

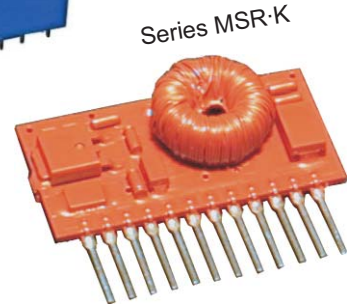
single output  
up to 6 Watt

Switching Regulators  
without isolation



- Industrial standard - pin-assignment
- Usable on very unstable industrial networks
- Low weight
- Very long life time
- For mobile applications
- 100% functional tests of all parameters
- Dyn. und stat. short circuit proof

Replacement for linear regulators.  
The functionality is controlled in all operational situations and characteristics.



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## Series MSR-K / MSR-A

### Main points:

#### Output:

- Accuracy absolute  $\pm 2\%$
- Regulation  $\Sigma(U_{in} + I_{out} + T_U) \pm 1,5\%$
- Ripple  $< 40 \text{ mV}_{\text{rms}}$  (const. over TU)
- Spikes  $< 50 \text{ mV}_{\text{RMS}}$  (T 1:1/50MHz)
- Response time  $\Delta I = 50\% \leq 200\mu\text{s}$
- No-load-, static over load- and static short circuit protected
- Short circuit current  $\leq 1,2 I_{o \text{ max}}$

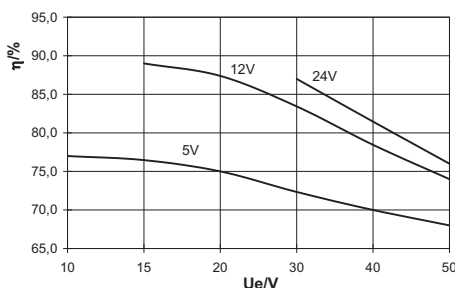
#### Input:

- No-load power consumption approx. 0,4 Watt
- ON-OFF-control (Inhibit) (only MSR-K)
- Static voltage up to 65V
- Transient adapted
- Do not use without  $C_E$  (chopper current)
- Easy noise suppressible (application)

#### General:

- Ambient temperature  $-25^\circ\text{C} / +70^\circ\text{C}$ , Option:  $-40^\circ\text{C} / +85^\circ\text{C}$
- Derating 2% /  $^\circ\text{C} > 70^\circ\text{C}$
- Free air convection
- Common 0V input-output
- MTBF GF ( $40^\circ$ )  $> 1 \text{ Million h}$
- Weight approx. 8g MSR-K / 13g MSR-A
- Protection coating / Plastic housing
- Dimension MSR-K  $35,6 \times 21 \times 9,5 \text{ mm}^3$
- Dimension MSR-A  $31,8 \times 20 \times 10,2 \text{ mm}^3$

#### Efficiency:



<u>U<sub>in</sub></u> V	<u>U<sub>out</sub></u> A	<u>I<sub>out</sub></u> A	<u>C<sub>E</sub></u> μF/V	Model number
7 - 38 1)	5,1	0,6	-	MSR-K 05-06-38
9 - 42 60V/1s	5,1	0,5	100/50	MSR-K 05-05-42
	6	0,5	100/50	MSR-K 06-05-42
15 - 42 60V/1s	12	0,5	100/63	MSR-K 12-05-42
	15	0,4	68/63	MSR-K 15-04-42
10 - 65 16 - 65 19 - 65 28 - 65	5,1	0,4	68/100	MSR.K 05-04-65
	12	0,3	47/100	MSR.K 12-03-65
	15	0,3	47/100	MSR.K 15-03-65
	24	0,2	47/100	MSR.K 24-02-65

7 - 38	5,1	1,0	150/50	MSR.A 05-10-38
9 - 42 60V/1s	5,1	0,8	150/63	MSR.A 05-08-42
	6	0,8	150/63	MSR.A 06-08-42
15 - 42 60V/1s	12	0,5	100/63	MSR.A 12-05-42
	15	0,4	68/63	MSR.A 15-04-42
10 - 65 16 - 65 19 - 65 28 - 65	5,1	0,4	68/100	MSR.A 05-04-65
	12	0,3	47/100	MSR.A 12-03-65
	15	0,3	47/100	MSR.A 15-03-65
	24	0,2	47/100	MSR.A 24-02-65

(T)  $-40^\circ\text{C}$  up to  $+70^\circ\text{C}$   
(H)  $-40^\circ\text{C}$  up to  $+85^\circ\text{C}$

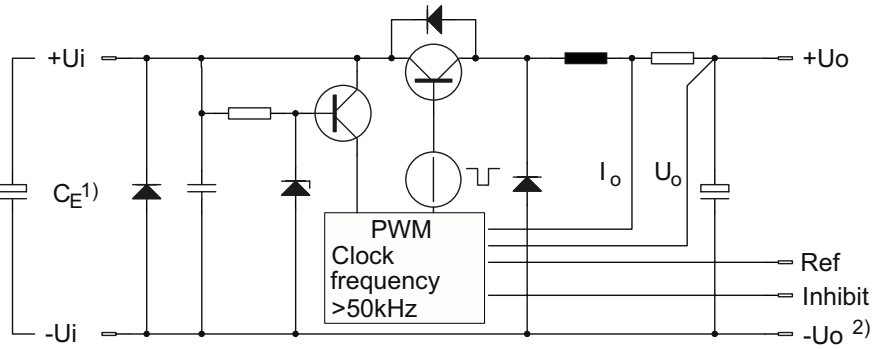
Additional charge  
Additional charge

Modification costs for possible changes above values:

on request

1) CE is recommended

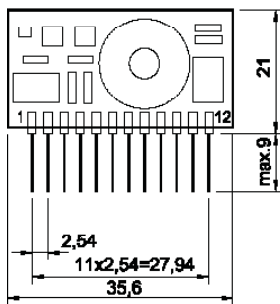
Switching regulators of the **MSR.K** / **MSR.A** series have been designed especially for the use in industrial or battery supplied networks with 12V, 24V or 48V nominal values. The source voltage can be extremely fluctuating and the occurring transients are absorbed based on external pre-filters (application). All electrical parameters (voltages, currents, frequencies, efficiency, ripple, spikes etc.) are 100%-tested at all internal points as well as on all customer interface points. The result is that the modules can guarantee a very high quality level, which has been displayed in several thousand applications within our customer's systems. The choice of components and the manufacturing technology lead to the converter's high functional life and reliable security.



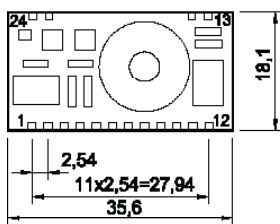
- 2) Reference all potentials to -Uo
- 1) Do not use without CE  
See product line M  
for special capacitors and filters

**MSR-K**

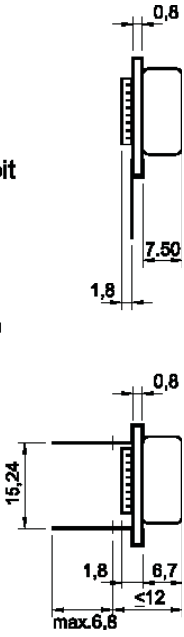
**TYPE A**



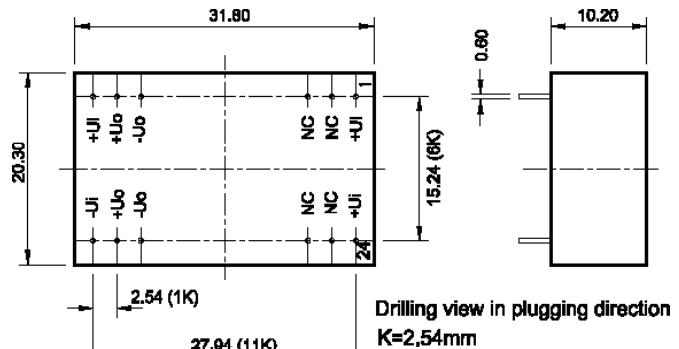
**TYPE B 4)**



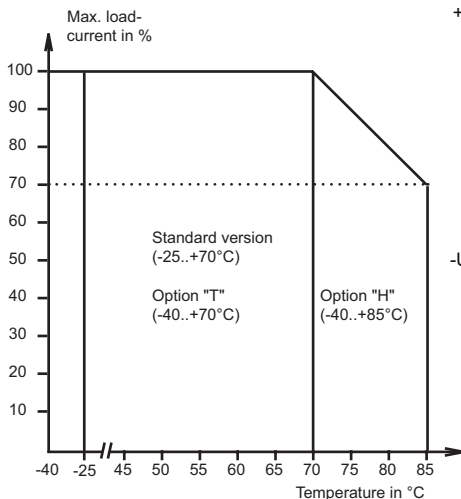
- 1 +Ui
  - 2 -Ui
  - 3 NC
  - 4 NC
  - 5 NC
  - 6 Inhibit
  - 7 REF
  - 8 NC
  - 9 NC
  - 10 -Uo
  - 11 NC
  - 12 +Uo
  - 13 NC
  - 14 NC
  - 23 NC
  - 24 NC
- only TYPE B



**MSR-A**



**Derating curve**



**Application (Noise suppression / multiple outputs)**

