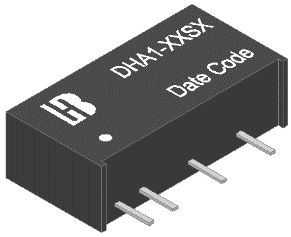
DHA1 Series

1W, Isolated DC-DC Converters



Features

- 7pin SIP Package
- Input / Output Isolation: 1500VDC
- High Efficiency
- Lead Free Design, RoHS Compliant
- Operating Temperature: -40°C to +85°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		
DHA1-03S0	3.14 - 3.47 3.3V nominal	3.3	300	35	455	66	68
DHA1-03S1		5	200	35	446	68	47
DHA1-05S0	4.75 - 5.25 5V nominal	3.3	300	25	291	68	68
DHA1-05S1		5	200	25	286	70	47
DHA1-05SA		9	110	25	275	72	33
DHA1-05S2		12	83	25	269	74	22
DHA1-05S3		15	67	25	269	74	22
DHA1-05S5		24	42	25	296	68	10
DHA1-12S0	11.4 – 12.6 12V nominal	3.3	300	15	121	68	68
DHA1-12S1		5	200	15	119	70	47
DHA1-12SA		9	110	15	115	72	33
DHA1-12S2		12	83	15	112	74	22
DHA1-12S3		15	67	15	112	74	22
DHA1-12S5		24	42	15	120	70	10
DHA1-15S0	14.3 – 15.8 15V nominal	3.3	300	12	97	68	68
DHA1-15S1		5	200	12	95	70	47
DHA1-15SA		9	110	12	92	72	33
DHA1-15S2		12	83	12	90	74	22
DHA1-15S3		15	67	12	90	74	22
DHA1-15S5		24	42	12	96	70	10

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		
DHA1-24S0	22.8 – 25.2 24V nominal	3.3	300	7	59	70	68
DHA1-24S1		5	200	7	58	72	47
DHA1-24SA		9	110	7	56	74	33
DHA1-24S2		12	83	7	55	76	22
DHA1-24S3		15	67	7	55	76	22
DHA1-24S5		24	42	7	60	70	10
DHA1-26S1	24.7 – 27.3 26V nominal	26	200	7	55	70	47

Input Specifications

Input voltage		See Models and Ratings table
Input filter		Capacitor

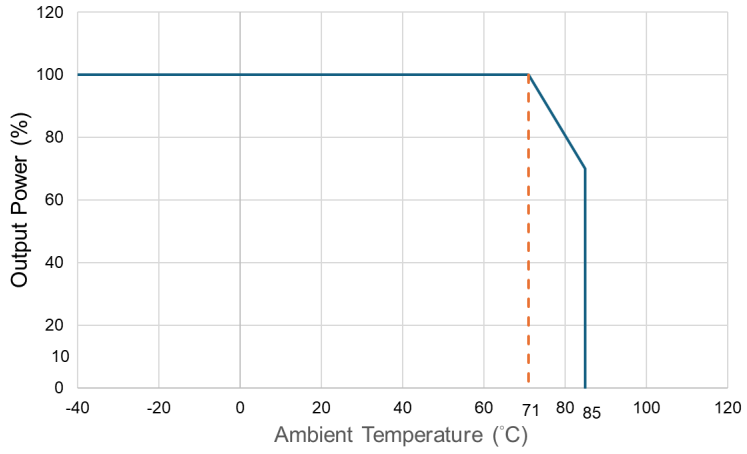
Output Specifications

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
Minimum load		Not required
Line regulation		±0.25% max.
Load regulation	10% to 100% load	±1% max.
Ripple and noise	20MHz bandwidth and full load	60 mVp-p max.
Capacitive load	Nominal Vin and constant resistive load	See Models and Ratings table
Temperature coefficient	Full Load	±0.03%/°C typ.

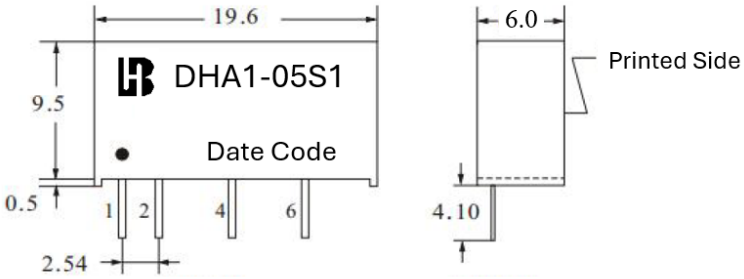
General Specifications		
Efficiency	Nominal Vin and full load	See Models and Ratings table
Switching frequency	Nominal Vin and full load	300 kHz max.
Isolation voltage	Input to output, 60 s	1500 VDC min.
Isolation resistance	500 VDC	1000 MΩ min.
Isolation capacitance		30 pF typ.
Reliability, calculated MTBF	MIL-HDBK-217F, Ground Benign	2×10^6 h
Operating ambient temperature	With derating	-40°C to +85°C
Case temperature		+105°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 × 10.0 × 6.0 mm
Weight		2 g typ.

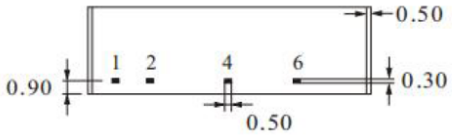
Characteristic Curves

Power Derating Curve



Mechanical

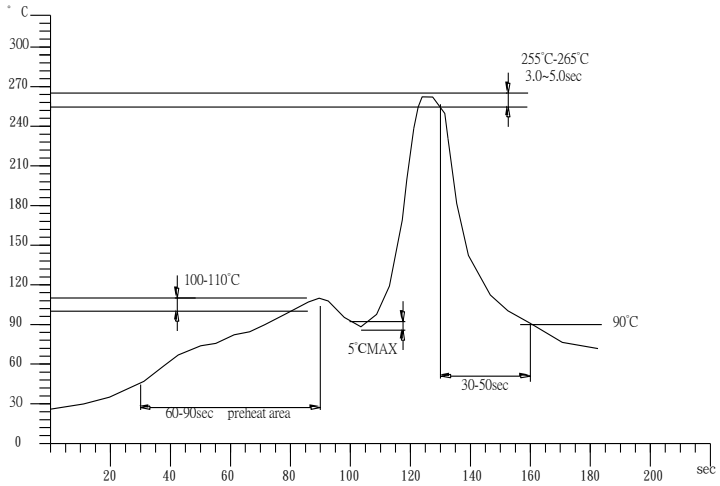




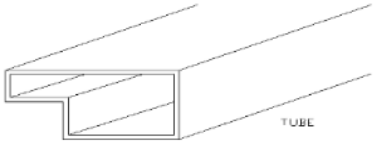
Pinout	
PIN	Function
1	+Vin
2	-Vin
4	-Vout
6	+Vout

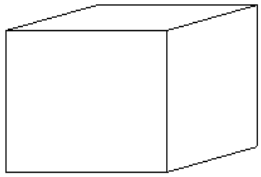
Dimensions in mm
Tolerances: ±0.5
Pin dimension tolerances: ±0.10

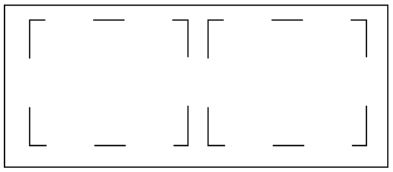
Wave Soldering Temperature Curve



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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