

20W Output Switching Power Supply

NFM-20 series



Features :

- Universal AC input / Full range
- Protections: Short circuit / Overload / Over voltage / Over temperature
- 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
- Optional on-board type version available
- Fixed switching frequency at 90KHz
- High reliability
- 3 years warranty



SPECIFICATION

MODEL		NFM-20-3.3	NFM-20-5	NFM-20-12	NFM-20-15	NFM-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.) Note.2	80mVp-p	80mVp-p	150mVp-p	150mVp-p	240mVp-p
	VOLTAGE ADJ. RANGE	3.1~3.6V	4.5 ~ 5.4V	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	±1.5%	±1.5%	±0.5%	±0.5%	±0.5%
	SETUP, RISE TIME	500ms, 20ms/230VAC 500ms, 20ms/115VAC at full load				
	HOLD UP 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		Above 105% rated output power				
	OVERLOAD	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
		Protection type : Shut of	F			
		Tj 160°C typically (U1) Detect on main control IC				
	OVER TEMPERATURE Note.5	Protection type : Shut down o/p voltage, recovers automatically after temperature goes down				
ENVIRONMENT	WORKING TEMP.	-20 ~ +60°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 &	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				
EMC (Note 4)	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°C)				
	DIMENSION	89*51*19.3mm (L*W*H)				
	PACKING	0.09Kg; 105pcs/10.5Kg/0.97CUFT				
NOTE	 Ripple & noise are measure Tolerance : includes set up The power supply is consid EMC directives. 	ally mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature. red at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor. o tolerance, line regulation and load regulation. dered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets ection (OTP) is the built-in function of the control IC (U1). The activating level described above is based on the specification				



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