



5W Output Switching Power Supply

PM-05 series



■ Features :

- Universal AC input / Full range
- Protections: Short circuit/Over load/Over voltage
- Ultra-miniature size, light weight
- Cooling by free air convection
- Isolation class II
- UL60601-1/IEC60601-1/EN60601-1 medical safety approved
- No load power consumption < 0.5W
- 100% full load burn-in test
- Fixed switching frequency at 67KHz
- High reliability
- 3 years warranty

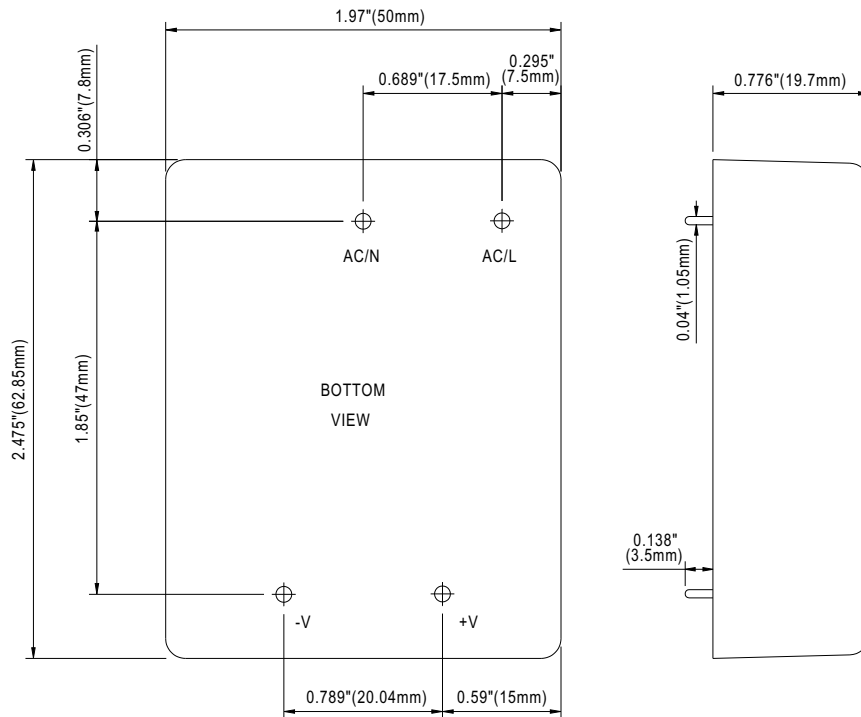


SPECIFICATION

SPECIFICATION						
MODEL		PM-05-3.3	PM-05-5	PM-05-12	PM-05-15	PM-05-24
OUTPUT	DC VOLTAGE	3.3V	5V	12V	15V	24V
	RATED CURRENT	1.25A	1A	0.42A	0.33A	0.23A
	CURRENT RANGE	0 ~ 1.25A	0 ~ 1A	0 ~ 0.42A	0 ~ 0.33A	0 ~ 0.23A
	RATED POWER	4.125W	5W	5.04W	4.95W	5.52W
	RIPPLE & NOISE (max.) <small>Note.2</small>	80mVp-p	80mVp-p	150mVp-p	150mVp-p	240mVp-p
	VOLTAGE TOLERANCE <small>Note.3</small>	±3.0%	±2.0%	±2.0%	±2.0%	±2.0%
	LINE REGULATION	±1.0%	±1.0%	±0.5%	±0.5%	±0.5%
	LOAD REGULATION	±1.5%	±1.5%	±0.5%	±0.5%	±0.5%
	SETUP, RISE TIME	1000ms, 20ms/230VAC 1000ms, 20ms/115VAC at full load				
HOLD TIME (Typ.)	100ms/230VAC 20ms/115VAC at full load					
INPUT	VOLTAGE RANGE	85 ~ 264VAC 120 ~ 370VDC				
	FREQUENCY RANGE	47 ~ 440Hz				
	EFFICIENCY (Typ.)	67%	71%	73%	76%	76%
	AC CURRENT (Typ.)	0.12A/115VAC 0.08A/230VAC				
	INRUSH CURRENT (Typ.)	COLD START 25A/115VAC 45A/230VAC				
PROTECTION	OVER LOAD	Above 105% rated output power Protection type : Hiccup mode, recovers automatically after fault condition is removed				
	OVER VOLTAGE	3.8 ~ 4.95V	5.75 ~ 6.75V	13.8 ~ 16.2V	17.25 ~ 20.25V	27.6 ~ 32.4V
		Protection type : Shut off				
ENVIRONMENT	WORKING TEMP.	-20 ~ +70℃ (Refer to output load derating curve)				
	WORKING HUMIDITY	20 ~ 90% RH non-condensing				
	STORAGE TEMP., HUMIDITY	-40 ~ +85℃, 10 ~ 95% RH				
	TEMP. COEFFICIENT	±0.03%/℃ (0 ~ 50℃)				
	VIBRATION	10 ~ 500Hz, 2G 10min./1cycle, Period for 60min.each along X, Y, Z axes				
SAFETY & EMC <small>(Note 4)</small>	SAFETY STANDARDS	UL60601-1,TUV EN60601-1 Approved				
	WITHSTAND VOLTAGE	I/P-O/P:4KVAC				
	ISOLATION RESISTANCE	I/P-O/P:100M Ohms/500VDC				
	EMI CONDUCTION & RADIATION	Compliance to EN55011(CISPR11),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, EN60601-1-2, EN61204-3 Medical level, criteria A				
OTHERS	MTBF	1513.4Khrs min. MIL-HDBK-217F (25℃)				
	DIMENSION	62.85*50*19.7mm (L*W*H)				
	PACKING	0.085Kg; 120pcs/11.2Kg/0.97CUFT				
NOTE	1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25℃ 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.					

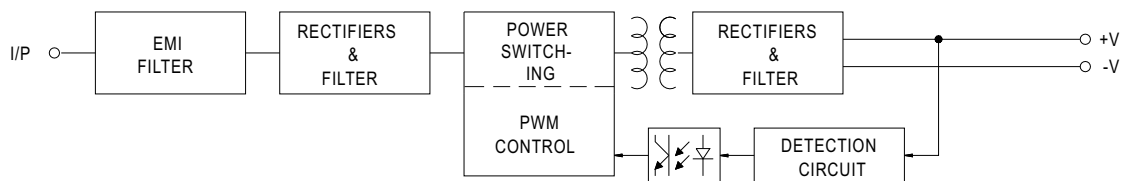
Mechanical Specification

Case No. 948A Unit:inch(mm)

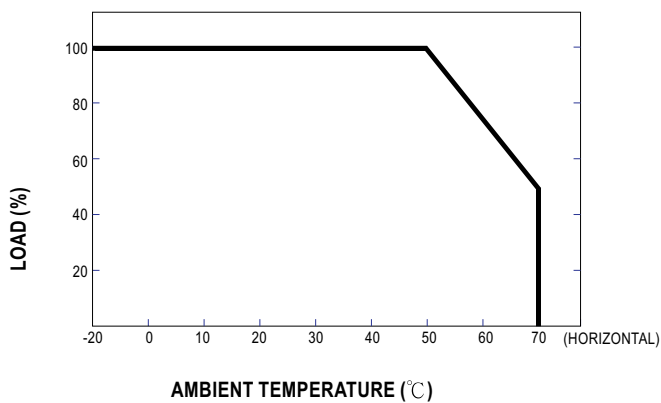


Block Diagram

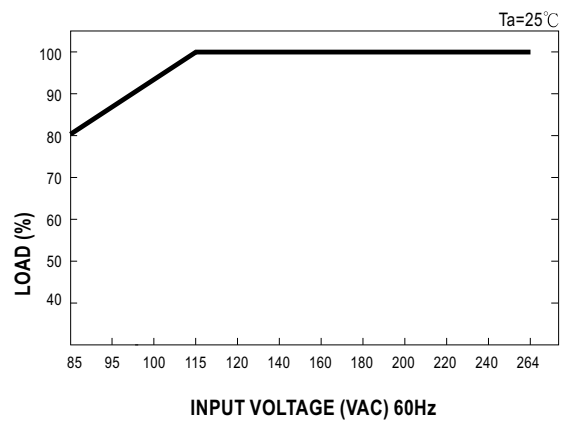
fosc : 67KHz



Output Derating



Output Derating VS Input Voltage





10W Output Switching Power Supply

PM-10 series



■ Features :

- Universal AC input / Full range
- Protections: Short circuit/Over load/Over voltage
- Ultra-miniature size, light weight
- Cooling by free air convection
- Isolation class II
- UL60601-1/IEC60601-1/EN60601-1 medical safety approved
- No load power consumption < 0.5W
- 100% full load burn-in test
- Fixed switching frequency at 67KHz
- High reliability
- 3 years warranty

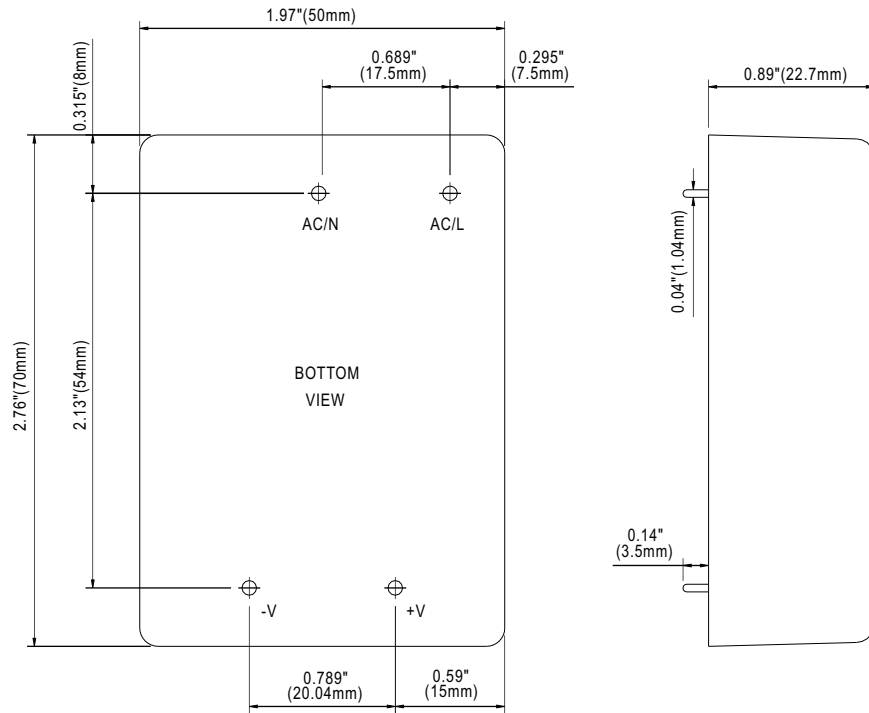


SPECIFICATION

MODEL		PM-10-3.3	PM-10-5	PM-10-12	PM-10-15	PM-10-24
OUTPUT	DC VOLTAGE	3.3V	5V	12V	15V	24V
	RATED CURRENT	2.5A	2A	0.85A	0.67A	0.42A
	CURRENT RANGE	0 ~ 2.5A	0 ~ 2A	0 ~ 0.85A	0 ~ 0.67A	0 ~ 0.42A
	RATED POWER	8.25W	10W	10.2W	10.05W	10.08W
	RIPPLE & NOISE (max.) Note.2	80mVp-p	80mVp-p	150mVp-p	150mVp-p	240mVp-p
	VOLTAGE TOLERANCE Note.3	±3.0%	±2.0%	±2.0%	±2.0%	±2.0%
	LINE REGULATION	±1.0%	±1.0%	±0.5%	±0.5%	±0.5%
	LOAD REGULATION	±1.0%	±1.0%	±0.5%	±0.5%	±0.5%
INPUT	SETUP, RISE TIME	1000ms, 20ms/230VAC 1000ms, 20ms/115VAC at full load				
	HOLD TIME (Typ.)	100ms/230VAC 20ms/115VAC at full load				
	VOLTAGE RANGE	85 ~ 264VAC 120 ~ 370VDC				
	FREQUENCY RANGE	47 ~ 440Hz				
	EFFICIENCY (Typ.)	67%	74%	79%	80%	79%
PROTECTION	OVER LOAD	Above 105% rated output power Protection type : Hiccup mode, recovers automatically after fault condition is removed				
	OVER VOLTAGE	3.8 ~ 4.95V	5.75 ~ 6.75V	13.8 ~ 16.2V	17.25 ~ 20.25V	27.6 ~ 32.4V
		Protection type : Shut off				
ENVIRONMENT	WORKING TEMP.	-20 ~ +70°C (Refer to output load derating curve)				
	WORKING HUMIDITY	20 ~ 90% RH non-condensing				
	STORAGE TEMP., HUMIDITY	-40 ~ +85°C, 10 ~ 95% RH				
	TEMP. COEFFICIENT	±0.03%/°C (0 ~ 50°C)				
	VIBRATION	10 ~ 500Hz, 2G 10min./1cycle, Period for 60min. each along X, Y, Z axes				
SAFETY & EMC (Note 4)	SAFETY STANDARDS	UL60601-1, TUV EN60601-1 Approved				
	WITHSTAND VOLTAGE	I/P-O/P: 4KVAC				
	ISOLATION RESISTANCE	I/P-O/P: 100M Ohms/500VDC				
	EMI CONDUCTION & RADIATION	Compliance to EN55011 (CISPR11), 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, EN60601-1-2, EN61204-3 Medical level, criteria A				
	MTBF	723.2Khrs min. MIL-HDBK-217F (25°C)				
	DIMENSION	70*50*22.7mm (L*W*H)				
NOTE	PACKING	0.105Kg; 120pcs/13.6Kg/0.97CUFT				
		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.				

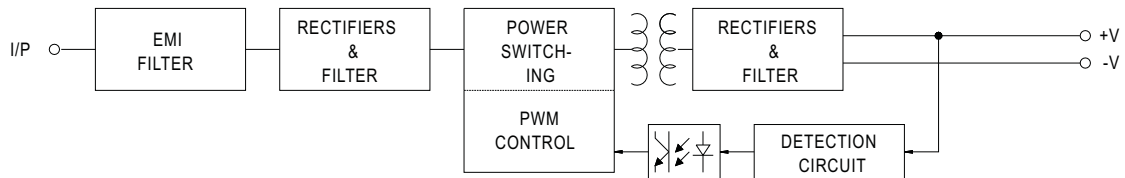
Mechanical Specification

Case No. 949A Unit:inch(mm)

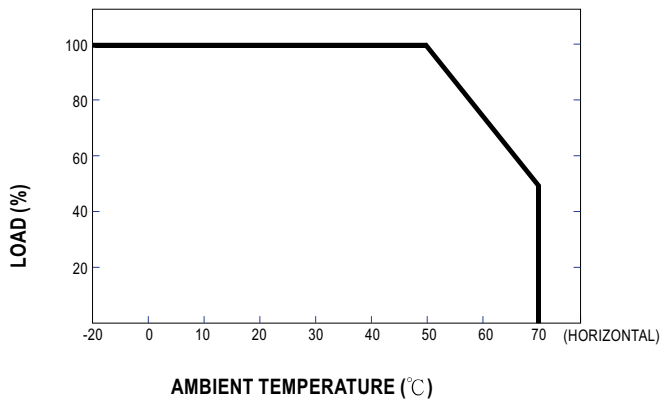


Block Diagram

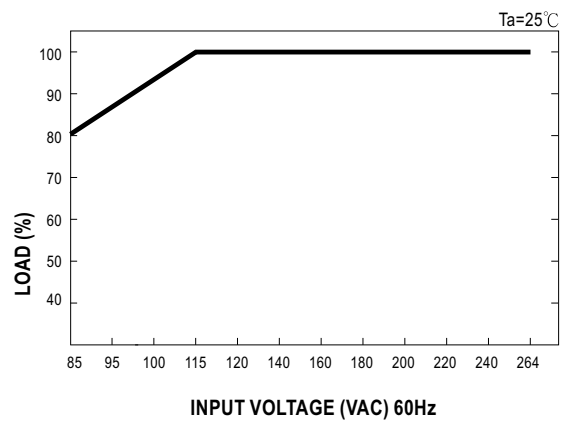
fosc : 67KHz



Output Derating



Output Derating VS Input Voltage





15W Output Switching Power Supply

PM-15 series



■ Features :

- Universal AC input / Full range
- Protections: Short circuit/Over load/Over voltage
- Ultra-miniature size, light weight
- Cooling by free air convection
- Isolation class II
- UL60601-1/IEC60601-1/EN60601-1 medical safety approved
- No load power consumption < 0.5W
- 100% full load burn-in test
- Fixed switching frequency at 67KHz
- High reliability
- 3 years warranty

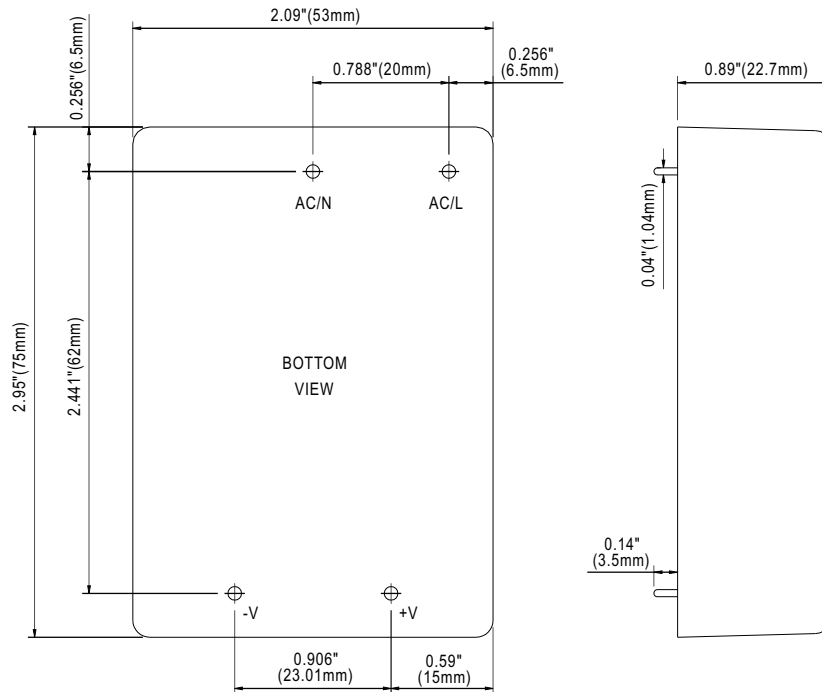


SPECIFICATION

SPECIFICATION						
MODEL		PM-15-3.3	PM-15-5	PM-15-12	PM-15-15	PM-15-24
OUTPUT	DC VOLTAGE	3.3V	5V	12V	15V	24V
	RATED CURRENT	3.5A	3A	1.25A	1A	0.63A
	CURRENT RANGE	0 ~ 3.5A	0 ~ 3A	0 ~ 1.25A	0 ~ 1A	0 ~ 0.63A
	RATED POWER	11.55W	15W	15W	15W	15.12W
	RIPPLE & NOISE (max.) <small>Note.2</small>	80mVp-p	80mVp-p	150mVp-p	150mVp-p	240mVp-p
	VOLTAGE TOLERANCE <small>Note.3</small>	±3.0%	±2.0%	±2.0%	±2.0%	±2.0%
	LINE REGULATION	±1.0%	±1.0%	±0.5%	±0.5%	±0.5%
	LOAD REGULATION	±1.0%	±1.0%	±0.5%	±0.5%	±0.5%
	SETUP, RISE TIME	1000ms, 20ms/230VAC 1000ms, 20ms/115VAC at full load				
HOLD TIME (Typ.)	100ms/230VAC 20ms/115VAC at full load					
INPUT	VOLTAGE RANGE	85 ~ 264VAC 120 ~ 370VDC				
	FREQUENCY RANGE	47 ~ 440Hz				
	EFFICIENCY (Typ.)	73%	76%	78%	79%	81%
	AC CURRENT (Typ.)	0.35A/115VAC 0.2A/230VAC				
	INRUSH CURRENT (Typ.)	COLD START 30A/115VAC 50A/230VAC				
PROTECTION	OVER LOAD	Above 105% rated output power Protection type : Hiccup mode, recovers automatically after fault condition is removed				
	OVER VOLTAGE	3.8 ~ 4.95V	5.75 ~ 6.75V	13.8 ~ 16.2V	17.25 ~ 20.25V	27.6 ~ 32.4V
ENVIRONMENT	WORKING TEMP.	-20 ~ +70℃ (Refer to output load derating curve)				
	WORKING HUMIDITY	20 ~ 90% RH non-condensing				
	STORAGE TEMP., HUMIDITY	-40 ~ +85℃, 10 ~ 95% RH				
	TEMP. COEFFICIENT	±0.03%/℃ (0 ~ 50℃)				
	VIBRATION	10 ~ 500Hz, 2G 10min./1cycle, Period for 60min.each along X, Y, Z axes				
SAFETY & EMC <small>(Note 4)</small>	SAFETY STANDARDS	UL60601-1,TUV EN60601-1 Approved				
	WITHSTAND VOLTAGE	I/P-O/P:4KVAC				
	ISOLATION RESISTANCE	I/P-O/P:100M Ohms/500VDC				
	EMI CONDUCTION & RADIATION	Compliance to EN55011(CISPR11),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, EN60601-1-2, EN61204-3 Medical level, criteria A				
OTHERS	MTBF	499.7Khrs min. MIL-HDBK-217F (25℃)				
	DIMENSION	75*53*22.7mm (L*W*H)				
	PACKING	0.14Kg; 120pcs/17.8Kg/0.97CUFT				
NOTE	1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25℃ 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.					

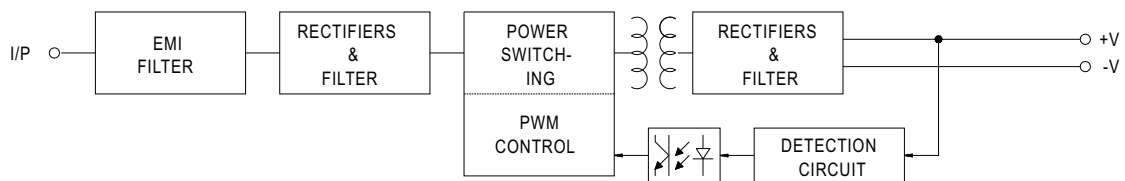
Mechanical Specification

Case No. 950A Unit:inch(mm)

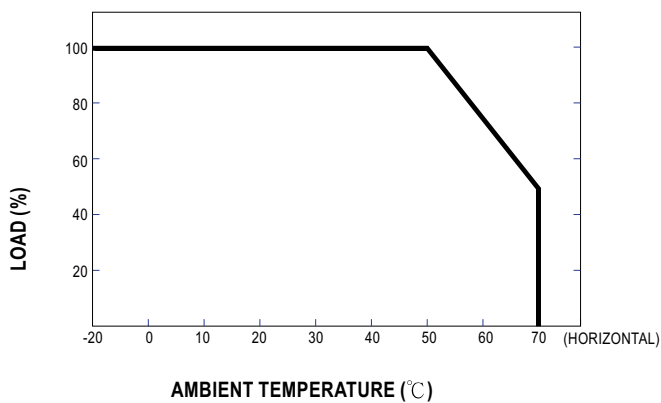


Block Diagram

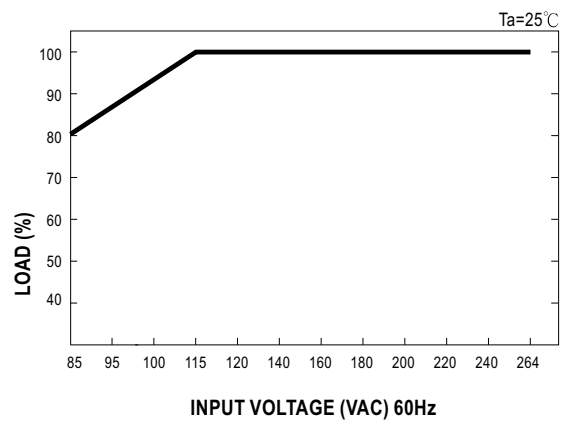
fosc : 67KHz



Output Derating



Output Derating VS Input Voltage





20W Output Switching Power Supply

PM-20 series



■ Features :

- Universal AC input / Full range
- Protections: Short circuit/Over load/Over voltage
- Ultra-miniature size, light weight
- Cooling by free air convection
- UL60601-1/IEC60601-1/EN60601-1 medical safety approved
- No load power consumption < 0.75W
- 100% full load burn-in test
- Fixed switching frequency at 90KHz
- High reliability
- 3 years warranty

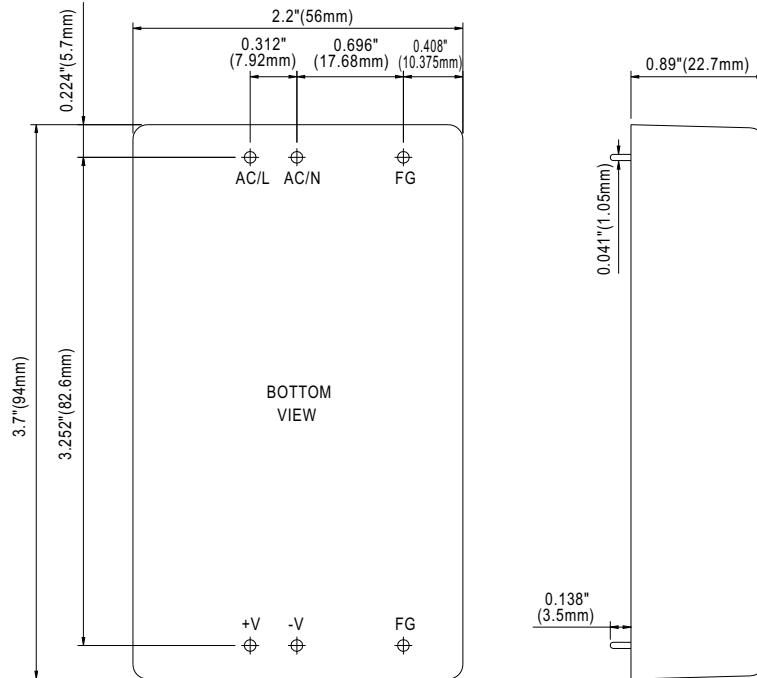


SPECIFICATION

MODEL		PM-20-3.3	PM-20-5	PM-20-12	PM-20-15	PM-20-24
OUTPUT	DC VOLTAGE	3.3V	5V	12V	15V	24V
	RATED CURRENT	4.5A	4.4A	1.8A	1.4A	0.92A
	CURRENT RANGE	0 ~ 4.5A	0 ~ 4.4A	0 ~ 1.8A	0 ~ 1.4A	0 ~ 0.92A
	RATED POWER	14.85W	22W	21.6W	21W	22.08W
	RIPPLE & NOISE (max.) <small>Note.2</small>	80mVp-p	80mVp-p	150mVp-p	150mVp-p	240mVp-p
	VOLTAGE TOLERANCE <small>Note.3</small>	±3.0%	±2.0%	±2.0%	±2.0%	±2.0%
	LINE REGULATION	±1.0%	±1.0%	±0.5%	±0.5%	±0.5%
	LOAD REGULATION	±1.5%	±1.5%	±1.0%	±1.0%	±0.5%
	SETUP, RISE TIME	500ms, 20ms/230VAC 500ms, 20ms/115VAC at full load				
HOLD TIME (Typ.)	50ms/230VAC 16ms/115VAC at full load					
INPUT	VOLTAGE RANGE	85 ~ 264VAC 120 ~ 370VDC				
	FREQUENCY RANGE	47 ~ 440Hz				
	EFFICIENCY (Typ.)	71%	75%	81%	83%	84%
	AC CURRENT (Typ.)	0.6A/115VAC 0.4A/230VAC				
	INRUSH CURRENT (Typ.)	COLD START 30A/115VAC 65A/230VAC				
	LEAKAGE CURRENT	<200uA / 240VAC				
PROTECTION	OVER LOAD	Above 105% rated output power Protection type : Hiccup mode, recovers automatically after fault condition is removed				
	OVER VOLTAGE	3.8 ~ 4.46V	5.75 ~ 6.75V	13.8 ~ 16.2V	17.25 ~ 20.25V	27.6 ~ 32.4V
ENVIRONMENT	WORKING TEMP.	-20 ~ +60℃ (Refer to output load derating curve)				
	WORKING HUMIDITY	20 ~ 90% RH non-condensing				
	STORAGE TEMP., HUMIDITY	-40 ~ +85℃, 10 ~ 95% RH				
	TEMP. COEFFICIENT	±0.03%/℃ (0 ~ 50℃)				
	VIBRATION	10 ~ 500Hz, 2G 10min./1cycle, Period for 60min.each along X, Y, Z axes				
SAFETY & EMC <small>(Note 4)</small>	SAFETY STANDARDS	UL60601-1,TUV EN60601-1 Approved				
	WITHSTAND VOLTAGE	I/P-O/P:4KVAC I/P-FG:1.5KVAC O/P-FG:1.5KVAC				
	ISOLATION RESISTANCE	I/P-O/P, I/P-FG, O/P-FG:100M Ohms/500VDC				
	EMI CONDUCTION & RADIATION	Compliance to EN55011(CISPR11),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, EN60601-1-2, EN61204-3 Medical level, criteria A				
OTHERS	MTBF	487.8Khrs min. MIL-HDBK-217F (25℃)				
	DIMENSION	94*56*22.7mm (L*W*H)				
	PACKING	0.18Kg; 90pcs/17.2Kg/0.97CUFT				
NOTE	1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25℃ 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.					

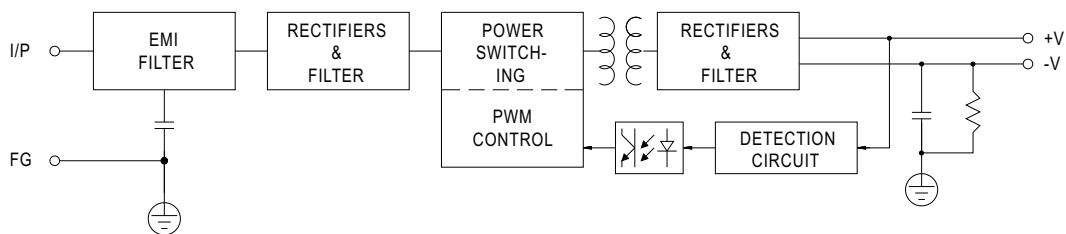
Mechanical Specification

Case No. 951A Unit:inch(mm)

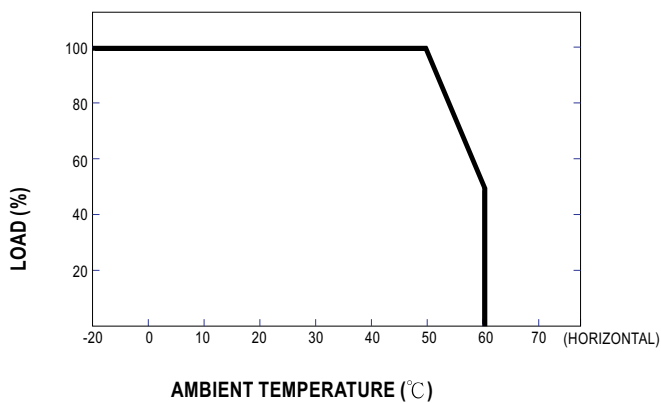


Block Diagram

fosc : 90KHz



Output Derating



Output Derating VS Input Voltage

