

Single output 5-25W AC-DC Board Mount Power Supplies

<https://product.tdk.com/en/power/kws-a>
www.emea.lambda.tdk.com/kws-a



Industrial



Test



COMM



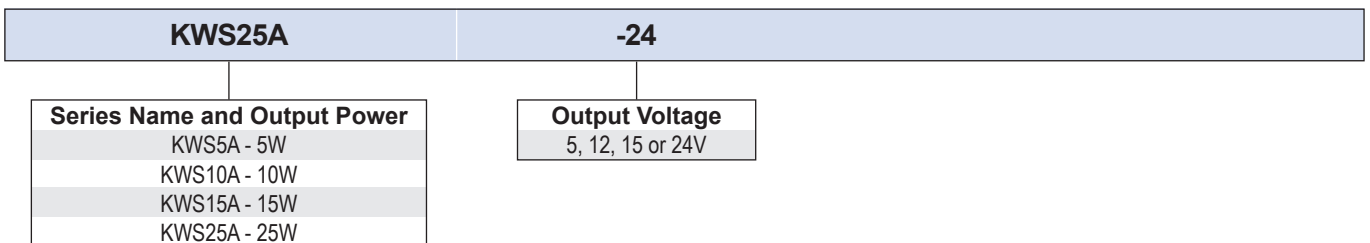
Broadcast

The industrial grade KWS-A series of 5W, 10W, 15W and 25W board mount power supplies offer high efficiency levels of up to 88% in compact package sizes and footprints. The KWS-A has a wide operating temperature range of -40 (start up) to +85°C with derating above 45/55°C and less than 0.5W off-load power consumption. These converters are Class II double insulated, allowing operation without an earth ground connection.

Features	Benefits
• High Efficiency, Up to 88%	• Lower Operating Costs, Improved Thermal Performance
• Class B EMI with an External X Capacitor	• Minimal External Components Required
• Low No Load Power Consumption	• Energy Saving
• Wide Operating Temperature	• Operation In Harsh Environments
• Class II, Wide Range Input (85-265Vac)	• Global Application, No Earth Required

Model Selector

Model	Output Voltage (V)	Maximum Current (A)	Maximum Power (W)	Load Reg (mV)	Line Reg (mV)	Ripple /Noise (mV)	Efficiency (typ)% 115/230Vac
KWS5A-5	5	1	5	40	20	200	76 / 74
KWS10A-5	5	2	10	40	20	200	76 / 77
KWS15A-5	5	3	15	40	20	200	77 / 78
KWS25A-5	5	5	25	40	20	200	81 / 82
KWS5A-12	12	0.45	5.4	96	48	240	78 / 75
KWS10A-12	12	0.9	10.8	96	48	240	80 / 81
KWS15A-12	12	1.3	15.6	96	48	240	81 / 83
KWS25A-12	12	2.2	26.4	96	48	240	84 / 86
KWS5A-15	15	0.35	5.3	120	60	240	79 / 75
KWS10A-15	15	0.7	10.5	120	60	240	81 / 82
KWS15A-15	15	1	15	120	60	240	82 / 84
KWS25A-15	15	1.7	25.5	120	60	240	85 / 87
KWS5A-24	24	0.22	5.3	150	96	240	80 / 77
KWS10A-24	24	0.5	12	150	96	240	82 / 84
KWS15A-24	24	0.7	16.8	150	96	240	82 / 85
KWS25A-24	24	1.1	26.4	150	96	240	86 / 88



Specifications					
Model		KWS5A	KWS10A	KWS15A	KWS25A
Input					
AC Input Voltage Range	Vac	85 - 265. Derate to 80% load from 100 to 85 input (KWS5A 90% load from 90 to 85)			
Input Frequency	Hz	47 - 440 ⁽¹⁾			
DC Input Voltage Range	Vdc	120 - 370 ⁽¹⁾			
Input Current (115/230Vac)	A	0.13 / 0.07	0.25 / 0.13	0.33 / 0.24	0.56 / 0.34
Inrush Current at 200Vac (typ) (Cold Start)	A	30			
Leakage Current (264Vac)	uA	<250			
Harmonic Compliance	-	Designed to meet IEC61000-3-2			
No Load Power Consumption	W	<0.5. See evaluation data on website for measured results			
Hold Up Time (typ) at 115 / 230Vac Input ⁽²⁾	ms	15 / 45	10 / 30		
Efficiency	-	See model selector table			
Conducted & Radiated EMI	-	EN55011/EN55032-A, FCC-A, VCCI-A. (External components are required for B, consult Evaluation Data)			
Immunity	-	IEC61000-4-2, -3, -4, -5, -6, -8, -11; IEC61000-6-2 (See immunity table below and immunity reports on website)			
Insulation Class	-	Class II			
Safety Certifications and Markings	-	IEC/UL/CSA/EN62368-1, 60950-1, CE Mark and UKCA Mark			

Immunity				
Test	Standard	Test Level	Criteria	Notes
ESD	EN61000-4-2	Air ±8kV and contact ±4kV	B	See immunity reports on website for more details
Radiated Susceptibility	EN61000-4-3	80M -1GHz: 10V/m 1.4 - 2.0GHz: 3V/m 2.0 - 2.7GHz: 1V/m	A	
Electrical Fast Transient Burst	EN61000-4-4	± 2kV	B	
Surge	EN61000-4-5	Normal Mode ± 1kV	B	
Conducted Susceptibility	EN61000-4-6	10Vm/s	A	
Magnetic fields	EN61000-4-8	30A/m	A	
Voltage Dips and Input Interruptions	EN61000-4-11	30% 500ms 60% 10ms 100% 20ms 100% 5000ms	B	

Specifications					
Model		KWS5A	KWS10A	KWS15A	KWS25A
Output					
Output Voltage Tolerance	%	±5			
Output Voltage Adjustment	-	None			
Switching Frequency (Fixed)	kHz	130			
Line Regulation	-	See model selector table			
Load Regulation	-	See model selector table			
External Load Capacitance	uF	5V: 2000, 12/15: 820, 24V: 330	5V: 2000, 12/15: 1000, 24V: 390	5V: 2000, 12/15: 1000, 24V: 560	5V: 4700, 12/15: 2200, 24V: 1500
Ripple & Noise	-	See model selector table			
Temperature Coefficient	%/°C	0.02			
Minimum Load	-	No minimum load required			
Overcurrent Protection	%	>105. Hiccup with auto recovery			
Overvoltage Protection	V	5V: 5.75 - 7, 12V: 13.8 - 18.3, 15V: 17.25 - 22.4, 24V: 27.6 - 34.0			
Parallel Operation	-	Not possible			

Specifications		KWS5A	KWS10A	KWS15A	KWS25A
Environmental					
Operating Temperature	°C	-40 start-up; -10 to +85. Derate linearly to 10% load from +55 to +85 ⁽³⁾			
Storage Temperature	°C	-40 to +85			
Humidity (non condensing)	%RH	30 - 90 Operating, 20 - 95 Storage			
Cooling	-	Convection			
Altitude	m	3000			
Withstand Voltage (For 1 minute)	Vac	Input to Output 3,000			
Isolation Resistance	MΩ	>100 at 25°C, 70%RH & 500VDC			
Vibration (non operating)	-	10-55Hz (Sweep for 1min.) Amplitude 1.65 mm (Max 10G, 98m/s ²) Constant X,Y,Z 1 hour each			
Shock (non operating)	-	Less than 50G (490m/s ²), 11ms, ±X, ±Y, ±Z 3 times each			
Other					
Weight (Typ)	g	35	35	60	85
Size (LxWxH)	mm	38.1 x 25.4 x 21.5	38.1 x 25.4 x 21.5	50.8 x 25.4 x 24	63.5 x 25.4 x 29
Size (LxWxH)	Inches	1.5 x 1.0 x 0.85	1.5 x 1.0 x 0.85	2.0 x 1.0 x 0.94	2.5 x 1.0 x 1.14
Case Material	-	Plastic, UL94V0			
MTBF - Telcordia SR-332 issue 3*	Hours	14,416,059	7,784,121	8,202,502	5,747,627
Warranty	yrs	3			

Notes:

See website for detailed specifications, test methods and installation manual

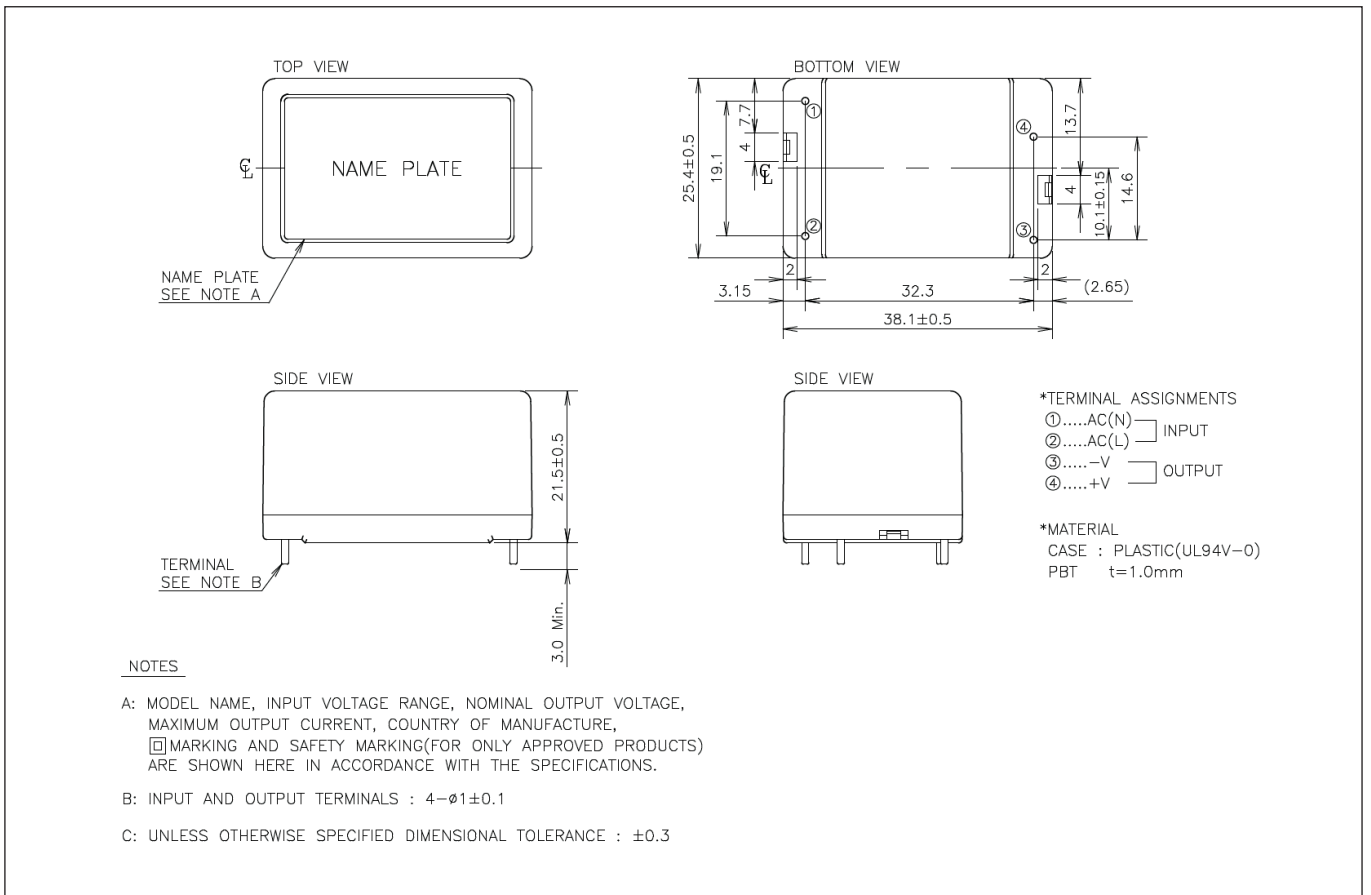
*24V model, 25°C ambient, full load, 230Vac Input

(1) Safety certified for AC input 47-63Hz only

(2) At 100Vac and 115Vac with 80% load (70% load for KWSA10), 200Vac and 230Vac with 100% load

(3) KWS10A-5, KWS15A-5, KWS25A-5: Derate linearly to 10% load from +45 to +85°C

KWS5A, KWS10A Outline Drawing



KPSB15 Outline Drawings & Pin Out

TOP VIEW
NAME PLATE
NAME PLATE SEE NOTE A

BOTTOM VIEW
Dimensions: 25.4±0.5, 19.1, 16.2, 4, 3.15, 2, 45, 50.8±0.5, 2, 10.1, 4, 5.2

SIDE VIEW (Left)
Terminal SEE NOTE B
24±0.5
3.0 Min.

SIDE VIEW (Right)

***TERMINAL ASSIGNMENTS**
 ①.....AC(N) INPUT
 ②.....AC(L) INPUT
 ③.....-V OUTPUT
 ④.....+V OUTPUT

***MATERIAL**
 CASE : PLASTIC(UL94V-0)
 PBT t=1.0mm

NOTES
 A: MODEL NAME, INPUT VOLTAGE RANGE, NOMINAL OUTPUT VOLTAGE, MAXIMUM OUTPUT CURRENT, COUNTRY OF MANUFACTURE, MARKING AND SAFETY MARKING(FOR ONLY APPROVED PRODUCTS) ARE SHOWN HERE IN ACCORDANCE WITH THE SPECIFICATIONS.
 B: INPUT AND OUTPUT TERMINALS : 4-φ1±0.1
 C: UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE : ±0.3

KPSB25 Outline Drawings & Pin Out

TOP VIEW
NAME PLATE
NAME PLATE SEE NOTE A

BOTTOM VIEW
Dimensions: 25.4±0.5, 19.1, 16.2, 4, 3.15, 2, 57.7, 63.5±0.5, 2, 10.1, 4, 5.2, (2.65)

SIDE VIEW (Left)
Terminal SEE NOTE B
29±0.5
3.0 Min.

SIDE VIEW (Right)

***TERMINAL ASSIGNMENTS**
 ①.....AC(N) INPUT
 ②.....AC(L) INPUT
 ③.....-V OUTPUT
 ④.....+V OUTPUT

***MATERIAL**
 CASE : PLASTIC(UL94V-0)
 PBT t:1.0mm

NOTES
 A: MODEL NAME, INPUT VOLTAGE RANGE, NOMINAL OUTPUT VOLTAGE, MAXIMUM OUTPUT CURRENT, COUNTRY OF MANUFACTURE, MARKING AND SAFETY MARKING(FOR ONLY APPROVED PRODUCTS) ARE SHOWN HERE IN ACCORDANCE WITH THE SPECIFICATIONS.
 B: INPUT AND OUTPUT TERMINALS : 4-φ1±0.1
 C: UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE : ±0.3



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