

150W Quad Output with PFC Function

QP-150 series



■ Features :

- Universal AC input / Full range
- Built-in active PFC function, PF>0.95
- Protections: Short circuit / Over load / Over voltage
- Forced air cooling by built-in DC fan
- CH4: Polarity is selectable
- Fixed switching frequency at 100KHz
- 3 years warranty



SPECIFICATION

MODEL		414-052								414-058			
OUTPUT NUMBER		CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4
OUTPUT	DC VOLTAGE	5V	3.3V	12V	-5V	5V	3.3V	12V	-12V	5V	3.3V	15V	-15V
	RATED CURRENT	10A	10A	5A	0.6A	10A	10A	5A	0.6A	10A	10A	4A	0.6A
	CURRENT RANGE	3 ~ 15A	0 ~ 15A	0.4 ~ 5A	0 ~ 1A	3 ~ 15A	0 ~ 15A	0.4 ~ 5A	0 ~ 1A	3 ~ 15A	0 ~ 15A	0.4 ~ 5A	0 ~ 1A
	RATED POWER (max.)	146W				150.2W				152W			
	RIPPLE & NOISE (max.) Note.2	100mVp-p	100mVp-p	150mVp-p	150mVp-p	100mVp-p	100mVp-p	150mVp-p	150mVp-p	100mVp-p	100mVp-p	150mVp-p	150mVp-p
	VOLTAGE ADJ. RANGE	CH1: 4.75 ~ 5.5V		CH2: 3.14 ~ 3.63V		CH1: 4.75 ~ 5.5V		CH2: 3.14 ~ 3.63V		CH1: 4.75 ~ 5.5V		CH2: 3.14 ~ 3.63V	
	VOLTAGE TOLERANCE Note.3	3.0%	3.0%	6.0%	5.0%	3.0%	3.0%	6.0%	5.0%	3.0%	3.0%	+8,-6%	5.0%
	LINE REGULATION	1.0%	1.0%	2.0%	1.0%	1.0%	1.0%	2.0%	1.0%	1.0%	1.0%	2.0%	1.0%
	LOAD REGULATION	2.0%	2.0%	6.0%	2.0%	2.0%	2.0%	6.0%	2.0%	2.0%	2.0%	6.0%	2.0%
	SETUP, RISE TIME	800ms, 50ms/230VAC				800ms, 50ms/115VAC at full load							
HOLD UP TIME (Typ.)	24ms/230VAC				24ms/115VAC at full load								
INPUT	VOLTAGE RANGE	90 ~ 264VAC				127 ~ 370VDC							
	FREQUENCY RANGE	47 ~ 63Hz											
	POWER FACTOR (Typ.)	PF>0.95/230VAC				PF>0.98/115VAC at full load							
	EFFICIENCY (Typ.)	73%				75%				74%			
	AC CURRENT (Typ.)	2.5A/115VAC		1.2A/230VAC									
	INRUSH CURRENT (Typ.)	COLD START ≤ 40A/230V											
	LEAKAGE CURRENT	<3.5mA / 240VAC											
PROTECTION	OVERLOAD	105 ~ 150% rated output power Protection type : Hiccup mode, recovers automatically after fault condition is removed											
	OVER VOLTAGE	CH1: 5.75 ~ 6.75V		CH2: 3.8 ~ 4.4V		Protection type : Shut down o/p voltage, re-power on to recover							
	OVER TEMPERATURE(OPTION)	95°C 5°C (TSW1) Protection type : Shut down o/p voltage, recovers automatically after temperature goes down											
ENVIRONMENT	WORKING TEMP.	-10 ~ +60°C (Refer to output load derating curve)											
	WORKING HUMIDITY	20 ~ 90% RH non-condensing											
	STORAGE TEMP., HUMIDITY	-20 ~ +85°C, 10 ~ 95% RH											
	TEMP. COEFFICIENT	0.03%/°C (0~50°C)											
	VIBRATION	10 ~ 500Hz, 2G 10min./1cycle, 60min. each along X, Y, Z axes											
SAFETY & EMC (Note 4)	SAFETY STANDARDS	UL60950-1, TUV EN60950-1 approved											
	WITHSTAND VOLTAGE	I/P-O/P: 3KVAC		I/P-FG: 1.5KVAC		O/P-FG: 0.5KVAC							
	ISOLATION RESISTANCE	I/P-O/P, I/P-FG, O/P-FG: 100M Ohms/500VDC											
	EMI CONDUCTION & RADIATION	Compliance to EN55022 (CISPR22) Class B											
	HARMONIC CURRENT	Compliance to EN61000-3-2,-3											
	EMS IMMUNITY	Compliance to EN61000-4-2,3,4,5,6,8,11; ENV50204, EN55024, light industry level, criteria A											
OTHERS	MTBF	141.5K hrs min. MIL-HDBK-217F (25°C)											
	DIMENSION	199*99*50mm (L*W*H)											
	PACKING	0.93Kg; 20pcs/19.6Kg/1.28CUFT											
NOTE	<ol style="list-style-type: none"> 1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature. 2. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uF & 47uF parallel capacitor. 3. Tolerance : includes set up tolerance, line regulation and load regulation. 4. The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives. 												


■ Features :

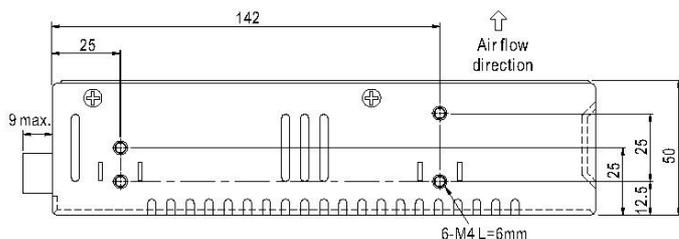
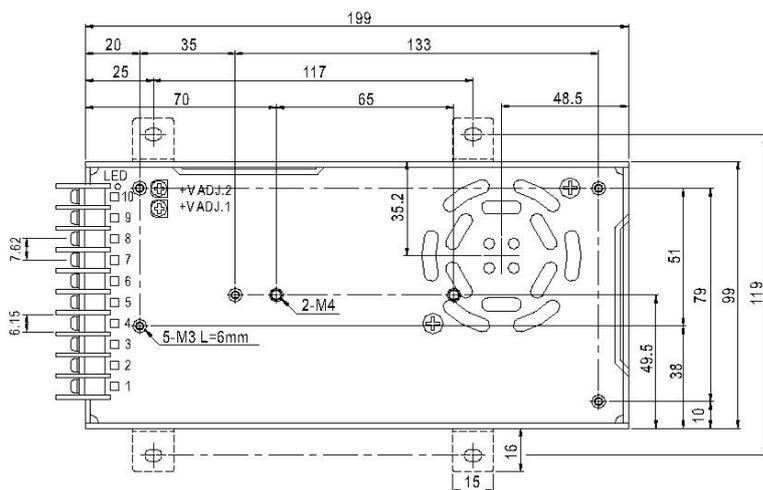
- Universal AC input / Full range
- Built-in active PFC function, PF>0.95
- Protections: Short circuit / Overload / Over voltage
- Forced air cooling by built-in DC fan
- CH4: Polarity is selectable
- Fixed switching frequency at 100KHz
- 3 years warranty


SPECIFICATION

MODEL		414-018								414-042			
OUTPUT NUMBER		CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4
OUTPUT	DC VOLTAGE	5V	3.3V	24V	-12V	5V	12V	24V	-12V	5V	15V	24V	-15V
	RATED CURRENT	10A	10A	2.5A	0.6A	10A	4A	2A	0.6A	10A	3A	2A	0.6A
	CURRENT RANGE	3 ~ 15A	0 ~ 15A	0.3 ~ 3A	0 ~ 1A	3 ~ 15A	0 ~ 5A	0.4 ~ 3A	0 ~ 1A	3 ~ 15A	0 ~ 5A	0.4 ~ 3A	0 ~ 1A
	RATED POWER (max.)	150.2W				150.2W				152W			
	RIPPLE & NOISE (max.) Note.2	100mVp-p	100mVp-p	150mVp-p	150mVp-p	120mVp-p	150mVp-p	200mVp-p	150mVp-p	120mVp-p	150mVp-p	200mVp-p	150mVp-p
	VOLTAGE ADJ. RANGE	CH1: 4.75 ~ 5.5V		CH2: 3.14 ~ 3.63V		CH1: 4.75 ~ 5.5V		CH2: 11.4 ~ 13.2V		CH1: 4.75 ~ 5.5V		CH2: 14.3 ~ 16.5V	
	VOLTAGE TOLERANCE Note.3	3.0%	3.0%	6.0%	5.0%	3.0%	3.0%	6.0%	5.0%	3.0%	3.0%	6.0%	5.0%
	LINE REGULATION	1.0%	1.0%	2.0%	1.0%	1.0%	1.0%	2.0%	1.0%	1.0%	1.0%	2.0%	1.0%
	LOAD REGULATION	2.0%	2.0%	6.0%	2.0%	2.0%	2.0%	6.0%	2.0%	2.0%	2.0%	6.0%	2.0%
	SETUP, RISE TIME	800ms, 50ms/230VAC				800ms, 50ms/115VAC at full load							
HOLD UP TIME (Typ.)	24ms/230VAC				24ms/115VAC at full load								
INPUT	VOLTAGE RANGE	90 ~ 264VAC				127 ~ 370VDC							
	FREQUENCY RANGE	47 ~ 63Hz											
	POWER FACTOR (Typ.)	PF>0.95/230VAC				PF>0.98/115VAC at full load							
	EFFICIENCY (Typ.)	76%				78%				78%			
	AC CURRENT (Typ.)	2.5A/115VAC				1.2A/230VAC							
	INRUSH CURRENT (Typ.)	COLD START ≤40A/230V											
LEAKAGE CURRENT	<3.5mA/ 240VAC												
PROTECTION	OVERLOAD	105 ~ 150% rated output power Protection type : Hiccup mode, recovers automatically after fault condition is removed											
	OVER VOLTAGE	CH1:5.75 ~ 6.75V CH2:3.8 ~ 4.4V				CH1:5.75 ~ 6.75V CH2:13.8 ~ 16.2V				CH1:5.75 ~ 6.75V CH2:17.25 ~ 20.25V			
	OVER TEMPERATURE(OPTION)	95°C 5°C (TSW1) Protection type : Shut down o/p voltage, recovers automatically after temperature goes down											
ENVIRONMENT	WORKING TEMP.	-10 ~ +60°C (Refer to output load derating curve)											
	WORKING HUMIDITY	20 ~ 90% RH non-condensing											
	STORAGE TEMP., HUMIDITY	-20 ~ +85°C, 10 ~ 95% RH											
	TEMP. COEFFICIENT	0.03%/°C (0~50°C)											
VIBRATION	10 ~ 500Hz, 2G 10min./1cycle, 60min. each along X, Y, Z axes												
SAFETY & EMC (Note 4)	SAFETY STANDARDS	UL60950-1, TUV EN60950-1 approved											
	WITHSTAND VOLTAGE	I/P-O/P:3KVAC I/P-FG:1.5KVAC O/P-FG:0.5KVAC											
	ISOLATION RESISTANCE	I/P-O/P, I/P-FG, O/P-FG:100M Ohms/500VDC											
	EMI CONDUCTION & RADIATION	Compliance to EN55022 (CISPR22) Class B											
	HARMONIC CURRENT	Compliance to EN61000-3-2, -3											
EMS IMMUNITY	Compliance to EN61000-4-2,3,4,5,6,8,11; ENV50204, EN55024, light industry level, criteria A												
OTHERS	MTBF	141.5K hrs min. MIL-HDBK-217F (25°C)											
	DIMENSION	199*99*50mm (L*W*H)											
	PACKING	0.93Kg; 20pcs/19.6Kg/1.28CUFT											
NOTE	<ol style="list-style-type: none"> 1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature. 2. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor. 3. Tolerance : includes set up tolerance, line regulation and load regulation. 4. The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives. 												

Mechanical Specification

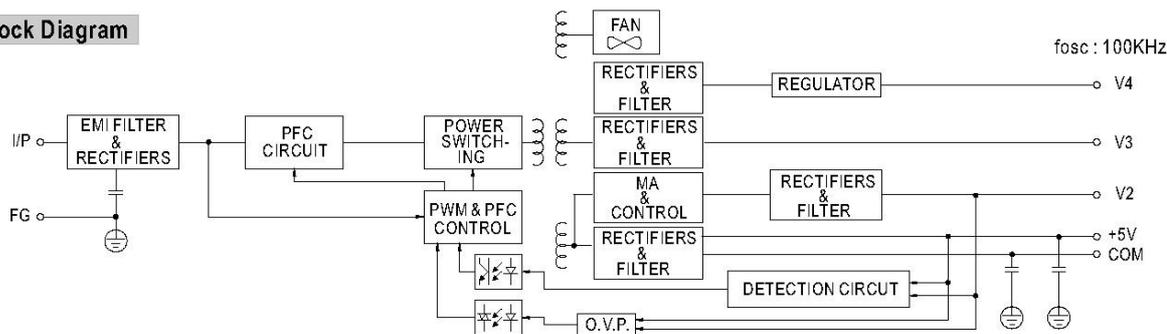
Case No. 916B Unit:mm



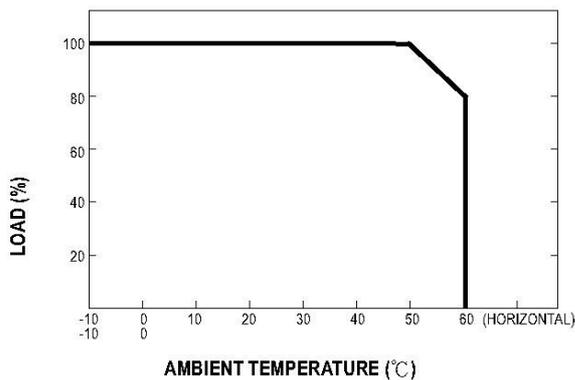
Terminal Pin No. Assignment :

Pin No.	Assignment	Pin No.	Assignment
1	AC/L	5	DC OUTPUT V3
2	AC/N	6,7	DC OUTPUT V1
3	FG \perp	8,9	DC OUTPUT COM
4	DC OUTPUT V4	10	DC OUTPUT V2

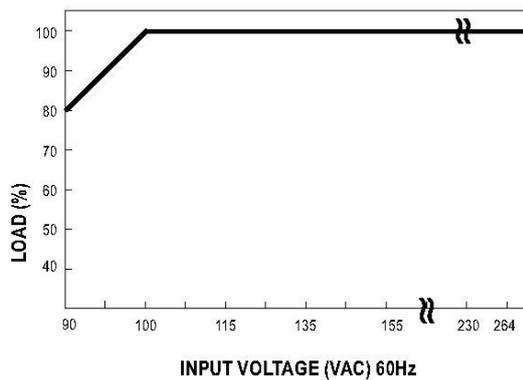
Block Diagram



Derating Curve



Output Derating VS Input Voltage





■ Features :

- Universal AC input / Full range
- Built-in active PFC function, PF>0.95
- Protections: Short circuit / Overload / Over voltage
- Forced air cooling by built-in DC fan
- Fixed switching frequency at 100KHz
- 3 years warranty

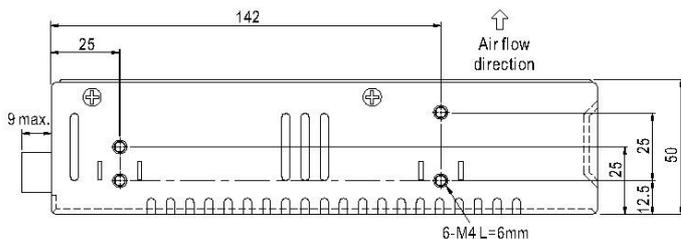
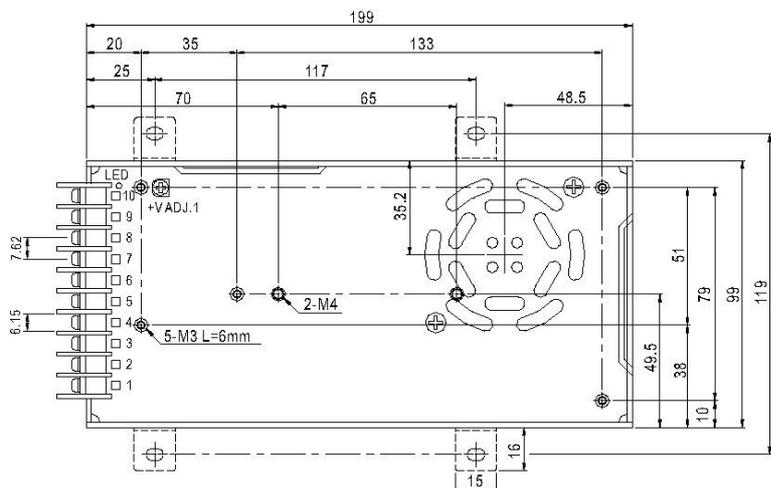


SPECIFICATION

MODEL	414-086								
OUTPUT	OUTPUT NUMBER	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4
	DC VOLTAGE	5V	12V	-12V	-5V	5V	15V	-15V	-5V
	RATED CURRENT	15A	4A	2A	0.6A	15A	3A	2A	0.6A
	CURRENT RANGE	3 ~ 15A	0.4 ~ 5A	0.3 ~ 2A	0 ~ 1A	3 ~ 15A	0.4 ~ 4A	0.3 ~ 2A	0 ~ 1A
	RATED POWER (max.)	150W				153W			
	RIPPLE & NOISE (max.) Note.2	100mVp-p	150mVp-p	150mVp-p	100mVp-p	100mVp-p	150mVp-p	150mVp-p	100mVp-p
	VOLTAGE ADJ. RANGE	CH1:4.75 ~ 5.5V				CH1:4.75 ~ 5.5V			
	VOLTAGE TOLERANCE Note.3	3.0%	6.0%	+10,-6%	5.0%	3.0%	+6,-10%	8.0%	5.0%
	LINE REGULATION	1.0%	2.0%	2.0%	1.0%	1.0%	2.0%	2.0%	1.0%
	LOAD REGULATION	2.0%	6.0%	6.0%	2.0%	2.0%	6.0%	6.0%	2.0%
	SETUP, RISE TIME	1000ms, 50ms at full load							
HOLD UP TIME (Typ.)	24ms at full load								
INPUT	VOLTAGE RANGE	90 ~ 264VAC		127 ~ 370VDC					
	FREQUENCY RANGE	47 ~ 63Hz							
	POWER FACTOR (Typ.)	PF>0.95/230VAC		PF>0.98/115VAC at full load					
	EFFICIENCY (Typ.)	76%				77%			
	AC CURRENT (Typ.)	2.5A/115VAC		1.2A/230VAC					
	INRUSH CURRENT (Typ.)	COLD START ≤40A							
	LEAKAGE CURRENT	<3.5mA/ 240VAC							
PROTECTION	OVERLOAD	105 ~ 135% rated output power Protection type : Hiccup mode, recovers automatically after fault condition is removed							
	OVER VOLTAGE	CH1:5.75 ~ 6.75V Protection type : Shut down o/p voltage, re-power on to recover							
	OVER TEMPERATURE(OPTION)	95°C 5°C (TSW1) Protection type : Shut down o/p voltage, recovers automatically after temperature goes down							
ENVIRONMENT	WORKING TEMP.	-10 ~ +60°C (Refer to output load derating curve)							
	WORKING HUMIDITY	20 ~ 90% RH non-condensing							
	STORAGE TEMP., HUMIDITY	-20 ~ +85°C, 10 ~ 95% RH							
	TEMP. COEFFICIENT	0.03%/°C (0~50°C)							
	VIBRATION	10 ~ 500Hz, 2G 10min./1cycle, 60min. each along X, Y, Z axes							
SAFETY & EMC (Note 4)	SAFETY STANDARDS	UL60950-1, TUV EN60950-1 approved							
	WITHSTAND VOLTAGE	I/P-O/P:3KVAC I/P-FG:1.5KVAC O/P-FG:0.5KVAC							
	ISOLATION RESISTANCE	I/P-O/P, I/P-FG, O/P-FG:100M Ohms/500VDC							
	EMI CONDUCTION & RADIATION	Compliance to EN55022 (CISPR22) Class B							
	HARMONIC CURRENT	Compliance to EN61000-3-2,-3							
OTHERS	EMS IMMUNITY	Compliance to EN61000-4-2,3,4,5,6,8,11; ENV50204, EN55024, light industry level, criteria A							
	MTBF	141.5K hrs min. MIL-HDBK-217F (25°C)							
	DIMENSION	199*99*50mm (L*W*H)							
NOTE	PACKING	1.1Kg, 20pcs/22Kg/1.28CUFT							
		<p>1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature.</p> <p>2. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor.</p> <p>3. Tolerance : includes set up tolerance, line regulation and load regulation.</p> <p>4. The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives.</p>							

Mechanical Specification

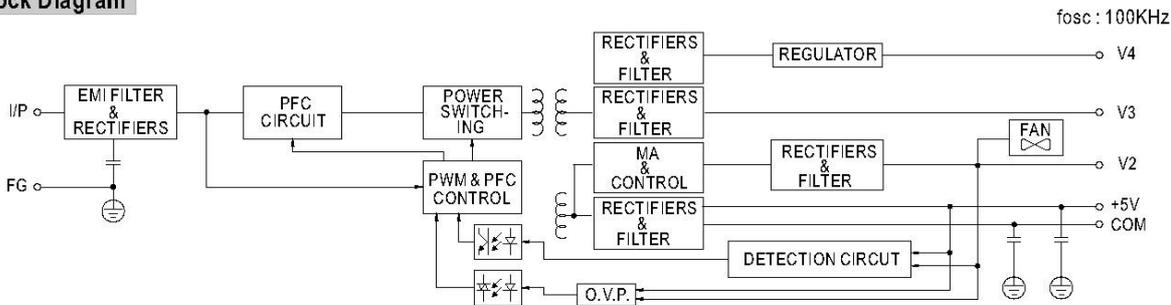
Case No. 916B Unit:mm



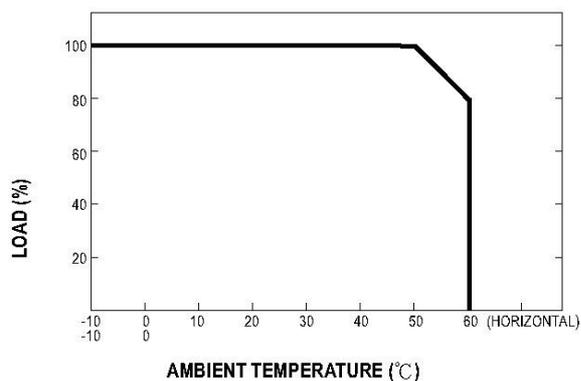
Terminal Pin No. Assignment :

Pin No.	Assignment	Pin No.	Assignment
1	AC/L	5	DC OUTPUT V3
2	AC/N	6,7	DC OUTPUT V1
3	FG \perp	8,9	DC OUTPUT COM
4	DC OUTPUT V4	10	DC OUTPUT V2

Block Diagram



Derating Curve



Output Derating VS Input Voltage

