



Miniature surface mounted DC/DC Converters are an ideal and economical solution for many applications where noise reduction, voltage isolation, voltage conversion in distributed power systems is required. these converters are qualified for the higher temperatures requested by lead-free reflow solder processes, especially for automated SMD production lines.



**FEATURES:**

- RoHS compliant
- Efficiency up to 82%
- Operating temperature: -40 to +105°C
- Input voltage: 3.3V, 5V, 12V, 24V
- Output voltage: ±5V, ±9V, ±12V, ±15V / 3.3V, 5V, 9V, 12V, 15V
- UL 94V-0 package material
- 3KVDC isolation
- Custom solutions available
- Optional: Continuous short circuit protection

HM4-XXYYD10Z30P/X/P	Nominal Input Voltage (V)	Output Voltage (V)	Output Current (Max./Min) (mA)	Efficiency(%)
HM4-0503D10Z30	5	±3.3	±75.7/±7.57	70
HM4-0505D10Z30	5	±5	±50/±5.0	70
HM4-0509D10Z30	5	±9	±27.7/±2.77	78
HM4-0512D10Z30	5	±12	±20.8/±2.08	79
HM4-0515D10Z30	5	±15	±16.6/±1.66	80
HM4-1205D10Z30	12	±5	±50/±5.0	72
HM4-1209D10Z30	12	±9	±27.7/±2.77	79
HM4-1212D10Z30	12	±12	±20.8/±2.08	81
HM4-1215D10Z30	12	±15	±16.6/±1.66	82
HM4-2405D10Z30***	24	±5	±50/±5.0	72
HM4-2409D10Z30***	24	±9	±27.7/±2.77	79
HM4-2412D10Z30***	24	±12	±20.8/±2.08	81
HM4-2415D10Z30***	24	±15	±16.6/±1.66	82
HM4-0303S10Z30	3,3	3,3	151.5/15.15	73
HM4-0305S10Z30	3,3	5	100/10	75
HM4-0505S10Z30	5	5	100/10	70
HM4-0509S10Z30	5	9	55.5/5.55	78
HM4-0512S10Z30	5	12	41.6/4.16	79
HM4-0515S10Z30	5	15	31.2/3.12	80
HM4-1203S10Z30	12	3,3	151.5/15.15	70
HM4-1205S10Z30	12	5	100/10	72
HM4-1209S10Z30	12	9	55.5/5.55	79
HM4-1212S10Z30	12	12	41.6/4.16	81
HM4-1215S10Z30	12	15	31.2/3.12	82
HM4-2405S10Z30***	24	5	100/10	72
HM4-2409S10Z30***	24	9	55.5/5.55	79
HM4-2412S10Z30***	24	12	41.6/4.16	81
HM4-2415S10Z30***	24	15	31.2/3.12	82

Optional: suffix "X" = has no Pin 5, 10, 12 e.g.: HM4-1212D10Z30X  
 Optional: suffix "P" = continuous short circuit protection, e.g.: HM4-1212D10Z30XP  
 \*\*\* available soon

Package Unit: Reel Quantity: 500 pcs.  
 Less than 500pcs will be tube package

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

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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):	11 / 12 / 13.3
Voltage range 24V input types (V):	22 / 24 / 26.6

**ISOLATION CHARACTERISTICS:**

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

**ABSOLUTE MAXIMUM RATINGS:**

Short-circuit protection:	1 sec.
Lead temperature 1.5mm from case for 10 seconds:	300°C
Internal power dissipation :	560mW
Input voltage Vin:	03= 5.5V / 05=7V / 12=15V / 24=28V

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

Rated Power TA= -40°C to 85°C (W):	- / - / 1.0
Voltage Set Point Accuracy (%):	See tolerance envelope
Line regulation High VIN to low VIN (%):	/ 1.0 / 1.2
Load Regulation *** 3.3V output types (%):	- / 10 / 12
Load Regulation *** 5V output types (%):	- / 10 / 12
Load Regulation *** 9V output (%):	- / 6.5 / 8.0
Load Regulation *** 12V output (%):	- / 7 / 9
Load Regulation *** 15V output (%):	- / 6.5 / 7.5

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

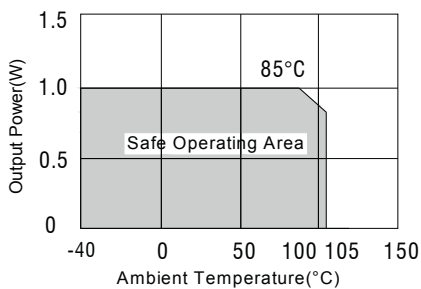
**GENERAL CHARACTERISTICS (Min. / Typ. / Max.)**

Switching frequency 3.3V input (kHz):	- / 120 / -
Switching frequency 5V input (kHz):	- / 120 / -
Switching frequency 12V + 24V input (kHz):	- / 130 / -

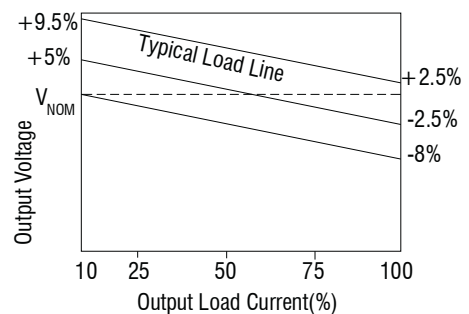
**TEMPERATUR CHARACTERISTICS (Min. / Typ. / Max.)**

Derating if the temperature is ≥85°C (°C):	-40 / - / 105
Storage temperature (°C):	-55 / - / 125
Cooling:	Free air convection

**TEMPERATURE DERATING GRAPHS**



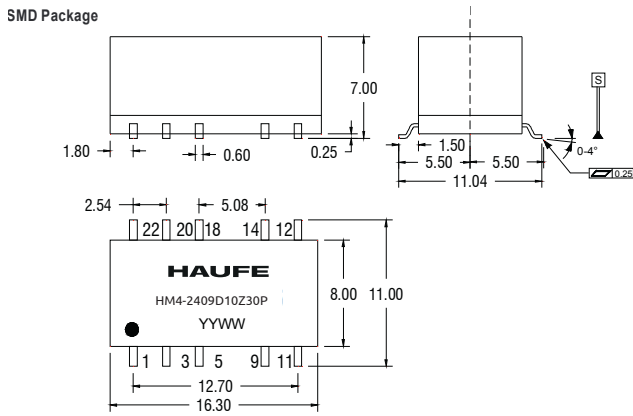
**TOLERANCE ENVELOPES**



**RoHS COMPLIANCE INFORMATION:** This series is compatible with RoHS soldering systems with a peak reflow solder temperature of 245°C and time above liquids of 217°C for 80 seconds. These series are backward compatible with Sn/Pb soldering systems.



**MECHANICAL DIMENSION**

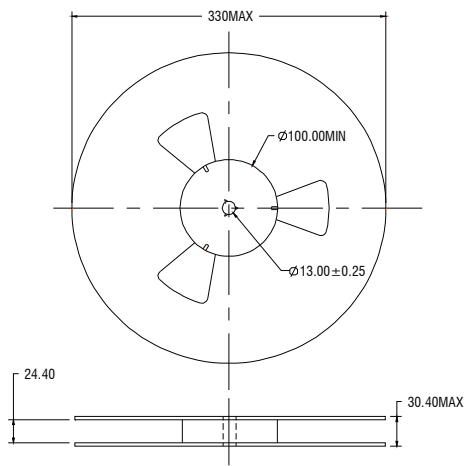


All dimensions in mm ±0.25mm. All pins on a 2.54mm pitch. Weight: 1.53g

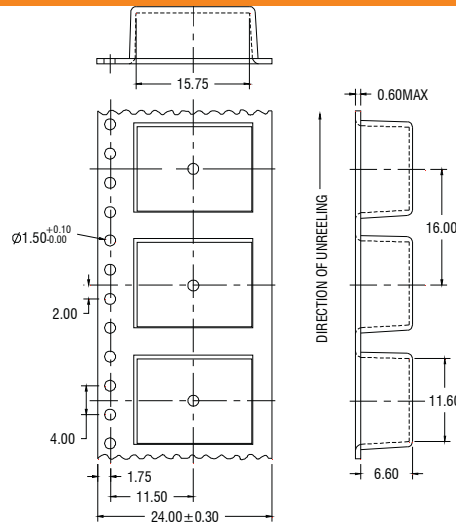
**PIN CONNECTIONS**

10 PIN SMD		
Pin	Dual Output	Single Output
1	-Vin	-Vin
3	+Vin	+Vin
5	NA	NA
9	OV	OV
11	-Vout	NA
12	NA	NA
14	+Vout	+Vout
18	NA	NA
20	NA	NA
22	NA	NA

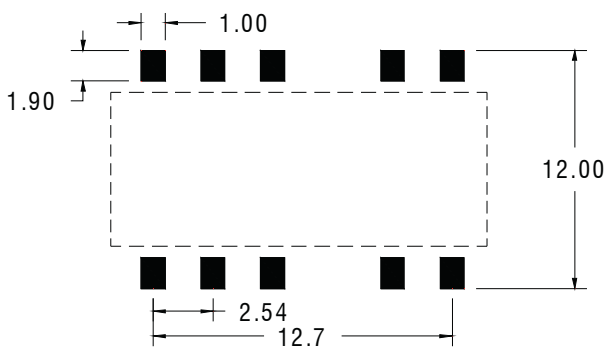
**REEL OUTLINE DIMENSIONS**



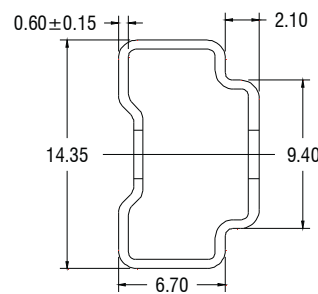
**TAPE OUTLINE DIMENSIONS**



**RECOMMENDED FOOTPRINT DETAILS**



**TUBE OUTLINE DIMENSIONS**

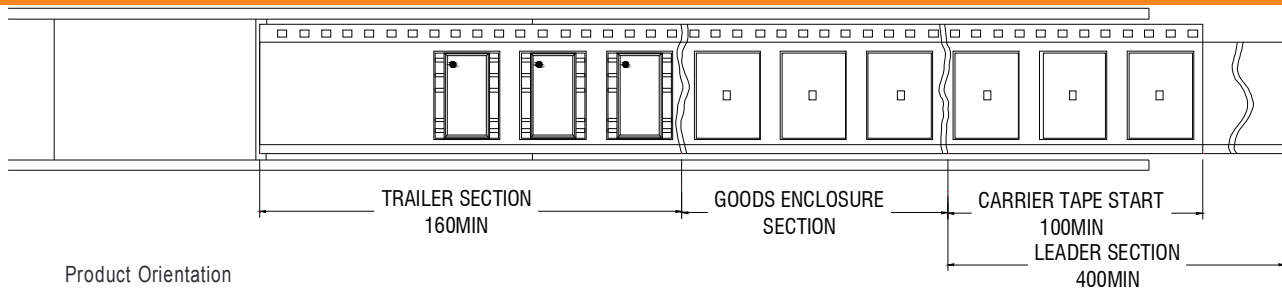


Unless otherwise stated all dimensions in mm±0.5mm.

Tube length: 475mm±2.0mm

Tube Quantity: 25PCS

**REEL PACKING DETAILS**



Product Orientation

Pin 1, located nearest to carrier drive sprocket

Reel Quantity : 500PCS

Less than 500pcs will be tube package