

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		QP-150-3A				QP-150-3B				QP-150-3C			
OUTPUT	OUTPUT NUMBER	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4
	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 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	OVER LOAD	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	<p>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.</p>												



■ 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

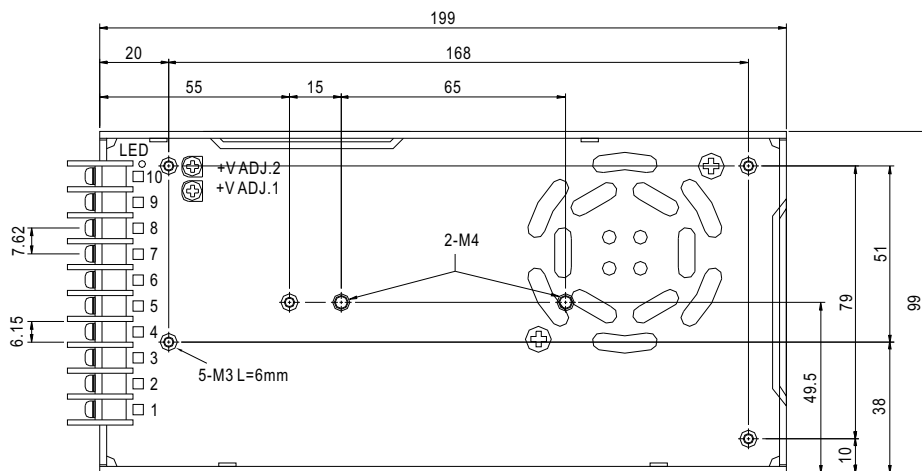


SPECIFICATION

MODEL		QP-150-3D				QP-150D				QP-150F			
OUTPUT	OUTPUT NUMBER	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4
	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 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	OVER LOAD	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	
		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	<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>												

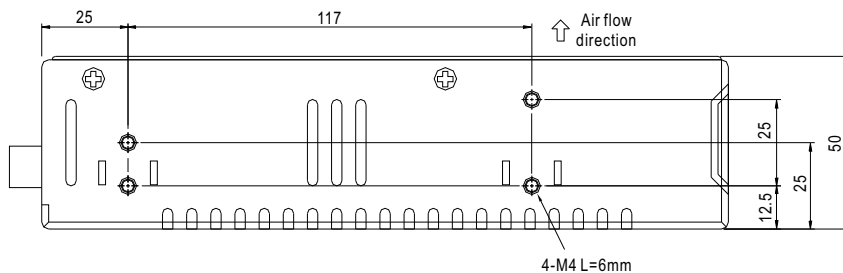
Mechanical Specification

Case No. 916B Unit:mm

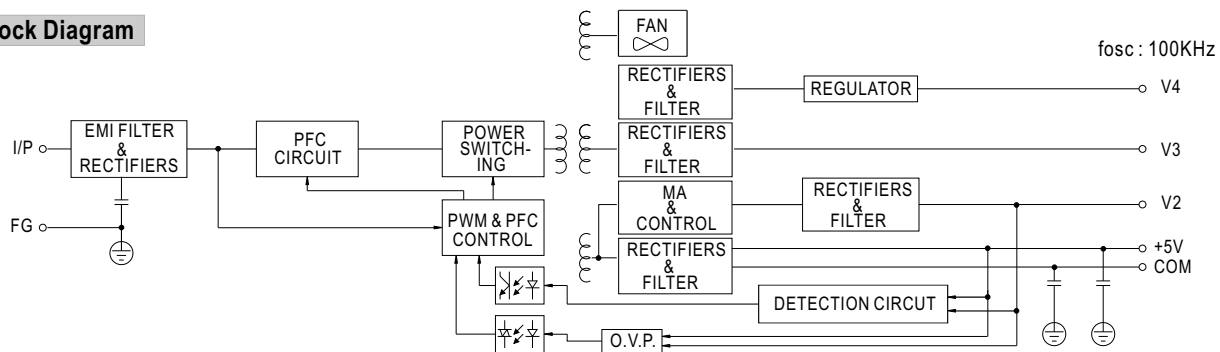


Terminal Pin No. Assignment :

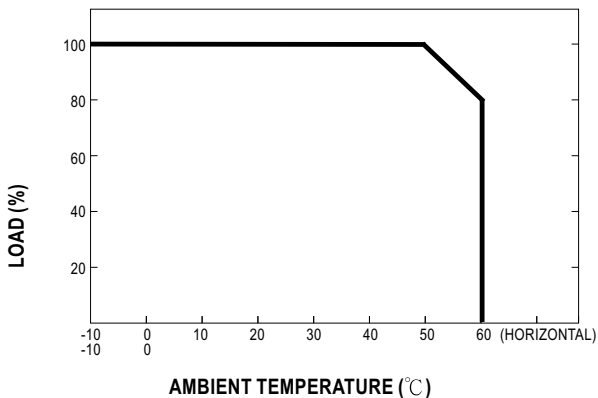
Pin No.	Assignment	Pin No.	Assignment
1	AC/L	5	DC OUTPUT V3
2	AC/N	6,7	DC OUTPUT V1
3	FG	8,9	DC OUTPUT COM
4	DC OUTPUT V4	10	DC OUTPUT V2



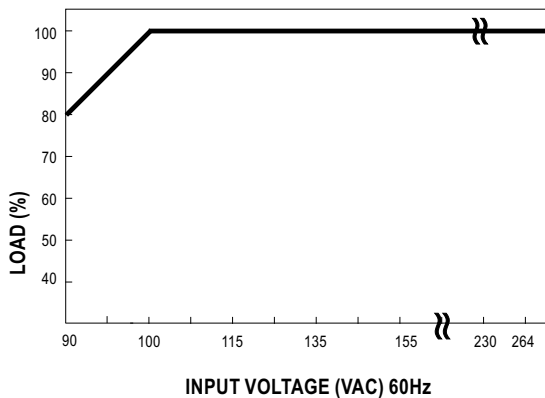
Block Diagram



Derating Curve



Output Derating VS Input Voltage



150W Quad Output with PFC Function

QP-150B,C 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
- Fixed switching frequency at 100KHz
- 3 years warranty

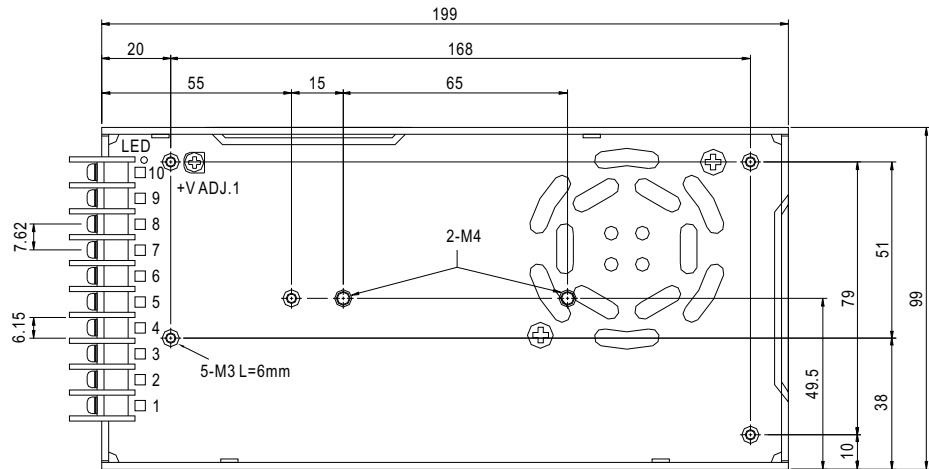


SPECIFICATION

MODEL		QP-150B				QP-150C				
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 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	OVER LOAD	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)								
	PACKING	1.1Kg; 20pcs/22Kg/1.28CUFT								
NOTE	<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>									

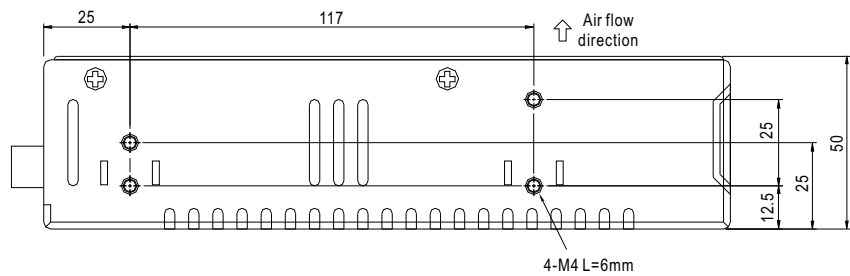
Mechanical Specification

Case No. 916B Unit:mm

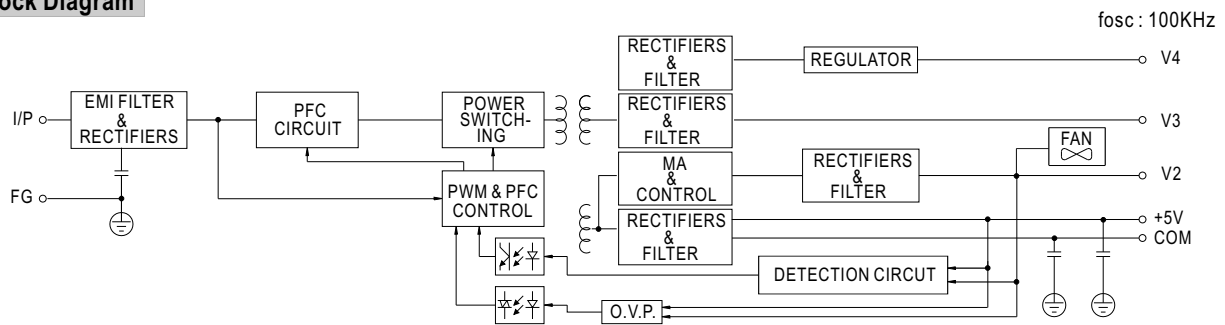


Terminal Pin No. Assignment :

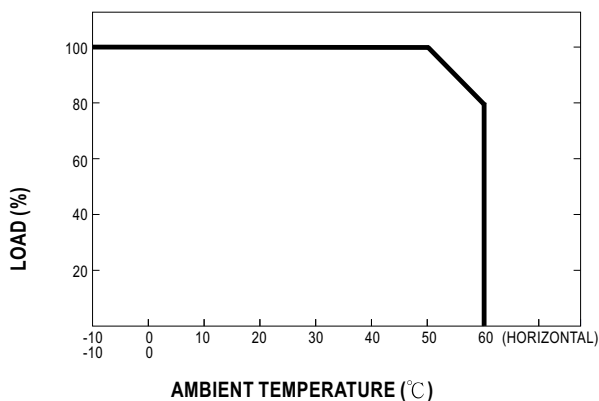
Pin No.	Assignment	Pin No.	Assignment
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3	FG	8,9	DC OUTPUT COM
4	DC OUTPUT V4	10	DC OUTPUT V2



Block Diagram



Derating Curve



Output Derating VS Input Voltage

