

Order Catalogue 2013 / 2014





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For the Switching Model Power Supply

Switching Mode Power Supply



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ORDERING INFORMATION

NEW**CSF15-3R3** □ □

Series name

Total output wattage

Output voltage combination

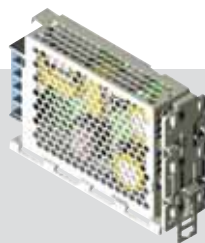
Option

None : Bottom, Top case included**B** : Bottom case only included

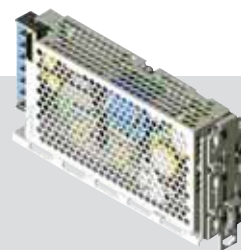
- Small size(Height 82mm: (2U),15W~150W)
- Low cost
- Wide input voltage range
(free voltage or auto selection)
- Over voltage protection(except for 15W)
- Over current protection
- 5 years warranty



DIN RAIL : FD-15-A
적용SMPS : CSF15-S
CSF30-S



DIN RAIL : FD-50-A
적용SMPS : CSF50-S
CSF75-S
PSF50-S
PSF75-S



DIN RAIL : FD-100-A
적용SMPS : CSF100-S
CSF150-S
PSF100-S
PSF150-S

CSF-Series Single



- Wide Input voltage range
(free voltage or auto selection)
- Over Voltage Protection (except for 15W)
- Over Current Protection
- 4 Year Warranty

CSF 15-24

① Series name ② Total output wattage ③ Output voltage

Single Output

NEW!

MODEL		CSF15	CSF30	CSF50	CSF75	CSF100	CSF150	CSF300	CSF600	CSF1000	CSF1500
INPUT VOLTAGE, FREQUENCY		AC100-240V(AC85~264 or DC120~370V), 50/60Hz Universal Input				*1		AC100-240V(AC85~264V or DC120-370V), 50/60Hz Universal Input			
OUTPUT VOLTAGE/ CURRENT	3.3V	3A	6A	10A	15A	20A	30A	55A	100A	–	–
	5V	3A	6A	10A	15A	20A	30A	55A	100A	–	240A
	9V	1.7A	3.4A	5.6A	8.4A	11A	16.7A	33.3A	66.5A	–	150A
	12V	1.3A	2.5A	4.3A	6.4A	8.4A	12.5A	26A	50A	60A	125A
	15V	1A	2A	3.5A	5A	6.7A	10A	21A	40A	50A	100A
	24V	0.7A	1.3A	2.2A	3.2A	4.2A	6.3A	13A	25A	40A	63A
	48V	–	0.63A	1.1A	–	2.1A	3.2A	6.7A	12.5A	21A	32A
INPUT CURRENT [A] (Io=100%)	110V	0.4	0.8	0.9	2.0	2.0	3.6	3.6	7.2	12	16
	220V	0.2	0.4	0.6	0.8	1.2	2.0	1.8	3.6	6	7.8
EFFICIENCY [%]	110V	77 typ	80 typ	78 typ	84 typ	83 typ	84 typ	84 typ	81 typ	88 typ	86 typ
	220V	78 typ	80 typ	75 typ	80 typ	86 typ	88 typ	84 typ	84 typ	88 typ	90 typ
POWER FACTOR	110V	–	–	–	–	–	–	0.98	0.98	0.98	0.98
	220V	–	–	–	–	–	–	0.95	0.93	0.95	0.95
OPERATING TEMP AND HUMID		-10~+70°C (Required Derating), 20~90% RH (Non Condensing)									
SAFETY REGULATION		UL, C-UL, CE, CB									
SIZE(W×H×D/mm)		82×28×65	82×31.5×84	82×31.5×120	82×35.5×135	82×36.5×165	82×45×175	102×52×192	120×52×190	127×41×295	126.5×82×280
WEIGHT(g)		180	210	300	380	400	560	980	2000	1500	3800

*1 AC100-120V/200~240V(AC90~132V/AC180~264V or DC240~370V), Auto selectable), 50/60Hz

* Input voltage of CSF1000 is "AC100~240V(AC85~264 or DC120~370V), 50/60Hz(47~440Hz) UUUUniversal Input"

* Efficiency is based on a 24V reference.

* More detail specification, visit ORIENT Electronics website and find CSF series

CSF-Series Dual, Triple



Dual Output

CSF 50-BHW

① ② ③

① Series name ② Total output wattage ③ Output voltage

MODEL			CSF15	CSF30	CSF50	CSF75	CSF100
INPUT VOLTAGE, FREQUENCY			AC100-240V(AC85~264 or DC120~370V), 50/60Hz(47~440Hz)Universal Input			AC100-120V/200~240V(AC90~132V or DC240~370V), Auto Selectable	
OUTPUT VOLTAGE/ CURRENT	BBW	5V	—	2A	—	—	—
		5V	—	2A	—	—	—
	BDW	5V	0.1~2A	0.3~3A	0.5~5A	0.6~6A	1~10A
		12V	0.5A	1.3A	2A	3.5A	4A
	BEW	5V	—	—	0.5~5A	—	—
		15V	—	—	1.7A	—	—
	BHW	5V	—	0.3~3A	0.5~5A	0.6~6A	1~10A
		24V	—	0.6A	1A	2A	2A
	DDW	12V	0.1~0.7A	1.3A	0.1~2.5A	—	—
		12V	0.7A	1.3A	1.5A	—	—
EEW	15V	0.1~0.5A	1A	0.1~2A	—	—	
	15V	0.5A	1A	1.5A	—	—	
INPUT CURRENT [A] (Io=100%)	110V		0.4	0.65	1.2	1.8	2.4
	220V		0.25	0.35	0.7	1.0	1.4
EFFICIENCY [%]	110V		68 typ	71 typ	75 typ	75 typ	75 typ
	220V		67 typ	72 typ	75 typ	75 typ	75 typ
OPERATING TEMP AND HUMID			-10~+70°C (Required Derating), 20~90% RH (Non Condensing)				
SAFETY REGULATION			CE, CB				
SIZE(W×H×D/mm)			82×31.5×84	82×31.5×120	82×35.5×135	82×36.5×165	82×45×175
WEIGHT(g)			210	290	360	450	560

* Efficiency is based on a 5V~12V dual reference.

* More detail specification, visit ORIENT Electronics website and find CSF series

Triple Output

CSF 50-DD

① ② ③

① Series name ② Total output wattage ③ Output voltage

MODEL			CSF15	CSF30	CSF50
INPUT VOLTAGE, FREQUENCY			AC100-240V(AC85~264 or DC120~370V), 50/60Hz(47~440Hz)Universal Input		
OUTPUT VOLTAGE/ CURRENT	DD	5V	0.1~2A	0.3~3A	0.5~5A
		12V	0.3A	1.0A	1.8A
		12V	0.2A	0.3A	0.3A
	EE	5V	0.1~2A	0.3~3A	0.5~5A
		15V	0.3A	0.8A	1.4A
		15V	0.2A	0.2A	0.3A
INPUT CURRENT [A] (I _o =100%)	110V	0.4	0.65	1.2	
	220V	0.25	0.35	0.7	
EFFICIENCY [%]	110V	69 typ	71 typ	75 typ	
	220V	67 typ	71 typ	75 typ	
OPERATING TEMP AND HUMID			-10~+70°C (Required Derating), 20~90% RH (Non Condensing)		
SAFETY REGULATION			CE, CB		
SIZE(W×H×D/mm)			82×31.5×84	82×31.5×120	82×35.5×135
WEIGHT(g)			220	290	360

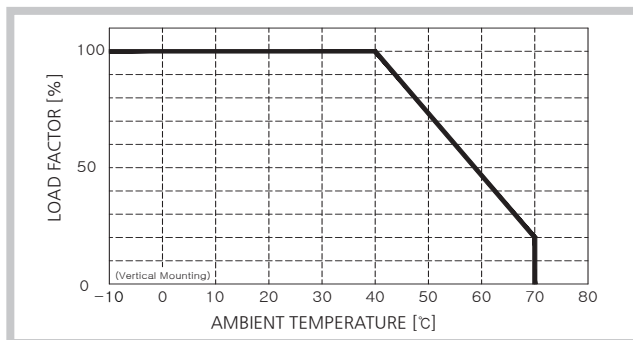


* Efficiency is based on a 5V-12V-12V triple reference.

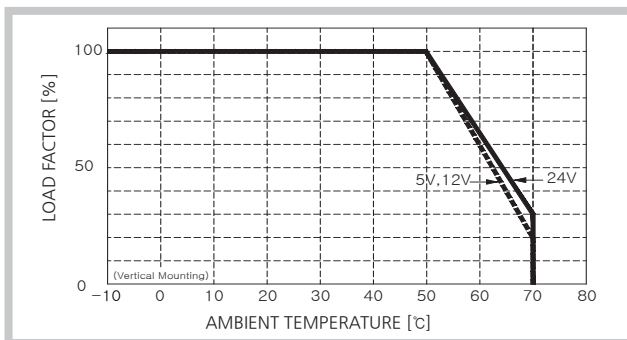
* More detail specification, visit ORIENT Electronics website and find CSF series

Output Derating Curve

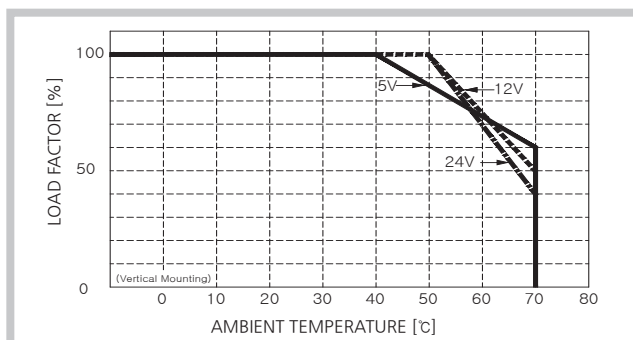
CSF15, 30-Series



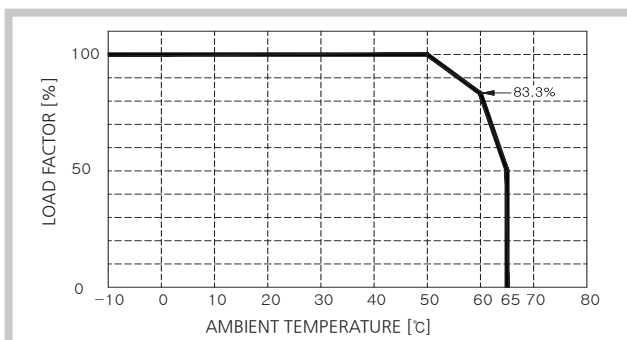
CSF50, 75, 100-Series



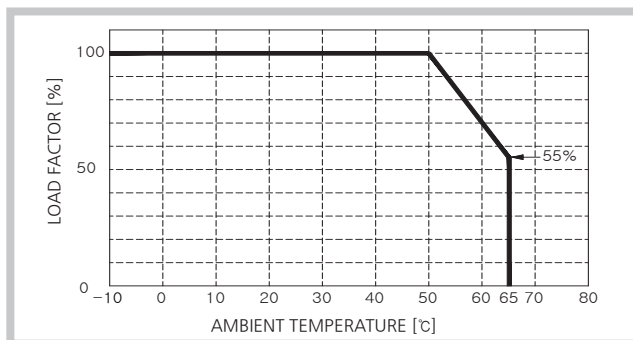
CSF150-Series



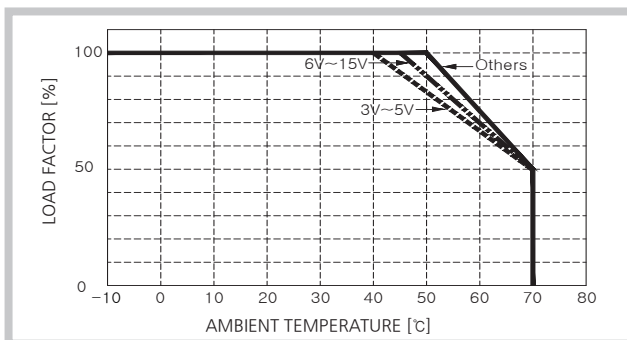
CSF300-Series



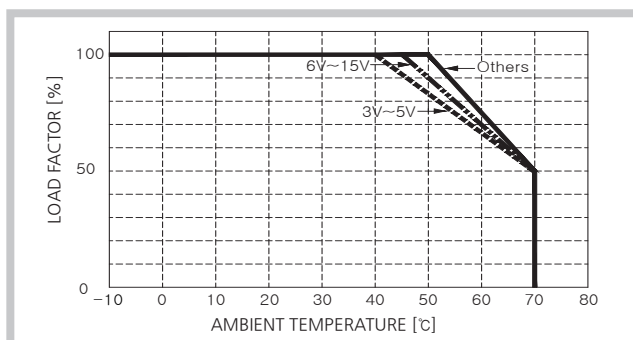
CSF600-Series



CSF1000-Series



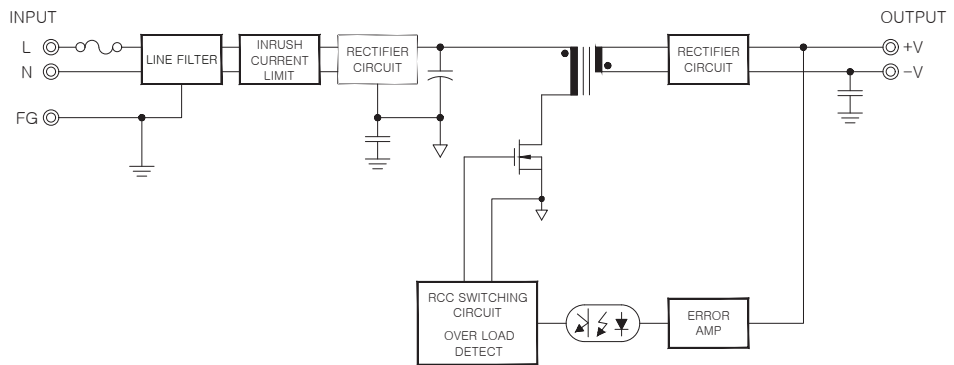
CSF1500-Series



CSF-Series

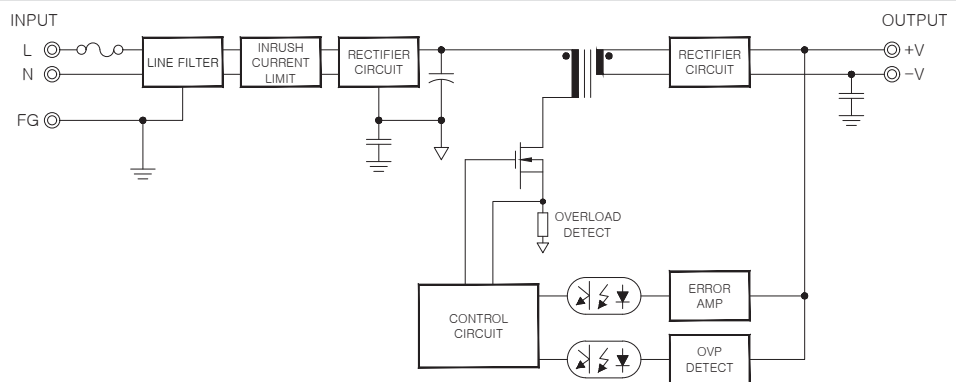
CSF 15 Series

Block Diagram



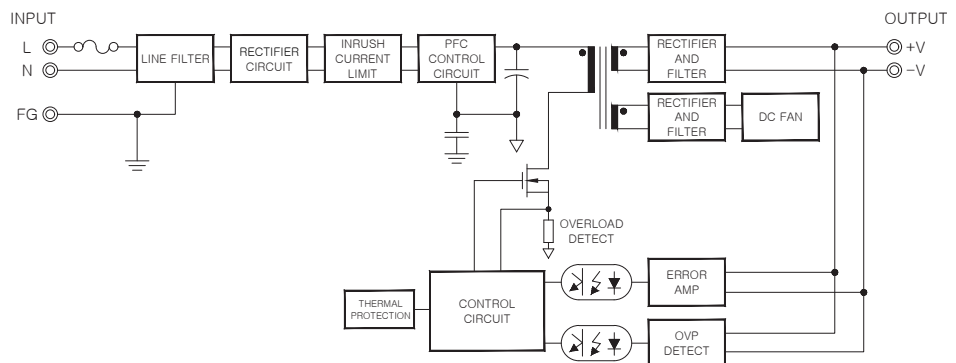
CSF 30 CSF 50 CSF 75 CSF 100 CSF 150 Series

Block Diagram



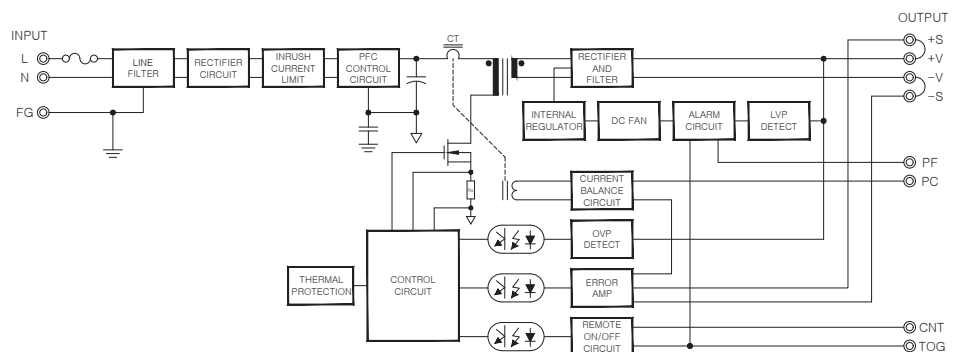
CSF 300 Series

Block Diagram

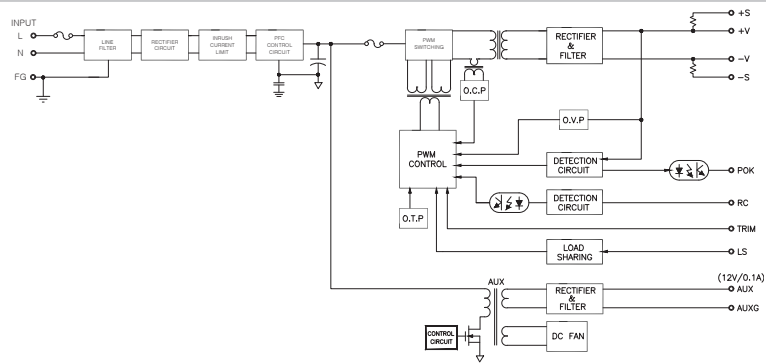


CSF 600 Series

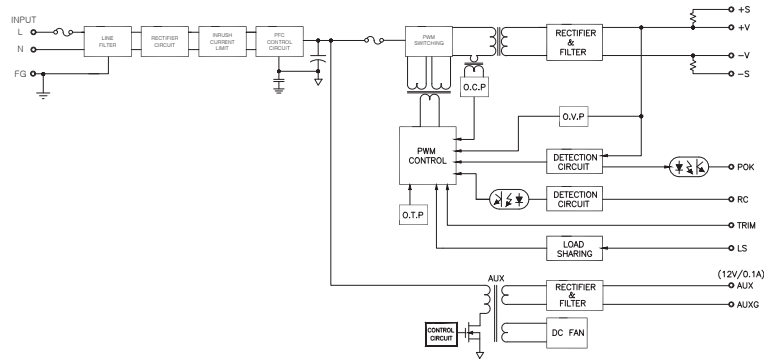
Block Diagram



CSF 1000 Series Block Diagram

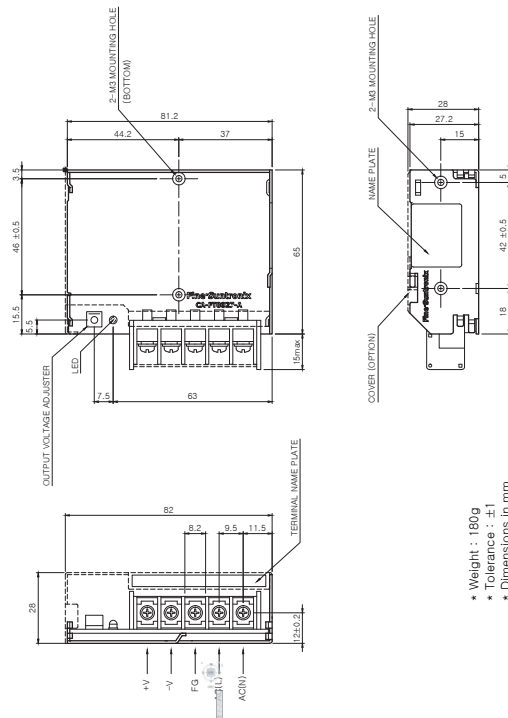


CSF 1500 Series Block Diagram

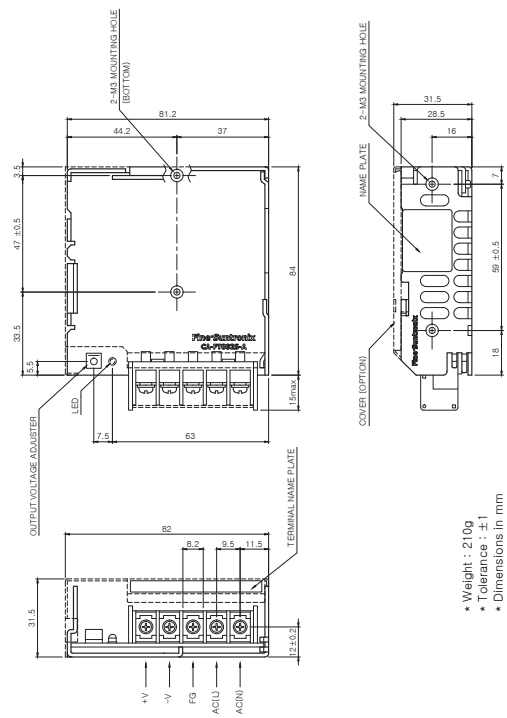


Dimension

CSF15-Series



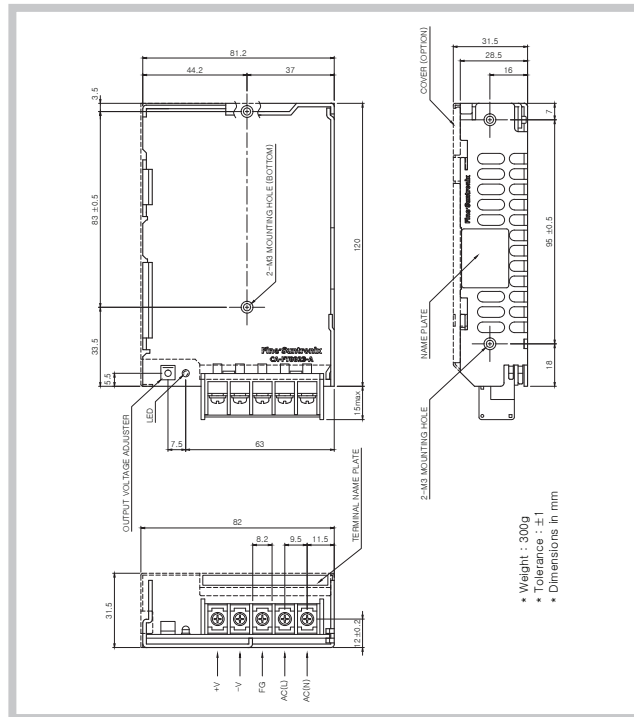
CSF30-Series(CSF15-Dual, Triple-Series)



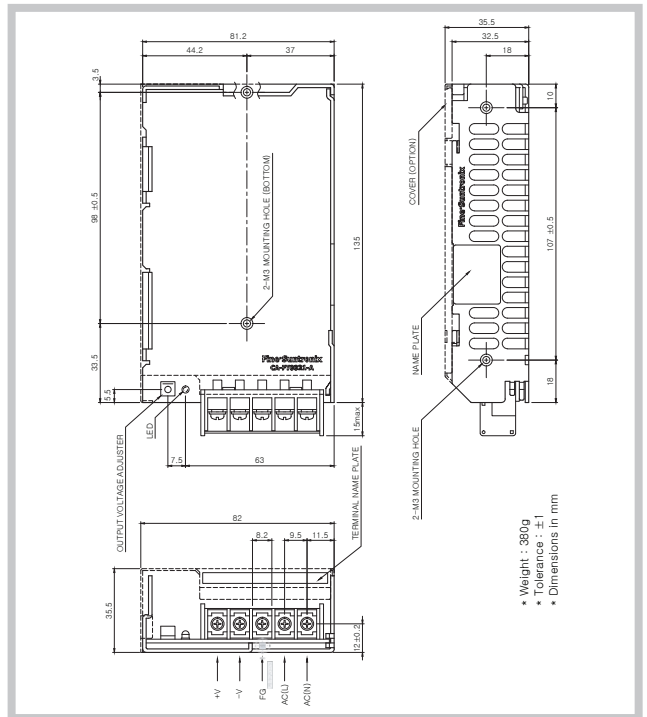
CSF-Series

Dimension

CSF50-Series (CSF30-Dual, Triple-Series)

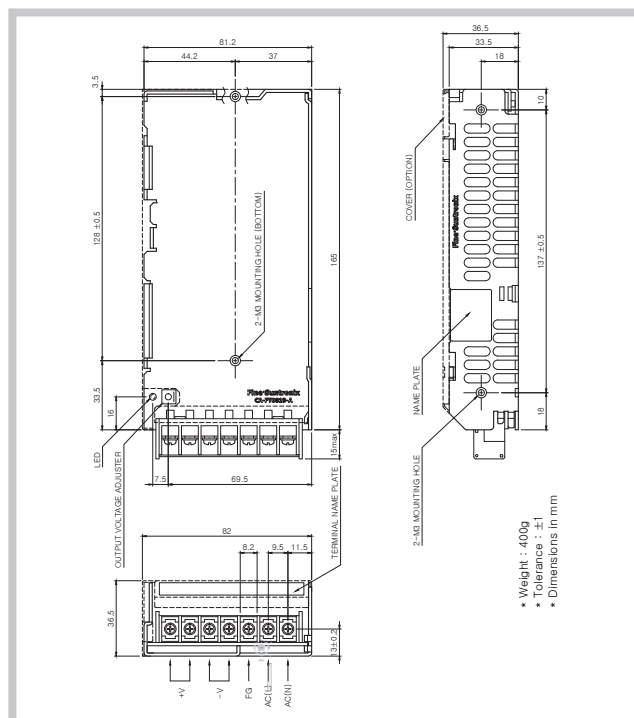


CSF75-Series (CSF50-Dual, Triple-Series)

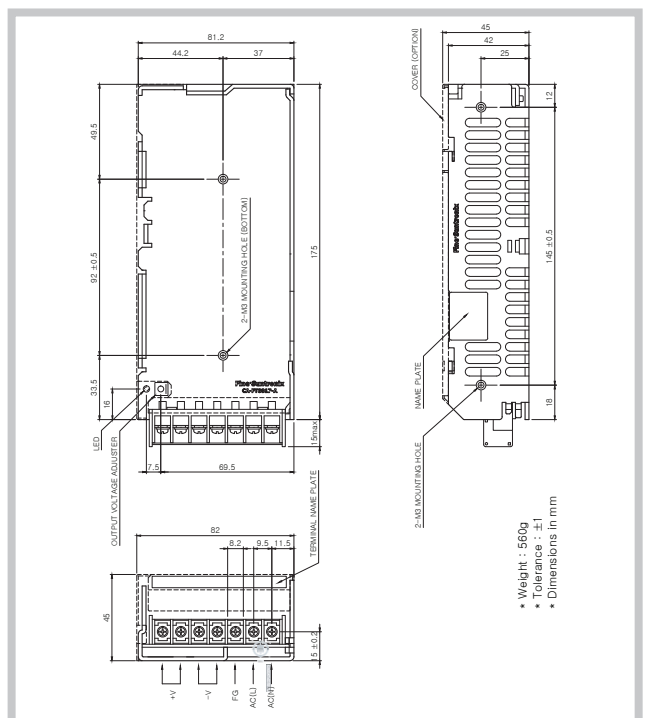


Dimension

CSF100-Series (CSF75-Dual-Series)



CSF150-Series (CSF100-Dual-Series)



UL[®] US CE

General Information

Switching Mode Power Supply

DC-DC Converter

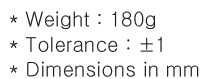
Noise Filter

Solid State Relay

AC FAN Motor

Power Module

Discrete Semiconductors

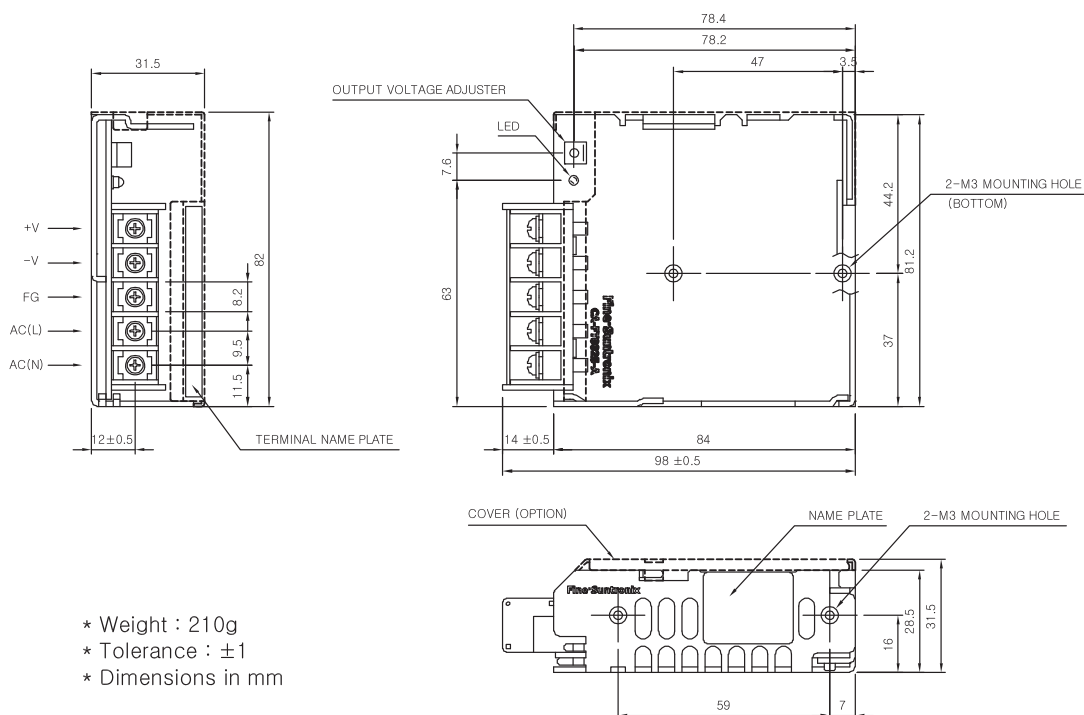


CSF30-S SPECIFICATIONS



	MODEL		CSF30-3R3	CSF30-05	CSF30-09	CSF30-12	CSF30-15	CSF30-24	CSF30-48
INPUT	VOLTAGE, FREQUENCY		AC 100-240V (AC 85 ~ 264V or DC 120 ~ 370V), 50/60Hz (47 ~ 440Hz) Universal Input						
	CURRENT [A]	110V	0.6 (I _b =100%)	0.8 (I _b =100%)					
		220V	0.3 (I _b =100%)	0.4 (I _b =100%)					
	EFFICIENCY [%]	110V	67 typ	72 typ	77 typ	78 typ	78 typ	80 typ	80 typ
		220V	66 typ	73 typ	76 typ	77 typ	77 typ	80 typ	80 typ
INRUSH CURRENT			20A typ(AC IN 110V, I _b =100%), 40A typ(AC IN 220V, I _b =100%) at cold start.						
OUTPUT	VOLTAGE [V]	3.3	5	9	12	15	24	48	
	CURRENT [A]	6	6	3.4	2.5	2	1.3	0.63	
	REGULATION, LINE [mV]	25 Max	25 Max	45 Max	60 Max	75 Max	120 Max	240 Max	
	REGULATION, LOAD [mV]	50 Max	50 Max	90 Max	120 Max	150 Max	240 Max	480 Max	
	RIPPLE [mVp-p]	80 Max	80 Max	120 Max	120 Max	120 Max	120 Max	150 Max	
	RIPPLE, NOISE [mVp-p]	120 Max	120 Max	150 Max	150 Max	150 Max	150 Max	250 Max	
	TEMPERATURE DRIFT 0~+50°C [mV]	50 Max	75 Max	135 Max	180 Max	225 Max	360 Max	720 Max	
	RISE TIME [ms]	600 Max (AC IN 100V, I _b =100%)							
	HOLDING TIME [ms]	17 typ (AC IN 100V, I _b =100%)							
PROTECTION CIRCUIT	OVER CURRENT PROTECTION		Works at over 105% of rating and recovers automatically						
	OVER VOLTAGE PROTECTION		Works at 115 ~ 140% of rating						
ELECTRICALLY ISOLATED	INPUT-OUTPUT		AC 3,000V 1 minute current 20mA, DC 500V 100MΩ (At room temperature & Humidity)						
	INPUT-CASE, FG		AC 2,000V 1 minute current 20mA, DC 500V 100MΩ (At room temperature & Humidity)						
	OUTPUT-CASE, FG		AC 500V 1 minute current 100mA, DC 500V 100MΩ (At room temperature & Humidity)						
ENVIRONMENT	OPERATING TEMP AND HUMID		-10 ~ +70°C(Required Derating), 20 ~ 90% RH(Non Condensing)						
	STORAGE TEMPAND HUMID		-20 ~ +75°C, 20 ~ 90% RH(Non Condensing)						
	VIBRATION		10 ~ 55Hz at 1G, 3 minutes period, 30 minutes along X, Y and Z axis						
	IMPACT		10G for 20ms, once on each X, Y and Z axis						
SAFETY	SAFETY REGULATION		UL, C-UL, CE, CB						
	LINE CONDUCTED RF VOLTAGE		Complied with FCC Part 15 classA, VCCI-A, CISPR22-A, EN55022-A						

CSF30-S EXTERNAL VIEW

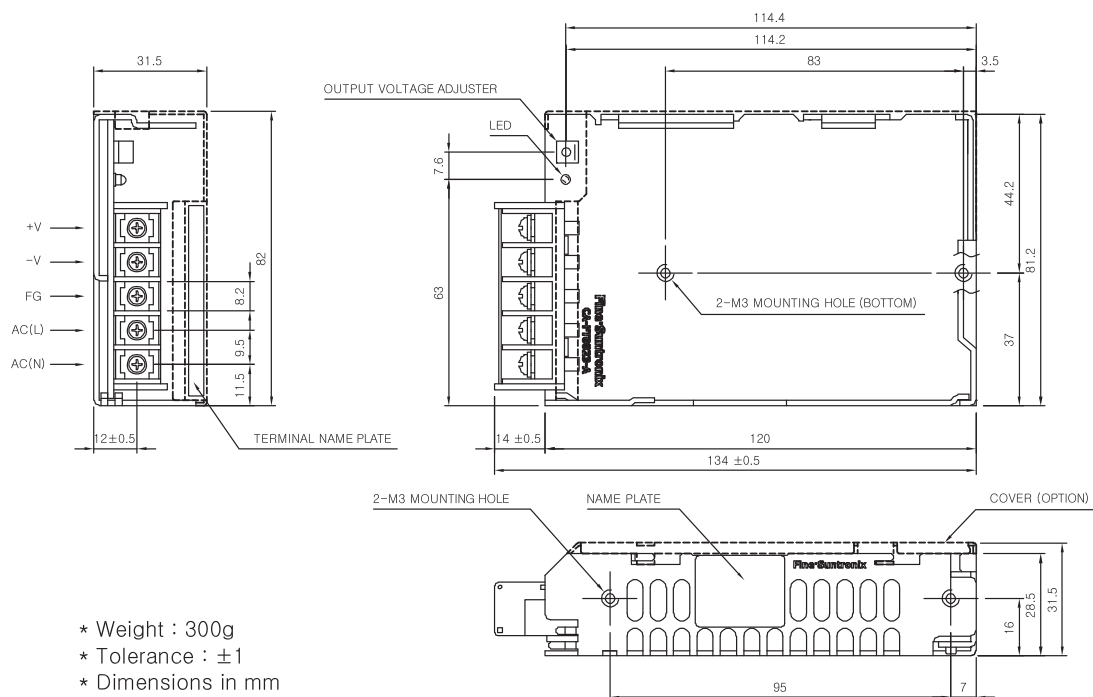


CSF50-S SPECIFICATIONS



	MODEL	CSF50-3R3	CSF50-05	CSF50-09	CSF50-12	CSF50-15	CSF50-24	CSF50-48
INPUT	VOLTAGE, FREQUENCY	AC100-240V (AC85 ~ 264V or DC120 ~ 370V), 50/60Hz (47 ~ 440Hz) Universal Input						
	CURRENT [A]	110V	0.7 (I _o =100%)					
		220V	0.4 (I _o =100%)					
	EFFICIENCY [%]	110V	70 typ	70 typ	76 typ	78 typ	78 typ	79 typ
		220V	70 typ	70 typ	75 typ	75 typ	75 typ	75 typ
OUTPUT	INRUSH CURRENT	20A typ(AC IN 110V, I _o =100%), 40A typ(AC IN 220V, I _o =100%) at cold start.						
	VOLTAGE [V]	3.3	5	9	12	15	24	48
	CURRENT [A]	10	10	5.6	4.3	3.5	2.2	1.1
	REGULATION, LINE [mV]	25 Max	25 Max	45 Max	60 Max	75 Max	120 Max	240 Max
	REGULATION, LOAD [mV]	50 Max	50 Max	90 Max	120 Max	150 Max	240 Max	480 Max
	RIPPLE [mVp-p]	80 Max	80 Max	120 Max	120 Max	120 Max	120 Max	150 Max
	RIPPLE, NOISE [mVp-p]	120 Max	120 Max	150 Max	150 Max	150 Max	150 Max	250 Max
	TEMPERATURE DRIFT 0~+50°C [mV]	50 Max	75 Max	135 Max	180 Max	225 Max	360 Max	720 Max
	RISE TIME [ms]	500 Max (AC IN 100V, I _o =100%)						
	HOLDING TIME [ms]	17 typ (AC IN 100V, I _o =100%)						
PROTECTION CIRCUIT	OVER CURRENT PROTECTION	Works at over 105% of rating and recovers automatically						
	OVER VOLTAGE PROTECTION	Works at 115 ~ 140% of rating						
ELECTRICALLY ISOLATED	INPUT-OUTPUT	AC 3,000V 1 minute current 20mA, DC 500V 100MΩ (At room temperature & Humidity)						
	INPUT-CASE, FG	AC 2,000V 1 minute current 20mA, DC 500V 100MΩ (At room temperature & Humidity)						
	OUTPUT-CASE, FG	AC 500V 1 minute current 100mA, DC 500V 100MΩ (At room temperature & Humidity)						
ENVIRONMENT	OPERATING TEMP AND HUMID	-10 ~ +70°C(Required Derating), 20 ~ 90% RH(Non Condensing)						
	STORAGE TEMP AND HUMID	-20 ~ +75°C, 20~90% RH(Non Condensing)						
	VIBRATION	10 ~ 55Hz at 1G, 3 minutes period, 30 minutes along X, Y and Z axis						
	IMPACT	10G for 20ms, once on each X, Y and Z axis						
SAFETY	SAFETY REGULATION	UL, C-UL, CE, CB						—
	LINE CONDUCTED RF VOLTAGE	Built to meet EN55022-A						

CSF50-S EXTERNAL VIEW

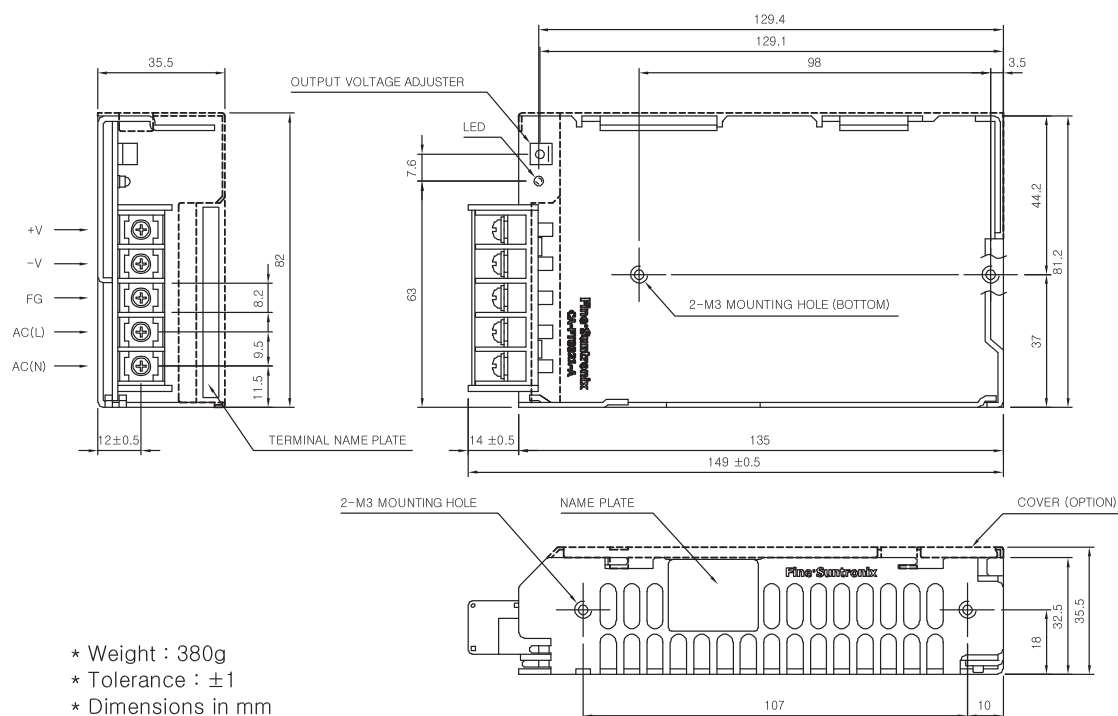


CSF75-S SPECIFICATIONS



	MODEL	CSF75-3R3	CSF75-05	CSF75-09	CSF75-12	CSF75-15	CSF75-24
INPUT	VOLTAGE, FREQUENCY	AC100-240V (AC 85 ~ 264V or DC 120 ~ 370V), 50/60Hz (47 ~ 440Hz) Universal Input					
	CURRENT [A]	110V	1.0 ($I_o=100\%$)				
		220V	0.6 ($I_o=100\%$)				
	EFFICIENCY [%]	110V	75 typ	78 typ	81 typ	82 typ	81 typ
		220V	75 typ	78 typ	81 typ	82 typ	80 typ
	INRUSH CURRENT	20A typ(AC IN 110V, $I_o=100\%$), 40A typ(AC IN 220V, $I_o=100\%$) at cold start.					
OUTPUT	VOLTAGE [V]	3.3	5	9	12	15	24
	CURRENT [A]	15	15	8.3	6.3	5	3.2
	REGULATION, LINE [mV]	25 Max	25 Max	45 Max	60 Max	75 Max	120 Max
	REGULATION, LOAD [mV]	50 Max	50 Max	90 Max	120 Max	150 Max	240 Max
	RIPPLE [mVp-p]	50 Max	50 Max	90 Max	120 Max	150 Max	240 Max
	RIPPLE, NOISE [mVp-p]	120 Max	120 Max	140 Max	170 Max	200 Max	290 Max
	TEMPERATURE DRIFT 0~+50°C [mV]	50 Max	75 Max	135 Max	180 Max	225 Max	360 Max
	RISE TIME [ms]	200 Max (AC IN 100V, $I_o=100\%$)					
	HOLDING TIME [ms]	17 typ (AC IN 100V, $I_o=100\%$)					
PROTECTION CIRCUIT	OVER CURRENT PROTECTION	Works at over 105% of rating and recovers automatically					
	OVER VOLTAGE PROTECTION	Works at 115 ~ 140% of rating					
ELECTRICALLY ISOLATED	INPUT-OUTPUT	AC 3,000V 1 minute current 20mA, DC 500V 100M Ω (At room temperature & Humidity)					
	INPUT-CASE, FG	AC 2,000V 1 minute current 20mA, DC 500V 100M Ω (At room temperature & Humidity)					
	OUTPUT-CASE, FG	AC 500V 1 minute current 100mA, DC 500V 100M Ω (At room temperature & Humidity)					
ENVIRONMENT	OPERATING TEMP AND HUMID	-10 ~ +70°C(Required Derating), 20 ~ 90% RH(Non Condensing)					
	STORAGE TEMP AND HUMID	-20 ~ +75°C, 20 ~ 90% RH(Non Condensing)					
	VIBRATION	10 ~ 55Hz at 1G, 3 minutes period, 30 minutes along X, Y and Z axis					
	IMPACT	10G for 20ms, once on each X, Y and Z axis					
SAFETY	SAFETY REGULATION	UL, C-UL, CE, CB					
	LINE CONDUCTED RF VOLTAGE	Built to meet EN55022-A					

CSF75-S EXTERNAL VIEW

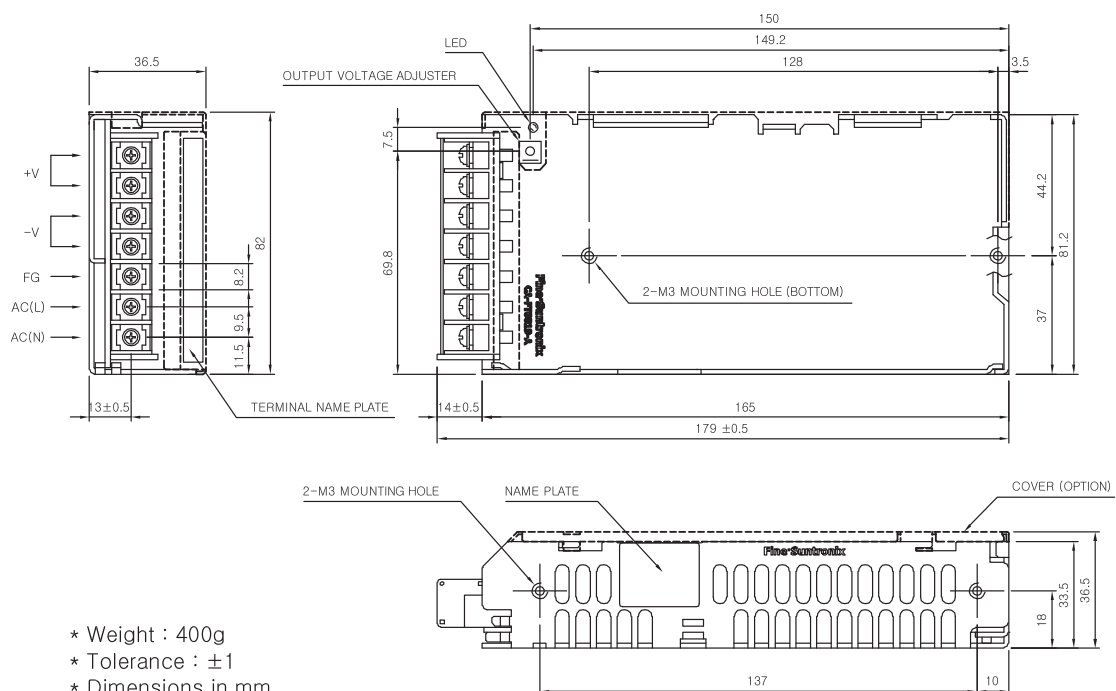


CSF100-S SPECIFICATIONS



	MODEL	CSF100-3R3	CSF100-05	CSF100-09	CSF100-12	CSF100-15	CSF100-24	CSF100-48
INPUT	VOLTAGE, FREQUENCY	AC 90V-132V / 180V-264V or DC 240V ~ 370V (Auto selectable), 50/60Hz (47 ~ 440Hz)						
	CURRENT [A]	110V	1.2 (I _o =100%)					
		220V	0.9 (I _o =100%)					
	EFFICIENCY [%]	110V	73 typ	81 typ	81 typ	83 typ	83 typ	83 typ
		220V	75 typ	83 typ	83 typ	85 typ	85 typ	86 typ
OUTPUT	INRUSH CURRENT	20A typ(AC IN 110V, I _o =100%), 40A typ(AC IN 220V, I _o =100%) at cold start.						
	VOLTAGE [V]	3.3	5	9	12	15	24	48
	CURRENT [A]	20	20	11	8.4	6.7	4.2	2.1
	REGULATION, LINE [mV]	25 Max	25 Max	45 Max	60 Max	75 Max	120 Max	240 Max
	REGULATION, LOAD [mV]	50 Max	50 Max	90 Max	120 Max	150 Max	240 Max	480 Max
	RIPPLE [mVp-p]	80 Max	80 Max	90 Max	120 Max	150 Max	240 Max	480 Max
	RIPPLE, NOISE [mVp-p]	120 Max	120 Max	140 Max	170 Max	200 Max	290 Max	530 Max
	TEMPERATURE DRIFT 0~+50°C [mV]	50 Max	75 Max	135 Max	180 Max	225 Max	360 Max	720 Max
	RISE TIME [ms]	600 Max (AC IN 85V, I _o =100%)						
	HOLDING TIME [ms]	17 typ (AC IN 85V, I _o =100%)						
PROTECTION CIRCUIT	OVER CURRENT PROTECTION	Works at over 105% of rating and recovers automatically						
	OVER VOLTAGE PROTECTION	Works at 115 ~ 140% of rating						
ELECTRICALLY ISOLATED	INPUT-OUTPUT	AC 3,000V 1 minute current 20mA, DC 500V 100MQ (At room temperature & Humidity)						
	INPUT-CASE, FG	AC 2,000V 1 minute current 20mA, DC 500V 100MQ (At room temperature & Humidity)						
	OUTPUT-CASE, FG	AC 500V 1 minute current 100mA, DC 500V 100MQ (At room temperature & Humidity)						
ENVIRONMENT	OPERATING TEMP AND HUMID	-10 ~ +70°C(Required Derating), 20 ~ 90% RH(Non Condensing)						
	STORAGE TEMPAND HUMID	-20 ~ +75°C, 20 ~ 90% RH(Non Condensing)						
	VIBRATION	10 ~ 55Hz at 1G, 3 minutes period, 30 minutes along X, Y and Z axis						
	IMPACT	10G for 20ms, once on each X, Y and Z axis						
SAFETY	SAFETY REGULATION	UL, C-UL, CE, CB						
	LINE CONDUCTED RF VOLTAGE	Built to meet EN 55022-B						

CSF100-S EXTERNAL VIEW

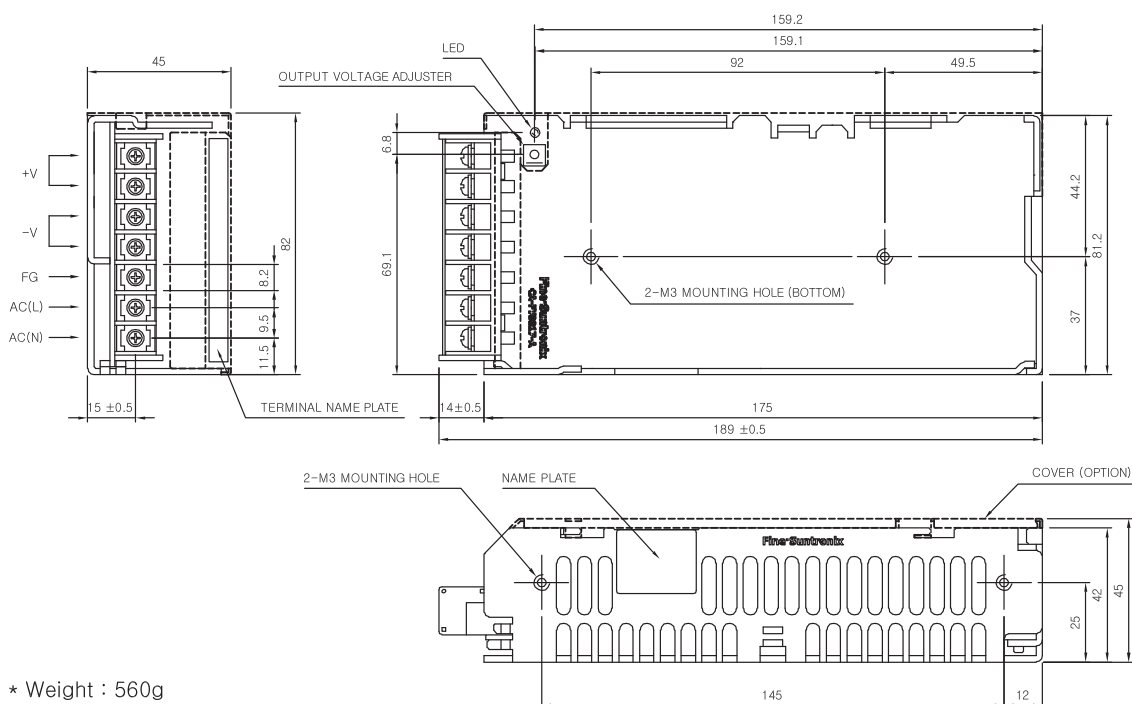


CSF150-S SPECIFICATIONS



	MODEL	CSF150-3R3	CSF150-05	CSF150-09	CSF150-12	CSF150-15	CSF150-24	CSF150-48
INPUT	VOLTAGE, FREQUENCY	AC 90V-132V / 180V-264V or DC 240V ~ 370V (Auto selectable), 50/60Hz (47 ~ 440Hz)						
	CURRENT [A]	110V	2.5 ($I_b=100\%$)					
		220V	1.5 ($I_b=100\%$)					
	EFFICIENCY [%]	110V	76 typ	80 typ	83 typ	82 typ	84 typ	84 typ
		220V	80 typ	83 typ	86 typ	85 typ	87 typ	88 typ
OUTPUT	INRUSH CURRENT	20A typ(AC IN 110V, $I_b=100\%$), 40A typ(AC IN 220V, $I_b=100\%$) at cold start.						
	VOLTAGE [V]	3.3	5	9	12	15	24	48
	CURRENT [A]	30	30	16.7	12.5	10	6.3	3.2
	REGULATION, LINE [mV]	25 Max	25 Max	45 Max	60 Max	75 Max	120 Max	240 Max
	REGULATION, LOAD [mV]	50 Max	50 Max	90 Max	120 Max	150 Max	240 Max	480 Max
	RIPPLE [mVp-p]	80 Max	80 Max	90 Max	120 Max	150 Max	240 Max	480 Max
	RIPPLE, NOISE [mVp-p]	120 Max	120 Max	140 Max	170 Max	200 Max	290 Max	530 Max
	TEMPERATURE DRIFT 0~+50°C [mV]	50 Max	75 Max	135 Max	180 Max	225 Max	360 Max	720 Max
	RISE TIME [ms]	200 Max (AC IN 100V, $I_b=100\%$)						
PROTECTION CIRCUIT	OVER CURRENT PROTECTION	Works at over 105% of rating and recovers automatically						
	OVER VOLTAGE PROTECTION	Works at 115 ~ 140% of rating						
ELECTRICALLY ISOLATED	INPUT-OUTPUT	AC 3,000V 1 minute current 20mA, DC 500V 100MΩ (At room temperature & Humidity)						
	INPUT-CASE, FG	AC 2,000V 1 minute current 20mA, DC 500V 100MΩ (At room temperature & Humidity)						
	OUTPUT-CASE, FG	AC 500V 1 minute current 100mA, DC 500V 100MΩ (At room temperature & Humidity)						
ENVIRONMENT	OPERATING TEMP AND HUMID	-10 ~ +70°C(Required Derating), 20 ~ 90% RH(Non Condensing)						
	STORAGE TEMPAND HUMID	-20 ~ +75°C, 20 ~ 90% RH(Non Condensing)						
	VIBRATION	10 ~ 55Hz at 1G, 3 minutes period, 30 minutes along X, Y and Z axis						
	IMPACT	10G for 20ms, once on each X, Y and Z axis						
SAFETY	SAFETY REGULATION	UL, C-UL, CE, CB						
	LINE CONDUCTED RF VOLTAGE	Built to meet EN55022-B						

CSF150-S EXTERNAL VIEW

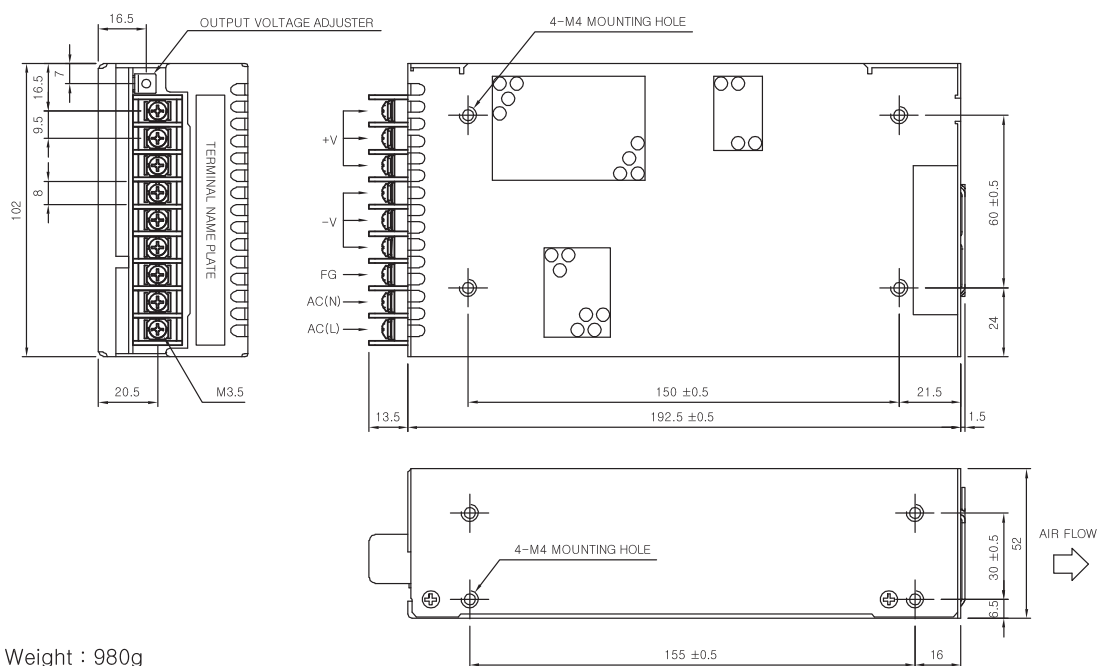


CSF300-S SPECIFICATIONS



	MODEL	CSF300-3R3	CSF300-05	CSF300-09	CSF300-12	CSF300-15	CSF300-24	CSF300-48
INPUT	VOLTAGE, FREQUENCY	AC 100-240V (AC85 ~ 264V or DC125 ~ 370V), 50/60Hz (47 ~ 63Hz), Universal input						
	CURRENT [A]	110V	2.5 (I _o =100%)					
		220V	1.3 (I _o =100%)					
	POWER FACTOR	110V	0.98					
		220V	0.92					
	EFFICIENCY [%]	110V	70 typ	78 typ	79 typ	80 typ	83 typ	84 typ
OUTPUT		220V					84 typ	85 typ
	INRUSH CURRENT	20A typ(AC IN 110V, I _o =100%), 40A typ(AC IN 220V, I _o =100%) at cold start.						
	VOLTAGE [V]	3.3	5	9	12	15	24	48
	CURRENT [A]	55	55	33.3	26	21	13	6.7
	REGULATION, LINE [mV]	25 Max	25 Max	45 Max	60 Max	75 Max	120 Max	240 Max
	REGULATION, LOAD [mV]	50 Max	50 Max	90 Max	120 Max	150 Max	240 Max	480 Max
	RIPPLE [mVp-p]	80 Max	80 Max	90 Max	120 Max	120 Max	120 Max	150 Max
	RIPPLE, NOISE [mVp-p]	120 Max	120 Max	120 Max	150 Max	150 Max	150 Max	250 Max
	TEMPERATURE DRIFT 0~+50°C [mV]	50 Max	75 Max	135 Max	180 Max	225 Max	360 Max	720 Max
	RISE TIME [ms]	500 Max (AC IN 85V, I _o =100%)						
	HOLDING TIME [ms]	17 typ (AC IN 85V, I _o =100%)						
PROTECTION CIRCUIT	OVER CURRENT PROTECTION	Works at over 105% of rating and recovers automatically						
	OVER VOLTAGE PROTECTION	Works at 115 ~ 140% of rating						
ELECTRICALLY ISOLATED	INPUT-OUTPUT	AC 3,000V 1 minute current 20mA, DC 500V 100MΩ (At room temperature & Humidity)						
	INPUT-CASE, FG	AC 2,000V 1 minute current 20mA, DC 500V 100MΩ (At room temperature & Humidity)						
	OUTPUT-CASE, FG	AC 500V 1 minute current 100mA, DC 500V 100MΩ (At room temperature & Humidity)						
ENVIRONMENT	OPERATING TEMP AND HUMID	-10 ~ +65°C(Required Derating), 20 ~ 90% RH(Non Condensing)						
	STORAGE TEMPAND HUMID	-20 ~ +75°C, 20 ~ 90% RH(Non Condensing)						
	VIBRATION	10 ~ 55Hz at 1G, 3 minutes period, 30 minutes along X, Y and Z axis						
	IMPACT	10G for 20ms, once on each X, Y and Z axis						
SAFETY	SAFETY REGULATION	UL, C-UL, CE, CB						
	LINE CONDUCTED RF VOLTAGE	Complied with FCC Part 15, VCCI-A, CISPR22-A, EN55022-A						

CSF300-S EXTERNAL VIEW



- * Weight : 980g
- * Tolerance : ±1
- * Dimensions in mm

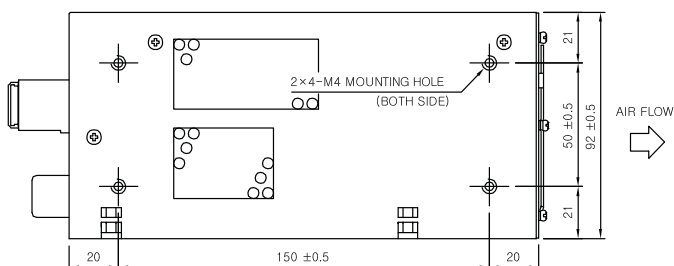
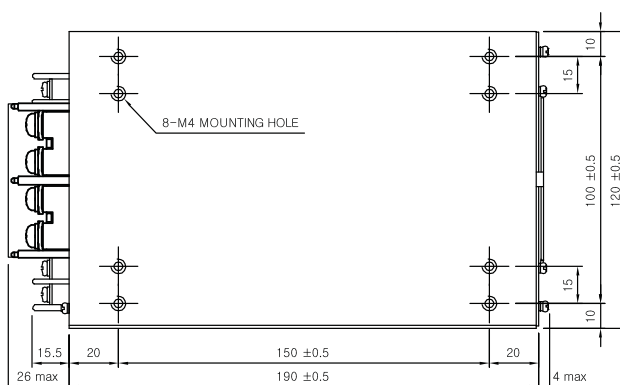
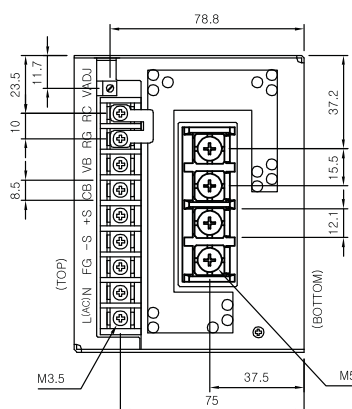
CSF600-S SPECIFICATIONS



	MODEL		CSF600-3R3	CSF600-05	CSF600-09	CSF600-12	CSF600-15	CSF600-24	CSF600-48
INPUT	VOLTAGE, FREQUENCY		AC100-240V (AC85 ~ 264V or DC120 ~ 370V), 50/60Hz (47 ~ 63Hz) Universal Input Voltage						
	CURRENT	110V	4.3 (I _o =100%)	6.6 (I _o =100%)	7.2 (I _o =100%)				
		220V	2.2 (I _o =100%)	3.3 (I _o =100%)	3.6 (I _o =100%)				
	POWER FACTOR	110V	0.98	0.98	0.99				
		220V	0.92	0.93	0.95				
	EFFICIENCY [%]	110V	69 typ	74 typ	76 typ	78 typ	79 typ	81 typ	82 typ
		220V	71 typ	77 typ	79 typ	81 typ	83 typ	84 typ	85 typ
INRUSH CURRENT		20A typ(AC IN 110V, I _o =100%), 40A typ(AC IN 220V, I _o =100%) at cold start.							
OUTPUT	VOLTAGE	[V]	3.3	5	9	12	15	24	48
	CURRENT	[A]	100	100	66.5	50	40	25	12.5
	PEAK CURRENT	[A]	120	120	66.5	50	40	25	12.5
	REGULATION, LINE	[mV]	25 Max	25 Max	45 Max	60 Max	75 Max	120 Max	240 Max
	REGULATION, LOAD	[mV]	50 Max	50 Max	90 Max	120 Max	150 Max	240 Max	480 Max
	RIPPLE	[mVp-p]	80 Max	80 Max	120 Max	120 Max	120 Max	120 Max	150 Max
	RIPPLE, NOISE	[mVp-p]	120 Max	120 Max	150 Max	150 Max	150 Max	150 Max	250 Max
	TEMPERATURE DRIFT 0~+50°C	[mV]	75 Max	75 Max	135 Max	180 Max	225 Max	360 Max	720 Max
	RISE TIME	[ms]	1000 Max (AC IN 110/220V, I _o =100%)						
HOLDING TIME	[ms]	20 typ (AC IN 110/220V, I _o =100%)							
PROTECTION CIRCUIT	OVER CURRENT PROTECTION		Works at over 105% of rating and recovers automatically						
	OVER VOLTAGE PROTECTION		Works at 115 ~ 140% of rating						
ELECTRICALLY ISOLATED	INPUT-OUTPUT		AC3,000V 1 minute current 20mA, DC 500V 100MΩ (At room temperature & Humidity)						
	INPUT-CASE, FG		AC2,000V 1 minute current 20mA, DC 500V 100MΩ (At room temperature & Humidity)						
	OUTPUT-CASE, FG		AC500V 1 minute current 100mA, DC 500V 100MΩ (At room temperature & Humidity)						
ENVIRONMENT	OPERATING TEMP AND HUMID		-10 ~ +65°C(Required Derating), 20 ~ 90% RH(Non Condensing)						
	STORAGE TEMPAND HUMID		-20 ~ +75°C, 20 ~ 90% RH(Non Condensing)						
	VIBRATION		10 ~ 55Hz at 1G, 3 minutes period, 30 minutes along X, Y and Z axis						
	IMPACT		10G for 20ms, once on each X, Y and Z axis						
SAFETY	SAFETY REGULATION		UL, C-UL, CE, CB						
	LINE CONDUCTED RF VOLTAGE		Complied with FCC Part 15, VCCI-A, CISPR22-A, EN55022-A						
	HARMONIC ATTENUAOR		Complied with IEC61000-3-2						

※ Peak current is less than 5 sec. (Duty ≤ 0.35)

CSF600-S EXTERNAL VIEW



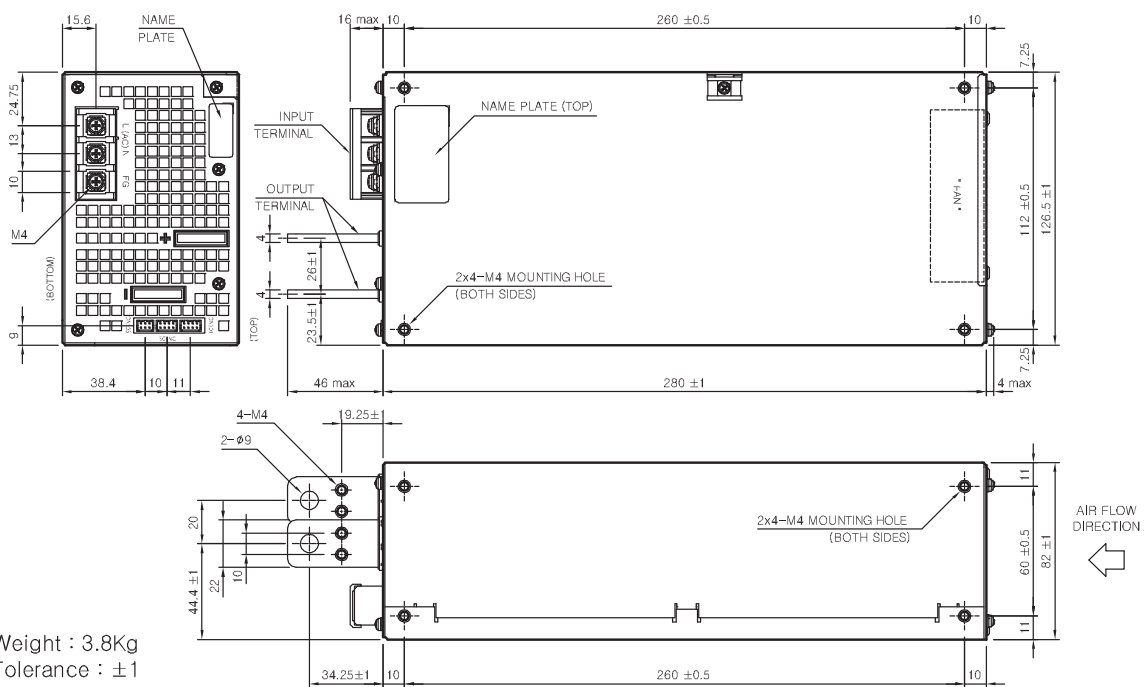
- * Weight : 2.0Kg
- * Tolerance : ± 1
- * Dimensions in mm

CSF1500-S SPECIFICATIONS



	MODEL		CSF1500-05	CSF1500-09	CSF1500-12	CSF1500-15	CSF1500-24	CSF1500-48	
INPUT	VOLTAGE, FREQUENCY		AC100-240V (AC90 ~ 264V or DC127 ~ 370V), 50/60Hz (47 ~ 63Hz or DC), Universal input voltage						
	CURRENT	[A]	110V	14 (I _o =100%)	15 (I _o =100%)	16 (I _o =100%)			
			220V	7 (I _o =100%)	7.5 (I _o =100%)	7.8 (I _o =100%)			
	POWER FACTOR		110V	0.98					
			220V	0.95					
	EFFICIENCY	[%]	110V	78 typ	82 typ	83 typ	83 typ	86 typ	87 typ
			220V	80 typ	85 typ	87 typ	87 typ	90 typ	91 typ
INRUSH CURRENT			30A typ(AC IN 110V, I _o =100%), 60A typ(AC IN 220V, I _o =100%) at cold start.						
OUTPUT	VOLTAGE	[V]	5	9	12	15	24	48	
	CURRENT	[A]	240	150	125	100	63	32	
	REGULATION, LINE	[mV]	25 Max	45 Max	60 Max	75 Max	120 Max	240 Max	
	REGULATION, LOAD	[mV]	100 Max	45 Max	60 Max	75 Max	120 Max	240 Max	
	RIPPLE	[mVp-p]	120 Max	120 Max	120 Max	120 Max	120 Max	180 Max	
	RIPPLE, NOISE	[mVp-p]	150 Max	150 Max	150 Max	150 Max	150 Max	200 Max	
	TEMPERATURE DRIFT 0~+50°C	[mV]	75 Max	135 Max	180 Max	225 Max	360 Max	740 Max	
	RISE TIME	[ms]	1500 typ, 100 typ (AC IN 110/220V, I _o =100%)						
	HOLDING TIME	[ms]	10 typ (AC IN 110V, I _o =100%), 15 typ (AC IN 220V, I _o =100%)						
PROTECTION CIRCUIT	OVER CURRENT PROTECTION		Works at over 105% of rating and recovers automatically Protection type: Constant current limiting unit will shut down o/p voltage after 5sec. Re-power on to recover						
	OVER VOLTAGE PROTECTION		Works at 115%~140% of rating Protection type : Shut down o/p voltage, re-power on to recover						
ELECTRICALLY ISOLATED	INPUT-OUTPUT		AC 3,000V 1 minute current 20mA, DC 500V 100MΩ (At room temperature & Humidity)						
	INPUT-CASE, FG		AC 2,000V 1 minute current 20mA, DC 500V 100MΩ (At room temperature & Humidity)						
	OUTPUT-CASE, FG		AC 500V 1 minute current 100mA, DC 500V 100MΩ (At room temperature & Humidity)						
ENVIRONMENT	OPERATING TEMP AND HUMID		-10 ~ +70°C(Required Derating), 20 ~ 90% RH(Non Condensing)						
	STORAGE TEMPAND HUMID		-20 ~ +85°C, 20 ~ 90% RH(Non Condensing)						
	VIBRATION		10 ~ 55Hz at 1G, 3 minutes period, 30 minutes along X, Y and Z axis						
	IMPACT		10G for 20ms, once on each X, Y and Z axis						
SAFETY	SAFETY REGULATION		UL, C-UL, CE, CB						
	LINE CONDUCTED RF VOLTAGE		Complied with EN55022-A						

CSF1500-S EXTERNAL VIEW



- * Weight : 3.8Kg
- * Tolerance : ±1
- * Dimensions in mm

ORDERING INFORMATION

CSF15-BDW

Series name

Total output wattage

Output voltage combination

- Inrush current limit
- Short circuit protection
- Over voltage protection
- CH1 isolated from CH2
- Over current protection
- 4 years warranty

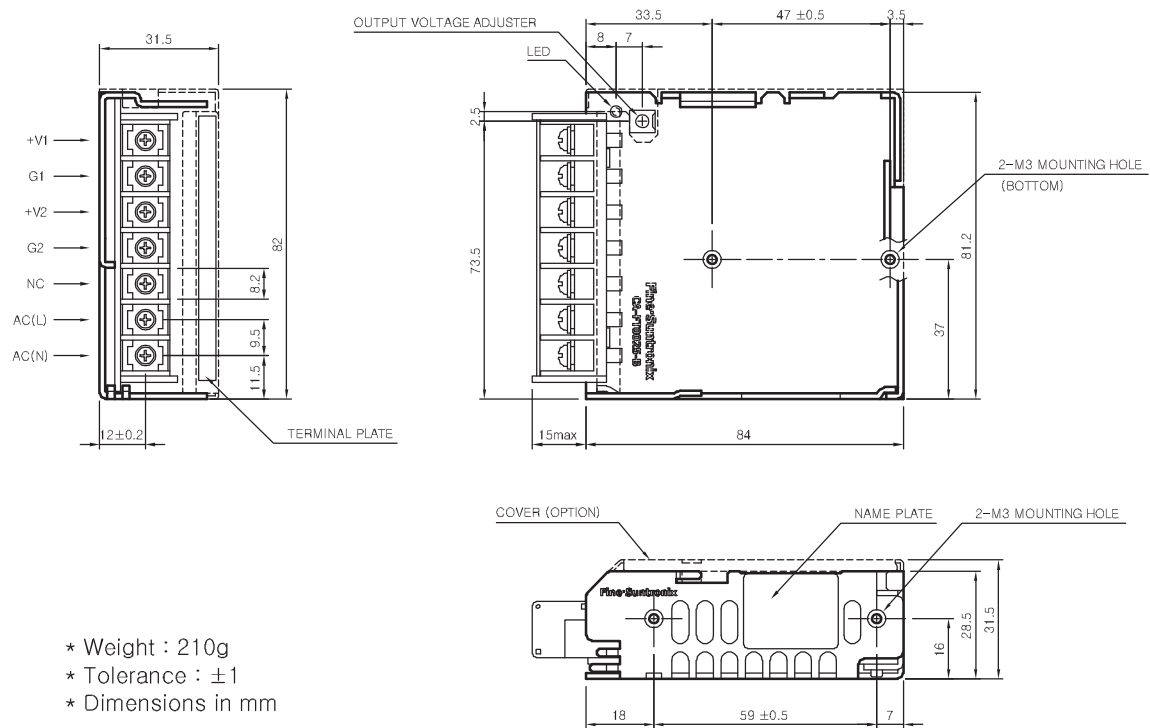


CSF15-DUAL SPECIFICATIONS



	MODEL		CSF15-BDW		CSF15-DDW		CSF15-EEW		
INPUT	VOLTAGE, FREQUENCY		AC100-240V (AC 85 ~ 264V or DC 120 ~ 370V), 50/60Hz (47 ~ 440Hz), Universal input						
	CURRENT	[A]	110V	0.4 (I _o =100%)					
			220V	0.25 (I _o =100%)					
	EFFICIENCY	[%]	110V	68 typ		70 typ		70 typ	
			220V	67 typ		79 typ		69 typ	
INRUSH CURRENT			20A typ (AC IN 110V, I _o =100%), 40A typ (AC IN 220V, I _o =100%) at cold start.						
OUTPUT	VOLTAGE	[V]	5	12	12	12	15	15	
	CURRENT	[A]	0.1 ~ 2	0.5	0.1 ~ 0.7	0.7	0.1 ~ 0.5	0.5	
	REGULATION, LINE	[mV]	25 Max	120 Max	60 Max	120 Max	75 Max	150 Max	
	REGULATION, LOAD	[mV]	50 Max	120 Max	120 Max	120 Max	150 Max	150 Max	
	RIPPLE	[mVp-p]	80 Max	120 Max	120 Max	120 Max	120 Max	120 Max	
	RIPPLE, NOISE	[mVp-p]	120 Max	150 Max	150 Max	150 Max	150 Max	150 Max	
	TEMPERATURE DRIFT 0~+50°C	[mV]	75 Max	180 Max	180 Max	180 Max	225 Max	225 Max	
	RISE TIME	[ms]	800 Max (AC IN 100V I _o =100%)						
	HOLDING TIME	[ms]	17 typ (AC IN 100V I _o =100%)						
PROTECTION CIRCUIT	OVER CURRENT PROTECTION		Works at over 110% of rating and recovers automatically						
	OVER VOLTAGE PROTECTION		Works at 115 ~ 140% of rating (except for CH2)						
ELECTRICALLY ISOLATED	INPUT-OUTPUT		AC 3,000V 1 minute current 20mA, DC 500V 100MΩ (At room temperature & Humidity)						
	INPU-FG		AC 2,000V 1 minute current 20mA, DC 500V 100MΩ (At room temperature & Humidity)						
	OUTPUT-FG		AC 500V 1 minute current 100mA, DC 500V 100MΩ (At room temperature & Humidity)						
ENVIRONMENT	OPERATING TEMP AND HUMID		-10 ~ +70°C(Required Derating), 20 ~ 90% RH (Non Condensing)						
	STORAGE TEMP AND HUMID		-20 ~ +75°C, 20 ~ 90% RH (Non condensing)						
	VIBRATION		10 ~ 55Hz at 1G, 3 minutes period, 30 minutes along X, Y and Z axis						
	IMPACT		10G for 20ms, once on each X, Y and Z axis						
SAFETY EMISSION PFHC	SAFETY REGULATION		CE, CB		CE, CB		CE, CB		
	LINE CONDUCTED RF VOLTAGE		Complied with EN55022-A, VL60950-1, EN60950-1						

CSF15-DUAL EXTERNAL VIEW



General Information

Switching Mode Power Supply

DC-DC Converter

Noise Filter

Solid State Relay

AC FAN Motor

Power Module

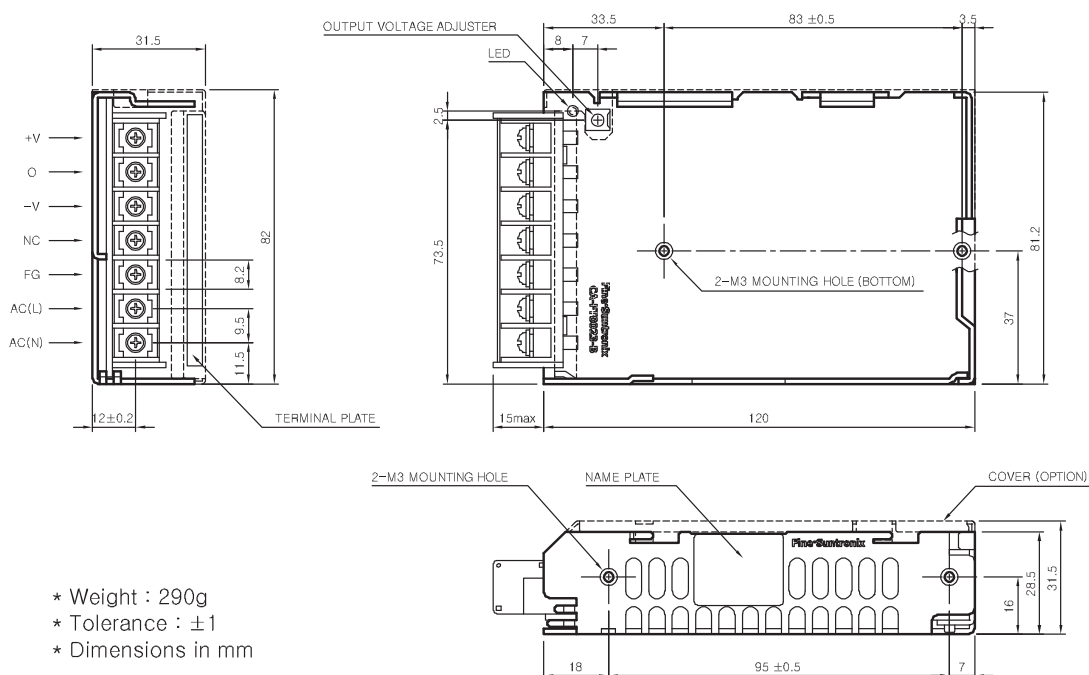
Discrete Semiconductors

CSF30-DUAL SPECIFICATIONS



	MODEL		CSF30-BDW		CSF30-BHW		CSF30-BBW		CSF30-DDW		CSF30-EEW		
INPUT	VOLTAGE, FREQUENCY		AC 100-240V (AC 85 ~ 264V or DC120 ~ 370V), 50/60Hz (47 ~ 440Hz), Universal input										
	CURRENT	[A]	110V	0.65 (I _o =100%)									
		220V	0.35 (I _o =100%)										
	EFFICIENCY	[%]	110V	71 typ	74 typ	74 typ	77 typ	78 typ					
			220V	72 typ	73 typ	72 typ	76 typ	77 typ					
INRUSH CURRENT			20A typ (AC IN 110V, I _o =100%), 40A typ (AC IN 220V, I _o =100%) at cold start.										
OUTPUT	VOLTAGE	[V]	5	12	5	24	5	5	12	12	15	15	
	CURRENT	[A]	0.3 ~ 3	1.3	0.3 ~ 3	0.6	2	2	1.3	1.3	1	1	
	REGULATION, LINE	[mV]	25 Max	120 Max	25 Max	240 Max	25 Max	25 Max	60 Max	60 Max	75 Max	75 Max	
	REGULATION, LOAD	[mV]	50 Max	120 Max	50 Max	240 Max	50 Max	50 Max	120 Max	120 Max	150 Max	150 Max	
	RIPPLE	[mVp-p]	80 Max	120 Max	80 Max	120 Max	80 Max	80 Max	120 Max	120 Max	120 Max	120 Max	
	RIPPLE, NOISE	[mVp-p]	120 Max	150 Max	120 Max	150 Max	120 Max	120 Max	150 Max	150 Max	150 Max	150 Max	
	TEMPERATURE DRIFT 0~+50°C	[mV]	75 Max	180 Max	75 Max	360 Max	75 Max	75 Max	180 Max	180 Max	225 Max	225 Max	
	RISE TIME	[ms]	800 Max (AC IN 100V I _o =100%)										
	HOLDING TIME	[ms]	16 typ (AC IN 100V I _o =100%)										
PROTECTION CIRCUIT	OVER CURRENT PROTECTION		Works at over 105% of rating and recovers automatically										
	OVER VOLTAGE PROTECTION		Works at 115 ~ 140% of rating										
ELECTRICALLY ISOLATED	INPUT-OUTPUT		AC 3,000V 1 minute current 20mA, DC 500V 100MΩ (At room temperature & Humidity)										
	INPUT-FG		AC 2,000V 1 minute current 20mA, DC 500V 100MΩ (At room temperature & Humidity)										
	OUTPUT-FG		AC 500V 1 minute current 100mA, DC 500V 100MΩ (At room temperature & Humidity)										
ENVIRONMENT	OPERATING TEMP AND HUMID		-10 ~ +70°C(Required Derating), 20 ~ 90% RH (Non Condensing)										
	STORAGE TEMPAND HUMID		-20 ~ +75°C, 20 ~ 90% RH (Non condensing)										
	VIBRATION		10 ~ 55Hz at 1G, 3 minutes period, 30 minutes along X, Y and Z axis										
	IMPACT		10G for 20ms, once on each X, Y and Z axis										
SAFETY EMISSION PFHC	SAFETY REGULATION		CE, CB		CE, CB		CE, CB		CE, CB		CE, CB		
	LINE CONDUCTED RF VOLTAGE		Complied with EN55022-A										

CSF30-DUAL EXTERNAL VIEW

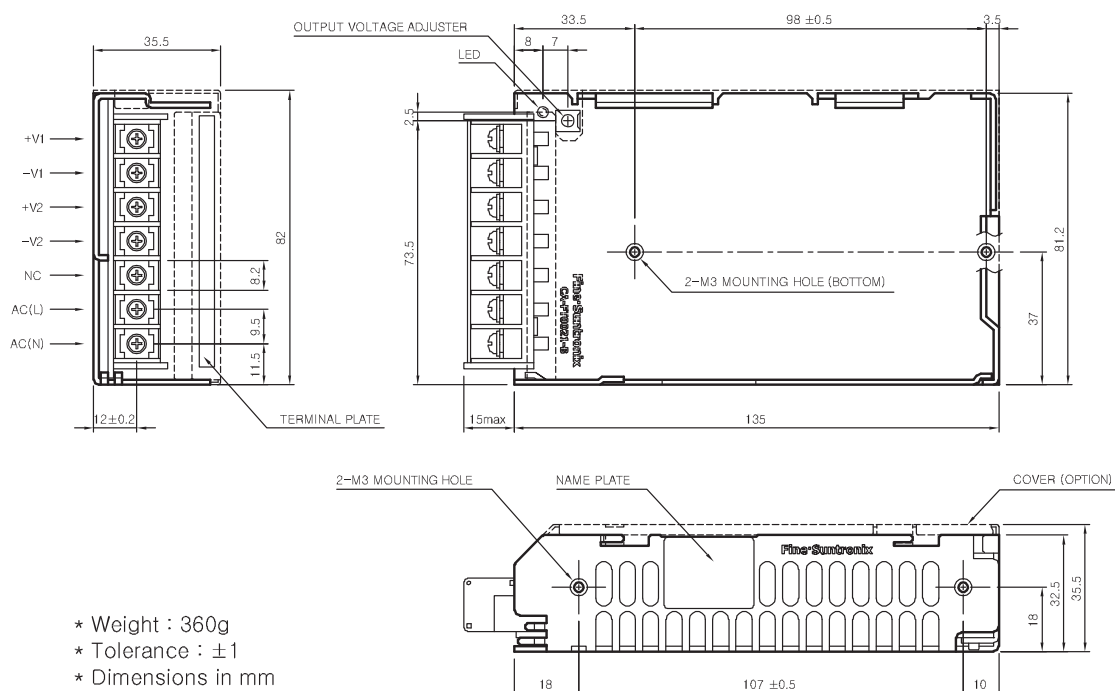


CSF50-DUAL SPECIFICATIONS



	MODEL		CSF50-BDW	CSF50-BEW	CSF50-BHW	CSF50-DDW	CSF50-EEW					
INPUT	VOLTAGE, FREQUENCY		AC100-240V (AC85 ~ 264V or DC120 ~ 370V), 50/60Hz (47 ~ 440Hz), Universal input									
	CURRENT	[A]	110V	1.2A typ (I _o =100%)								
			220V	0.7A typ (I _o =100%)								
	EFFICIENCY	[%]	110V	75 typ	76 typ	77 typ	77 typ	77 typ				
			220V									
INRUSH CURRENT			20A typ (AC IN 110V, I _o =100%), 40A typ (AC IN 220V, I _o =100%) at cold start.									
OUTPUT	VOLTAGE	[V]	5	12	5	15	5	24	12	12	15	15
	CURRENT	[A]	0.5 ~ 5	2	0.5 ~ 5	1.7	0.5 ~ 5	1	0.1 ~ 2.5	1.5	0.1 ~ 2	1.5
	REGULATION, LINE	[mV]	50 Max	120 Max	50 Max	150 Max	50 Max	240 Max	120 Max	120 Max	150 Max	150 Max
	REGULATION, LOAD	[mV]	100 Max	240 Max	100 Max	210 Max	100 Max	480 Max	240 Max	240 Max	300 Max	300 Max
	RIPPLE	[mVp-p]	80 Max	120 Max	80 Max	120 Max	80 Max	150 Max	120 Max	120 Max	120 Max	120 Max
	RIPPLE, NOISE	[mVp-p]	120 Max	150 Max	120 Max	150 Max	120 Max	250 Max	150 Max	150 Max	150 Max	150 Max
	TEMPERATURE DRIFT 0~+50°C	[mV]	75 Max	180 Max	75 Max	225 Max	75 Max	360 Max	180 Max	180 Max	225 Max	225 Max
	RISE TIME	[ms]	1000 Max (AC IN 100V I _o =100%)									
	HOLDING TIME	[ms]	17 typ (AC IN 100V I _o =100%)									
PROTECTION CIRCUIT	OVER CURRENT PROTECTION		Works at over 105% of rating and recovers automatically									
	OVER VOLTAGE PROTECTION		Works at 115 ~ 140% of rating									
ELECTRICALLY ISOLATED	INPUT-OUTPUT		AC 3,000V 1 minute current 20mA, DC 500V 100MΩ (At room temperature & Humidity)									
	INPUT-FG		AC 2,000V 1 minute current 20mA, DC 500V 100MΩ (At room temperature & Humidity)									
	OUTPUT-FG		AC 500V 1 minute current 100mA, DC 500V 100MΩ (At room temperature & Humidity)									
ENVIRONMENT	OPERATING TEMP AND HUMID		-10 ~ +70°C(Required Derating), 20 ~ 90% RH (Non Condensing)									
	STORAGE TEMPAND HUMID		-20 ~ +75°C, 20 ~ 90% RH (Non condensing)									
	VIBRATION		10 ~ 55Hz at 1G, 3 minutes period, 30 minutes along X, Y and Z axis									
	IMPACT		10G for 20ms, once on each X, Y and Z axis									
SAFETY EMISSION PFHC	SAFETY REGULATION		CE, CB		CE, CB		CE, CB		CE, CB		CE, CB	
	LINE CONDUCTED RF VOLTAGE		Built to meet EN55022-B									

CSF50-DUAL EXTERNAL VIEW

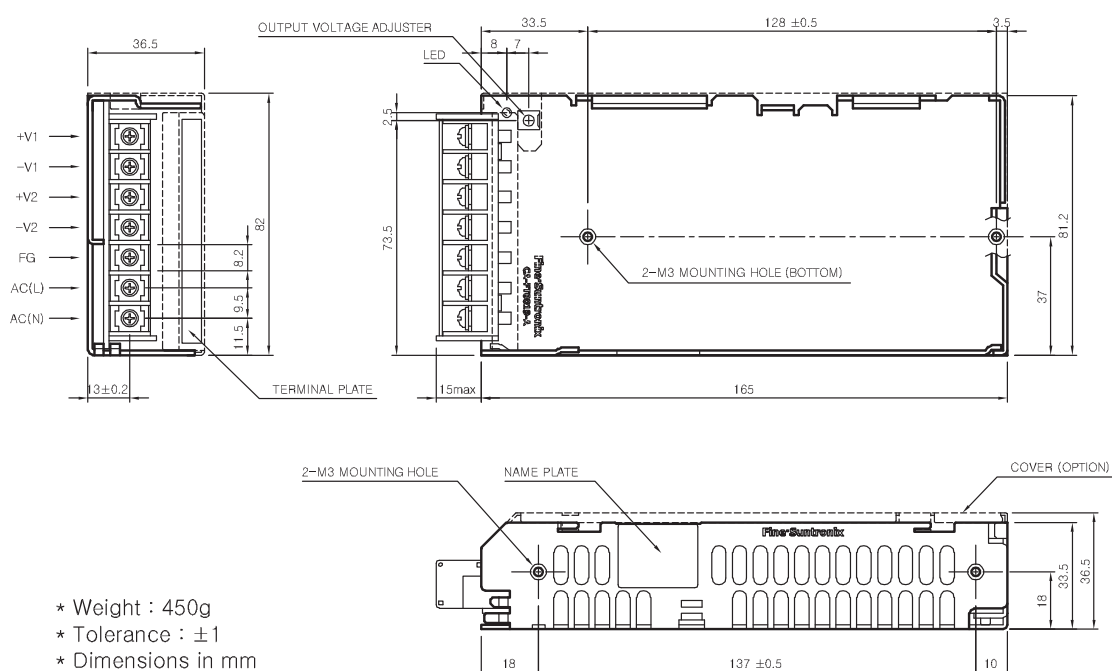


CSF75-DUAL SPECIFICATIONS



	MODEL		CSF75-BDW		CSF75-BHW	
INPUT	VOLTAGE, FREQUENCY		AC85V ~ 132V / 180V ~ 264V or DC 240V ~ 370V, 50/60Hz (47 ~ 440Hz), Auto Selectable			
	CURRENT [A]	110V	1.8 (I _o =100%)			
		220V	1.0 (I _o =100%)			
	EFFICIENCY [%]	110V	75 typ		75 typ	
		220V				
INRUSH CURRENT			20A typ (AC IN 110V, I _o =100%), 40A typ (AC IN 220V, I _o =100%) at cold start.			
OUTPUT	VOLTAGE [V]	5	12	5	24	
	CURRENT [A]	0.6 ~ 6.0	0 ~ 3.5	0.6 ~ 6.0	2.0	
	REGULATION, LINE [mV]	25 Max	60 Max	25 Max	120 Max	
	REGULATION, LOAD [mV]	50 Max	120 Max	50 Max	240 Max	
	RIPPLE [mVp-p]	80 Max	120 Max	80 Max	120 Max	
	RIPPLE, NOISE [mVp-p]	120 Max	150 Max	120 Max	150 Max	
	TEMPERATURE DRIFT 0~+50°C [mV]	75 Max	180 Max	75 Max	360 Max	
	RISE TIME [ms]	500 Max (AC IN 100V IMQ=100%)				
HOLDING TIME [ms]		17 typ (AC IN 100V I _o =100%)				
PROTECTION CIRCUIT	OVER CURRENT PROTECTION		Works at over 110% of rating and recovers automatically			
	OVER VOLTAGE PROTECTION		Works at 115 ~ 140% of rating (except for CH1)			
ELECTRICALLY ISOLATED	INPUT-OUTPUT		AC 3,000V 1 minute current 20mA, DC 500V 100MΩ (At room temperature & Humidity)			
	INPUT-FG		AC 2,000V 1 minute current 20mA, DC 500V 100MΩ (At room temperature & Humidity)			
	OUTPUT-FG		AC 500V 1 minute current 100mA, DC 500V 100MΩ (At room temperature & Humidity)			
ENVIRONMENT	OPERATING TEMP AND HUMID		-10 ~ +70°C(Required Derating), 20 ~ 90% RH (Non Condensing)			
	STORAGE TEMPAND HUMID		-20 ~ +75°C, 20 ~ 90% RH (Non condensing)			
	VIBRATION		10 ~ 55Hz at 1G, 3 minutes period, 30 minutes along X, Y and Z axis			
	IMPACT		10G for 20ms, once on each X, Y and Z axis			
SAFETY EMISSION PFHC	SAFETY REGULATION		CE, CB		CE, CB	
	LINE CONDUCTED RF VOLTAGE					

CSF75-DUAL EXTERNAL VIEW

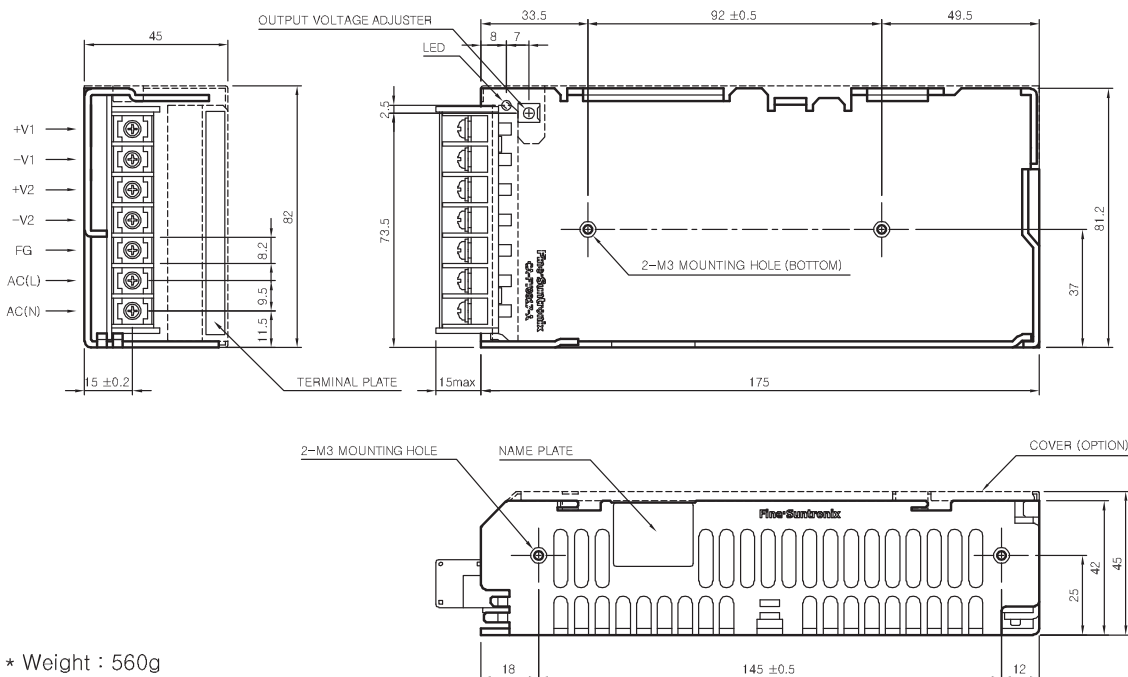


CSF100-DUAL SPECIFICATIONS



	MODEL		CSF100-BDW		CSF100-BHW		
INPUT	VOLTAGE, FREQUENCY		AC85V ~ 132V / 180V ~ 264V or DC240V ~ 370V, 50/60Hz(440Hz), Auto Selectable				
	CURRENT	[A]	110V	2.4 (I _o =100%)			
			220V	1.4 (I _o =100%)			
	EFFICIENCY	[%]	110V	75		75	
			220V				
INRUSH CURRENT			20A typ (AC IN 110V, I _o =100%), 40A typ (AC IN 220V, I _o =100%) at cold start.				
OUTPUT	VOLTAGE	[V]	5	12	5	24	
	CURRENT	[A]	1 ~ 10	4	1 ~ 10	2	
	REGULATION, LINE	[mV]	25 Max	60 Max	25 Max	120 Max	
	REGULATION, LOAD	[mV]	50 Max	120 Max	50 Max	240 Max	
	RIPPLE	[mVp-p]	80 Max	120 Max	80 Max	120 Max	
	RIPPLE, NOISE	[mVp-p]	120 Max	150 Max	120 Max	150 Max	
	TEMPERATURE DRIFT 0~+50°C	[mV]	75 Max	180 Max	75 Max	360 Max	
	RISE TIME	[ms]	500 Max (AC IN 100V I _o =100%)				
	HOLDING TIME	[ms]	17 typ (AC IN 100V I _o =100%)				
PROTECTION CIRCUIT	OVER CURRENT PROTECTION		Works at over 110% of rating and recovers automatically				
	OVER VOLTAGE PROTECTION		Works at 115 ~ 140% of rating (except for CH1)				
ELECTRICALLY ISOLATED	INPUT-OUTPUT		AC 3,000V 1 minute current 20mA, DC 500V 100MΩ (At room temperature & Humidity)				
	INPUT-FG		AC 2,000V 1 minute current 20mA, DC 500V 100MΩ (At room temperature & Humidity)				
	OUTPUT-FG		AC 500V 1 minute current 100mA, DC 500V 100MΩ (At room temperature & Humidity)				
ENVIRONMENT	OPERATING TEMP AND HUMID		-10 ~ +70°C(Required Derating), 20 ~ 90% RH (Non Condensing)				
	STORAGE TEMPAND HUMID		-20 ~ +75°C, 20 ~ 90% RH (Non condensing)				
	VIBRATION		10 ~ 55Hz at 1G, 3 minutes period, 30 minutes along X, Y and Z axis				
	IMPACT		10G for 20ms, once on each X, Y and Z axis				
SAFETY EMISSION PFHC	SAFETY REGULATION		CE, CB		CE, CB		
	LINE CONDUCTED RF VOLTAGE						

CSF100-DUAL EXTERNAL VIEW



- * Weight : 560g
- * Tolerance : ±1
- * Dimensions in mm

ORDERING INFORMATION

CSF15-DD

Series name

Total output wattage

Output voltage combination

- Inrush current limit
- Short circuit protection
- Over voltage protection
- CH1 isolated from CH2, 3
- Over current protection
- 4 years warranty

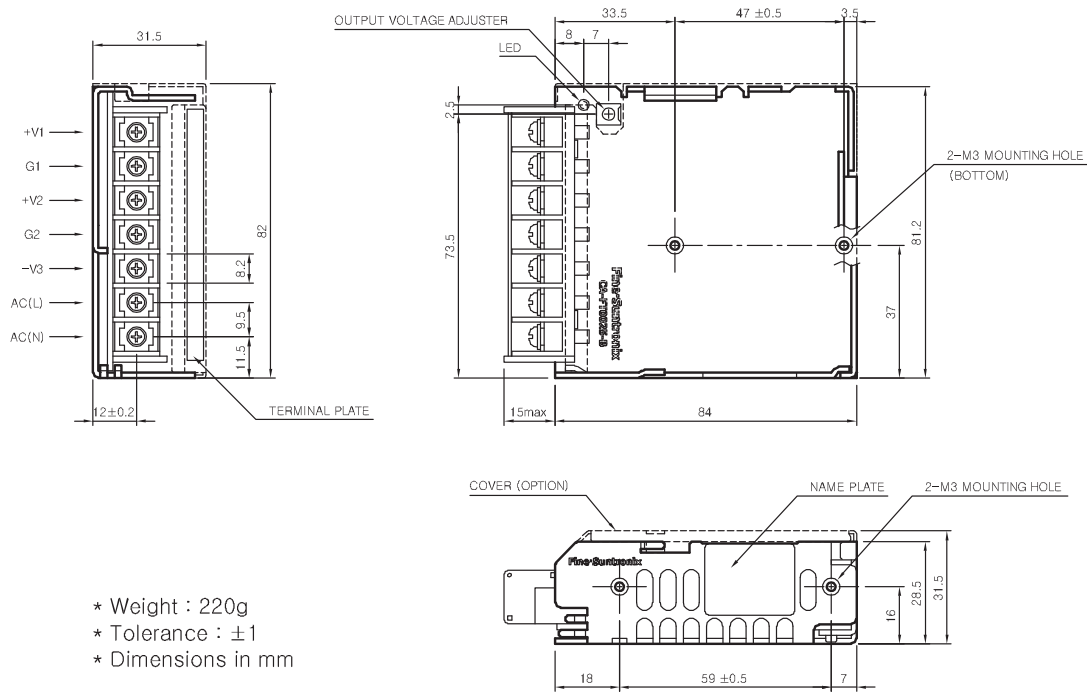


CSF15-TRIPLE SPECIFICATIONS



	MODEL		CSF15-DD			CSF15-EE		
INPUT	VOLTAGE, FREQUENCY		AC100-240V (AC 85 ~ 264V or DC120 ~ 370V), 50/60Hz (47 ~ 440Hz or DC), Universal input voltage					
	CURRENT	[A]	110V	0.4 (I _o =100%)				
			220V	0.25 (I _o =100%)				
	EFFICIENCY	[%]	110V	69 typ			68 typ	
			220V	67 typ			67 typ	
INRUSH CURRENT			20A typ (AC IN 110V, I _o =100%), 40A typ (AC IN 220V, I _o =100%) at cold start.					
OUTPUT	VOLTAGE	[V]	5	12	12	5	15	15
	CURRENT	[A]	0.1 ~ 2	0.3	0.2	0.1 ~ 2	0.7	0.2
	REGULATION, LINE	[mV]	25 Max	120 Max	120 Max	25 Max	150 Max	150 Max
	REGULATION, LOAD	[mV]	50 Max	120 Max	120 Max	50 Max	150 Max	150 Max
	RIPPLE	[mVp-p]	80 Max	120 Max	120 Max	80 Max	120 Max	120 Max
	RIPPLE, NOISE	[mVp-p]	120 Max	150 Max	150 Max	120 Max	150 Max	150 Max
	TEMPERATURE DRIFT 0~+50°C	[mV]	75 Max	180 Max	180 Max	75 Max	225 Max	225 Max
	RISE TIME	[ms]	800 Max (AC IN 110V I _o =100%)					
	HOLDING TIME	[ms]	16 typ (AC IN 110V I _o =100%)					
PROTECTION CIRCUIT	OVER CURRENT PROTECTION		Works at over 110% of rating and recovers automatically					
	OVER VOLTAGE PROTECTION		Works at 115 ~ 140% of rating (except for CH2, CH3)					
ELECTRICALLY ISOLATED	INPUT-OUTPUT		AC 3,000V 1 minute current 20mA, DC 500V 100MΩ (At room temperature & Humidity)					
	INPUT-FG		AC 2,000V 1 minute current 20mA, DC 500V 100MΩ(At room temperature & Humidity)					
	OUTPUT-FG		AC 500V 1 minute current 100mA, DC 500V 100MΩ (At room temperature & Humidity)					
ENVIRONMENT	OPERATING TEMP AND HUMID		-10 ~ +70°C(Required Derating), 20 ~ 90% RH (Non Condensing)					
	STORAGE TEMP AND HUMID		-20 ~ +75°C, 20 ~ 90% RH (Non condensing)					
	VIBRATION		10 ~ 55Hz at 1G, 3 minutes period, 30 minutes along X, Y and Z axis					
	IMPACT		10G for 20ms, once on each X, Y and Z axis					
SAFETY EMISSION PFC	SAFETY REGULATION		CE, CB			CE, CB		
	LINE CONDUCTED RF VOLTAGE		Complied with EN55022-A, VL60950-1, EN60950-1					

CSF15-TRIPLE EXTERNAL VIEW



General Information

Switching Mode Power Supply

DC-DC Converter

Noise Filter

Solid State Relay

AC FAN Motor

Power Module

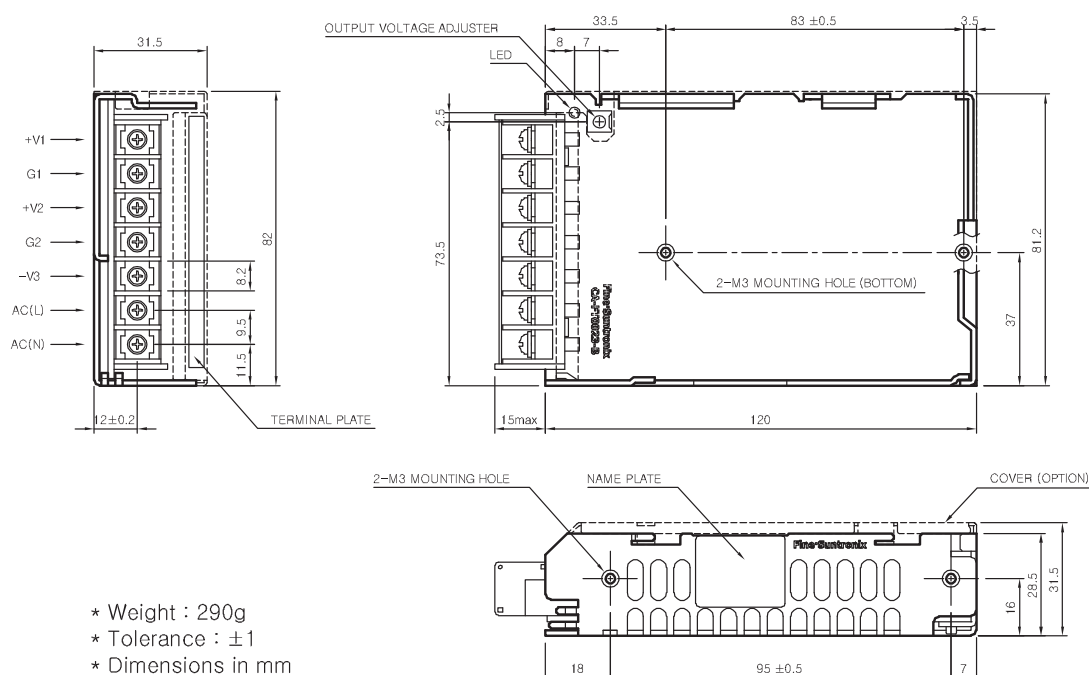
Discrete Semiconductors

CSF30-TRIPLE SPECIFICATIONS



	MODEL		CSF30-DD			CSF30-EE		
INPUT	VOLTAGE, FREQUENCY		AC100-240V (AC 85 ~ 264V or DC 120 ~ 370V), 50/60Hz (47 ~ 440Hz), Universal input voltage					
	CURRENT	[A]	110V	0.65 (I _o =100%)				
			220V	0.35 (I _o =100%)				
	EFFICIENCY	[%]	110V	71 typ			73 typ	
			220V	71 typ			73 typ	
INRUSH CURRENT			20A typ (AC IN 110V, I _o =100%), 40A typ (AC IN 220V, I _o =100%) at cold start.					
OUTPUT	VOLTAGE	[V]	5	12	12	5	15	15
	CURRENT	[A]	0.3 ~ 3	1.0	0.3	0.3 ~ 3	0.8	0.2
	REGULATION, LINE	[mV]	25 Max	120 Max	120 Max	25 Max	150 Max	150 Max
	REGULATION, LOAD	[mV]	50 Max	120 Max	120 Max	50 Max	150 Max	150 Max
	RIPPLE	[mVp-p]	80 Max	120 Max	120 Max	80 Max	120 Max	120 Max
	RIPPLE, NOISE	[mVp-p]	120 Max	150 Max	150 Max	120 Max	150 Max	150 Max
	TEMPERATURE DRIFT 0~+50°C	[mV]	75 Max	180 Max	180 Max	75 Max	225 Max	225 Max
	RISE TIME	[ms]	800 Max (AC IN 100V I _o =100%)					
HOLDING TIME		[ms]	16 typ (AC IN 100V I _o =100%)					
PROTECTION CIRCUIT	OVER CURRENT PROTECTION		Works at over 105% of rating and recovers automatically					
	OVER VOLTAGE PROTECTION		Works at 115 ~ 140% of rating					
ELECTRICALLY ISOLATED	INPUT-OUTPUT		AC 3,000V 1 minute current 20mA, DC 500V 100MΩ (At room temperature & Humidity)					
	INPUT-FG		AC 2,000V 1 minute current 20mA, DC 500V 100MΩ (At room temperature & Humidity)					
	OUTPUT-FG		AC 500V 1 minute current 100mA, DC 500V 100MΩ (At room temperature & Humidity)					
ENVIRONMENT	OPERATING TEMP AND HUMID		-10 ~ +70°C(Required Derating), 20 ~ 90% RH (Non Condensing)					
	STORAGE TEMP AND HUMID		-20 ~ +75°C, 20 ~ 90% RH (Non condensing)					
	VIBRATION		10 ~ 55Hz at 1G, 3 minutes period, 30 minutes along X, Y and Z axis					
	IMPACT		10G for 20ms, once on each X, Y and Z axis					
SAFETY EMISSION PFHC	SAFETY REGULATION		CE, CB			CE, CB		
	LINE CONDUCTED RF VOLTAGE		Complied with EN55022-A					

CSF30-TRIPLE EXTERNAL VIEW

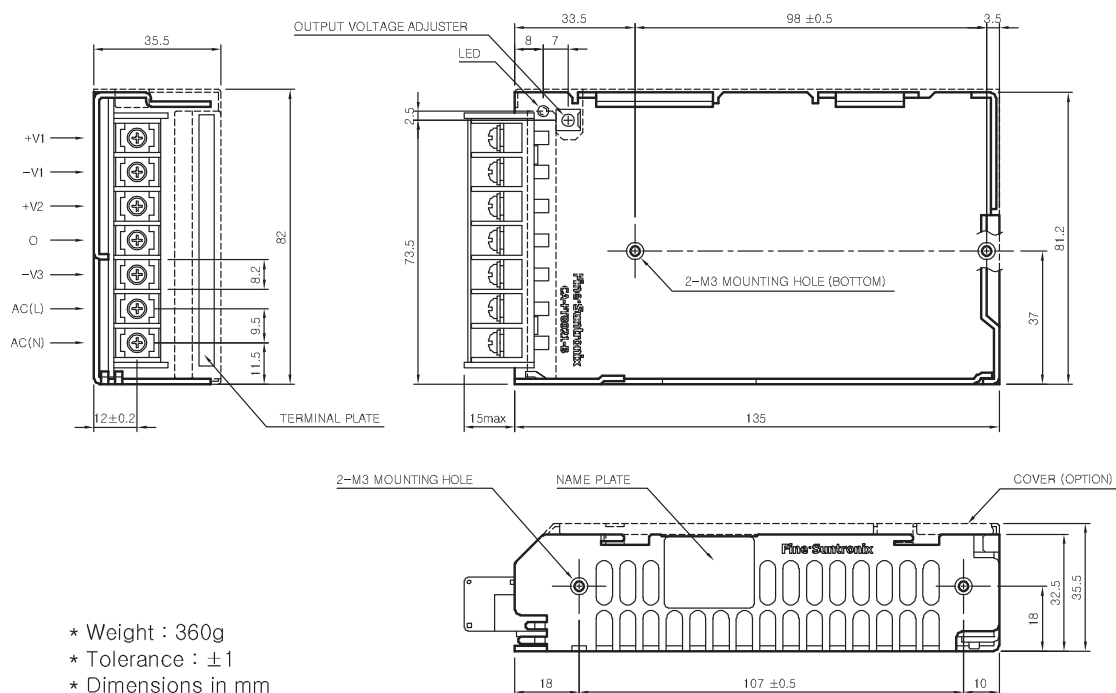


CSF50-TRIPLE SPECIFICATIONS



	MODEL		CSF50-DD			CSF50-EE		
INPUT	VOLTAGE, FREQUENCY		AC100-240V (AC85 ~ 264V or DC120 ~ 370V), 50/60Hz (47 ~ 440Hz), Universal input voltage					
	CURRENT	[A]	110V	1.2 (I _o =100%),				
			220V	0.7 (I _o =100%)				
	EFFICIENCY	[%]	110V	75 typ			75 typ	
			220V					
INRUSH CURRENT			20A typ (AC IN 110V, I _o =100%), 40A typ (AC IN 220V, I _o =100%) at cold start.					
OUTPUT	VOLTAGE	[V]	5	12	-12	5	15	-15
	CURRENT	[A]	0.5 ~ 5	1.8	0.3	0.5 ~ 5	1.4	0.3
	REGULATION, LINE	[mV]	50 Max	120 Max	120 Max	50 Max	150 Max	150 Max
	REGULATION, LOAD	[mV]	100 Max	240 Max	240 Max	100 Max	300 Max	300 Max
	RIPPLE	[mVp-p]	80 Max	120 Max	120 Max	80 Max	120 Max	120 Max
	RIPPLE, NOISE	[mVp-p]	120 Max	150 Max	150 Max	120 Max	150 Max	150 Max
	TEMPERATURE DRIFT 0~+50°C	[mV]	75 Max	180 Max	180 Max	75 Max	225 Max	225 Max
	RISE TIME	[ms]	1000 Max (AC IN 100V I _o =100%)					
	HOLDING TIME	[ms]	17 typ (AC IN 100V I _o =100%)					
PROTECTION CIRCUIT	OVER CURRENT PROTECTION		Works at over 105% of rating and recovers automatically					
	OVER VOLTAGE PROTECTION		Works at 115 ~ 140% of rating					
ELECTRICALLY ISOLATED	INPUT-OUTPUT		AC 3,000V 1 minute current 20mA, DC 500V 100MΩ (At room temperature & Humidity)					
	INPUT-FG		AC 2,000V 1 minute current 20mA, DC 500V 100MΩ (At room temperature & Humidity)					
	OUTPUT-FG		AC 500V 1 minute current 100mA, DC 500V 100MΩ (At room temperature & Humidity)					
ENVIRONMENT	OPERATING TEMP AND HUMID		-10 ~ +70°C(Required Derating), 20 ~ 90% RH (Non Condensing)					
	STORAGE TEMP AND HUMID		-20 ~ +75°C, 20 ~ 90% RH (Non condensing)					
	VIBRATION		10 ~ 55Hz at 1G, 3 minutes period, 30 minutes along X, Y and Z axis					
	IMPACT		10G for 20ms, once on each X, Y and Z axis					
SAFETY EMISSION PFHC	SAFETY REGULATION		CE, CB			CE, CB		
	LINE CONDUCTED RF VOLTAGE		Built to meet EN55022-B					

CSF50-TRIPLE EXTERNAL VIEW



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