



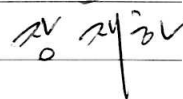
승 인 원 (APPROVAL SHEET)

품 목	SMPS
품 명	CSF100-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 12월 09일

작 성 :	주 임	김 병 우	
검 토 :	선 임	이 동 찬	
승 인 :	상 무	장 재 하	



CONTENTS

1.	.....	3
2.	.....	4-5
3. User's guide	.....	6-9
4. Dimension	.....	10
5.	.....	11-13

SPECIFICATIONS

Product.	SMPS	Date.	2008.12.09
Model.	CSF100-BDW	Rev.	A
Customer.	STANDARD	Page.	1 / 2

MODEL/CHANNEL		Unit.	CH1	CH2	-	-
INPUT	Voltage , Frequency	[V]	AC100 - 120/200~240V(AC85~132/180~264V),50/60Hz(47 - 63)orDC240~370V(Auto - Selectable)			
	Current	110V	2.4, Io = 100%			
	Typ.	220V	1.4, Io = 100%			
	Efficiency	110V	75			
	Typ.	220V				
	Power factor	110V	-			
	Typ.	220V	-			
	Inrush Current	110V	20 (Ta=25 , Cold Start)			
	Typ.	220V	40 (Ta=25 , Cold Start)			
	Leakage Current	110V	0.35			
	Typ.	220V	0.75			
OUTPUT	Norminal Voltage	[V]	5.0	12.0	-	-
	Setting Voltage Range	[V]	4.95 5.05	11.76 12.24	-	-
	current	[A]	1.0 10.0	4.0	-	-
	Line Regulations	[mV]	25	60	-	-
	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]	500 Max (AC IN 100V, Io=100%)			
	Hold - up Time Typ.	[ms]	17 typ (AC IN 100V, Io=100%)			
Function	Over Voltage Protection	[V]	Works at 115 140% of rating (CH1)			
	Over Current Protection	[A]	Works at over 110% of rating and recovers automatically			
	Remote ON.OFF	-	-	-	-	-
	Remote Sensing	-	-	-	-	-
	Power Fail Signal	-	-	-	-	-
	Parallel/Series Operation	-	-	-	-	-
	Cooling / O.T.P	-	-	-	-	-
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 50 (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			
Dimension	Size(WxHxD) / Weight	mm / g	82 * 45 * 175(190)		/	560
Safety	-	-	-			
Emission	Conducted Emission	-	-			
	-	-	-			

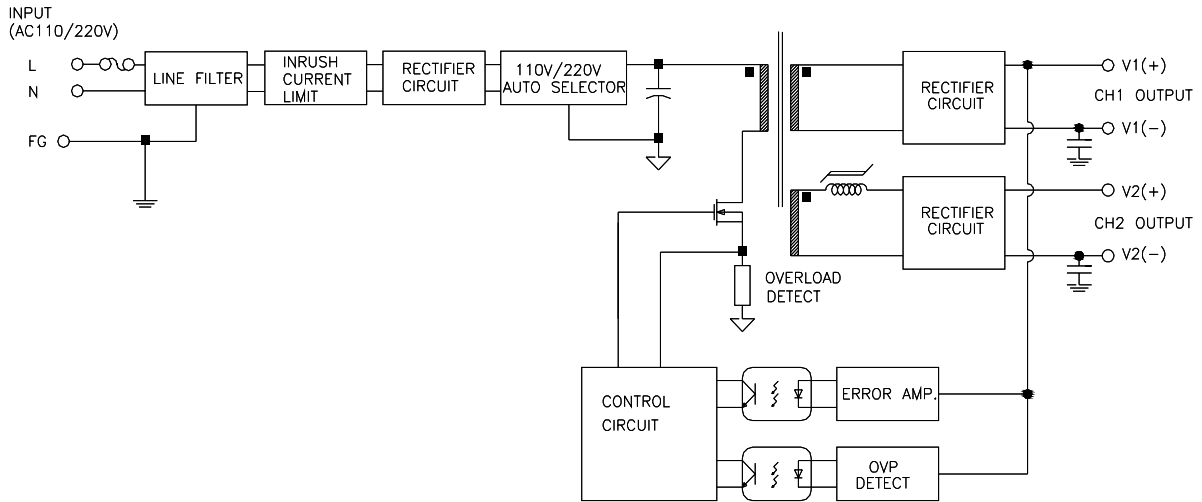
SPECIFICATIONS

Product.	SMPS	Date.	2008.12.09
Model.	CSF100-BHW	Rev.	A
Customer.	STANDARD	Page.	2 / 2

	MODEL/CHANNEL	Unit.	CH1	CH2	-	-
INPUT	Voltage , Frequency	[V]	AC100 - 120/200~240V(AC85~132/180~264V),50/60Hz(47-63)orDC240~370V(Auto - Selectable)			
	Current	110V	2.4, Io = 100%			
	Typ.	220V	1.4, Io = 100%			
	Efficiency	110V	75			
	Typ.	220V				
	Power factor	110V	-			
	Typ.	220V	-			
	Inrush Current	110V	20 (Ta=25 , Cold Start)			
	Typ.	220V	40 (Ta=25 , Cold Start)			
	Leakage Current	110V	0.35			
	Typ.	220V	0.75			
OUTPUT	Norminal Voltage	[V]	5.0	24	-	-
	Setting Voltage Range	[V]	4.95 5.05	21.6 24.24	-	-
	current	[A]	1.0 10.0	2.0	-	-
	Line Regulations	[mV]	25	120	-	-
	Load Regulations	[mV]	50	240	-	-
	Cross Regulations	[mV]	50	240	-	-
	Temperature Drift	[mV]	75	360	-	-
	Ripple Max.	[mV]	80	120	-	-
	Ripple & Noise Max.	[mV]	120	150	-	-
	Turn - on Time Typ.	[ms]	500 Max (AC IN 100V, Io=100%)			
	Hold - up Time Typ.	[ms]	17 typ (AC IN 100V, Io=100%)			
Function	Over Voltage Protection	[V]	Works at 115 140% of rating (CH1)			
	Over Current Protection	[A]	Works at over 110% of rating and recovers automatically			
	Remote ON.OFF	-	-	-	-	-
	Remote Sensing	-	-	-	-	-
	Power Fail Signal	-	-	-	-	-
	Parallel/Series Operation	-	-	-	-	-
	Cooling / O.T.P	-	-	-	-	-
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 50 (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			
Dimension	Size(WxHxD) / Weight	mm / g	82 * 45 * 175(190)		/	560
Safety	-	-	-			
Emission	Conducted Emission	-	-			
	-	-	-			

User's guide

1. BLOCK DIAGRAM



2. Terminal Connection

Mark	Pin Connection	Function
N	AC N	SMPS AC Terminal
L	AC L	SMPS AC Terminal (FUSE IN LINE)
F.G	Frame ground	SMPS AC , CASE
-V2	DC Output (-)	DC (-) Terminal (CH2)
+V2	DC Output (+)	DC (+) Terminal (CH2)
-V1	DC Output (-)	DC (-) Terminal (CH1)
+V1	DC Output (+)	DC (+) Terminal (CH1)

3. Function

3-1. (Adjustable output voltage range)

o 가 $\pm 5\%$
 .(CH1 가)

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

o SMPS 가 가 110%
 (OCP)
 o short 가

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

o 115% 가 SMPS
 .(CH2 OVP)
 o AC 3 A/S

User's guide

4. (Mounting method)

4-1.

-
-
-

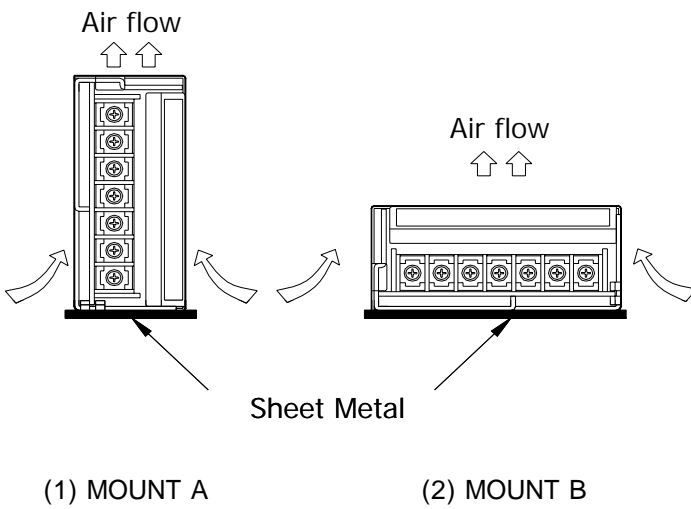


Fig 1.

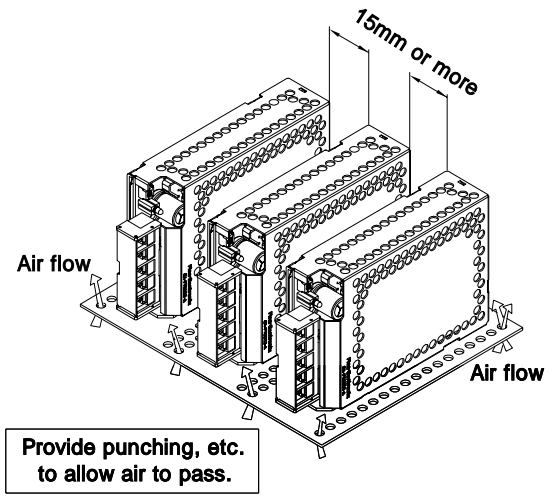


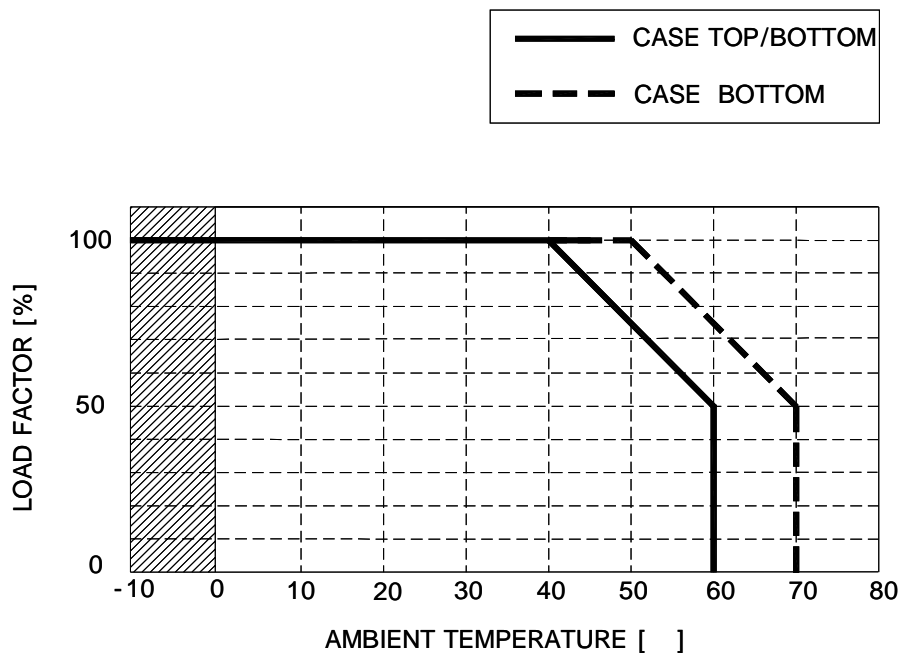
Fig 2.

5. Output derating curve

5-1. (Mount A, Mount B) TOP CASE
Output derating curve

5-2. Output derating curve (Mount A with top case, Convection cooling)

User's guide



6.

○

○

가

○

가

○

가

가

가

가

○

User's guide

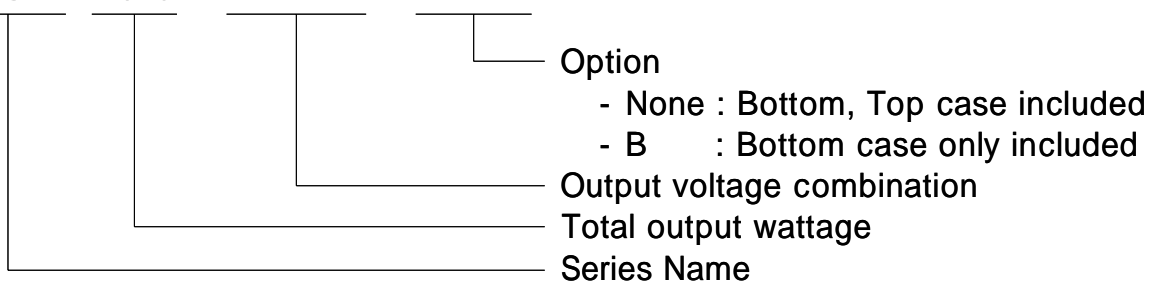
7.

o , , ,

o 2 ,

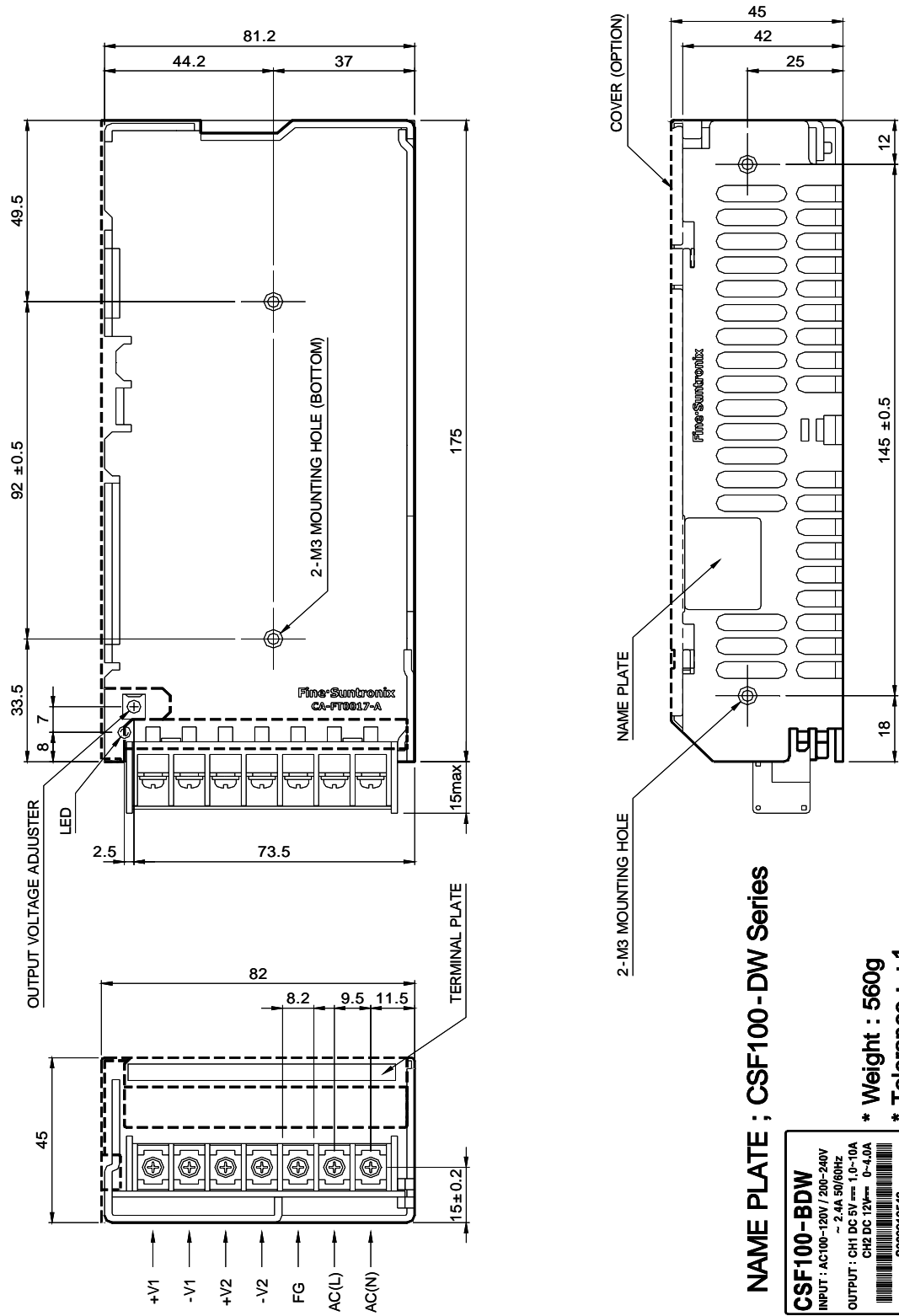
8. ORDERING INFORMATION

CSF100 - BDW -



Dimension

CSF100W Dual Output



NAME PLATE ; CSF100-DW Series

CSF100-BDW
 INPUT : AC100-120V / 200-240V
 ~ 2.4A 50/60Hz
 OUTPUT : CH1 DC 5V ± 1.0% 1.0-10A
 CH2 DC 12V ± 0-4.0A

5060218643
 Fine Suntronix
 Made in Korea

- * Weight : 560g
- * 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,) : 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

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 () :



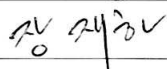
o Safety Regulation () :

o Line Conducted RF Voltage () : .

Evaluation Data

품 목	SMPS
품 명	CSF100-DW
Rev. No.	A

2008 년 12월 09일

작 성 :	주 임	김 병 우	
검 토 :	선 임	이 동 찬	
승 인 :	상 무	장 재 하	



서울특별시 성동구 성수2가 3동 273-1

TEL : (02) 461-1524

FAX : (02) 463-6398

Evaluation data

1. CSF100-BDW

1-1. Input characteristics

- . Inrush Current Characteristics
- . Inrush Current & Efficiency characteristics

1-2. Output characteristics

- . Line & Load Regulation Characteristics
- . Dynamic Load Response Characteristics
- . Ripple & Noise Characteristics
- . Turn on Time Characteristics
- . Hold up Time Characteristics
- . Over Current Protection Characteristics
- . Over Voltage Protection Characteristics

2. CSF100-BHW

2-1. Input characteristics

- . Inrush Current Characteristics
- . Inrush Current & Efficiency characteristics

2-2. Output characteristics

- . Line & Load Regulation Characteristics
- . Dynamic Load Response Characteristics
- . Ripple & Noise Characteristics
- . Turn on Time Characteristics
- . Hold up Time Characteristics
- . Over Current Protection Characteristics
- . Over Voltage Protection Characteristics

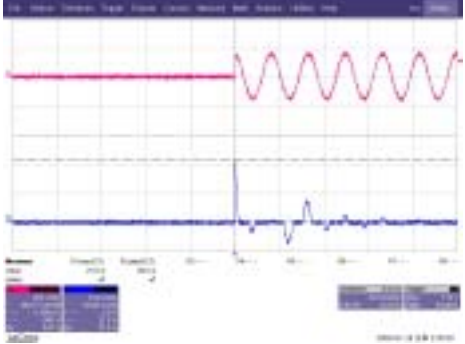
1-1. CSF100-BDW Input characteristics

(1) Oscilloscope : WAVEPRO 7000 (LeCroy)

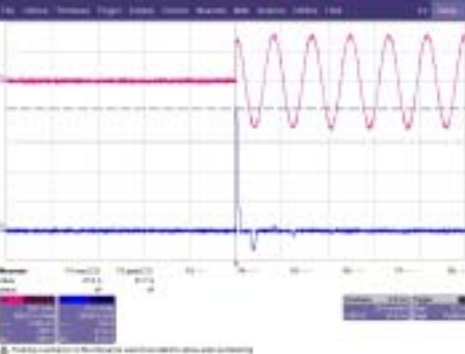
CH2 : ADP305 (High voltage differential probe)

CH3 : AP015 (Current probe)

(1) Inrush current characteristics (110V)

Vin = 110V	CH1 Io=100% (CH=10A) CH2 Io=100% (CH=4A)	$I_{inrush} =$ 21.6[A]		CH2 200V/div 20ms/div CH3 10A/div 20ms/div
------------	---	---------------------------	--	---

(2) Inrush current characteristics (220V)

Vin = 220V	CH1 Io=100% (CH=10A) CH2 Io=100% (CH=4A)	$I_{inrush} =$ 41.0[A]		CH2 200V/div 20ms/div CH3 10A/div 20ms/div
------------	---	---------------------------	---	---

(3) Inrush current & Efficiency characteristics

Condition Ta : 25

Load \ Input Voltage		85V	110V	132V	170V	220V	264V
		Input Current[A]	0.14	0.13	0.13	0.08	0.06	0.06
Io=Min% (CH1=1A, CH2=0A)	Input Current[A]	0.14	0.13	0.13	0.08	0.06	0.06
	Efficiency[%]	-	-	-	-	-	-
Io=50% (CH1=5A, CH2=2A)	Input Current[A]	1.12	0.93	0.82	0.59	0.49	0.44
	Efficiency[%]	75.9	75	72.9	78.6	76	73.6
Io=100% (CH1=10A, CH2=4A)	Input Current[A]	2.16	1.74	1.52	1.18	0.98	0.86
	Efficiency[%]	77.1	78.5	78.2	81.5	80.6	79.6

1-2. CSF100-BDW Output characteristics

(1) Digital Multimeter : FLUKE 189 MULTIMETER

--	--	--	--	--

(1) Line & Load Regulation Characteristics


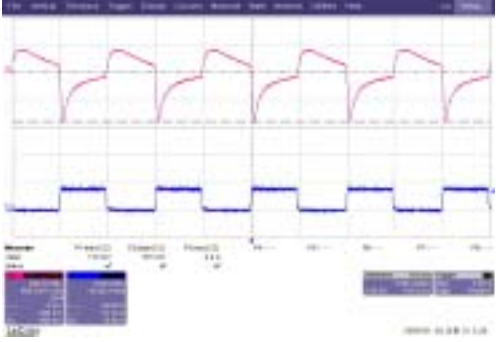
Condition Ta : 25

Load \ Input Voltage		85V	110V	132V	170V	220V	264V	Line Regulation [mV]
Io=Min% (CH1=1A, CH2=0A)	CH1	5.004	5.004	5.004	5.004	5.004	5.004	0
	CH2	12.088	12.085	12.084	12.083	12.081	12.081	7
Io=50% (CH1=5A, CH2=2A)	CH1	5.000	4.999	4.998	5.000	4.999	4.998	2
	CH2	12.085	12.083	12.081	12.081	12.079	12.079	6
Io=100% (CH1=10A, CH2=4A)	CH1	4.995	4.994	4.993	4.995	4.994	4.992	3
	CH2	12.083	12.081	12.079	12.079	12.078	12.077	6
Load Regulation [mV]	CH1	9	10	11	9	10	12	-
	CH2	5	4	5	4	3	4	-

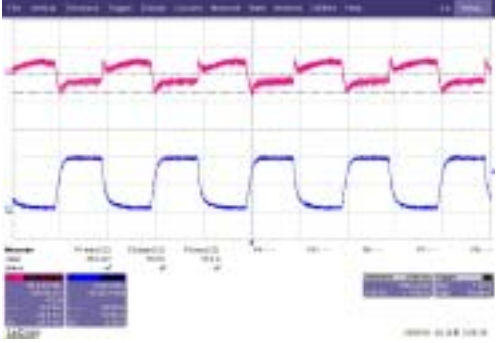
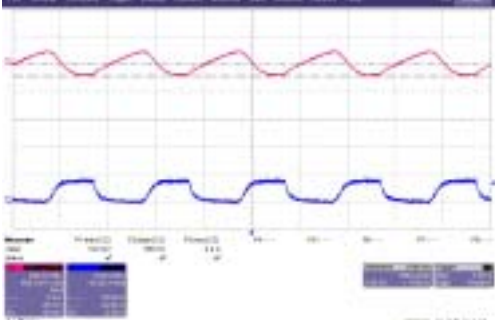
1-3. CSF100-BDW Output characteristics

(1) Oscilloscope : WAVEPRO 7000 (LeCroy)
 CH2 : PP005A (Passive Voltage probe)
 CH3 : AP015 (Current probe)

(1) Dynamic Load Response Characteristics(100Hz)

<p>Vin = 220V</p>	<p>CH1 Io=10% 100%</p> <p>CH2 Io=100%</p>	<p>CH1 +V_{pk}=38[mV] (0.76%)</p> <p>-V_{pk}=32.5[mV] (0.65%)</p>		<p>CH2 50mV/div 5ms/div</p> <p>CH3 5A/div 5ms/div</p>
<p>Vin = 220V</p>	<p>CH1 Io=10%</p> <p>CH2 Io=0% 100%</p>	<p>CH1 +V_{pk}=29[mV] (0.58%)</p> <p>-V_{pk}=33.5[mV] (0.67%)</p>		<p>CH2 200mV/div 5ms/div</p> <p>CH3 5A/div 5ms/div</p>

(2) Dynamic Load Response Characteristics(1KHz)

<p>Vin = 220V</p>	<p>CH1 Io=10% 100%</p> <p>CH2 Io=100%</p>	<p>CH2 +V_{pk}=172[mV] (1.43%)</p> <p>-V_{pk}=356[mV] (2.97%)</p>		<p>CH2 50mV/div 500us/div</p> <p>CH3 5A/div 500us/div</p>
<p>Vin = 220V</p>	<p>CH1 Io=10%</p> <p>CH2 Io=0% 100%</p>	<p>CH2 +V_{pk}=102[mV] (0.85%)</p> <p>-V_{pk}=82[mV] (0.68%)</p>		<p>CH2 200mV/div 500us/div</p> <p>CH3 5A/div 500us/div</p>

1-4. CSF100-BDW Output characteristics

(1) Oscilloscope : WAVEPRO 7000 (LeCroy)
 CH1 : PP007-WS (Passive Voltage probe)
 CH2 : PP005A (Passive Voltage probe)
 CH3 : ADP305 (High voltage differential probe)
 CH4 : BNC Cable, Band Width : 200MHz

--	--	--	--	--

(1) Ripple & Noise characteristics

Vin = 220V	CH1 Io=100% (CH=10A) CH2 Io=100% (CH=4A)	CH1 Ripple&NOISE : 38.2/62[mV]		CH4 20mV/div 5us/div
------------	---	--------------------------------------	--	----------------------------

Vin = 220V	CH1 Io=100% (CH=10A) CH2 Io=100% (CH=4A)	CH2 Ripple&NOISE : 17.8/37[mV]		CH4 20mV/div 5us/div
------------	---	--------------------------------------	--	----------------------------

(2) Turn on time characteristics

Vin = 85V	CH1 Io=100% (CH=10A) CH2 Io=100% (CH=4A)	CH1 Turn on time = 626.2[ms] CH2 Turn on time = 623[ms]		CH1 2V/div CH2 10V/div CH3 200V/div 100ms/div()
-----------	---	--	--	--

(3) Hold up time characteristics

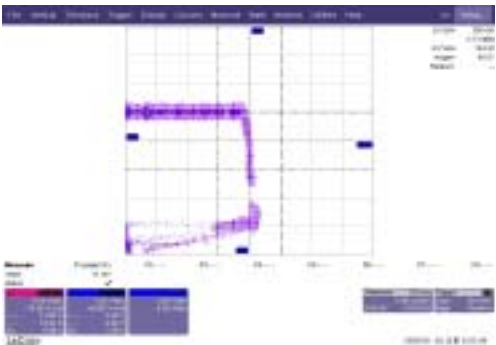
Vin = 85V	CH1 Io=100% (CH=10A) CH2 Io=100% (CH=4A)	CH1 Hold up time = 10.8[ms] CH2 Hold up time = 14.4[ms]		CH1 2V/div CH2 10V/div CH3 200V/div 50ms/div()
-----------	---	--	--	---

1-5. CSF100-BDW Output characteristics

(1) Oscilloscope : WAVEPRO 7000 (LeCroy)
 CH2 : AP015 (Current probe)
 CH3 : ADP305 (High voltage differential probe)
 (2) Oscilloscope : WAVEPRO 7000 (LeCroy)
 CH2 : PP005A (Passive Voltage probe)


--	--	--	--	--

(1) Over Current protection characteristics

<p>Vin = 220V</p>	<p>CH1 Io=0%~가</p> <p>CH2 Io=100% (CH=4A)</p>	<p>CH1 OCP= 15.61[A]</p> <p>IoUT= 156.1[%]</p>		<p>CH2 4A/div 5ms/div</p> <p>CH3 1V/div 5ms/div</p>
-------------------	---	--	--	---

<p>Vin = 220V</p>	<p>CH1 Io=100% (CH=10A)</p> <p>CH2 Io=0%~가</p>	<p>CH2 OCP= 5.75[A]</p> <p>IoUT= 144[%]</p>		<p>CH2 1.5A/div 2ms/div</p> <p>CH3 2V/div 2ms/div</p>
-------------------	--	---	---	---

(2) Over voltage protection characteristics

<p>Vin = 220V</p>	<p>CH1 Io=10%</p> <p>CH2 Io=100%</p>	<p>CH1 OVP = 6.64[V]</p> <p>VOUT=132.8[%]</p>		<p>CH2 2V/div 20ms/div</p>
-------------------	--	---	--	------------------------------------

--	--	--	--	--

2-1. CSF100-BHW Input characteristics

(1) Oscilloscope : WAVEPRO 7000 (LeCroy)

CH2 : ADP305 (High voltage differential probe)

CH3 : AP015 (Current probe)

(1) Inrush current characteristics (110V)

Vin = 110V	CH1 $I_o=100\%$ (CH=10A) CH2 $I_o=100\%$ (CH=2A)	$I_{inrush} =$ 14.5[A]		CH2 200V/div 20ms/div CH3 10A/div 20ms/div
------------	---	---------------------------	--	---

(2) Inrush current characteristics (220V)

Vin = 220V	CH1 $I_o=100\%$ (CH=10A) CH2 $I_o=100\%$ (CH=2A)	$I_{inrush} =$ 33.5[A]		CH2 200V/div 20ms/div CH3 10A/div 20ms/div
------------	---	---------------------------	--	---

(3) Inrush current & Efficiency Characteristics

Condition Ta : 25

Load \ Input Voltage		85V	110V	132V	170V	220V	264V
		85V	110V	132V	170V	220V	264V
$I_o=Min\%$ (CH1=1A, CH2=0A)	Input Current[A]	0.15	0.13	0.13	0.07	0.05	0.06
	Efficiency[%]	-	-	-	-	-	-
$I_o=50\%$ (CH1=5A, CH2=1A)	Input Current[A]	1.12	0.95	0.83	0.61	0.52	0.45
	Efficiency[%]	76	74.5	72	78.5	75.3	71.8
$I_o=100\%$ (CH1=10A, CH2=2A)	Input Current[A]	2.19	1.79	1.57	1.19	0.99	0.86
	Efficiency[%]	78.4	79.1	78.4	82	81.2	79.6

2-2. CSF100-BHW Output characteristics

(1) Digital Multimeter : FLUKE 189 MULTIMETER

(1) Line & Load Regulation Characteristics

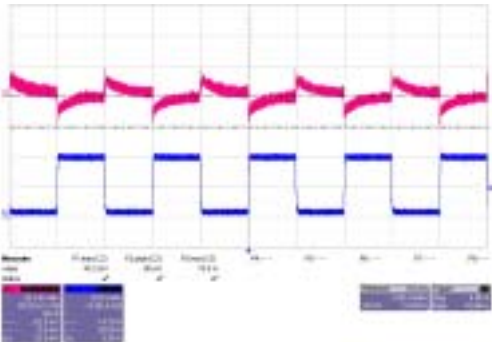
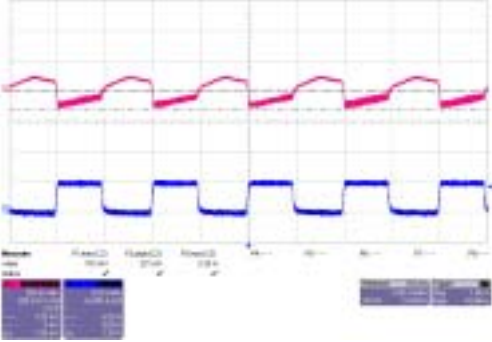
Condition Ta : 25

Load \ Input Voltage		85V	110V	132V	170V	220V	264V	Line Regulation [mV]
Io=Min% (CH1=1A, CH2=0A)	CH1	5.003	5.003	5.003	5.003	5.002	5.002	1
	CH2	24.128	24.126	24.125	24.124	24.123	24.122	6
Io=50% (CH1=5A, CH2=1A)	CH1	4.998	4.998	4.997	4.998	4.997	4.996	2
	CH2	24.126	24.125	24.123	24.122	24.122	24.121	5
Io=100% (CH1=10A, CH2=2A)	CH1	4.994	4.992	4.991	4.993	4.992	4.991	3
	CH2	24.125	24.124	24.122	24.122	24.120	24.120	5
Load Regulation [mV]	CH1	9	11	12	10	10	11	-
	CH2	3	2	3	2	3	2	-

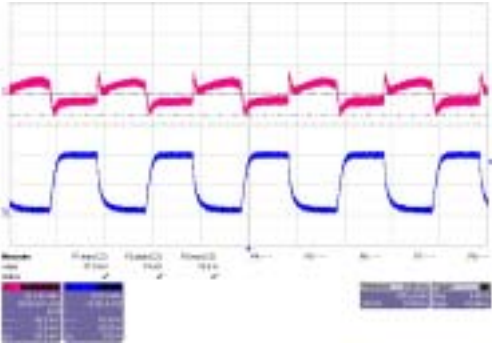
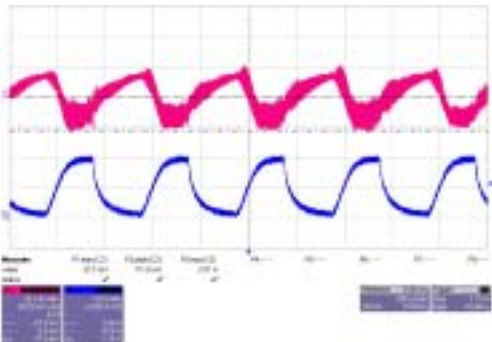
2-3. CSF100-BHW Output characteristics

(1) Oscilloscope : WAVEPRO 7000 (LeCroy)
 CH2 : PP005A (Passive Voltage probe)
 CH3 : AP015 (Current probe)

(1) Dynamic Load Response Characteristics(100Hz)

Vin = 220V	CH1 I _o =10% 100% CH2 I _o =100%	CH1 +V _{pk} =51[mV] (0.98%) -V _{pk} =52.5[mV] (0.95%)		CH2 50mV/div 5ms/div CH3 5A/div 5ms/div
Vin = 220V	CH1 I _o =10% CH2 I _o =0% 100%	CH2 +V _{pk} = 104[mV] (0.44%) -V _{pk} = 120[mV] (0.5%)		CH2 200mV/div 5ms/div CH3 2A/div 5ms/div

(2) Dynamic Load Response Characteristics(1KHz)

Vin = 220V	CH1 I _o =10% 100% CH2 I _o =100%	CH1 +V _{pk} = 38[mV] (0.74%) -V _{pk} = 36[mV] (0.74%)		CH2 50mV/div 500us/div CH3 5A/div 500us/div
Vin = 220V	CH1 I _o =10% CH2 I _o =0% 100%	CH2 +V _{pk} = 53[mV] (0.22%) -V _{pk} = 57[mV] (0.24%)		CH2 50mV/div 500us/div CH3 1A/div 500us/div

2-4. CSF100-BHW Output characteristics

(1) Oscilloscope : WAVEPRO 7000 (LeCroy)

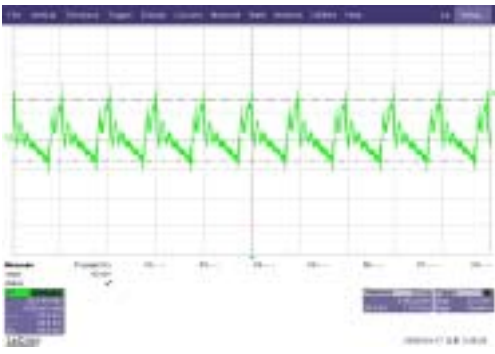
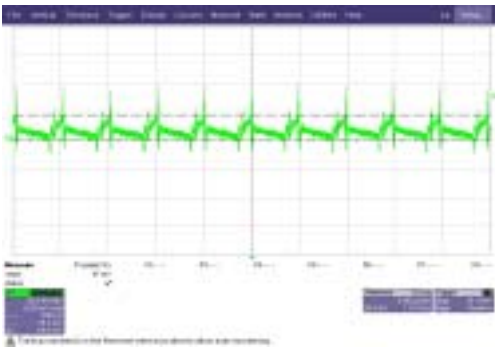
CH1 : PP007-WS (Passive Voltage probe)

CH2 : PP005A (Passive Voltage probe)

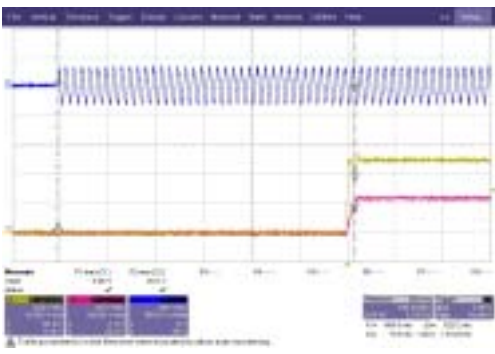
CH3 : ADP305 (High voltage differential probe)

CH4 : BNC Cable, Band Width : 200MHz

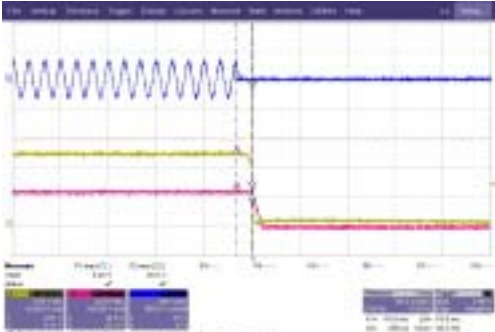
(1) Ripple & Noise characteristics

Vin = 220V	<p>CH1 Io=100% (CH=10A)</p> <p>CH2 Io=100% (CH=2A)</p>	<p>CH1 Ripple&NOISE : 42.6/62[mV]</p>		<p>CH4 20mV/div 5us/div</p>
Vin = 220V	<p>CH1 Io=100% (CH=10A)</p> <p>CH2 Io=100% (CH=2A)</p>	<p>CH2 Ripple&NOISE : 18/47[mV]</p>		<p>CH4 20mV/div 5us/div</p>

(2) Turn on time characteristics

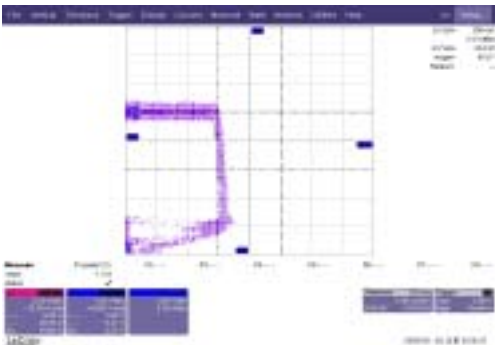
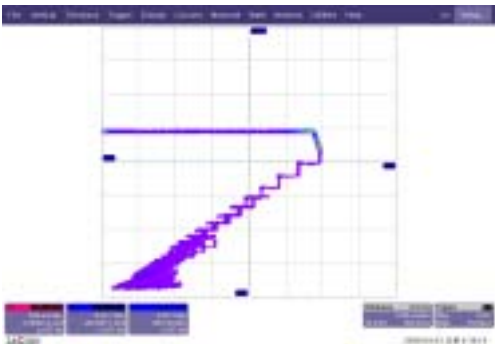
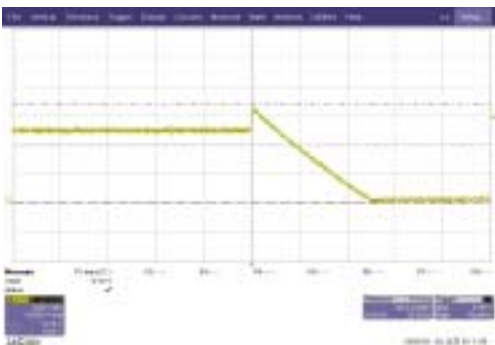
Vin = 85V	<p>CH1 Io=100% (CH=10A)</p> <p>CH2 Io=100% (CH=2A)</p>	<p>CH1 Turn on time = 613.6[ms]</p> <p>CH2 Turn on time = 620.2[ms]</p>		<p>CH1 2V/div</p> <p>CH2 20V/div</p> <p>CH3 200V/div 100ms/div()</p>
-----------	--	---	--	---

(3) Hold up time characteristics

Vin = 85V	<p>CH1 Io=100% (CH=10A)</p> <p>CH2 Io=100% (CH=2A)</p>	<p>CH1 Hold up time = 14.2[ms]</p> <p>CH2 Hold up time = 16.6[ms]</p>		<p>CH1 2V/div</p> <p>CH2 20V/div</p> <p>CH4 200V/div 50ms/div()</p>
-----------	--	---	--	--

2-5. CSF100-BHW Output characteristics

- (1) Oscilloscope : WAVEPRO 7000 (LeCroy)
 CH2 : AP015 (Current probe)
 CH3 : ADP305 (High voltage differential probe)
- (2) Oscilloscope : WAVEPRO 7000 (LeCroy)
 CH2 : PP005A (Passive Voltage probe)

(1) Over Current protection characteristics				
<p>$V_{in} = 220V$</p>	<p>CH1 $I_o=0\% \sim 가$</p> <p>CH2 $I_o=100\%$ (CH=2A)</p>	<p>CH1 OCP=15.08[A]</p> <p>I_{OUT} =150.8[%]</p>		<p>CH2 5A/div 5ms/div</p> <p>CH3 1V/div 5ms/div</p>
<p>$V_{in} = 220V$</p>	<p>CH1 $I_o=100\%$ (CH=10A)</p> <p>CH2 $I_o=0\% \sim 가$</p>	<p>CH2 OCP=2.79[A]</p> <p>I_{OUT} =139.5[%]</p>		<p>CH2 0.5A/div 5ms/div</p> <p>CH3 5V/div 5ms/div</p>
(2) Over voltage protection characteristics				
<p>$V_{in} = 220V$</p>	<p>CH1 $I_o=10\%$</p> <p>CH2 $I_o=100\%$ (CH=2A)</p>	<p>CH1 OVP = 6.74[V]</p> <p>$V_{OUT} = 135[%]$</p>		<p>CH1 2V/div 20ms/div</p>