



The HD3 series are miniature, isolated 1W DC/DC converters in a SIP package. They offer the ideal solution in many space critical applications for board level power distribution. The internal SMD construction makes it possible to offer a product with high performance at low cost. The series offers smaller size, improved efficiency, lower output ripple noise and 3KVDC isolation.



### FEATURES:

- RoHS compliant
- Efficiency up to 81%
- Power density up to 0.86W/cm<sup>3</sup>
- Dual output from a single input rail
- UL 94V-0 package material
- No heat sink required
- 3KVDC isolation
- Industry standard pinout
- Power sharing on output
- Input voltage: 5V, 12V, 15V, 24V, 48V
- Output voltage: ±5V, ±9V, ±12V, ±15V, ±24V
- Operating temperature: -40°C to +105°C
- Optional: Continuous short circuit protection

H-Model	Nominal Input Voltage (V)	Output Voltage (V)	Output Current (Max./Min) (mA)	Efficiency (%)	Package Style
HD3-0505D10Z30	5	±5	±100/±10	67	DIP7
HD3-0509D10Z30	5	±9	±56/±5.6	76	DIP7
HD3-0512D10Z30	5	±12	±43/±4.3	79	DIP7
HD3-0515D10Z30	5	±15	±33/±3.3	78	DIP7
HD3-0524D10Z30	5	±24	±21/±2.1	81	DIP7
HD3-1205D10Z30	12	±5	±100/±10	68	DIP7
HD3-1209D10Z30	12	±9	±56/±5.6	74	DIP7
HD3-1212D10Z30	12	±12	±43/±4.3	77	DIP7
HD3-1215D10Z30	12	±15	±33/±3.3	75	DIP7
HD3-1505D10Z30	15	±5	±100/±10	71	DIP7
HD3-1512D10Z30	15	±12	±43/±4.3	77	DIP7
HD3-1515D10Z30	15	±15	±33/±3.3	80	DIP7
HD3-2405D10Z30	24	±5	±100/±10	69	DIP7
HD3-2409D10Z30	24	±9	±56/±5.6	78	DIP7
HD3-2412D10Z30	24	±12	±42/±4.2	81	DIP7
HD3-2415D10Z30	24	±15	±34/±3.4	80	DIP7
HD3-4805D10Z30	48	±5	±100/±10	70	DIP7
HD3-4809D10Z30	48	±9	±56/±5.6	79	DIP7
HD3-4812D10Z30	48	±12	±43/±4.3	79	DIP7
HD3-4815D10Z30	48	±15	±33/±3.3	79	DIP7

Package Unit: 25

The models listed above is just for standard type. If you need the special specification product, please contact our specialists: [sales@haufe-power.de](mailto:sales@haufe-power.de)

Add suffix "P" for continuous short circuit protection e.g. „HD3-0305D10Z30P“.

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## INPUT CHARACTERISTICS (Min./Typ./Max.):

Voltage range 3.3V input types (V):	2.9 / 3.3 / 3.6
Voltage range 5V input types (V):	4.5 / 5 / 5.5
Voltage range 12V input types (V) :	10.7 / 12 / 13.1
Voltage range 15V input types (V):	13.5 / 15 / 16.5
Voltage range 24V input types (V):	22 / 24 / 27
Voltage range 48V input types (V):	44 / 48 / 53

## ISOLATION CHARACTERISTICS:

Isolation test voltage (VDC):	3000 / - / - (Tested for 1 second)
Resistance (Viso = 1000 VDC) (GΩ):	1 / - / -

## ABSOLUTE MAXIMUM RATINGS:

Lead temperature 1.5mm from case for 10 seconds:	300°C
Internal power dissipation :	450mW
Input voltage Vin:	7V / 15V / 18V / 28V / 54V (HD3D variants: 05 / 12 / 15 / 24 / 28 / 48 / 54V)

All specs typ. at TA=25°C, nominal input voltage and rated output current unless otherwise specified

## OUTPUT CHARACTERISTICS (Min. / Typ. / Max.):

Rated Power TA= -40°C to 85°C (W):	- / - / 1
Voltage Set Point Accuracy (%):	See tolerance envelope
Line regulation High VIN to low VIN (%):	- / 1 / 1.2
Load Regulation (***) 5V output types (%):	- / 10 / 13 (5V & 12V input) - / 6 / 10 (15V input) - / - / 14 (24V-48V input)
Load Regulation (***) 9V output (%):	- / 9 / 10 (5V & 12V input)
Load Regulation (***) 12V output (%):	- / 7 / 8 (5V & 12V input) - / 3 / 4 (15V input)
Load Regulation (***) 15V output (%):	- / 6 / 7 (5V & 12V input) - / 3 / 4 (15V input)
Load Regulation (***) All other types (output) (%):	- / - / 12

(\*\*\* = 10% load to rated load)

## Output Characteristics Notes:

All specifications typical at TA=25°C, nominal input voltage and rated output current unless otherwise specified.

## GENERAL CHARACTERISTICS (Min. / Typ. / Max.)

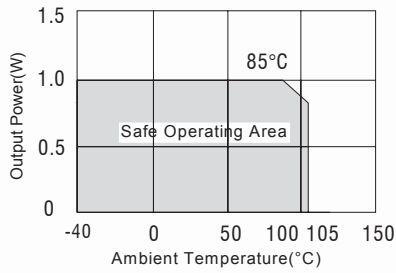
Switching frequency 3.3V input (kHz):	- / 95 / -
Switching frequency 5V input (kHz):	- / 110 / -
Switching frequency 12V input (kHz):	- / 130 / -
Switching frequency 15V input (kHz):	- / 90 / -
Switching frequency 24V input (kHz):	- / 110 / -
Switching frequency 48V input (kHz):	- / 110 / -

## TEMPERATUR CHARACTERISTICS (Min. / Typ. / Max.)

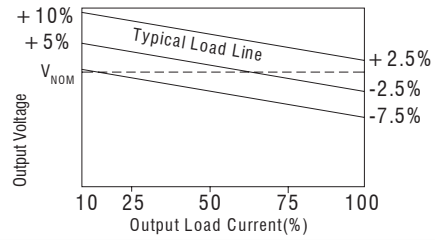
Derating if the temperature is ≥85°C (°C):	-40 / - / +105
Storage temperature (°C):	-50 / - / +130
Cooling:	Free air convection



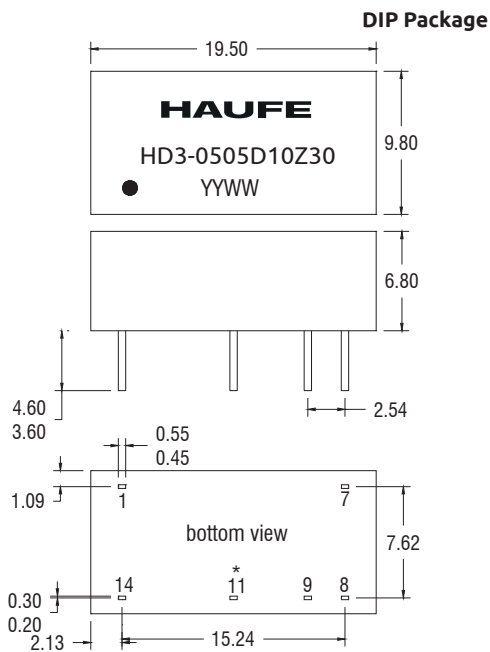
## TEMPERATURE DERATING GRAPHS



## TOLERANCE ENVELOPES



## MECHANICAL DIMENSION

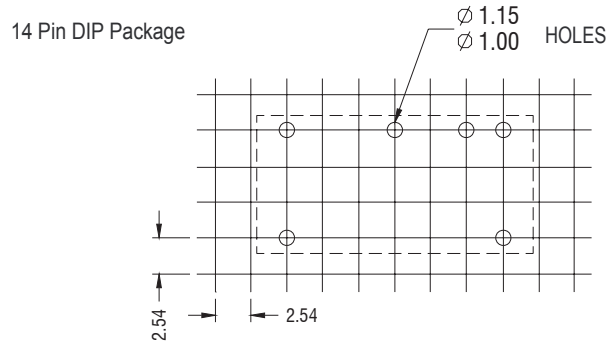


All dimensions in mm  $\pm 0.25$ mm. All pins on a 2.54mm pitch and within  $\pm 0.25$ mm of true position. Weight: 2.1g (DIP)

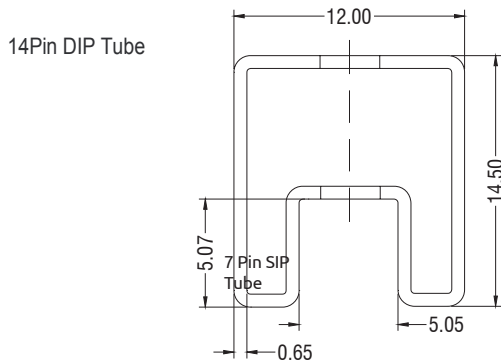
## PIN CONNECTIONS

14 PIN DIP	
Pin	Function
1	-Vin
7	NC
8	OV
9	+Vout
11*	-Vout
14	+Vin

## RECOMMENDED FOOTPRINT DETAILS



## RoHS COMPLIANCE INFORMATION



Tube length (14 Pin DIP) : 520mm $\pm$ 2mm.

Tube Quantity : 25PCS

## SOLDERING INFORMATION

This series is compatible with RoHS soldering systems with a peak wave solder temperature of 300°C for 10 seconds. These series are backward compatible with Sn/Pb soldering systems.