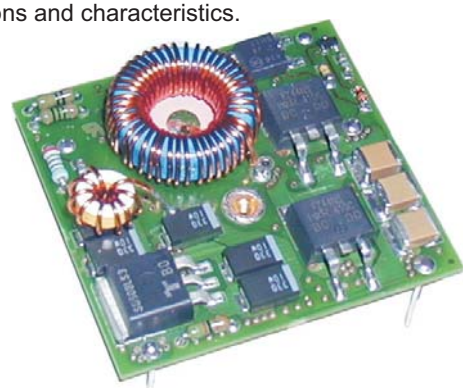
- **PCB-Modul 51 x 48 mm²**
- **Height 13 mm**
- **NSR.O in open design (new)**
- **Output-over voltage protection (Thyristor)**
- **Very high functional reliability**
- **Suitable for mobile applications**
- **100% functional tests of all parameters**
- **Dyn. and stat. short circuit proof**

For nominal input voltages 12V and 24V:
the functionality is controlled in all operational situations and characteristics.



Series NSR.O

1) Replacement for the potted NSR/NSR.K series

Main points:

Output:

- Accuracy absolute ± 1%
- Regulation $\Sigma(U_{in}+I_{out}+T_U)$ <±1,5%
- Ripple <40 mV_{rms} (typ. 15mV_{rms}) constant over T_U
- Spikes <50 mV_{rms} (T 1:1/50MHz)
- Response time ΔI=50% ≤ 200µs
- No-load-, static over load- and static short circuit protected
- No-load capable
- Short circuit current ≤ 1,2 $I_{o\,max}$
- Reference 5V ±1,5% / 1mA (REF)

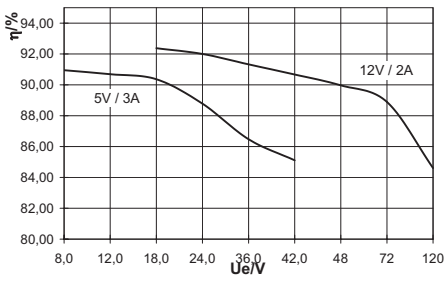
Input:

- No-load power consumption approx. 0,4 Watt
- ON-OFF-control (Inhibit)
- Transient adapted
- C_E ≥22µF recommended
- Simply noise suppressible

General:

- Ambient temperature -25°C / +70°C, Option: -40°C / +85°C
- Derating 1%/°C >70°C
- Free air convection
- Common 0V input-output
- MTBF G_F (40°) > 800000 h
- Open design with screw-on bolt
- Dimensions 48 x 51 x 15 [18] mm³

Efficiency NSR.O**:**

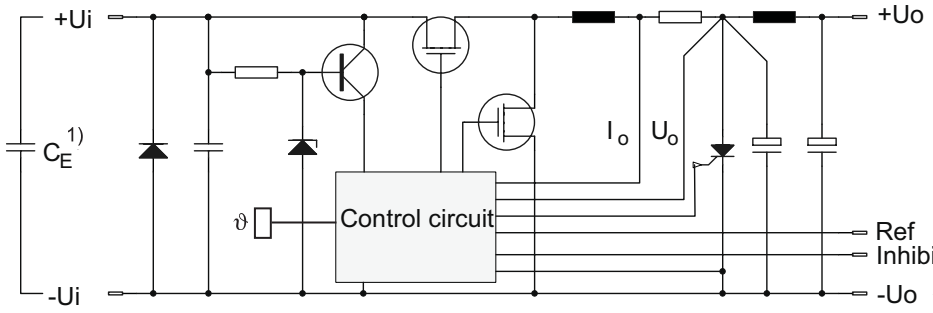


Uin	Uout	Iout	CE	Model number
V	A	A	µF	
7 - 38	5,1	2,0	220	NSR 05·20·38 1)
	5,1	3,0	220	NSR·K 05·30·38 1)
	5,1	4,0	220	NSR·K 05·40·38 1)
8 - 40	5,1	4,0	-	NSR.O 05.40.40
	5,1	5,0*	-	NSR.O 05.50.40
9 - 42	5,1	2,0	150	NSR 05·20·42 1)
	5,1	3,0	150	NSR·K 05·30·42 1)
	6	2,0	150	NSR 06·20·42 1)
	6	3,0	220	NSR·K 06·30·42 1)
	6	4,0	220	NSR·K 06·40·42 1)
9 - 36 50V/50ms 70V/2ms	5,1	4,0	-	NSR.K 05.40.70
15 - 42	12	1,2	150	NSR 12·12·42 1)
	12	2,0	150	NSR·K 12·20·42 1)
	12	3,0	220	NSR·K 12·30·42 1)
	12	4,0*	-	NSR.O 12.40.42
15 - 42 50V/50ms 70V/2ms	12	4,0	-	NSR.O 12.40.70
18 - 42	15	1,1	150	NSR 15·11·42 1)
	15	2,0	150	NSR·K 15·20·42 1)
	15	3,0	220	NSR·K 15·30·42 1)
	15	4,0	-	NSR.O 15.40.42
17 - 42 50V/50ms 70V/2ms	15	4,0	-	NSR.O 15.40.70
(H)	-40°C up to +85°C			Additional charge
Modification costs for possible changes above values:				on request

1) Potted-Version not for new developments

The open NSR.O-version is pin-compatible with a thread-distant bolt

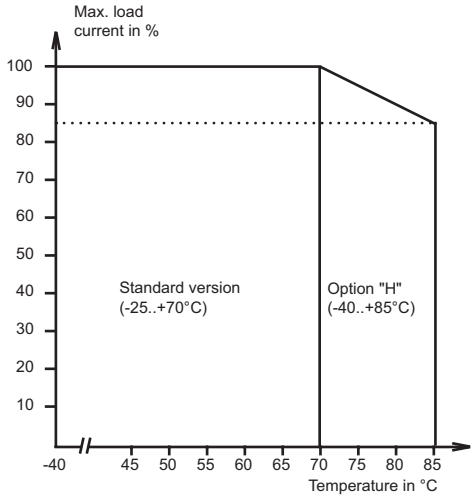
Switching regulators of the ***NSR.O*** series have been designed in an open, thermal stress-free build-up to replace the old, potted NSR/NSR.K. The wide and transient adapted input voltage range is ideal for the use in wide fluctuating on-board networks or as supplementary regulators. The output-over voltage protection prevents the output load's damage in the case of a input voltage-breakthrough. The converter switches off by a thermal over load and switches on again after the temperature drops below the limit-temperature. 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 time and reliable security.

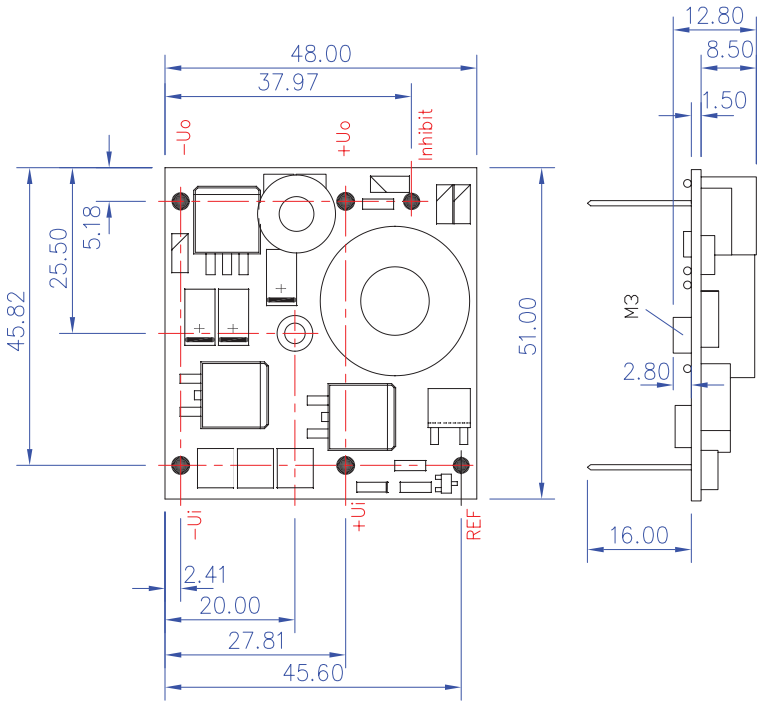


2) Reference all potentials to -Uout

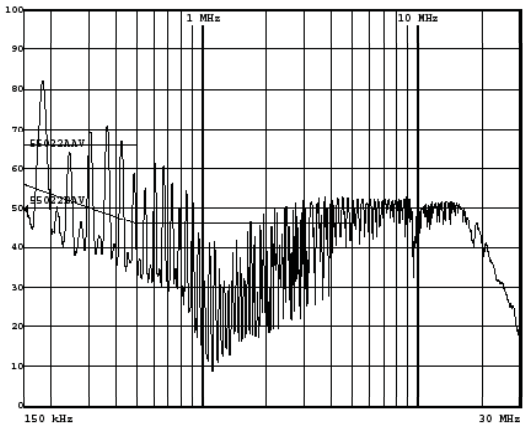
1) A ceramic- or foil-capacitor 22µF is recommended

Derating curve

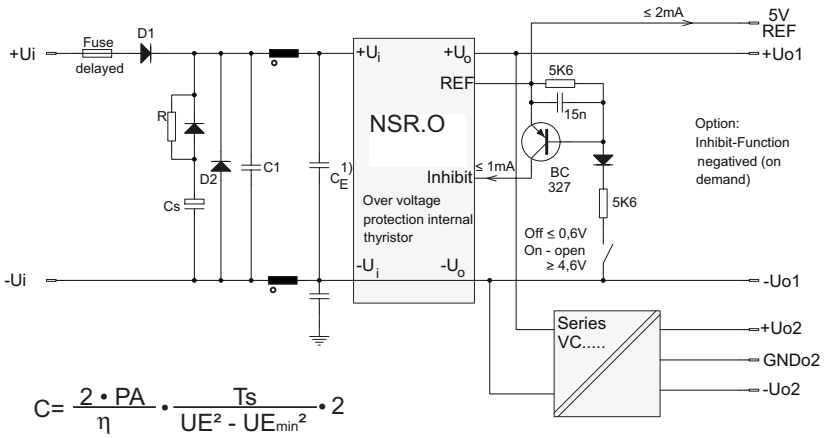




Measurement of radio interference
without application circuit



Application (Noise suppression / multiple outputs)



$$C = \frac{2 \cdot PA}{\eta} \cdot \frac{Ts}{UE^2 - UE_{min}^2} \cdot 2$$

Hold-up capacitor

R for inrush current limitation
Power loss at voltage ripples