HK50A

SPECIFICATIONS

PA779-01-01C

	Item	Model		HK50A-5	HK50A-12	HK50A-15	HK50A-24
1	Nominal Output Voltage		V	5	12	15	24
2	Maximum Output Current		A	10.0	4.2	3.4	2.2
3	Maximum Output Power		W	50.0	50.4	51.0	52.8
4	Efficiency (Typ)	(*1)	%	79	81	82	84
5	Input Voltage Range	(*2)	–	85-132VAC (47-440Hz) or 110-175VDC			
6	Input Current (Typ)	(*1)	–	1.2A at 100VAC			
7	Inrush Current (Typ)	(*3)	–	30A at 100VAC			
8	Output Voltage Range		–	±10%			
9	Maximum Ripple & Noise		mV	120	150	150	150
10	Maximum Line Regulation	(*4)	mV	20	48	60	96
11	Maximum Load Regulation	(*5)	mV	40	96	120	150
12	Over Current Protection	(*6)	–	105% –			
13	Over Voltage Protection	(*7)	–	115% to 135%			
14	Hold-Up Time (Typ)	(*1)	–	20ms			
15	Series Operation		–	Possible			
16	Operating Temperature	(*8)	–	0°C to +50°C (100%), 60°C (50%)			
17	Operating Humidity		–	30% to 90% RH			
18	Storage Temperature		–	-30°C to +85°C			
19	Storage Humidity		–	10% to 95% RH			
20	Cooling		–	Convection Cooled			
21	Temperature Coefficient	(*9)	–	1% (Typ) at 0°C to +50°C			
22	Withstand Voltage	(*10)	–	Input - Chassis , Input - Output : 2kVAC (20mA) Output - Chassis : 500VAC (100mA) for 1min			
23	Isolation Resistance		Ohm	More than 100M Ohm at 25°C and 70%RH Output-FG 500VDC			
24	Vibration		–	10-55Hz (sweep 1 min) less than 19.6m/s^2 X,Y,Z 1 h each			
25	Shock		–	Less than 196.1m/s^2			
26	Safety		–	Approved by UL60950-1 & CSA C22.2 No.60950. Designed to meet DENAN			
27	Conducted Radio Noise		–	Designed to meet FCC class B, VCCI - B			
28	Weight		–	280 g			
29	Size (W.H.D.)		mm	31 . 68 . 119 (Refer to Outline Drawing)			

* NOTES :

1 : At 100VAC and Maximum Output Power, Ta = 25°C

2 : For cases where conformance to various safety specs (UL, CSA) are required to be described as 100 - 120VAC, 50/60Hz on name plate.

3 : Typical value on cold start, Ta = 25°C.

4 : From 85 to 132VAC or 110 to 175VDC, constant load.

5 : From No Load to Full Load, constant input voltage.

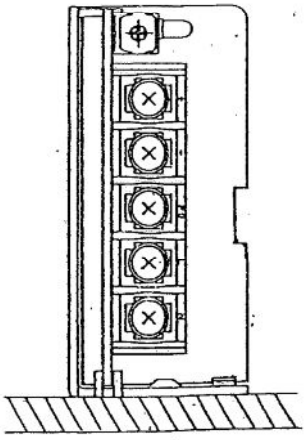
6 : Current limiting with automatic recovery.
Avoid to operate over load or dead short for more than 30 seconds.

7 : OVP circuit will shut down output, manual reset.

8 : At standard mounting (vertical).

9 : Constant input voltage & load.

10 : Refer to instruction manual for testing procedure.



Standard Mounting

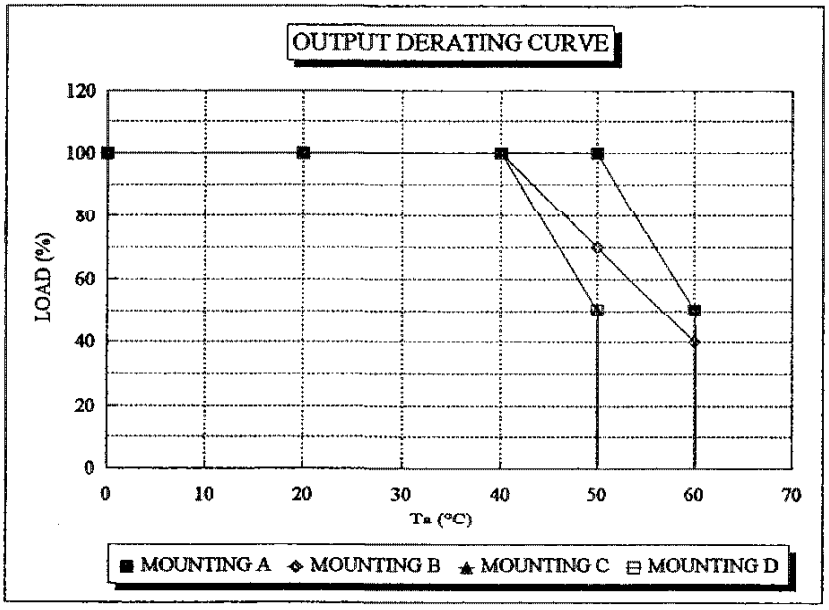
DENSEI-LAMBDA

OUTPUT DERATING

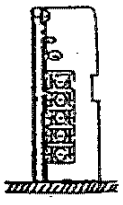
HK50A

* COOLING : CONVENTION COOLING

Ta (°C)	LOAD (%)			
	MOUNTING : A	MOUNTING : B	MOUNTING : C	MOUNTING : D
0	100	100	100	100
20	100	100	100	100
40	100	100	100	100
50	100	70	50	50
60	50	40	-	-

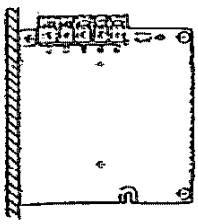


MOUNTING : A

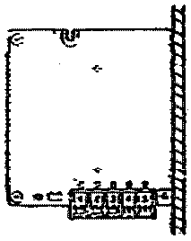


MOUNTING : B

MOUNTING : C



MOUNTING : D



HK50A

SPECIFICATIONS

PA779-01-03C

	Item	Model		HK50A-3
1	Nominal Output Voltage		—	3.3V
2	Maximum Output Current		—	10.0A
3	Maximum Output Power		—	33.0W
4	Efficiency (Typ)	(*1)	—	74%
5	Input Voltage Range	(*2)	—	85-132VAC (47-440Hz) or 110-175VDC
6	Input Current (Typ)	(*1)	—	0.8A at 100VAC
7	Inrush Current (Typ)	(*3)	—	30A at 100VAC
8	Output Voltage Range		—	±10%
9	Maximum Ripple & Noise		—	120mV
10	Maximum Line Regulation	(*4)	—	20mV
11	Maximum Load Regulation	(*5)	—	40mV
12	Over Current Protection	(*6)	—	105% —
13	Over Voltage Protection	(*7)	—	115% to 135%
14	Hold-Up Time (Typ)	(*1)	—	20ms
15	Series Operation		—	Possible
16	Operating Temperature	(*8)	—	0°C to +50°C (100%), 60°C (50%)
17	Operating Humidity		—	30% to 90% RH
18	Storage Temperature		—	-30°C to +85°C
19	Storage Humidity		—	10% to 95% RH
20	Cooling		—	Convection Cooled
21	Temperature Coefficient	(*9)	—	1% (Typ) at 0°C to +50°C
22	Withstand Voltage	(*10)	—	Input - Chassis , Input - Output : 2kVAC (20mA) Output - Chassis : 500VAC (100mA) for 1min
23	Isolation Resistance		Ohm	More than 100M Ohm at 25°C and 70%RH Output-FG 500VDC
24	Vibration		—	10-55Hz (sweep 1 min) less than 19.6m/s^2 X,Y,Z 1 h each
25	Shock		—	Less than 196.1m/s^2
26	Safety		—	Designed to meet UL60950-1, CSA C22.2 No.60950 & DENAN
27	Conducted Radio Noise		—	Designed to meet FCC class B, VCCI - B
28	Weight		—	280g
29	Size (W.H.D.)		mm	31 . 68 . 119 (Refer to Outline Drawing)

* NOTES :

1 : At 100VAC and Maximum Output Power, Ta = 25°C

2 : For cases where conformance to various safety specs (UL, CSA) are required to be described as 100 - 120VAC, 50/60Hz on name plate.

3 : Typical value on cold start, Ta = 25°C.

4 : From 85 to 132VAC or 110 to 175VDC, constant load.

5 : From No Load to Full Load, constant input voltage.

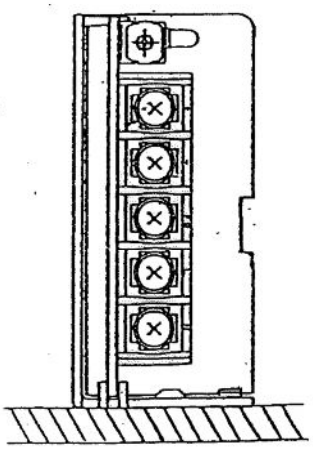
6 : Current limiting with automatic recovery.
Avoid to operate over load or dead short for more than 30 seconds.

7 : OVP circuit will shut down output, manual reset.

8 : At standard mounting (vertical).

9 : Constant input voltage & load.

10 : Refer to instruction manual for testing procedure.



Standard Mounting

HK50A

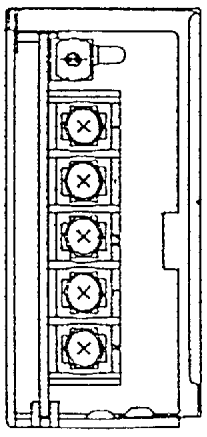
SPECIFICATIONS

PA779-01-04C

	ITEMS / MODEL			HK50A-9
1	Nominal Output Voltage		-	9V
2	Maximum Output Current		-	5.6A
3	Maximum Output Power		-	50.4W
4	Efficiency (Typ)	(*1)	-	80%
5	Input Voltage Range	(*2)	-	85 - 132VAC(47 - 440Hz) or 110 - 175VDC
6	Input Current (Typ)	(*1)	-	1.2A at 100VAC
7	In-rush Current (Typ)	(*3)	-	30A at 100VAC
8	Output Voltage Range		-	±10%
9	Maximum Ripple & Noise		-	150mV
10	Maximum Line Regulation	(*4)	-	36mV
11	Maximum Load Regulation	(*5)	-	72mV
12	Over Current Protection	(*6)	-	105% -
13	Over Voltage Protection	(*7)	-	115% to 135%
14	Hold-Up Time (Typ)	(*1)	-	20ms
15	Series Operation		-	Possible
16	Operating Temperature	(*8)	-	0°C to +50°C(100%), 60°C(50%)
17	Operating Humidity		-	30% to 90% RH
18	Storage Temperature		-	-30°C to +85°C
19	Storage Humidity		-	10% to 95% RH
20	Cooling		-	Convection Cooled
21	Temperature Coefficient	(*9)	-	1%(Typ) at 0°C to +50°C
22	Withstand Voltage	(*10)	-	Input-Chassis , Input-Output : 2kVAC (20mA) Output-Chassis : 500VAC (100mA) for 1min.
23	Isolation Resistance		-	More than 100MΩ at 25°C and 70% RH Output-FG 500VDC
24	Vibration		-	10-55Hz (sweep 1 min) less than 19.6m/s^2 X,Y,Z 1 h each
25	Shock		-	Less than 196.1m/s^2
26	Safety		-	Designed to meet UL60950-1, CSA C22.2 No.60950 & DENAN
27	Conducted Radio Noise		-	-
28	Weight		-	280g
29	Size (W.H.D)		mm	31×68×119 (Refer to Outline Drawing)

==NOTES==

*1: At 100VAC & Maximum Output Power,Ta = 25 °C .
*2: For cases where conformance to various safety specs (UL,CSA) are required to be described as 100-120VAC, 50/60Hz on name plate.
*3: Typical value on cold start, Ta=25°C .
*4: From 85 to 132VAC or 110 to 175VDC, constant load.
*5: From No load to Full load, constant input voltage.
*6: Current limiting with automatic recovery.
Avoid to operate over load or dead short for more than 30 seconds.
*7: OVP circuit will shut down output, manual reset.
*8: At standard mounting. (vertical)
*9: Constant input voltage & load.
*10: Refer to instruction manual for testing procedure.



Standard Mounting