

5-25W AC-DC Board Mount Power Supplies

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



Industrial



Test



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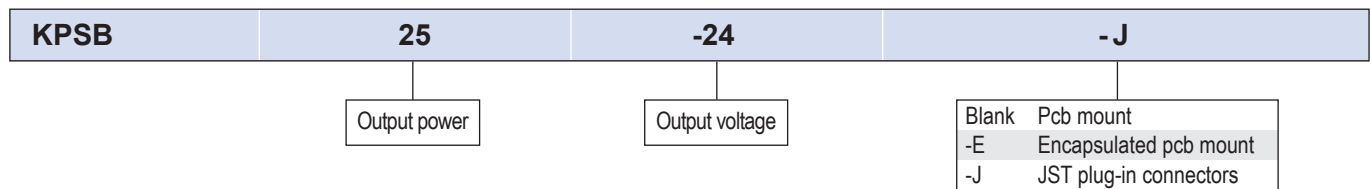
Broadcast



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



Specifications		
Model	KPSB6	KPSB25
Input		
Input Voltage Range (Operating)	Vac	90 - 264
Nominal Input Voltage Range	Vac	100 - 240 (Note: Safety certified for 90 - 264Vac only)
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 EN55024 (100Vac)	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 EN55024 (240Vac)	70% for 25/30 cycles	A	-
EN55024 (240Vac)	5% for 250/300 cycles	B	-	

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: \pm , 5 to 9V: ± 5 , 12 to 24V: ± 3		± 1
External Load Capacitance	μ F	See model selector table		
Ripple & Noise (20MHz BW)	mV / %	3.3 to 9V: 100mV, 12V: 120mV, 15V: 150mV, 24V: 240mV		1%
Temperature Coefficient	%/ $^{\circ}$ 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	$^{\circ}$ 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	$^{\circ}$ 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	M Ω	>100 at 25 $^{\circ}$ 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	KPSB6-xx: 11g KPSB6-xx-J: 12g KPSB6-xx-E: 30g		KPBS25-xx: 50g KPBS25-xx-J: 55g KPBS25-xx-E: 105g
Size (LxWxH)	mm	KPSB6-xx: 39.5 x 19.4 x 18.3 KPSB6-xx-J: 49.53 x 18.5 x 17.5 KPSB6-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	KPSB6-xx: 1.555 x 0.764 x 0.72 KPSB6-xx-J: 1.95 x 0.728 x 0.689 KPSB6-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 $^{\circ}$ C, 115Vac	Hours	1,120,000 (24V model)		500,000 (Minimum)
Warranty	yrs	3		

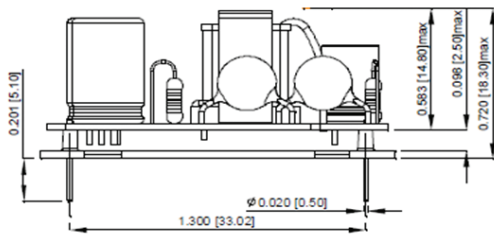
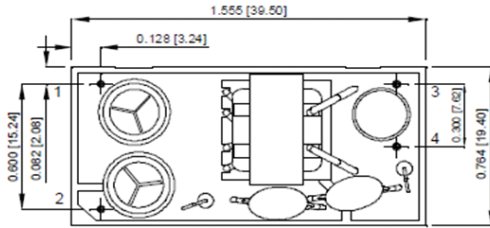
Notes:

See website for detailed specifications, test methods and installation manual

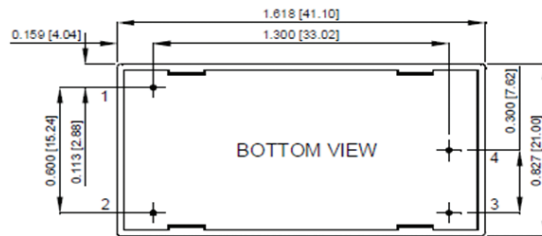
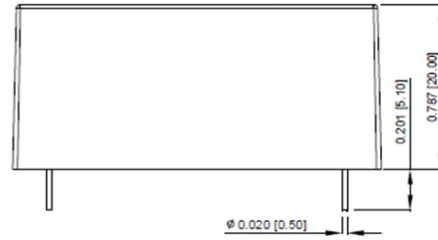
KPSB6 Outline Drawings & Pin Out

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

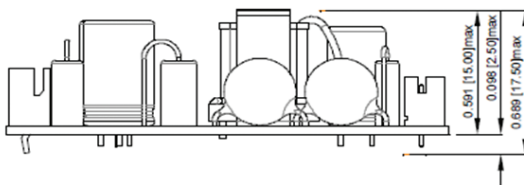
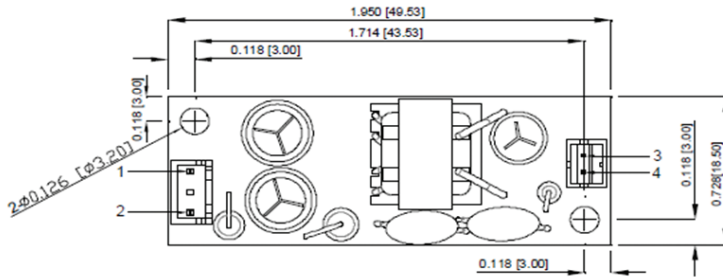
KPSB6-XXX



KPSB6-XXX-E



KPSB6-XXX-J

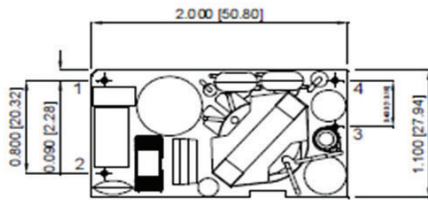


PIN CONNECTION	
Pin	Function
1	ACN
2	ACL
3	+Vout
4	-Vout

KPSB25 Outline Drawings & Pin Out

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

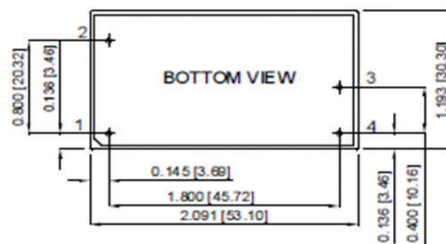
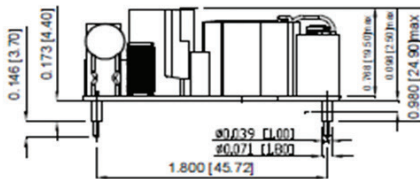
KPSB25-XX



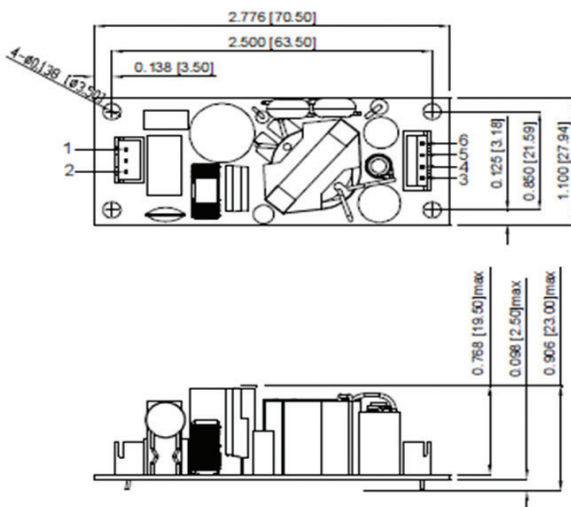
KPSB25-XX-E



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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