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TDK·Lambda KPSB6 - 25 Series

5-25W AC-DC Board Mount Power Supplies

https://product.tdk.com/en/power/kpsb
www.emea.tdk-lambda.com/kpsb

Industrial Test COMM Broadcast



The cost effective, board mount KPSB series offers high efficiency levels in very compact 39.5 x 19.4mm (6W) and 50.8 x 28mm (25W) footprints. Featuring an open frame or encapsulated construction, these light weight converters are Class II double insulated, allowing operation without an earth ground connection. Optional JST plug in connectors are available.

Features	Benefits
• High Efficiency, Up to 87%	• Lower Operating Costs, Improved Thermal Performance
• Class B EMI	• No External Filter Components Required
• Low No Load Power Consumption	• Energy Saving
• Wide Operating Temperature	• Operation In Harsh Environments
• Class II, Wide Range Input (90-264Vac)	• Global Application, No Earth Required

Model Selector

Model	Output Voltage (V)	Maximum Current (A)	Maximum Power (W)	Overvoltage (V)	Efficiency (%) (230VAC)	Load Capacitance (uF)
KPSB6-3R3	3.3	1.5	5	6.45 - 7.14	75	1500
KPSB6-5	5	1.2	6	6.45 - 7.14	78	1200
KPSB6-9	9	0.67	6	10.5 - 12.1	81	670
KPSB6-12	12	0.5	6	14.3 - 15.8	81	500
KPSB6-15	15	0.4	6	17.1 - 19.5	81	400
KPSB6-24	24	0.25	6	28.5 - 31.5	83	250
KPSB25-5	5	4	20	6.8 (Typ)	81	81000
KPSB25-12	12	2.1	25	15 (Typ)	84	40900
KPSB25-15	15	1.67	25	18 (Typ)	85	19800
KPSB25-24	24	1.05	25	30 (Typ)	86	6600
KPSB25-36	36	0.7	25	47 (Typ)	87	4000
KPSB25-48	48	0.52	25	56 (Typ)	87	2170

KPSB	25	-24	-J
	Output power	Output voltage	Blank Pcb mount -E Encapsulated pcb mount -J JST plug-in connectors

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Specifications

Model		KPSB6	KPSB25
Input			
Input Voltage Range (Operating)	Vac	90 - 264	
Nominal Input Voltage Range	Vac	100 - 240	
Input Current (100Vac, Full Load)	A	0.25	0.7
Inrush Current at 240Vac (Cold Start)	A	90	60
Touch Current (264Vac)	uA	<250	
Harmonic Compliance	-	Meets IEC61000-3-2 Class A	
No Load Power Consumption	W	<0.075	<0.1
Hold Up Time (typ) at 115Vac Input	ms	12	8
Efficiency	-	See model selector table	
Conducted & Radiated EMI	-	EN55032-B conducted and radiated, FCC Part 15 Class B	
Immunity	-	EN55024, EN61204-3, EN61000-6-1, EN61000-6-2. See immunity table for details	
Insulation Class	-	Construction suitable for Class II installation	
Safety Certifications and Markings	-	IEC/UL/CSA/EN62368-1, (meets IEC/EN60335 and IEC/EN61558-1), CE Mark and UKCA Mark	

Immunity

Test	Standard	Test Level	Criteria	Notes
ESD	EN61000-4-2	Lvl 4 (+/-8kV)	A	Air discharge (Unit not accessible for contact)
Radiated Susceptibility	EN61000-4-3	N/A	A	Embedded power supply
Electrical Fast Transient Burst	EN61000-4-4	Lvl 3 (±2kV) / Lvl 3 (±1kV)	A	AC input port / DC output port
Surge	EN61000-4-5	Lvl 3 (±1kV)	A	-
Conducted Susceptibility	EN61000-4-6	N/A	-	Embedded power supply
Magnetic fields	EN61000-4-8	Lvl 3 (30A/m)	A	-
Voltage Dips and Input Interruptions	EN61000-4-11	5% for 1/2 cycle	A	-
	Class 3 Industrial, incl	70% for 25/30 cycles	A	-
	EN55024 (100Vac)	5% for 250/300 cycles	B	-
	EN61000-4-11	5% for 1/2 cycle	A	-
	Class 3 Industrial, incl	70% for 25/30 cycles	A	-
	EN55024 (240Vac)	5% for 250/300 cycles	B	-

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Specifications

Model		KPSB6	KPSB25
Output			
Output Voltage Accuracy (Full Load)	%	3.3V: ±6, 5 to 9V: ±5, 12 to 24V: ±3	5V: ±2, 12 to 24V: ±1
Output Voltage Adjustment	-	None	
Switching Frequency (Typ)	kHz	30 - 70	65
Line Regulation	%	±1	
Load Regulation (10 to 100% Load)	%	3.3V: ±, 5 to 9V: ±5, 12 to 24V: ±3	±1
External Load Capacitance	uF	See model selector table	
Ripple & Noise (20MHz BW)	mV / %	3.3 to 9V: 100mV, 12V: 120mV, 15V: 150mV, 24V: 240mV	1%
Temperature Coefficient	%/°C	±0.05	
Minimum Load	-	No minimum load required	
Overcurrent Protection	-	Hiccup mode with auto recovery	
Overvoltage Protection	V	See Model Selector Table. Zener clamp method	
Parallel Operation	-	Not possible	
Environmental			
Operating Temperature	°C	-40 to +80, derate linearly from 100% to 50% load from 60 to 80	Open Frame: -30 to +60, derate linearly from 100% to 50% load from 40 to 60 Encapsulated: -30 to +70, derate linearly from 100% to 50% load from 50 to 70
Storage Temperature	°C	-40 to +85	-30 to +85
Humidity (non condensing)	%RH	5 - 93 (Operating & Storage)	
Cooling	-	Convection	
Altitude	m	5,000	5,000 (3,000 IEC61558-1)
Withstand Voltage (For 1 minute)	Vac	Input to Output 3kV	
Isolation Resistance	MΩ	>100 at 25°C, 70%RH & 500VDC	
Vibration	-	Meets MIL-STD 810F table 514.5C VIII, 15 to 2,000Hz, X,Y, V axis, 1 hour each. 4G	
Shock	-	Meets MIL-STD-810F, 516.5 table 516.1-1, 10ms, X, Y, Z axis 3 times. 75G	
Other			
Weight (Typ)	g	KPBS6-xx: 11g KPBS6-xx-J: 12g KPBS6-xx-E: 30g	KPBS25-xx: 50g KPBS25-xx-J: 55g KPBS25-xx-E: 105g
Size (LxWxH)	mm	KPBS6-xx: 39.5 x 19.4 x 18.3 KPBS6-xx-J: 49.53 x 18.5 x 17.5 KPBS6-xx-E: 41.1 x 21 x 20	KPBS25-xx: 50.8 x 27.94 x 24.9 KPBS25-xx-J: 70.5 x 27.94 x 23.0 KPBS25-xx-E: 53.1 x 30.3 x 24.8
Size (LxWxH)	Inches	KPBS6-xx: 1.555 x 0.764 x 0.72 KPBS6-xx-J: 1.95 x 0.728 x 0.689 KPBS6-xx-E: 1.618 x 0.827 x 0.787	KPBS25-xx: 2.0 x 1.1 x 0.98 KPBS25-xx-J: 2.776 x 1.1 x 0.906 KPBS25-xx-E: 2.091 x 1.193 x 0.976
Connectors	-	KPSB6-xx-J: Input: JST B3B-PH, Output: B2B-PH, KPSB25-xx-J: Input: JST B3B-XH, Output: B4B-XH	
Case Material	-	-E option code: Flame Retardant Polycarbonate (UL94 V-0)	
MTBF - MIL-HDBK-217F, GB 25°C, 115Vac	Hours	1,120,000 (24V model)	500,000 (Minimum)
Warranty	yrs	3	

Notes:
See website for detailed specifications, test methods and installation manual

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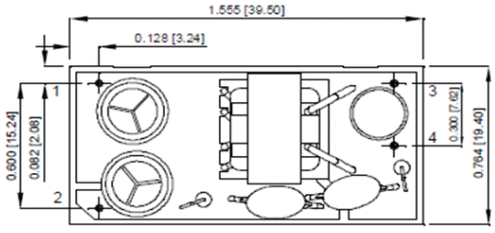
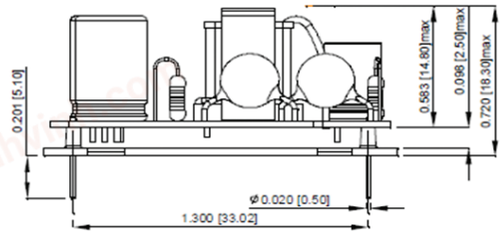
KPSB6 Outline Drawings & Pin Out

All Dimensions In Inches[mm]
Tolerance Inches:x.xxx= ± 0.02
Millimeters: x.xx = ± 0.5

KPSB6-XXX





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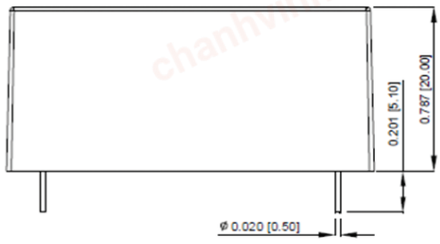

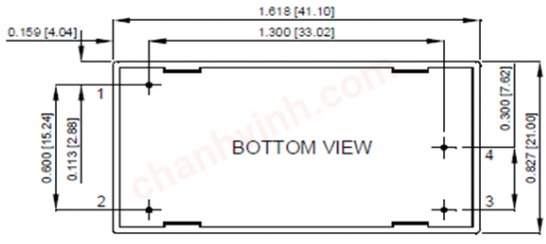

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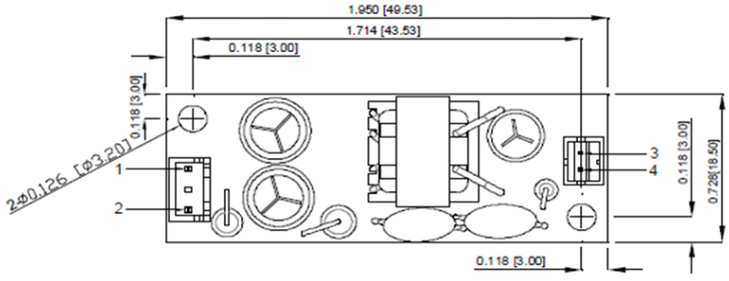

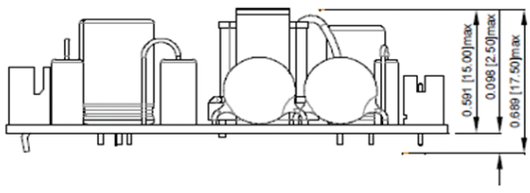

PIN CONNECTION	
Pin	Function
1	ACN
2	ACL
3	+Vout
4	-Vout

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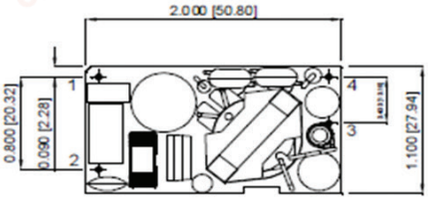
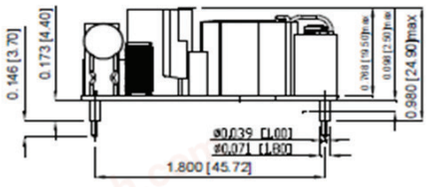
KPSB25 Outline Drawings & Pin Out

All Dimensions In Inches[mm]
Tolerance Inches:x.xxx= ±0.02
Millimeters: x.xx = ± 0.5

KPSB25-XX





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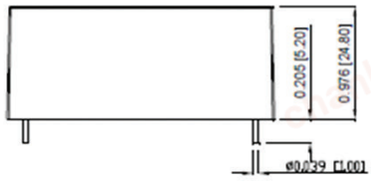
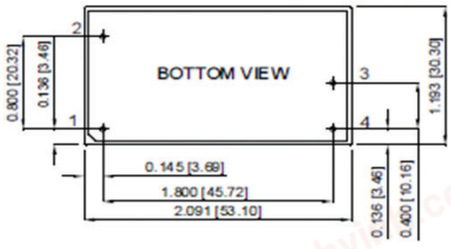
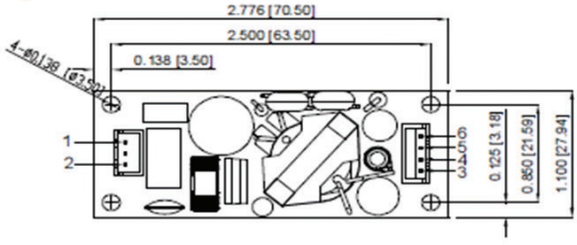
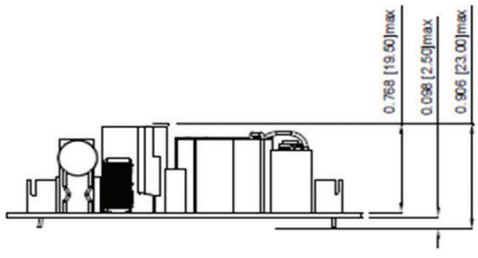




PIN CONNECTION	
PIN	Function
1	ACL
2	ACN
3	+Vout
4	-Vout

KPSB25-XX-J





PIN CONNECTION	
PIN	Function
1	ACL
2	ACN
3	+Vout
4	+Vout
5	-Vout
6	-Vout

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