

### 15W Output Switching Power Supply

### NFM-15 series



#### Features :

- Universal AC input / Full range
- Protections: Short circuit / Over load / Over voltage / Over temperature
- 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

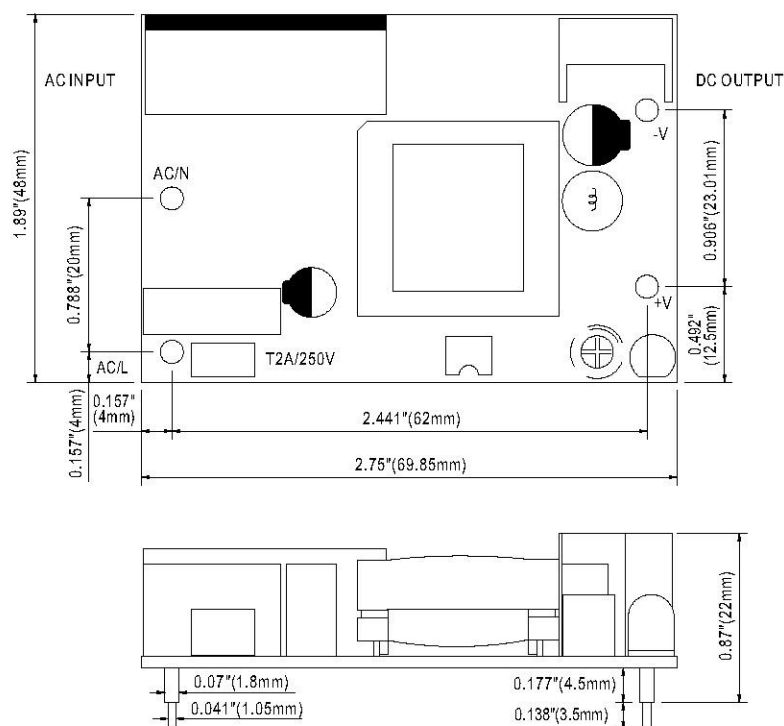


#### SPECIFICATION

MODEL		424-421		424-425		424-415		424-419			
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.) Note.2	80mVp-p		80mVp-p		150mVp-p		150mVp-p		240mVp-p	
	VOLTAGE ADJ. RANGE	3 ~ 3.63V		4.5 ~ 5.5V		10.8 ~ 13.2V		13.5 ~ 16.5V		21.6 ~ 26.4V	
	VOLTAGE TOLERANCE Note.3	±2.0%		±2.0%		±1.0%		±1.0%		±1.0%	
	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 UP TIME (Typ.)	100ms/230VAC		24ms/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	OVERLOAD	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 o/p voltage, clamping by zener diode									
	OVER TEMPERATURE Note.5	Tj 140°C typically (U1) detect on main control IC Protection type : Shut down o/p voltage, recovers automatically after temperature goes down									
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	UL60950-1, UL60601-1, TUV EN60601-1, IEC60601-1 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°C)									
	DIMENSION	70*48*22mm (L*W*H)									
	PACKING	0.065Kg; 120pcs/8.8Kg/0.97CUFT									
NOTE	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. 5. The over temperature protection (OTP) is the built-in function of the control IC (U1). The activating level described above is based on the specification provided by the IC manufacturer.										

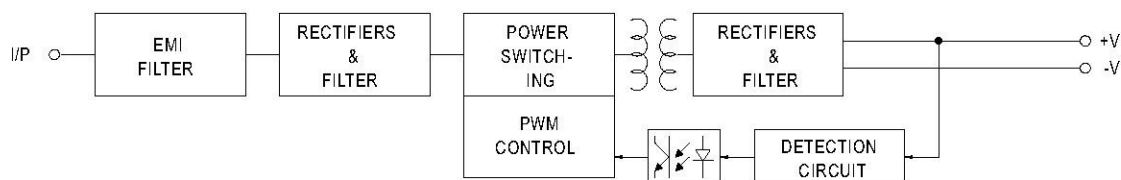
# Mechanical Specification

Unit: inch(mm)



# Block Diagram

fosc : 67KHz



# Derating Curve

# Output Derating VS Input Voltage

