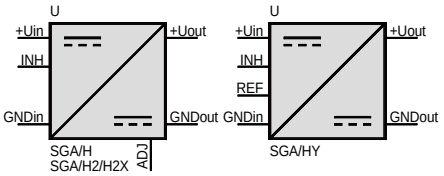
DIN EN ISO 9001 certified

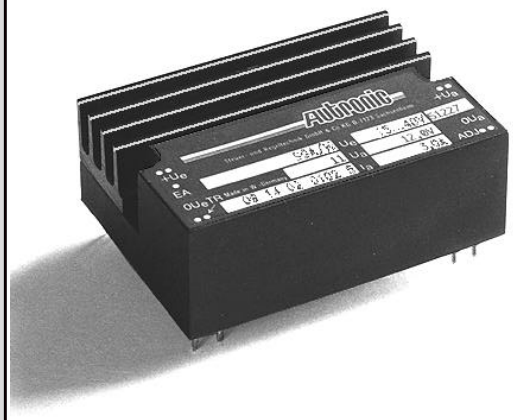
Autronic

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

Switching regulator SGA/H, ../HY, ../H2, ../H2X
Output power up to 58 Watts

Non isolated - Single output
PCB mounting





Technology

- Power section in MOSFET design
- Regulator section in SMD design

Special Features

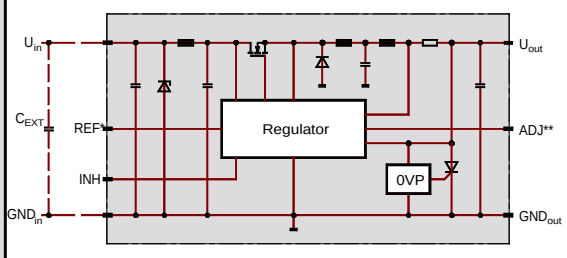
- Series meets Generic Immunity Standard according to EN 50082-2:1995 with additional improvements:
  - Burst transients: Input and output filtering according to EN 61000-4-4: 1995 (class 3): 2 kV
  - Surge: Input and output filtering according to EN 61000-4-5:1995 (class 2): 1 kV symmetric
- Conducted RFI:
  - Input filtering acc. to EN 55022:1994, class B (SGA/H2X: A)
  - Output filtering according to Vfg 243/1991
- Remote off (inhibit) for the SGA/H with TTL - L-signal or by connecting to the negative input respectively for the SGA/HY, SGA/H2 and SHA/H2X with TTL - H-signal or by connecting to a reference voltage
- Constant current limit (at SGA/H fold back)
- Zero load operation and short circuit protected
- Parallel connection
- 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	$\Delta\vartheta_C$	≤ 20K
Rise on heat sink	$\Delta\vartheta_H$	30K
Output Voltage		
Tolerance ΔU_{out} /% at 0,5 I_{Anom}		≤ ±0,25**
Output ripple u_{rms} /mV (-40°C to +85°C)		≤ 3,5 (7)
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/H: Inhibit voltage U_{inh} /V for U_{out}="off"		≤ 1
SGA/H: Inhibit current I_{inh} /µA		≤ 500
SGA/HY: Inhibit voltage U_{inh}/V for U_{out}="on"		≥ 3,5 / ≤ 40
SGA/H2: Inhibit current for U_{inh}= 5V: I_{inh} /µA		≤ 500
SGA/H2X: Auxiliary voltage U_{ref} /V		= 5±0,25
SGA/H2X: Admissible current I_{ref} /mA		≤ 5
OVP (not for SGA/H2X)		
Starting point $U_{out\ nom}$ /%		≤ 130
admissible continuous ext. current I_{ext} /A		≤ 2
Input current in Standby-Mode I_{in} /µA		≤ 15
Weight M/g		= 160

Block diagram



* = not at SGA/H2X
** = only at SGA/HY
*** = not at SGA/HY

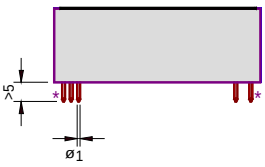
C_{EXT} = 47 µF at U_{nom} = 12V/24V
= 33 µF at U_{nom} = 48V
= 10 µF at U_{nom} = 110V

* Dependent on model 12V, 24V, 48V or 110V
** At 5V: 0,5%

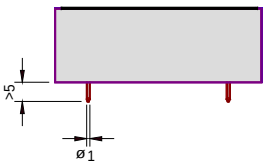
Drawings

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

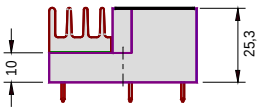
SGA/H - .../HY



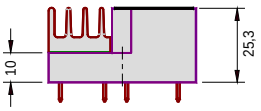
SGA/H2 - .../H2X



SGA/H - .../HY



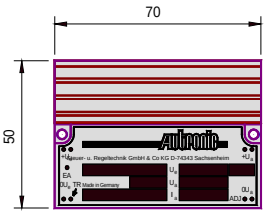
SGA/H2 - .../H2X



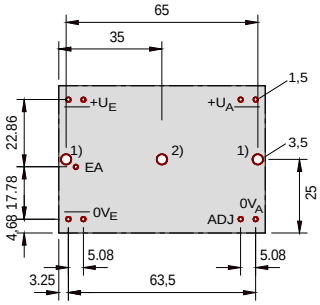
* = not available at SGA/HY

Hole Pattern Component Side

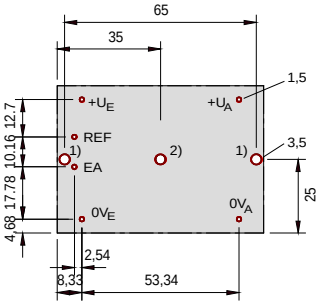
SGA/...



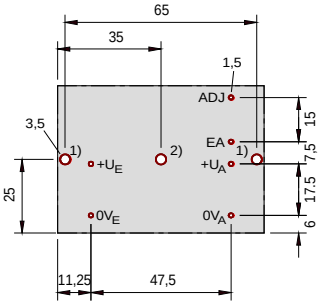
SGA/H



SGA/HY



SGA/H2 - .../H2X



1) = for srew M3, clamping length 10mm 2) = for tapping screw 2,9 DIN 7981/7982, hole 9mm deep

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 protection 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: $I_{rat} = 1{,}5 I_{in\ max}$ (max. 6,3A). Pay attention on sufficient current of current source in case of short-circuit (t_f < 300ms)!

Excess temperature protection: In case temperature exceeds 100°C (due to inadmissible operation conditions) the output voltage is automatically switched off and restarted after cooling down about 30K. Not available at SGA/H2X.

Overvoltage protection: Externally or internally caused overvoltage at the output leads to a thyristor-controlled short-circuit of the output. Elimination of short-circuit is carried out by short interruption of voltage supply or switch-off by inhibit. Not available at SGA/H2X.

External shut down (inhibit): U < 0,8V at pin "INH" to pin $-U_{in}$ switches off the output at SGA/H, > 3,5V (max. 40V) at the SGA/HY, SGA/H2 and SGA/H2X.

Current limiting: $I_{out\ lim}$ = 1,1...1,2$I_{out\ nom}$ with fold back characteristic at SGA/H.
Short circuit: I_{sc}< 0,4$I_{out\ nom}$. All other converters with constant current characteristic $I_{out\ lim}$ = 1,1...1,3 $I_{out\ nom}$.

Adjustment: Connection of the pin "ADJ" with the output pin increases the output voltage of about 8%. Intermediate values are obtained by means of a resistor. By connecting pin "ADJ" with the positive output over a resistor, the output may be lowered by max. 8%. In the same manner the input voltage increases or decreases. Not available at SGA/HY.

Standard converters SGA/H..

U_{out} V	I^{**}_{outA} A	$U_{in\ Enom}$ V	$U_{in\ range}$ V	$I_{in\ max}$ A	η^{***} %	Order Number SGA/H	SGA/HY	SGA/H2	SGA/H2X
5*	4,0	12/24	7(8)...40	3,7	83 (82)	09 14 01 0102 6	09 14 01 0131 2	09 19 01 0102 4	09 19 01 0132 4
	3,0	48	8...80	2,8	81 80)	09 14 11 0102 4	09 14 11 0131 9	09 19 11 0102 2	09 19 11 0132 2
12	3,0	24	15...40	2,8	91 (90)	09 14 02 0102 5	09 14 02 0131 1	09 19 02 0102 3	09 19 02 0132 3
	2,5	48	15...80	2,1	87 (86)	09 14 12 0102 3	09 14 12 0131 8	09 19 12 0102 1	09 19 12 0132 1
	1,6	110	16...154	1,4	86 (—)	09 14 72 0102 9	09 14 72 0131 5	—	—
15	3,0	24	18...40	2,8	92 (91)	09 14 03 0102 4	09 14 03 0131 9	09 19 03 0102 2	09 19 03 0132 2
	2,5	48	18...80	2,2	88 (87)	09 14 13 0102 2	09 14 13 0131 7	09 19 13 0102 9	09 19 13 0132 9
	1,6	110	19...154	1,5	87 (—)	09 14 73 0102 8	09 14 73 0131 4	—	—
24	2,4	48	28...80	2,2	94 (93)	09 14 14 0102 1	09 14 14 0131 6	09 19 14 0102 8	09 19 14 0132 8
	1,8	110	29...154	1,7	93 (—)	09 14 74 0102 7	09 14 74 0131 3	—	—

* Adjusted to 5,1V. Converter switches on at $U_{in} \geq 8V$
** At zero load operation 1% baseload required
Derating fom 70°C to 85°C: 2,5%/°C
*** At $U_{in\ nom}$
(..) For SGA/H2X

Specifications subject to change without notice

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