
	Parallel/Series Operation	-	-	-			
	Cooling / O.T.P	-	-	-			
<b>Electrical Isolation</b>	(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				
<b>Environment</b>	Operating temp. & Humidity	-	- 10 70 (Required Derating), 20 90% RH (Non Condensing)				
	Storage temp. & Humidity	-	- 20 75 , 20 90% RH (Non Condensing)				
	Vibration	-	10 55Hz at 1G 3minutes period, 30minutes along X,Y and Z axis				
<b>Dimension</b>	Size(WxHxD) / Weight	mm / g	82 x 35.5 x 135 (150)		/	360	
<b>Safety</b>	-	-	Built to meet UL60950-1, EN60950-1				
<b>Emission</b>	Conducted Emission	-	Built to meet EN55022-B				
	-	-					

# SPECIFICATIONS

<b>Product.</b>	SMPS	<b>Date.</b>	2009. 01. 13.
<b>Model.</b>	CSF50-DDW	<b>Rev.</b>	A
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MODEL/CHANNEL		Unit.	CH1	CH2			
<b>INPUT</b>	Voltage , Frequency	[V]	AC100 - 240(AC 85 - 264), 50/60Hz(47 - 440)or DC125~370V(Universal Input)				
	Current	110V			1.2		
	Typ.	220V			0.7		
	Efficiency	110V			77		
	Typ.	220V					
	Power factor	110V	-		-		
	Typ.	220V					
Inrush Current	110V	[A]	20 ( Ta=25 , Cold Start )				
Typ.	220V		40 ( Ta=25 , Cold Start )				
Leakage Current	110V	[mA]	0.75				
Typ.	220V		0.75				
<b>OUTPUT</b>	Norminal Voltage	[V]	12.0	12.0			
	Setting Voltage Range	[V]	11.88 12.12	11.4 12.6			
	current	[A]	0.1 2.5	1.5			
	Line Regulations	[mV]	120	120			
	Load Regulations	[mV]	240	240			
	Cross Regulations	[mV]	-	-			
	Temperature Drift	[mV]	180	180			
	Ripple Max.	[mV]	120	120			
	Ripple & Noise Max.	[mV]	150	150			
	Turn -on Time Typ.	[ms]	1000 (AC IN 110V/220V, Io=100%)				
	Hold -up Time Typ.	[ms]	17 (AC IN 110V/220V, Io=100%)				
<b>Function</b>	Over Voltage Protection	[V]	Works at 115 140% of rating				
	Over Current Protection	[A]	Works at over 105% of rating and recovers automatically				
	Remote ON.OFF	-	-	-			
	Remote Sensing	-	-	-			
	Power Fail Signal	-	-	-			
	Parallel/Series Operation	-	-	-			
	Cooling / O.T.P	-	-	-			
<b>Electrical Isolation</b>	(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				
<b>Environment</b>	Operating temp. & Humidity	-	- 10 70 (Required Derating), 20 90% RH (Non Condensing)				
	Storage temp. & Humidity	-	- 20 75 , 20 90% RH (Non Condensing)				
	Vibration	-	10 55Hz at 1G 3minutes period, 30minutes along X,Y and Z axis				
<b>Dimension</b>	Size(WxHxD) / Weight	mm / g	82 x 35.5 x 135 (150)		/	360	
<b>Safety</b>	-	-	Built to meet UL60950-1, EN60950-1				
<b>Emission</b>	Conducted Emission	-	Built to meet EN55022-B				
	-	-					



# SPECIFICATIONS

<b>Product.</b>	SMPS	<b>Date.</b>	2009. 01. 13.
<b>Model.</b>	CSF50 - EEW	<b>Rev.</b>	A
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MODEL/CHANNEL		Unit.	CH1	CH2		
<b>INPUT</b>	Voltage , Frequency	[V]	AC100 - 240(AC 85 - 264), 50/60Hz(47 - 440)or DC125~370V(Universal Input)			
	Current	110V	1.2			
	Typ.	220V	0.7			
	Efficiency	110V	77			
	Typ.	220V				
	Power factor	110V	-			
	Typ.	220V	-			
Inrush Current	110V	[A]	20 ( Ta=25 , Cold Start )			
Typ.	220V		40 ( Ta=25 , Cold Start )			
Leakage Current	110V	[mA]	0.75			
Typ.	220V		0.75			
<b>OUTPUT</b>	Norminal Voltage	[V]	15.0	15.0		
	Setting Voltage Range	[V]	14.85 15.15	14.25 15.75		
	current	[A]	0.1 2.0	1.5		
	Line Regulations	[mV]	150	150		
	Load Regulations	[mV]	300	300		
	Cross Regulations	[mV]	-	-		
	Temperature Drift	[mV]	225	225		
	Ripple Max.	[mV]	120	120		
	Ripple & Noise Max.	[mV]	150	150		
	Turn -on Time Typ.	[ms]	1000 (AC IN 110V/220V, Io=100%)			
	Hold -up Time Typ.	[ms]	17 (AC IN 110V/220V, Io=100%)			
<b>Function</b>	Over Voltage Protection	[V]	Works at 115 140% of rating			
	Over Current Protection	[A]	Works at over 105% of rating and recovers automatically			
	Remote ON.OFF	-	-	-		
	Remote Sensing	-	-	-		
	Power Fail Signal	-	-	-		
	Parallel/Series Operation	-	-	-		
	Cooling / O.T.P	-	-	-		
<b>Electrical Isolation</b>	(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			
<b>Environment</b>	Operating temp. & Humidity	-	- 10 70 (Required Derating), 20 90% RH (Non Condensing)			
	Storage temp. & Humidity	-	- 20 75 , 20 90% RH (Non Condensing)			
	Vibration	-	10 55Hz at 1G 3minutes period, 30minutes along X,Y and Z axis			
<b>Dimension</b>	Size(WxHxD) / Weight	mm / g	82 x 35.5 x 135 (150)		/ 360	
<b>Safety</b>	-	-	Built to meet UL60950-1, EN60950-1			
<b>Emission</b>	Conducted Emission	-	Built to meet EN55022-B			
	-	-				



# SPECIFICATIONS

<b>Product.</b>	SMPS	<b>Date.</b>	2009. 01. 13.
<b>Model.</b>	CSF50-DD	<b>Rev.</b>	A
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MODEL/CHANNEL		Unit.	CH1	CH2	CH3		
<b>INPUT</b>	Voltage , Frequency	[V]	AC100 - 240(AC 85 - 264), 50/60Hz(47 - 440)or DC125~370V(Universal Input)				
	Current	110V			1.2		
	Typ.	220V			0.7		
	Efficiency	110V			75		
	Typ.	220V					
	Power factor	110V	-		-		
	Typ.	220V					
Inrush Current	110V	[A]	20 ( Ta=25 , Cold Start )				
Typ.	220V		40 ( Ta=25 , Cold Start )				
Leakage Current	110V	[mA]			0.75		
Typ.	220V				0.75		
<b>OUTPUT</b>	Norminal Voltage	[V]	5.0	12.0	-12.0		
	Setting Voltage Range	[V]	4.95 5.05	11.4 12.6	11.4 12.6		
	current	[A]	0.5 5.0	1.8	0.3		
	Line Regulations	[mV]	50	120	120		
	Load Regulations	[mV]	100	240	240		
	Cross Regulations	[mV]	-	-	-		
	Temperature Drift	[mV]	75	180	180		
	Ripple Max.	[mV]	80	120	120		
	Ripple & Noise Max.	[mV]	120	150	150		
	Turn -on Time Typ.	[ms]	1000 (AC IN 110V/220V, Io=100%)				
	Hold -up Time Typ.	[ms]	17 (AC IN 110V/220V, Io=100%)				
<b>Function</b>	Over Voltage Protection	[V]	Works at 115 140% of rating				
	Over Current Protection	[A]	Works at over 105% of rating and recovers automatically				
	Remote ON.OFF	-	-	-	-	-	
	Remote Sensing	-	-	-	-	-	
	Power Fail Signal	-	-	-	-	-	
	Parallel/Series Operation	-	-	-	-	-	
	Cooling / O.T.P	-	-	-	-	-	
<b>Electrical Isolation</b>	(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				
<b>Environment</b>	Operating temp. & Humidity	-	- 10 70 (Required Derating), 20 90% RH (Non Condensing)				
	Storage temp. & Humidity	-	- 20 75 , 20 90% RH (Non Condensing)				
	Vibration	-	10 55Hz at 1G 3minutes period, 30minutes along X,Y and Z axis				
<b>Dimension</b>	Size(WxHxD) / Weight	mm / g	82 x 35.5 x 135 (150)		/ 360		
<b>Safety</b>	-	-	Built to meet UL60950-1, EN60950-1				
<b>Emission</b>	Conducted Emission	-	Built to meet EN55022-B				
	-	-					

# SPECIFICATIONS

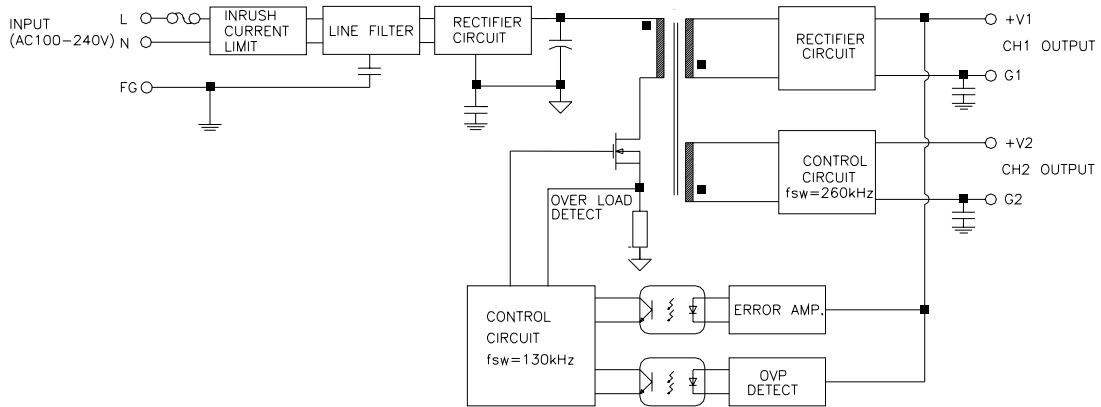
<b>Product.</b>	SMPS	<b>Date.</b>	2009. 01. 13.
<b>Model.</b>	CSF50-EE	<b>Rev.</b>	A
<b>Customer.</b>	STANDARD	<b>Page.</b>	7 / 7

MODEL/CHANNEL		Unit.	CH1	CH2	CH3		
<b>INPUT</b>	Voltage , Frequency	[V]	AC100 - 240(AC 85 - 264), 50/60Hz(47 - 440)or DC125~370V(Universal Input)				
	Current	110V					1.2
	Typ.	220V					0.7
	Efficiency	110V					75
	Typ.	220V					
	Power factor	110V					-
	Typ.	220V					-
Inrush Current	110V	[A]	20 ( Ta=25 , Cold Start )				
Typ.	220V		40 ( Ta=25 , Cold Start )				
Leakage Current	110V	[mA]	0.75				
Typ.	220V		0.75				
<b>OUTPUT</b>	Norminal Voltage	[V]	5.0	15.0	-15.0		
	Setting Voltage Range	[V]	4.95 5.05	14.25 15.75	14.25 15.75		
	current	[A]	0.5 5.0	1.4	0.3		
	Line Regulations	[mV]	50	150	150		
	Load Regulations	[mV]	100	300	300		
	Cross Regulations	[mV]	-	-	-		
	Temperature Drift	[mV]	75	225	225		
	Ripple Max.	[mV]	80	120	120		
	Ripple & Noise Max.	[mV]	120	150	150		
	Turn -on Time Typ.	[ms]	1000 (AC IN 110V/220V, Io=100%)				
	Hold -up Time Typ.	[ms]	17 (AC IN 110V/220V, Io=100%)				
<b>Function</b>	Over Voltage Protection	[V]	Works at 115 140% of rating				
	Over Current Protection	[A]	Works at over 105% of rating and recovers automatically				
	Remote ON.OFF	-	-	-	-	-	
	Remote Sensing	-	-	-	-	-	
	Power Fail Signal	-	-	-	-	-	
	Parallel/Series Operation	-	-	-	-	-	
	Cooling / O.T.P	-	-	-	-	-	
<b>Electrical Isolation</b>	(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				
<b>Environment</b>	Operating temp. & Humidity	-	- 10 70 (Required Derating), 20 90% RH (Non Condensing)				
	Storage temp. & Humidity	-	- 20 75 , 20 90% RH (Non Condensing)				
	Vibration	-	10 55Hz at 1G 3minutes period, 30minutes along X,Y and Z axis				
<b>Dimension</b>	Size(WxHxD) / Weight	mm / g	82 x 35.5 x 135 (150)		/ 360		
<b>Safety</b>	-	-	Built to meet UL60950-1, EN60950-1				
<b>Emission</b>	Conducted Emission	-	Built to meet EN55022-B				
	-	-					

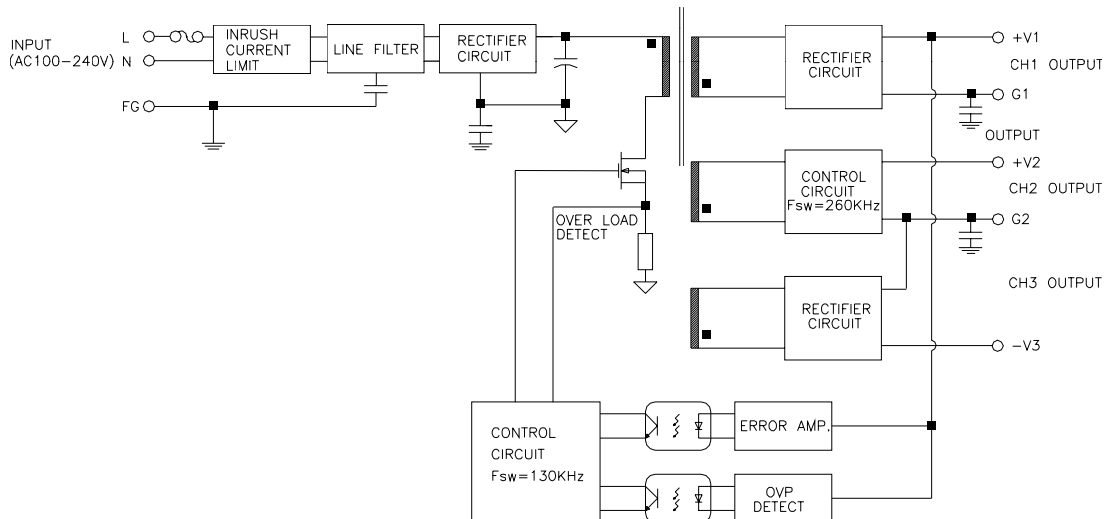
# User's guide

## 1. BLOCK DIAGRAM

### 1-1. CSF50-BDW, BEW,BHW,DDW,EEW



### 1-2. CSF50-DD,EE



## 2. Terminal Connection

### 2-1. CSF50-BDW, BEW,BHW,DDW,EEW

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 (+V1) GND Terminal
+V2	DC Output	DC (+) Terminal
G2	GND	DC (+V2) GND Terminal

# User's guide

## 2-2. CSF50-DD, EE

Mark	Pin Connection	Function
L	AC L	SMPS AC Terminal (FUUSE IN LINE)
N	AC N	SMPS AC Terminal
+V1	DC Output	DC (+) Terminal
G1	GND	DC (+V1) GND Terminal
+V2	DC Output	DC (+) Terminal
G2	GND	DC (+V2, -V3) GND Terminal
-V3	DC Output	DC (-) Terminal

### 3. Function

#### 3-1. (Adjustable output voltage range)

o 가 ±10%

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

o SMPS 가 110%

o short 가

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

o 115% 가 SMPS

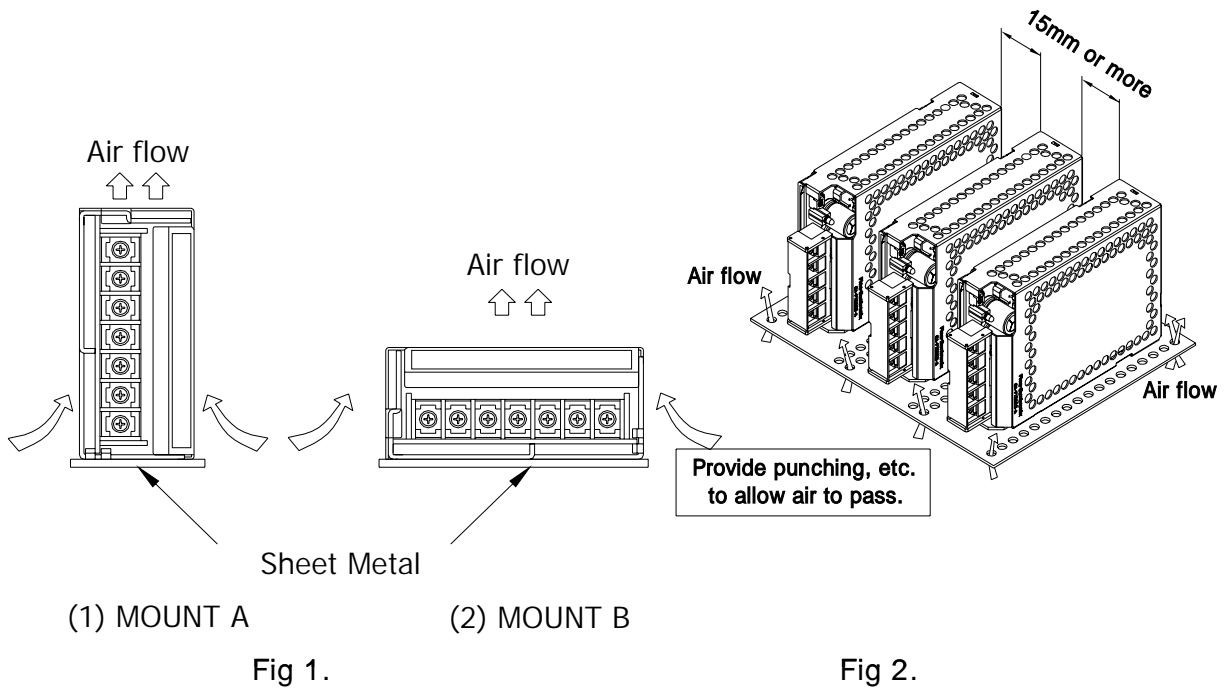
o AC 3 A/S

### 4. (Mounting method)

#### 5-1.

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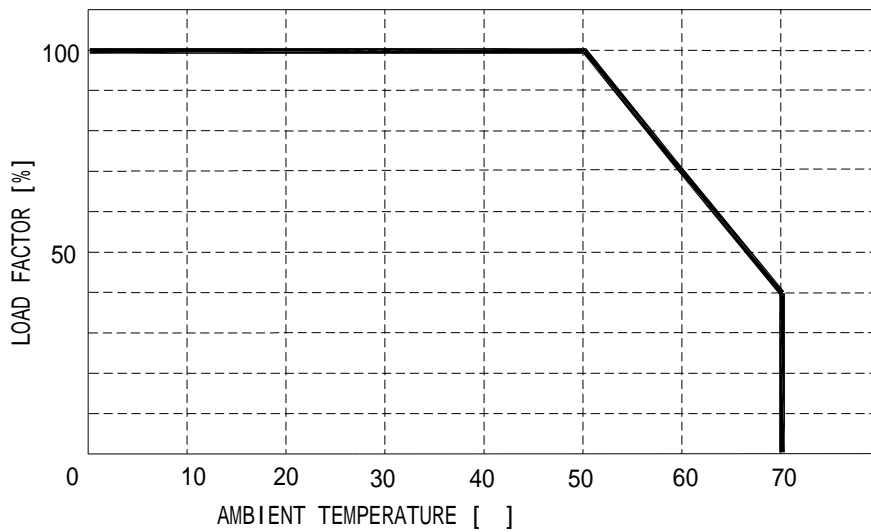
# User's guide



## 5. Output derating curve

6-1. (Mount A, Mount B) TOP CASE  
Output derating curve

6-2. Output derating curve (Mount A with top case, Convection cooling)



# User's guide

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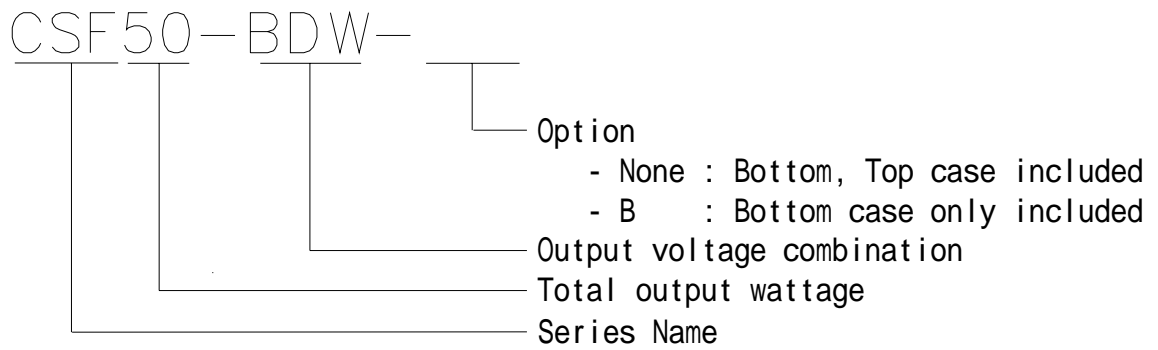
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7.

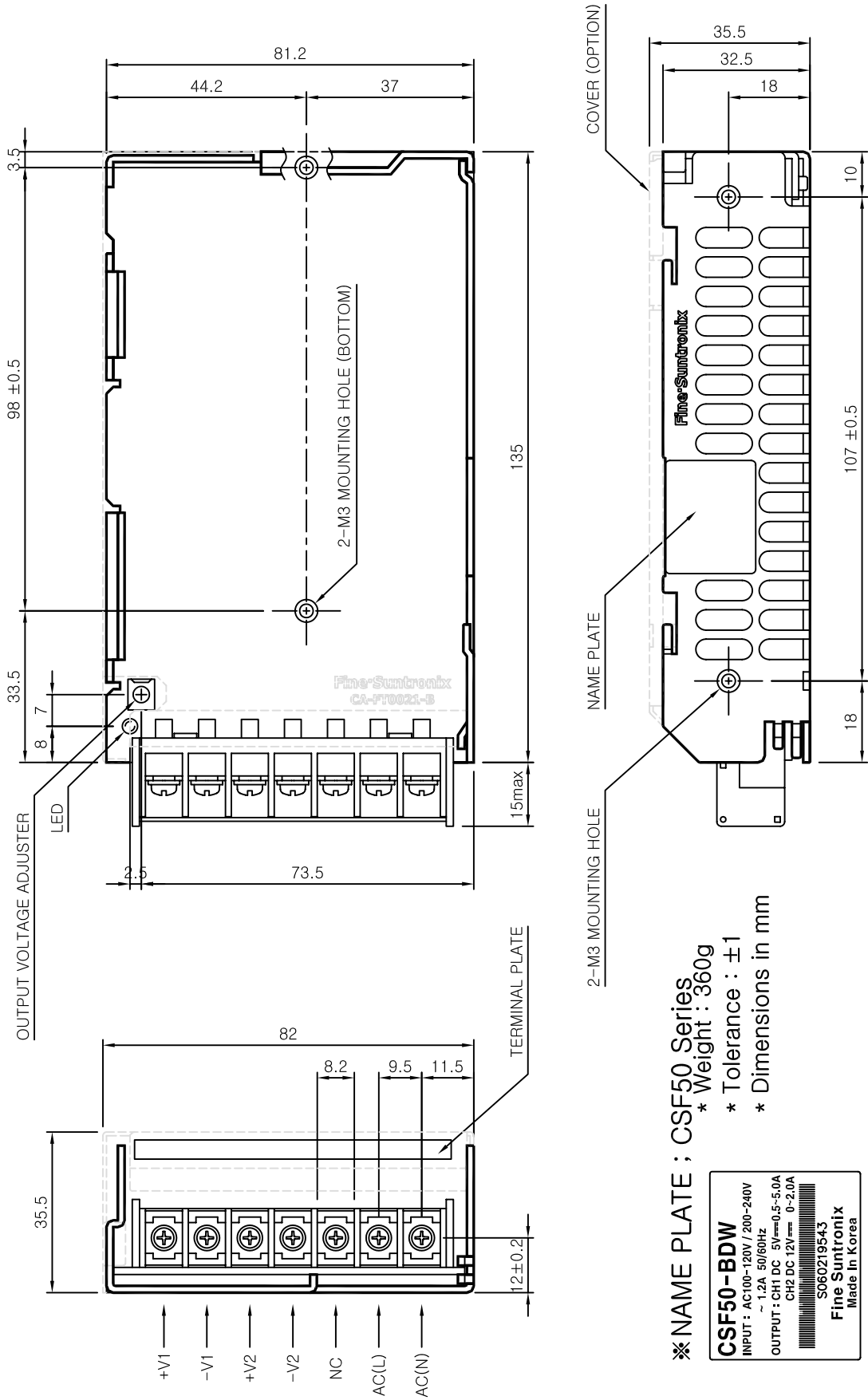
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## 8. ORDERING INFORMATION



# Dimension

# CSF50W Dual Output





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## 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%

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**FUNCTION ( )**

- o Over Current Protection (OCP, ) : 가 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 (VR, ) : 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, PC ) : 가  
가
- o Frame Gnd(FG), AC Gnd(ACG) : Frame Ground, AC Ground

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**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 ( ) :