

HSF MODEL TABLE

MODEL	OUTPUT VOLTS	ADJUSTMENT RANGE	OVP SETTING (VOLTS)	OUTPUT CURRENT AMPS 0-40° C	CURRENT LIMIT (AMPS)	SWR RIPPLE mV		NOISE (spike) mV max
						typ	max	
50 WATT MODELS								
HSF 5-10	5	4.5-5.5	7.0-8.0	0-10	10.5-12.0	30	60	<120
HSF 12-4.2	12	11.4-12.6	13.7-15.7	0-4.2	4.4-5.1	35	70	<190
HSF 15-3.4	15	13.5-16.4	17.0-19.0	0-3.4	3.6-4.1	45	90	<220
HSF 24-2.1	24	22.5-25.5	27.0-30.5	0-2.1	2.2-2.6	50	100	<310
HSF 48-1	48	45.0-51.0	53.5-60.0	0-1	1.1-1.3	60	150	<350
100 WATT MODELS								
HSF 5-20	5	4.5-5.5	7.0-8.0	0-20	21.0-24.0	30	65	<120
HSF 12-8.3	12	11.4-12.6	13.7-15.7	0-4.2	8.7-10.0	35	70	<190
HSF 15-6.6	15	13.5-16.5	17.0-19.0	0-6.6	7.0-8.0	40	80	<220
HSF 24-4.2	24	22.5-25.5	27.0-30.5	0-4.2	4.4-5.2	50	110	<310
HSF 28-3.5	28	26.5-29.5	32.0-35.0	0-3.5	3.7-4.2	60	140	<330
HSF 48-2	48	45.0-51.0	53.5-60.0	0-2	2.1-2.4	80	220	<530
150 WATT MODELS								
HSF 5-30	5	4.5-5.5	7.0-8.0	0-30	32.0-36.0	30	60	<120
HSF 12-12	12	11.4-12.6	13.7-15.7	0-12	13.0-15.0	35	70	<190
HSF 15-10	15	13.5-16.5	17.0-19.0	0-10	11.0-13.0	40	80	<220
HSF 24-6	24	22.5-25.5	27.0-30.5	0-6	6.3-7.5	50	110	<310
HSF 28-5	28	26.5-29.5	32.0-35.0	0-5	5.3-6.1	60	140	<330
HSF 48-2.8	48	45.0-51.0	53.5-60.0	0-2.8	3.0-3.5	80	220	<530
350 WATT MODELS								
HSF 3.3-70	3.3	2.65-3.5	4-30 ⁽²⁾	0-70	73-84	30	50	<100n
HSF 5-70	5	4.0-5.5	4-30 ⁽²⁾	0-70	73-84	30	50	<100
HSF 12-30	12	9.6-13.2	4-30 ⁽²⁾	0-30	31.5-36	40	70	<150
HSF 15-24	15	12-16.5	4-30 ⁽²⁾	0-24	25.2-28.8	40	70	<175
HSF 24-16	24	19.2-26.5	4-30 ⁽²⁾	0-16	16.8-19.2	60	100	<200
HSF 28-13	28	22.4-30.8	4-30 ⁽²⁾	0-13	13.6-15.6	60	100	<200
HSF 48-7.5	48	38.4-52.8	4-30 ⁽²⁾	0-7.5	7.8-9.0	60	100	<300

(1) Current limit is a rectangular type, not foldback.

(2) OVP Setting = % tracking above output

HSF GENERAL SPECIFICATIONS

SPECIFICATION	RATING DESCRIPTION			CONDITION
	500W,	1000W, 1500W	3500W	
Temperature	0 to 71° C See figure 1		-10 to 71° C See figure 2	Operating
	40° C to 85° C		30° C to 75° C	Storage
Humidity	Up to 95% RH			Non-condensing Operating & storage
Shock	20g, 3 axes (11 msec ±5msec pulse duration)			Non-operating 3 shocks each axis
Vibration	6-10Hz: 10mm amplitude 3 axes			Non-Operating 1 hour each axis
	10-55Hz: 2g, 3 axes			
Isolation	Output- Case	500V d-c, 100M Ohm		25° C 65% RH
Type of construction	Plug-in			
Cooling	Convection		Forced air flow (fan)	
Withstand voltage 50V	Input-Output	3.75KV a-c for 1 minute	3KV a-c for 1 minute	25° C 65% RH Y caps removed
	Input-Case	2KV a-c for 1 minute	2KV a-c for 1 minute	
Safety	UL 1950, EN 60950, CSA 222 No. 950-95		UL 1950, EN 60950, CSA 222 No. 234, Level 5	
Bellcore Requirements	NEBS GR-63-CORE			

HSF INPUT CHARACTERISTICS

SPECIFICATION		RATING DESCRIPTION				CONDITION		
		50W, 100W, 150W		350W		50W, 100W, 150W	350W	
a-c voltage	rated nominal	100/120/220/240V a-c				Single Phase		
	min-max range	95-264V a-c		85-264V a-c				
Power Factor		-		0.99 typ.		-	EN61000-3-2	
d-c Voltage	min-max range	125-370V d-c ⁽¹⁾		110-370V d-c ⁽¹⁾		Polarity insensitive		
Brown-out voltage	min	85V a-c 110V d-c		80V a-c 110V d-c		Ripple, source and load effect increase	Ripple, stabilization increase	
Frequency		50-60Hz 47-440Hz ⁽²⁾				Single phase		
EMI		FCC and VDE 0871		FCC		Conducted Class B	Conducted Class A	
Soft-start circuit		Thermistor or thyristor limiter		Resistor and thyristor limiter				
Leakage current	max	0.5mA UL method		1.0mA UL method		120V a-c 50-60Hz		
	max	07.5mA VDE method		2.0mA VDE method		240V a-c 50-60Hz		
Startup time	max	50W < 500ms		900ms (500ms typ.)		From turn-on until d-c output reaches nominal		
		100W & 150W < 200ms						
Holdup time	typ	20msec		30m sec		120V a-c	120V a-c	
	min	15msec		20m sec		100V a-c	120V a-c	
INPUT CURRENT (Amperes)		50W	100W	150W	350W			
a-c Current	typ	1.0	2.0	3.0	3.3V model	All other models	120V a-c rms	
					3.0	4.0		
	max	1.2	2.4	3.5	4.0	5.6		240V a-c rms
max	0.7	1.6	2.0	2.0	2.8			
Fuse Value		3.0A	5.0A	6.3A	10A		250V type 5x20mm	
Initial turn-on surge, first half cycle		45A	45A	45A	20A		120V a-c rms	
		90A	90A	90A	40A		240V a-c rms	
Efficiency	typ %	76	76	76	65	72	Max load, nominal output	
Switching frequency	typ	120KHz			150KHz		Main converter, forward	
		-			120KHz		PFC converter	

(1) Note: Safety agency approvals are valid only for a-c input because of the fuse rating.

(2) At 440 Hz the leakage current exceeds the UL safety specification

HSF OUTPUT CHARACTERISTICS

SPECIFICATION		RATING		CONDITION	
		50W, 100W, 150W	350W	50W, 100W, 150W	350W
Source Effect	typ	1.0%	0.05%	Single Phase 95-132V a-c or 190-264V a-c	
	max	2.0%	0.1%		
Load Effect	typ	1.0%	0.2%	10% to 100% load	0 to 100% load
	max	2.0%	0.3%		
Temperature Effect	typ	1.0%	0.5%	Nominal input, rated load 0 to 40° C	Nominal input, rated load -10° to 40° C
	max	2.0%	1.0%		
Combined Effect	typ	2.0%	0.7%	Includes source, load and temperature	
	max	4.0%	1.5%		
Time Effect (drift)	typ	0.1%	0.2%	0.5-8.5 hr. max load, 25°C	
	max	0.5%	0.5%		
Recovery Characteristic	excursion	<±4%	<±1%	Step load, 50-100% rise time > 50 μs	Step load, 50-100% rise time > 10 μs
	recovery	2ms	1 ms	To within 4%	To within 1%