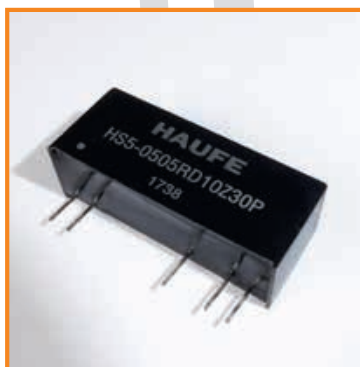




The HS5-XXYYRD10Z30 series is specially designed for 3KVDC isolation & regulated dual output applications, the input voltage ranges within $\pm 5\%$, 3 KVDC isolation and regulated output with very low ripple noise.



FEATURES:

- RoHS compliant
- Operating temperature: -40°C to $+105^{\circ}\text{C}$
- No external component required
- Input voltage: 5V, 12V, 24V
- Output voltage: $\pm 5\text{V}$, $\pm 9\text{V}$, $\pm 12\text{V}$, $\pm 15\text{V}$
- Small footprint
- 3KVDC isolation
- Internal SMD construction
- Industry standard pinout
- Continuous short circuit protection

H-Model	Nominal Input Voltage (VDC)	Input voltage range	Output Voltage (V)	Output Current (Max./Min) (mA)	Efficiency (%)	Package Style
HS5-0505RD10Z30	5	4.75-5.25	± 5	$\pm 100/\pm 10$	54	SIP
HS5-0509RD10Z30	5	4.75-5.25	± 9	$\pm 56/\pm 6$	63	SIP
HS5-0512RD10Z30	5	4.75-5.25	± 12	$\pm 42/\pm 5$	63	SIP
HS5-0515RD10Z30	5	4.75-5.25	± 15	$\pm 33/\pm 4$	65	SIP
HS5-1205RD10Z30	12	11.4-12.6	± 5	$\pm 100/\pm 10$	56	SIP
HS5-1209RD10Z30	12	11.4-12.6	± 9	$\pm 56/\pm 6$	62	SIP
HS5-1212RD10Z30	12	11.4-12.6	± 12	$\pm 42/\pm 5$	65	SIP
HS5-1215RD10Z30	12	11.4-12.6	± 15	$\pm 33/\pm 4$	66	SIP
HS5-2405RD10Z30	24	22.8-25.2	± 5	$\pm 100/\pm 10$	54	SIP
HS5-2409RD10Z30	24	22.8-25.2	± 9	$\pm 56/\pm 6$	62	SIP
HS5-2412RD10Z30	24	22.8-25.2	± 12	$\pm 42/\pm 5$	64	SIP
HS5-2415RD10Z30	24	22.8-25.2	± 15	$\pm 33/\pm 4$	66	SIP

Package Unit: 15

Add suffix "P" for continuous short circuit protection e.g. „HS5-0505RD10Z30P“.

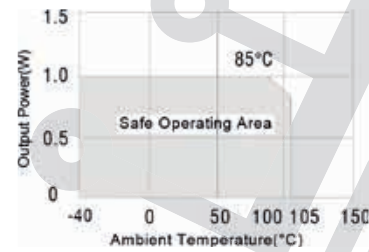
The models listed above is just for standard type. If you need the special specification product, please contact our specialists: sales@haufe-power.de



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

Output power (W):	0.1 / - / 1
Line regulation for Vin change of ±5% (%):	- / - / ±0.25
Load regulation 10% to 100% full load (%):	- / - / ±1
Output voltage accuracy 100% full load (%):	- / - / ±3
Temperature drift 100% full load (% °C):	- / - / 0.03
Output ripple 20MHz Bandwidth (Mvp-p):	- / 10 / 20
Output noise 20MHz Bandwidth (Mvp-p):	- / 50 / 100

TYPICAL CHARACTERISTICS

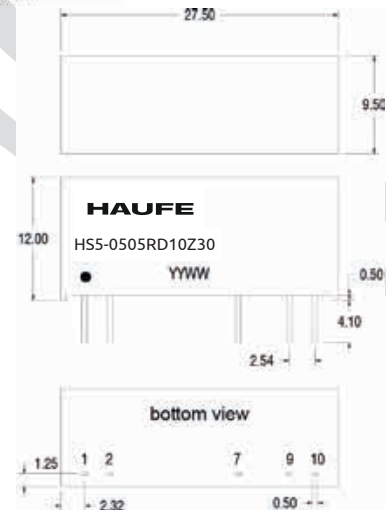


COMMON SPECIFICATIONS (Min./Typ./Max.):

Storage humidity range (%):	- / - / 95
Operating temperature (°C) /Derating if	
the temperature is >= 85 °C:	-40 / - / 105
Storage temperature (°C):	-55 / - / 125
Temp. rise at full load (°C):	- / 20 / 30
Lead temperature 1.5 mm from case/10 sec.: (°C):	- / - / 300
Cooling:	Free air convection
Case material:	Plastic (UL94-V0)
Short circuit protection (S):	- / - / 1
MFTB (K hours):	3500 / - / -
Weight (g):	5.2

MECHANICAL DIMENSION

All dimensions in: mm±0.10mm
Others in ±0.25mm



ISOLATION CHARACTERISTICS:

Isolation test voltage (VDC):	3000 / - / - (1 sec./1mA max)
Isolation Resistance (Test at 1000 VDC) (GΩ):	1 / - / -

Note:

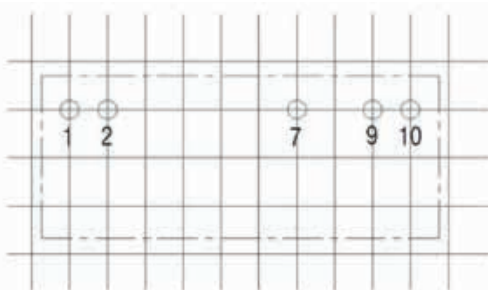
- 1) All specifications at TA=25°C, humidity <75%, nominal input voltage and rated output load unless otherwise specified.
- 2) See below recommended circuits for more details
- 3) Operation under minimum load will not damage the converter, however, they may not meet allspecification listed and that will reduce the lifetime of the product

PIN CONNECTIONS

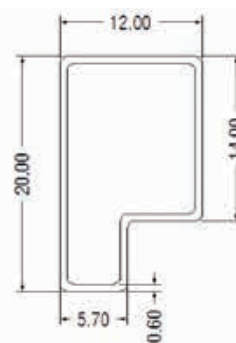
10 PIN SIP	
Pin	Function
1	+Vin
2	-Vin
7	+Vout
9	-Vout
10	0V

RECOMMENDED FOOTPRINT DETAILS

TUBE OUTLINE DIMENSIONS



Unless otherwise stated all dimensions in mm ±0.5mm.



All dimensions in mm ±0.5mm.

Tube length : 520mm Tube Quantity:15PCS



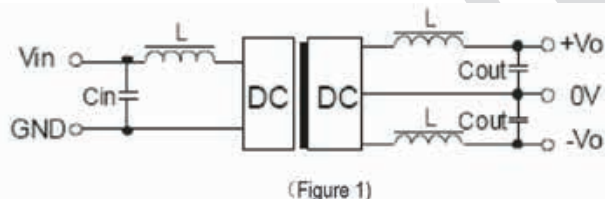
APPLICATION NOTES:

1. REQUIREMENT ON OUTPUT LOAD:

To ensure this module can operate efficiently and reliably, During operation, the minimum output load could not be less than 10% of the full load. If the actual output power is very small, please connect a resistor with proper resistance at the output end in parallel to increase the load.

2. RECOMMENDED CIRCUIT:

If you want to further decrease the input/output ripple, an “LC” filtering network may be connected to the input and output ends of the DC/DC converter, see (Figure 1).



(Figure 1)

It should also be noted that the inductance and the frequency of the “LC” filtering network should be staggered with the DC/DC frequency to avoid mutual interference. However, the capacitance of the output filter capacitor must be proper. If the capacitance is too big, a startup problem might arise. For every channel of output, provided the safe and reliable operation is ensured, the greatest capacitance of its filter capacitor sees (Table 1)

EXTERNAL CAPACITOR TABLE (Table 1)

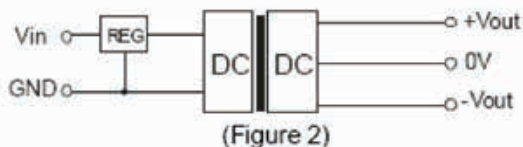
Vin (VDC)	Cin (μF)	Vout (VDC)	Cout (μF)
5	4.7	±5	4.7
12	2.2	±9	2.2
24	0.47	±12	1
-	-	±15	0.47

3. OVERLOAD PROTECTION:

Under normal operating conditions, the output circuit of these products has no protection against over-current and short-circuits. The simplest method is to connect a self-recovery fuse in series at the input end or add a circuit breaker to the circuit.

4. INPUT OVER-VOLTAGE PROTECTION CIRCUIT:

The simplest device for input over-voltage protection is a linear voltage regulator with overheat protection that is connected to the input end in series (Figure 2).



(Figure 2)

When the environment temperature is higher than 71°C, the product output power should be less than 60% of the rated power.

No parallel connection or plug and play.

Use dual output simultaneously, forbid opening output pin (0V) to use as single output.