

KWS5A

SPECIFICATIONS

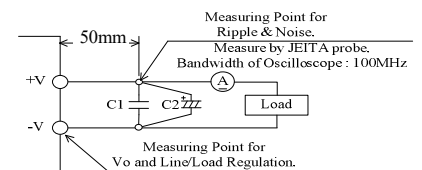
FC002-01-01B

ITEMS		MODEL	KWS5A-5	KWS5A-12	KWS5A-15	KWS5A-24	
1	Nominal Output Voltage	V	5	12	15	24	
2	Maximum Output Current	A	1.0	0.45	0.35	0.22	
3	Maximum Output Power	W	5.00	5.40	5.25	5.28	
4	Efficiency (Typ.) (*1)	100VAC / 115VAC	%	76/76	78/78	78/79	80/80
		200VAC / 230VAC	%	74/74	75/75	75/75	77/77
5	Input Voltage Range	(*2)	85- 265VAC (47-440Hz) or 120- 370VDC				
6	Input Current (Typ.)	(*1)	0.13 / 0.07				
7	Inrush Current (Typ.)	(*1)(*3)	15A at 100VAC, 30A at 200VAC, Ta=25°C, Cold Start				
8	Output Voltage Range	V	Fixed				
9	Output Voltage Accuracy	-	+/- 5%				
10	Maximum Ripple & Noise	(*4)(*5)(*6)	mV	200	240	240	240
11	Maximum Line Regulation	(*5)(*12)	mV	20	48	60	96
12	Maximum Load Regulation	(*6)(*12)	mV	40	96	120	150
13	Temperature Coefficient	-	Less than 0.02% / °C				
14	Over Current Protection	(*7)	A	1.05 -	0.47 -	0.36 -	0.23 -
15	Over Voltage Protection	(*8)	V	5.75 - 7.0	13.8 - 18.3	17.25 - 22.4	27.6 - 34.0
16	Hold-up Time (Typ.)	(*9)	-	15ms/45ms			
17	Leakage Current	(*10)	-	Less than 0.25mA			
18	Parallel Operation	-	-				
19	Series Operation	-	Possible				
20	Operating Temperature	-	-10 to 85°C (-10 to 55°C : 100%, 70°C : 55%, 85°C : 10%) Guarantee Start up at -40 to -10°C				
21	Operating Humidity	-	30 to 90%RH (No Condensing)				
22	Storage Temperature	-	-40 to +85°C				
23	Storage Humidity	-	20 to 95%RH (No Condensing)				
24	Cooling	-	Convection Cooling				
25	Withstand Voltage	-	Input - Output : 3kVAC(20mA) for 1 minute.				
26	Isolation Resistance	-	More than 100M Ohms at 25°C and 70%RH Input - Output 500VDC				
27	Vibration	-	10 - 55Hz, constant amplitude 1.65mmp-p (Max 10G), sweep 1 minute X, Y, Z 1 hour each				
28	Shock	-	Less than 50G for 11 ± 5ms on ± (X, Y, Z) axis each 3 times				
29	Safety	-	Approved by UL62368-1, CSA62368-1, EN62368-1, UL60950-1, CSA60950-1, EN60950-1 (Expire date of 60950-1 : 20/12/2020) Designed to meet Den-an Appendix 12 .				
30	Conducted Emission	(*13)	-	Designed to meet EN55011/EN55032-B, FCC-B, VCCI-B (Need External parts) Designed to meet EN55011/EN55032-A, FCC-A, VCCI-A (No Need External parts)			
31	Radiated Emission	(*13)	-	Designed to meet EN55011/EN55032-B, FCC-B, VCCI-B (Need External parts) Designed to meet EN55011/EN55032-A, FCC-A, VCCI-A (No Need External parts)			
32	Immunity	(*13)	-	Designed to meet IEC61000-6-2 IEC61000-4-2, -3, -4, -5, -6, -8, -11			
33	Weight (Typ.)	-	35g				
34	Size (W x H x D)	mm	25.4 x 21.5 x 38.1 (Refer to Outline Drawing)				

*Read instruction manual carefully, before using the power supply unit.

=NOTES=

- *1. At 100VAC/200VAC and 115VAC/230VAC , Ta=25°C, nominal output voltage and maximum output power.
- *2. For cases where conformance to various safety specs (UL, CSA, EN) are required, to be described as 100 - 240VAC(50 - 60Hz).
- *3. Not applicable for the inrush current to Noise Filter for less than 0.2ms.
- *4. Measure with JEITA RC-9131B probe, Bandwidth of scope :100MHz.
For start up at low ambient temperature and low input voltage, output ripple noise might not meet specification.
However, specification can be met after 1 minute.
- *5. 85 - 265VAC, constant load.
- *6. No load-Full load, constant input voltage.
- *7. Hiccup with automatic recovery.
Avoid to operate at over load or short circuit condition.
- *8. OVP apply the output zener clamp circuit.
- *9. At 100VAC and 115VAC with 80% load ; 200VAC and 230VAC with 100% load.
- *10. Measured by the each measuring method of UL, CSA, EN and Den-an (at 60Hz), Ta=25°C.
- *11. Output Derating
- Refer to OUTPUT DERATING CURVE (FC002-01-02_).
- Load (%) is percent of maximum output power or maximum output current, do not exceed its derating of maximum load.
- For conditions of start up at -40°C to -10°C, refer to derating curve (FC002-01-03_).



C1 : Film Cap. 0.1µF
C2 : Elect. Cap. 100µF

*12. Output derating needed when input voltage less than 90VAC. Refer to LOAD vs. INPUT VOLTAGE (FC002-01-02_).

*13. The power supply is considered a component which will be installed into a final equipment.
The final equipment should be re-evaluated that it meets EMC directives.

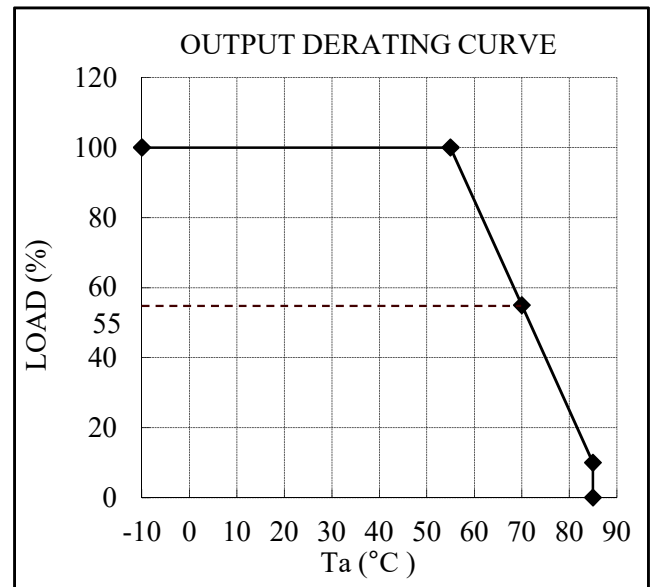
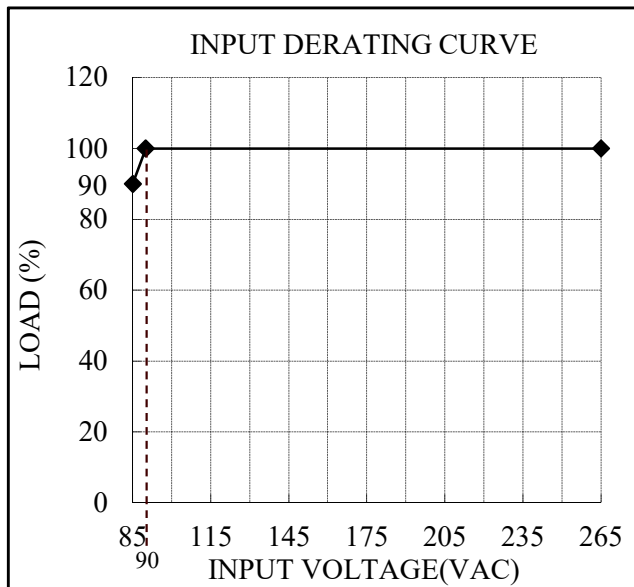
KWS5A

INPUT AND OUTPUT DERATING

FC002-01-02

VIN(VAC) 5V to 24V	LOAD (%)
85	90
90 to 265	100

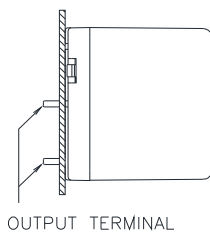
Ta (°C) 5V to 24V	LOAD (%)
-10 to +55	100
70	55
85	10



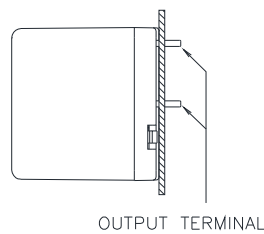
MOUNTING (A)
(STANDARD MOUNTING)



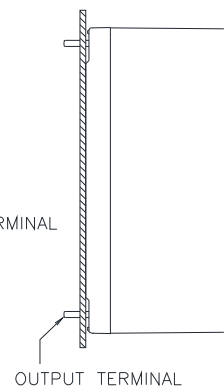
MOUNTING (B)



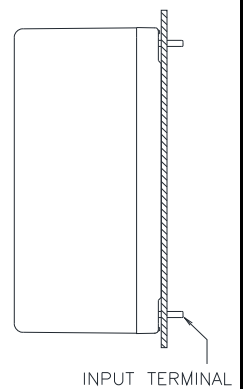
MOUNTING (C)



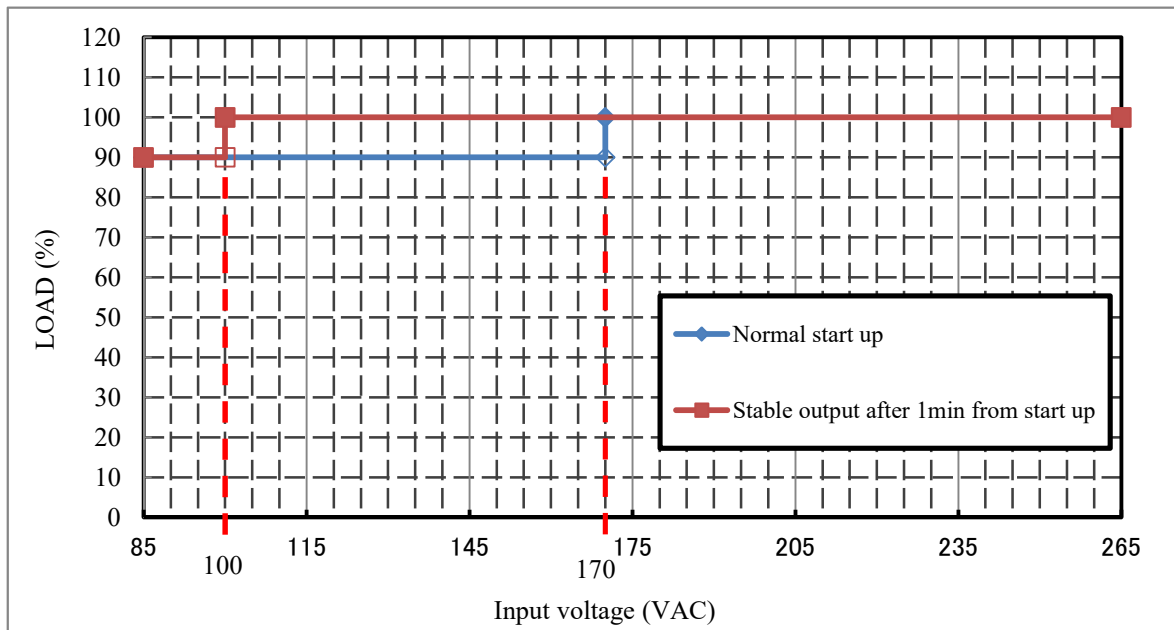
MOUNTING (D)



MOUNTING (E)



VIN(VAC)	LOAD (%)	
	Normal start up	Stable output after 1 min from start up
$85 \leq V_{in} < 100$	90	90
$100 \leq V_{in} < 170$	90	100
$170 \leq V_{in} \leq 265$	100	100



NOTE :

- * At Ta: -40 to -10°C
- * Input voltage : Not gradual start up.
- * Do not use the load that is constant current mode.
- * Avoid forced air cooling . It is assumed that inside of power supply is heated by self-heating within 1 minute.
- * No condensing.
- * Pay attention to above items before using the unit. Incorrect usage could lead to unstable output voltage.