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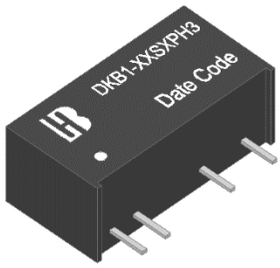
DKB1PH3 Series

1W, Isolated DC-DC Converters



Features

- 7pin SIP Package
- Input / Output Isolation: 3000VDC
- High Efficiency
- Lead Free Design, RoHS Compliant
- Operating Temperature: -40°C to +105°C
- Designed according to IEC/EN/UL 62368-1

Applications

These converters are well suitable for battery operated equipment, measurement equipment, telecom, wireless network, Industry control system, everywhere where isolated, tightly regulated voltages and compact size are required.

Models and Ratings

Model Number	Input Voltage Range (VDC)	Output Voltage (VDC)	Output Current (mA)	Input Current (mA) typ.		Efficiency (%) typ.	Capacitive Load (µF) max.
			Full Load	No Load	Full Load		
DKB1-03S0PH3	2.97 - 3.63 3.3V nominal	3.3	300	35	405	74	68
DKB1-03S1PH3		5	200	35	404	75	47
DKB1-03D0PH3		±3.3	±150	35	405	74	33 / 33
DKB1-03D1PH3		±5	±100	35	404	75	22 / 22
DKB1-05S0PH3	4.5 - 5.5 5V nominal	3.3	300	28	264	75	68
DKB1-05S1PH3		5	200	28	260	77	47
DKB1-05S1PH4		5	200	28	260	77	47
DKB1-05SAPH3		9	110	28	248	80	33
DKB1-05S2PH3		12	83	28	247	81	22
DKB1-05S3PH3		15	67	28	247	81	22
DKB1-05S5PH3		24	42	28	247	81	10
DKB1-05SLPH3		25	40	28	247	81	10
DKB1-05D0PH3		±3.3	±150	28	264	75	33 / 33
DKB1-05D1PH3		±5	±100	28	260	77	22 / 22
DKB1-05DAPH3		±9	±55	28	248	80	10 / 10
DKB1-05D2PH3		±12	±42	28	247	81	10 / 10
DKB1-05D3PH3		±15	±33	28	247	81	10 / 10
DKB1-05D5PH3		±24	±21	28	247	81	4.7 / 4.7

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Pulse a YAGEO company

Models and Ratings (continued)

Model Number	Input Voltage Range (VDC)	Output Voltage (VDC)	Output Current (mA)	Input Current (mA) typ.		Efficiency (%) typ.	Capacitive Load (µF) max.
			Full Load	No Load	Full Load		
DKB1-12S0PH3	10.8 - 13.2 12V nominal	3.3	300	17	109	76	68
DKB1-12S1PH3		5	200	17	107	78	47
DKB1-12SAPH3		9	110	17	107	78	33
DKB1-12S2PH3		12	83	17	104	80	22
DKB1-12S3PH3		15	67	17	104	80	22
DKB1-12S5PH3		24	42	17	104	80	10
DKB1-12D0PH3		±3.3	±150	17	109	76	33 / 33
DKB1-12D1PH3		±5	±100	17	107	78	22 / 22
DKB1-12DAPH3		±9	±55	17	107	78	10 / 10
DKB1-12D2PH3		±12	±42	17	104	80	10 / 10
DKB1-12D3PH3		±15	±33	17	104	80	10 / 10
DKB1-15S0PH3	13.5 - 16.5 15V nominal	3.3	300	15	87	76	68
DKB1-15S1PH3		5	200	15	85	78	47
DKB1-15SAPH3		9	110	15	85	78	33
DKB1-15S2PH3		12	83	15	83	80	22
DKB1-15S3PH3		15	67	15	83	80	22
DKB1-15S5PH3		24	42	15	83	80	10
DKB1-15D0PH3		±3.3	±150	15	87	76	33 / 33
DKB1-15D1PH3		±5	±100	15	85	78	22 / 22
DKB1-15DAPH3		±9	±55	15	85	78	10 / 10
DKB1-15D2PH3		±12	±42	15	83	80	10 / 10
DKB1-15D3PH3		±15	±33	15	83	80	10 / 10
DKB1-24S0PH3	21.6 - 26.4 24V nominal	3.3	300	8	54	77	68
DKB1-24S1PH3		5	200	8	53	79	47
DKB1-24SAPH3		9	110	8	52	80	33
DKB1-24S2PH3		12	83	8	51	81	22
DKB1-24S3PH3		15	67	8	51	81	22
DKB1-24S5PH3		24	42	8	51	81	10
DKB1-24D0PH3		±3.3	±150	8	54	77	33 / 33
DKB1-24D1PH3		±5	±100	8	53	79	22 / 22
DKB1-24DAPH3		±9	±55	8	52	80	10 / 10
DKB1-24D2PH3		±12	±42	8	51	81	10 / 10
DKB1-24D3PH3		±15	±33	8	51	81	10 / 10

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Input Specifications		
Input voltage		See Models and Ratings table
Input filter		Capacitor
Output Specifications		
Output power		1 Watt max.
Voltage accuracy	Nominal Vin and full load	
	3.3V Output	3.135 - 3.399 VDC
	5V Output	4.75 - 5.15 VDC
	9V Output	8.73 - 9.18 VDC
	12V Output	11.64 - 12.24 VDC
	15V Output	14.55 - 15.30 VDC
	24V Output	23.52 - 24.36 VDC
	25V Output	24.50 - 25.37 VDC
Minimum load		10% load of full load
Line regulation	1% Vin step	±1.2% max.
Load regulation	10% to 100% load	
	3.3Vout and ±3.3Vout models	15% max.
	5Vout and ±5Vout models	13% max.
	9Vout and ±9Vout models	9% max.
	12Vout and ±12Vout models	8% max.
	15Vout and ±15Vout models	7% max.
	24Vout and ±24Vout models	6% max.
	25Vout model	6% max.
Ripple and noise	20MHz bandwidth and full load	100 mVp-p max.
Capacitive load	Nominal Vin and constant resistive load	See Models and Ratings table
Short circuit protection	3.3Vin and 24Vin models	3 s max.
	Other models	Continuous, Automatic recovery
Temperature coefficient	Full Load	±0.03%/°C typ.
General Specifications		
Efficiency	Nominal Vin and full load	See Models and Ratings table
Switching frequency	Nominal Vin and full load	150 kHz typ. 300 kHz max.
Isolation voltage	Input to output, 60 s	3000 VDC min.
Isolation resistance	500 VDC	1000 MΩ min.
Isolation capacitance		30 pF typ.

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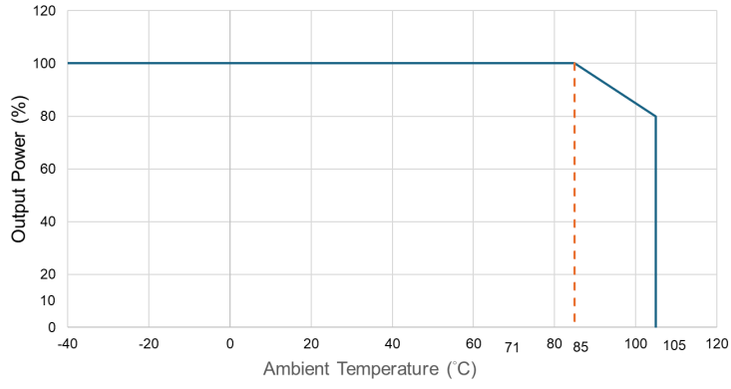
Reliability, calculated MTBF	MIL-HDBK-217F, Ground Benign	2×10^6 h
Operating ambient temperature	With derating	-40°C to +105°C
Case temperature		+125°C max.
Storage temperature range		-55°C to +125°C
Relative humidity		95% RH max.
Cooling		Natural convection
Physical Specifications		
Case material		Plastic (UL 94 V-0)
Pin material		Copper alloy
Pin Foundation Plating		Nickel
Pin Surface Plating		Tin
Potting material		Epoxy (UL 94 V-0)
Dimensions		19.6 × 10.1 × 7.0 mm
Weight		2 g typ.

Characteristic Curves

Power Derating Curve



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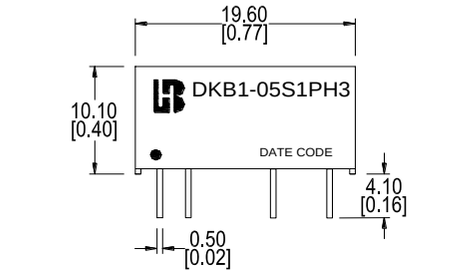
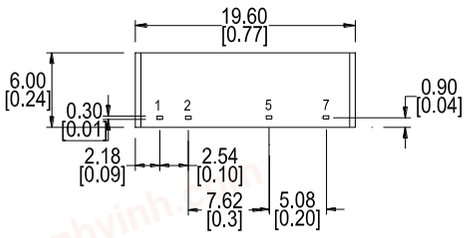
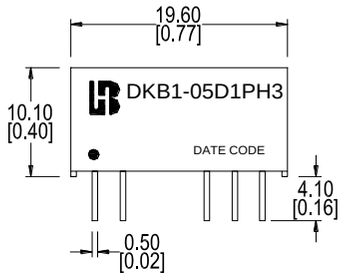
Mechanical

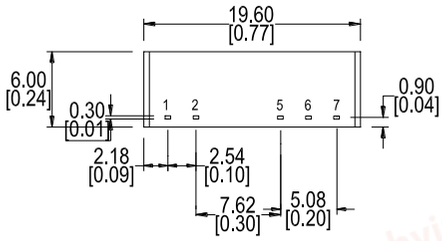
Single Output





Dual Output

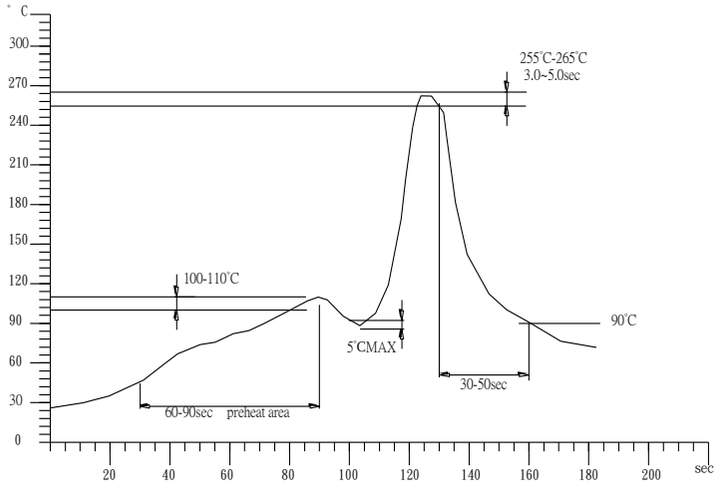




Pinout		
PIN	Single	Dual
1	+Vin	+Vin
2	-Vin	-Vin
5	-Vout	-Vout
6	No Pin	Common
7	+Vout	+Vout

Dimensions in mm [inch]
Tolerances: ±0.5 [±0.02]
Pin dimension tolerances: ±0.10 [±0.004]

Wave Soldering Temperature Curve



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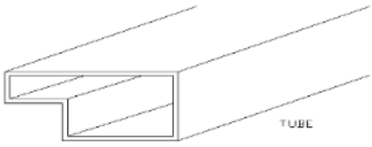
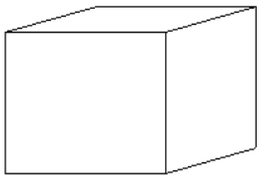
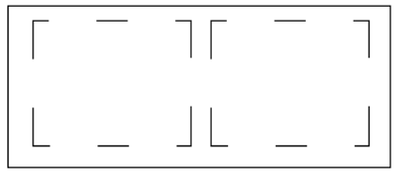
Carton Package







TUBE = 25PCS
INNER CARTON = 50 TUBE = 50*25 = 1250PCS
EXPORT CARTON = 2 INNER CARTON = 2*1250 = 2500PCS

For More Information:

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