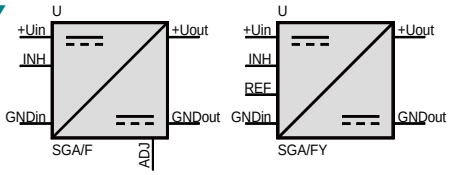
DIN EN ISO 9001 certified

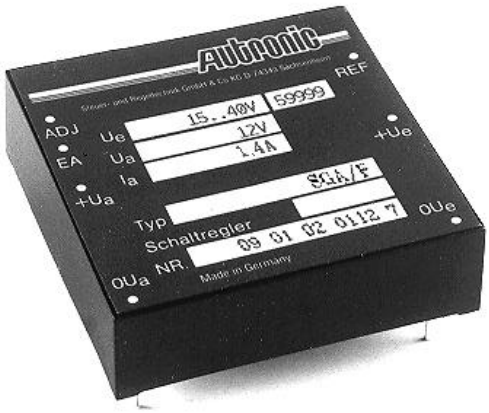
Autronic

Steuer- u. Regeltechnik GmbH & Co KG D-74343 Sachsenheim

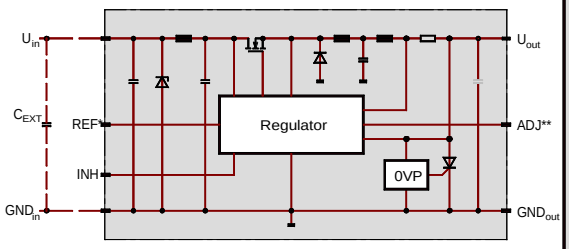
Switching regulator SGA/F and SGA/FY Output power up to 20 Watts

Non isolated - Single output
PCB mounting





Block diagram



C_{EXT}= (200 x U_{out} x I_{out}) : U_{in} /µF connected near to the converter

* = not at SGA/F
** = not at SGA/FY

Technology

- MOSFET design
- SMD design

Special Features

- Series meets Generic Immunity Standard according to EN 50082-2:1995 with additional improvements:
  - Burst transients: Input and output filtering according to EN 61000-4-4: 1995 (class 3): 2 kV
  - Surge: Input and output filtering according to EN 61000-4-5: 1995 (class 2): 1 kV symmetric
- Conducted RFI:
  - Input filtering according to EN 55022:1994, class B
  - Output filtering according to Vfg 243/1991
- Remote off (inhibit) for the SGA/F converter with TTL - L-signal or by grounding INH or for the SGA/FY converter with TTL-H-signal or by grounding INH a reference voltage.
- Constant current limit
- Zero load operation and short circuit protected
- Overvoltage protection in the output circuit, even in case of external supply (OVP)
- Vibration resistant and indifferent to humidity due to encapsulated case

Specifications

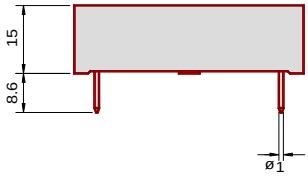
at ϑ_{amb} =25°C, $U^{*}_{in\ nom}$, $I_{out\ nom}$

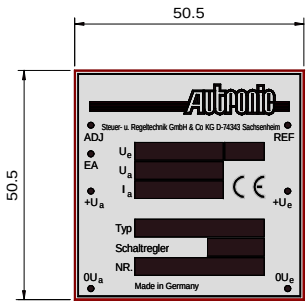
Temperature		
Ambient air**	ϑ_{amb}	= -40...+85°C
Storage	ϑ_S	= -40...+100°C
Rise in case	$\Delta\vartheta_C$	≤ 27K
Output Voltage		
Tolerance ΔU_{out} /%		≤ ±0,5**
Output ripple u_{rms} /mV		≤ 3,5
Output ripple peak-peak u_{pp} /mV		≤ 30
Rise time at $I_{out\ nom}$: t_{on} /ms		≤ 10
Regulation		
Line regulation ΔU_{out} /mV for 100% ΔU_{in}		≤ 5
Load regulation ΔU_{out} /mV for 0,1...0,9 I_{out}		≤ 5 static
at <300 µs		≤ ± 200 dynamic
Temperature coefficient TC/%/K		≤ 0,02
Remote on/off contol		
SGA/F: Inhibit voltage U_{inh} /V for U_{out}= "off"		≤ 1
Inhibit current I_{inh} /µA		≤ 500
SGA/FY: Inhibit voltage U_{inh} /V for U_{out}= "on"		≥ 3,5
Inhibit current for U_{inh}= 5V: I_{inh} /µA		≤ 500
Auxiliary voltage U_{ref} /V		= 5±0,25
Admissible current I_{ref} /mA		≤ 5
OVP		
Starting point $U_{out\ nom}$ /%		≤ 130
admissible continuous ext. current I_{ext} /A		≤ 2
Input current in Standby-Mode I_{in} /µA		≤ 12
Weight M/g		= 75

* 12 V and 24 V
*** At 5V: 1%

Drawings

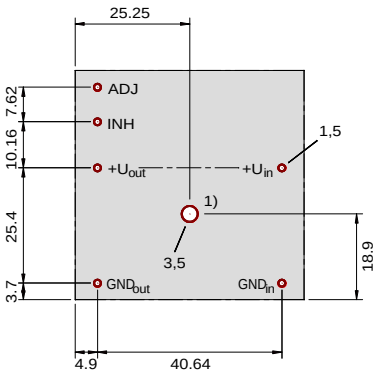
Dimensions in mm with a outside dimensions tolerance of +1 mm



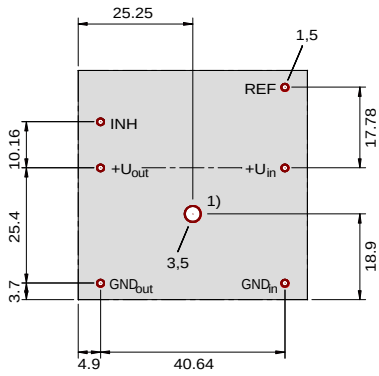


Hole pattern component side

SGA/F



SGA/FY



1) = for screw M3, thread depth 4 mm

Mountig/Operating Instructions

Installation: The converters have to be installed according to the guidelines currently in force, like other open electronic component assemblies. Attention must be paid to sufficient ventilation, fastening and protecting against accidental contact!

Reverse polarity protection: If reverse polarity connection of the input voltage can not be excluded, an external time-lag fuse must be installed. Size: $I_{rat} = 1{,}5I_{in\ max}$ (max. 4A). Pay attention on sufficient current of current source in case of short-circuit (t_f < 300ms)!

Overvoltage protection: Externally or internally caused overvoltage at the output lead to a thyristor-controlled short-circuit of the output. Elemination of short-circuit is carried out by short interruption of voltage supply or switch-off by inhibit.

External shut down (inhibit): U <1V at pin "INH" at SGA/F and respectively >3,5V (max. 40V) at SGA/FY switches off the output.

Current limiting: $I_{lim} = 1{,}1...1{,}5I_{out\ nom}$ with quasi-constant current characteristic. In case of short-circuit: I_s <1...1,3$I_{out\ nom}$.

Adjustment (at SGA/F): Connection of the pin "ADJ" and "OV" increases the output voltage of about 8%. Intermediate values are obtained by means of a resistor. By connecting pin "ADJ" with the positive output pin over a resistor, the output may be lowered by max. 8%. In the same manner the minimum input voltage increases or decreases. At SGA/FY no adjustment is possible.

Standard regulators SGA/F and SGA/FY

U_{out} V	I_{out} A	$U_{in\ nom}$ V	$U_{in\ max}$ V	$I_{in\ max}$ A	η*** %	f kHz	Order Number SGA/F	Order Number SGA/FY
5*	2**	12/24	7...40	1,8	83	200	09 01 01 0112 8	09 01 01 0131 1
	1,4	48/110	8...154	0,9	83		09 01 71 0112 3	09 01 71 0131 5
12	1,4	24	15...40	1,3	90	200	09 01 02 0112 7	09 01 02 0131 9
	1	48/110	16...154	0,9	86		09 01 72 0112 2	09 01 72 0131 4
15	1,4	24	18...40	1,3	92	200	09 01 03 0112 6	09 01 03 0131 8
	1	48/110	19...154	0,9	87		09 01 73 0112 1	09 01 73 0131 3
24	0,8	48	28...80	0,8	90	200	09 01 04 0112 5	09 01 04 0131 7
	0,6	48/110	29...154	0,6	87		09 01 74 0112 9	09 01 74 0131 2

* Adjusted to 5,1V. Converter switches on at U_{in}>8V.

** Derating between 70°C und 85°C: 3% /°C.
Operation U_{in}< 8V requires 3,5% baseload.

*** At $U_{in\ nom}$

Specifications subject to change without notice

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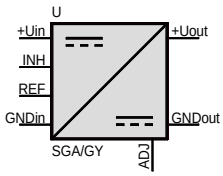
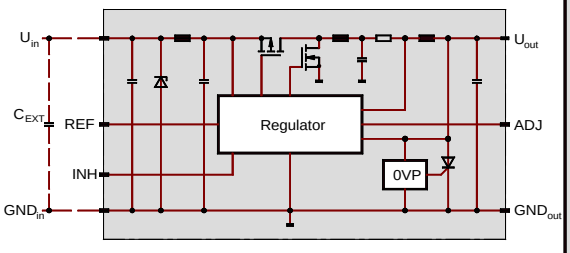
Switching regulator SGA/GY
Output power up to 30 Watts

Non isolated - Single output
PCB mounting



Block diagram



C_{EXT} = 47µF near to the converter

Technology

- MOSFET design
- SMD design

Special Features

- Series meets Generic Immunity Standard according to EN 50082-2:1995 with additional improvements:
  - Burst transients: Input and output filtering according to EN 61000-4-4: 1995 (class 3): 2 kV
  - Surge: Input and output filtering according to EN 61000-4-5: 1995 (class 2): 1 kV symmetric
- Conducted RFI:
  - Input filtering according to EN 55022:1994, class B
  - Output filtering according to Vfg 243/1991
- Remote off (inhibit) with TTL - H-signal or by connecting with a auxiliary voltage
- Constant current limit
- Zero load operation and short circuit protected
- Overvoltage protection in the output circuit, even in case of external supply (OVP)
- Shielded case bottom
- Extremly low thermal stress of sensitive components due to high efficiency
- Vibration resistant and indifferent to humidity due to encapsulated case.

Specifications

at ϑ_{amb} =25°C, $U^*_{in\ nom}$, $I_{out\ nom}$

Temperature		
Ambient air**	ϑ_{amb} =	-40...+85°C
Storage	ϑ_S =	-40...+100°C
Rise in case	$\Delta\vartheta_C$ ≤	27K
Output Voltage		
Tolerance ΔU_{out} /% at 0,5 I	≤	±1*
Output ripple u_{rms} /mV	≤	3,5
Output ripple peak-peak u_{pp} /mV	≤	20
Rise time at $I_{out\ nom}$: t_{on} /ms	≤	10
Regulation		
Line regulation ΔU_{out} /% for 100% ΔU_{in}	≤	0,5
Load regulation ΔU_{out} /mV for 0,1...0,9 I_{out}	≤	115 static
at <100 µs	≤	± 300 dynamic
Temperature coefficient TC/%/K	≤	0,02
Remote on/off control		
Inhibit voltage U_{INH}/V for U_{out}= "off"	=	2...40
U_{INH}/V for U_{out}= "on"	≤	0,8 or open
Inhibit current at U_{INH}= 5V : I_{INH}/µA	≤	25
Auxiliary voltage U_{REF}/V	=	5±0,2
Intern. resistance: at 5V regulator R_i /kΩ	=	47
at 12V regulator R_i /kΩ	=	75
OVP		
Starting point $U_{out\ nom}$ /%	≤	130
admissible continuous ext. current I_{ext} /A	≤	2
Input current in Standby-Mode I_{in} /µA	≤	1,5
Weight M/g	=	75

* 12V and 24V