

KWS15A/KW

SPECIFICATIONS

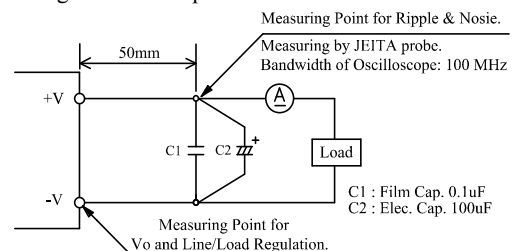
FB006-01-01A

ITEMS		MODEL	KWS15A-5/KW	KWS15A-12/KW	KWS15A-15/KW
1	Nominal Output Voltage	V	5	12	15
2	Maximum Output Current	A	3.0	1.3	1
3	Maximum Output Power	W	15.0	15.6	15.0
4	Efficiency (Typ.) (*1)	100VAC	76	80	81
		200VAC	78	83	84
5	Input Voltage Range	(*2) -	85- 265VAC (47-440Hz) or 120- 370VDC		
6	Input Current (Typ.)	(*1) A	0.33 / 0.24		
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
11	Maximum Line Regulation	(*5)(*11) mV	20	48	60
12	Maximum Load Regulation	(*6)(*11) mV	40	96	120
13	Temperature Coefficient	-	Less than 0.02% / °C		
14	Over Current Protection	(*7) A	3.15 -	1.36 -	1.05 -
15	Over Voltage Protection	(*8) V	5.75 - 7.0	13.8 - 18.3	17.25 - 22.4
16	Hold-up Time (Typ.)	(*9) -	10ms(17ms at 50%Load) / 30ms		
17	Leakage Current	-	-		
18	Parallel Operation	-	-		
19	Series Operation	-	Possible		
20	Operating Temperature	(*10)(*11) -	-10 to 85°C : 5V (-10 to 45°C : 100%, 65°C : 55%, 85°C : 10%) 12V,15V (-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	(*12) -	Designed to meet UL60950-1, CSA60950-1, EN60950-1. Designed to meet Den-an Appendix 12 .		
30	Conducted Emission	(*13) -	Designed to meet EN55011/EN55022-B, FCC-B, VCCI-B (Need External parts) Designed to meet EN55011/EN55022-A, FCC-A, VCCI-A (No Need External parts)		
31	Radiated Emission	(*13) -	Designed to meet EN55011/EN55022-B, FCC-B, VCCI-B (Need External parts) Designed to meet EN55011/EN55022-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.)	-	73g		
34	Size (W x H x D)	mm	48 x 31 x 70 (Refer to Outline Drawing)		

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

=NOTES=

- *1. At 100VAC/200VAC , 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 with 80% load ; 200VAC with 100% load.
- *10. Output Derating
 - Refer to OUTPUT DERATING CURVE (FB006-01-02_).
 - 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 (FB006-01-03).
- *11. Output derating needed when input voltage less than 100VAC. Refer to LOAD vs. INPUT VOLTAGE (FB006-01-02_).
- *12. The /KW model didn't get safety approval, but the installed power supply on PCB board already got safety certification.
- *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.



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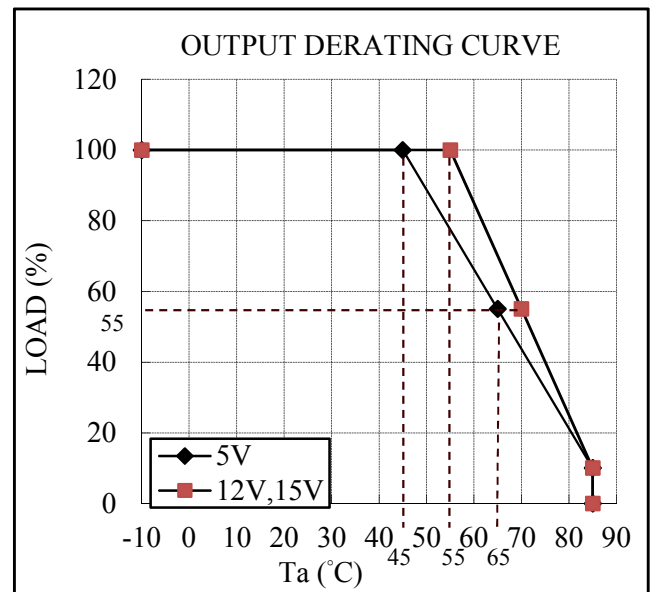
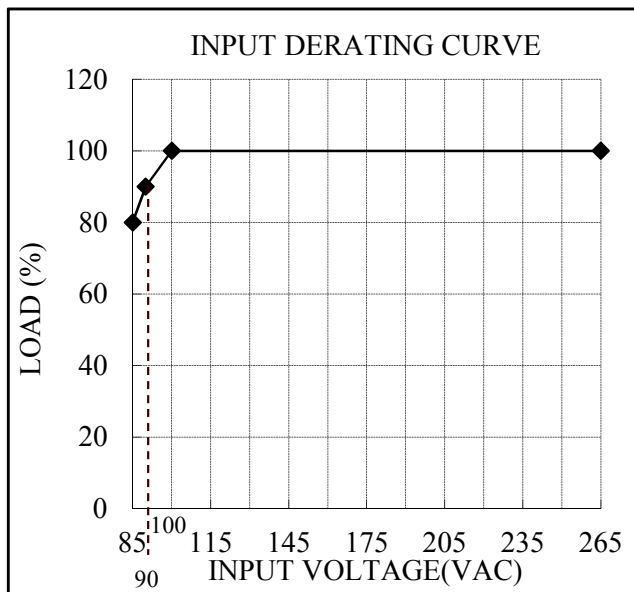
INPUT AND OUTPUT DERATING

FB006-01-02A

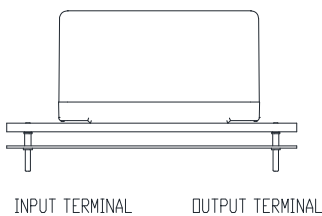
VIN(VAC) 5V to 15V	LOAD (%)
85	80
90	90
100 to 265	100

Ta (°C) 5V	LOAD (%)
-10 to +45	100
65	55
85	10

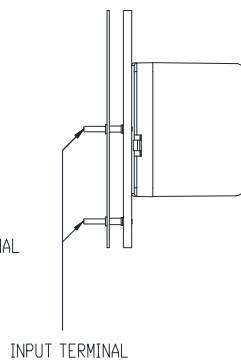
Ta (°C) 12V to 15V	LOAD (%)
-10 to +55	100
70	55
85	10



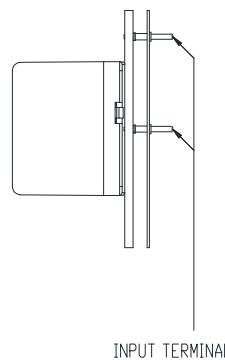
MOUNTING (A)
(STANDARD MOUNTING)



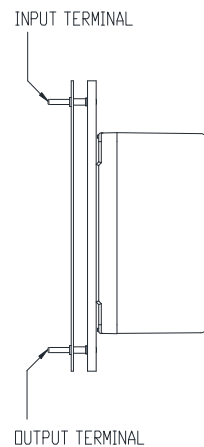
MOUNTING (B)



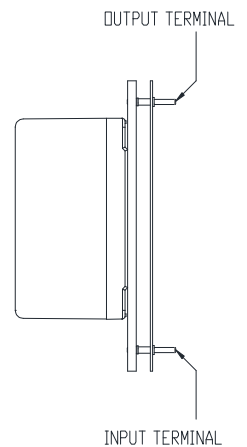
MOUNTING (C)



MOUNTING (D)



MOUNTING (E)

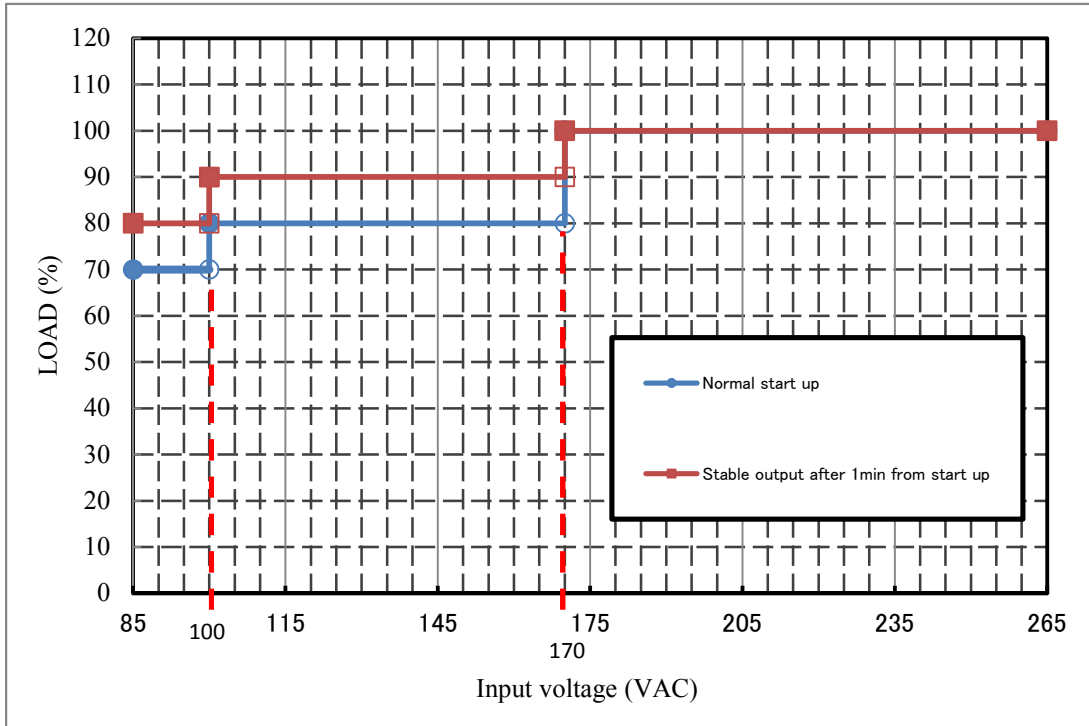


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DERATING TO START UP AT Ta: -40 to -10°C

FB006-01-03A

VIN(VAC)	LOAD (%)	
	Normal start up	Stable output after 1 min from start up
$85 \leq V_{in} < 100$	70	80
$100 \leq V_{in} < 170$	80	90
$170 \leq V_{in} \leq 265$	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.