

SEMICONDUCTOR CIRCUITS, INC.

SUBSIDIARY OF ASTEC AMERICA, INC.

ASTEC AMERICA/SEMICON

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T-57-11

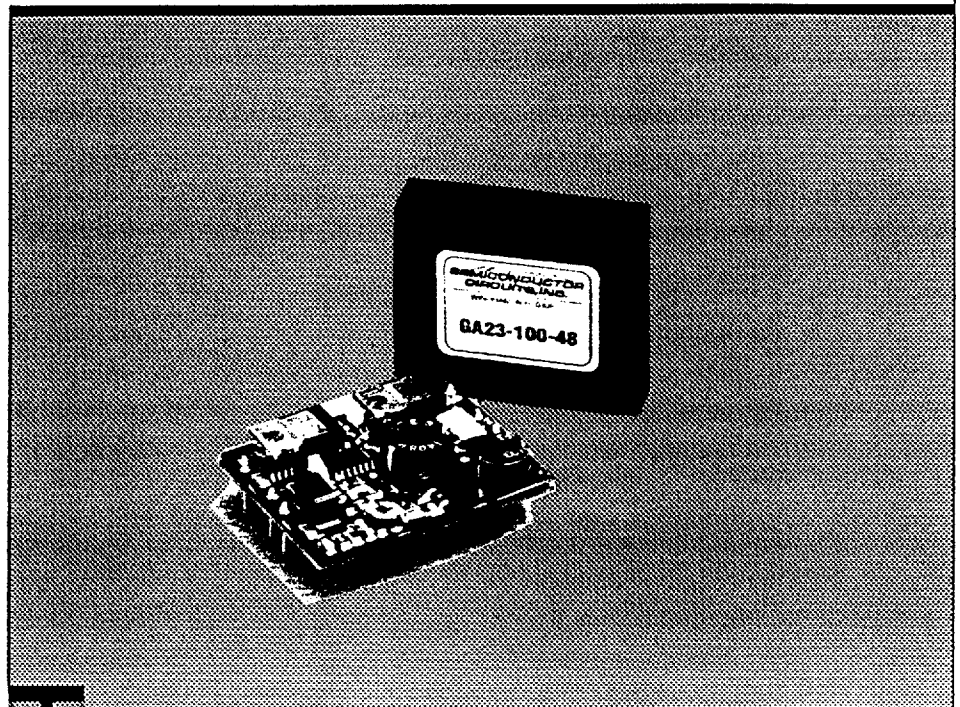
GA SERIES 15 WATT DC/DC POWER CONVERTER SINGLE AND DUAL OUTPUTS

FEATURES

- *Ultrawide input range*
- *Efficiency to 85%*
- *Six-sided continuous shielding*
- *Regulated outputs*
- *Overvoltage protection*
- *Overcurrent protection*
- *Remote on-off*
- *Auto thermal shutdown*

APPLICATIONS

- *Telecommunications*
- *Distributed Power Systems*
- *Automatic Test Equipment*
- *Geosource Test Equipment*
- *Process Control*



THE GA SERIES is an economically priced 15 watt DC/DC converter featuring ultrawide input range, efficiencies to 85%, and a continuous six-sided shielded case. Low ESR capacitors are used both on the input and the output(s) to minimize the conductive noise. Other key features include: overvoltage protection, output trim adjustability, TTL and CMOS compatible remote on/off, short-circuit protection, thermal shutdown, and small size. The GA Series measures only 1.6" x 2.0" x 0.40" and offers a power density of 11.7 watts/cu. in.

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ASTEC

ELECTRICAL CHARACTERISTICS

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Parameter	Conditions	Limits
Input Voltage		20-72 Vdc
Input Filter		See Note 2
Input Surge Protection		100 Vdc for 100 ms
Reflected Ripple Current	When measured using recommended filter cap	<100 mA P-P
Input Current	Nominal Line — Full Load — 25% Load — Inhibit	<400 mA <125 mA < 10 mA
Setting Accuracy	Single & Dual Outputs	± 1% Maximum
Trim Adjustability		± 10% Typical
Line Regulation	Low Line to High Line, Full Load	± 0.5%
Load Regulation	Full Load to 25% Load Full Load to No Load	2.0% Bandwidth 4.0% Bandwidth
Efficiency	Nominal Line — Full Load 5V Nominal Line — Full Load ±12V, ±15V Nominal Line — Full Load 12V & 15V	80% Typical 80% Typical 85% Typical
Temperature Coefficient		0.02%/°C Maximum
Voltage Stability	24 Hours	± 0.05% Maximum
Transient Response	25% Load Step	150 mV Peak Transient settling within 1% within 1 ms
Output PARD	20 MHz Bandwidth	75 mV P-P Max (See Note 3)
Overshoot/Undershoot	Turn-on	None
Short Circuit Protection	< 150%	Primary Power Foldback Auto Recovery
Thermal Shutdown	+105°C	Auto Recovery
Overvoltage Protection Threshold	5 Vdc Output 12 Vdc Output 15 Vdc Output	6.2 Vdc ± 5% 15 Vdc ± 5% 18 Vdc ± 5%
Total Output Power	60° C Ambient Temperature	15 Watts Maximum
Isolation Voltage	Input to Output	500 Vdc
Isolation Resistance		10 Megohms Minimum
Switching Frequency	Single Output Dual Output	130 KHz ± 5% 100 KHz ± 5%
Remote On/Off	Logic Compatibility ON OFF	CMOS/TTL Compatible Logic High or Open Logic Low or Jumper Pins 2 and 4
Temperature	Operating Case Temperature Non-Operating	- 25°C to +60°C +105°C Maximum - 40°C to +125°C
Cooling		(See Operating Limits on Back Page) Free Air Convection
Relative Humidity	Non-Condensing	5% to 95%
Vibration	Three Orthogonal Axes, Random Vibration 10 Minute Test for Each Axis	2.4 G RMS (approximately) 5 Hz to 500 Hz
MTBF	Per MIL-217-E	385,000 Hours Minimum
Size		1.6" x 2.0" x 0.4" ±0.03%
Case Material	Case Ground to Input Pin #1	Six-Sided Shielded, Black Anodized Aluminum with Non-Conductive Base
Flammability Rating		Meets UL 94V-0

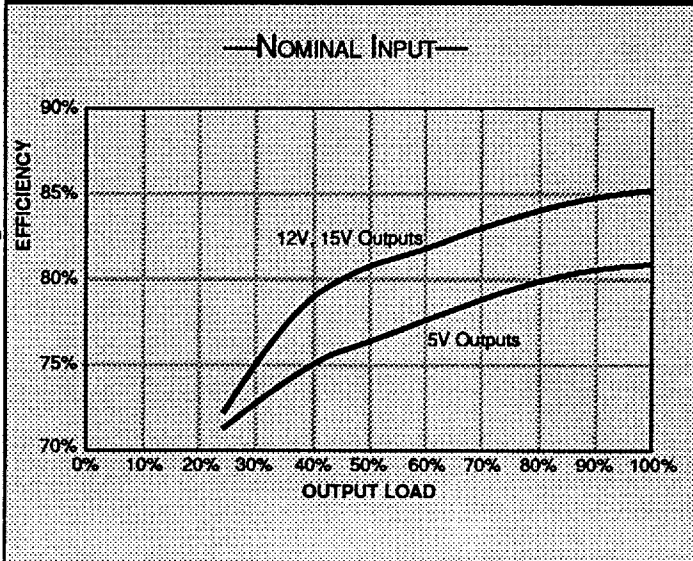
NOTES: (1) All specifications typical at 48 Vdc input, full output load, 25°C ambient temperature unless otherwise noted.
 (2) Requires external filter capacitor across input. SCI recommends a 33uF @ 100V capacitor (Sprague type 672D or equivalent).
 (3) Measured with 3.3 MF 25V tantalum capacitor across each output.

OUTPUT DATA/ORDERING INFORMATION

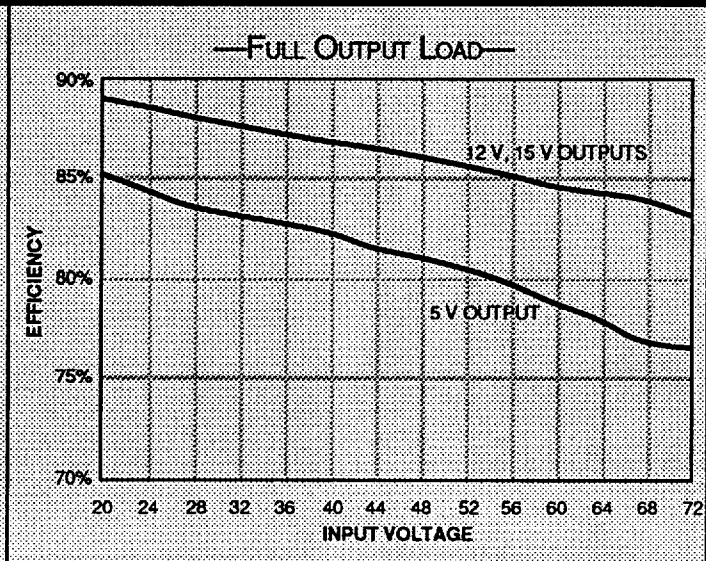
Model Number	Input Voltage Range	Output Voltage	Output Current	Ripple, P-P Max	Power Out
GA11-300-48	20-72 Vdc	5 Vdc	3000 mA	75 mV	15 Watts
GA12-125-48	20-72 Vdc	12 Vdc	1250 mA	75 mV	15 Watts
GA13-100-48	20-72 Vdc	15 Vdc	1000 mA	75 mV	15 Watts
GA22-125-48	20-72 Vdc	± 12 Vdc	± 625 mA	75 mV	15 Watts
GA23-100-48	20-72 Vdc	± 15 Vdc	± 500 mA	75 mV	15 Watts

NOTE: The GA Series requires an external filter capacitor across the input, which must withstand 600mA of ripple current. Semiconductor Circuits, Inc. recommends a 33uF @ 100V capacitor (Sprague type 672D or equivalent).

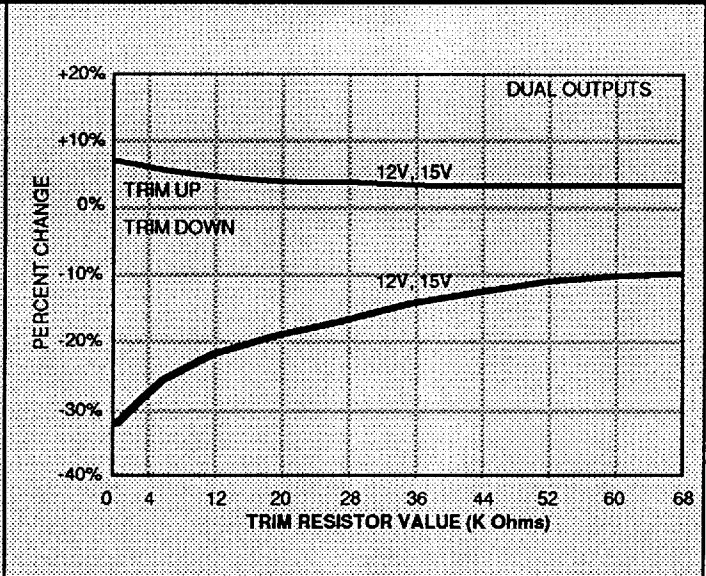
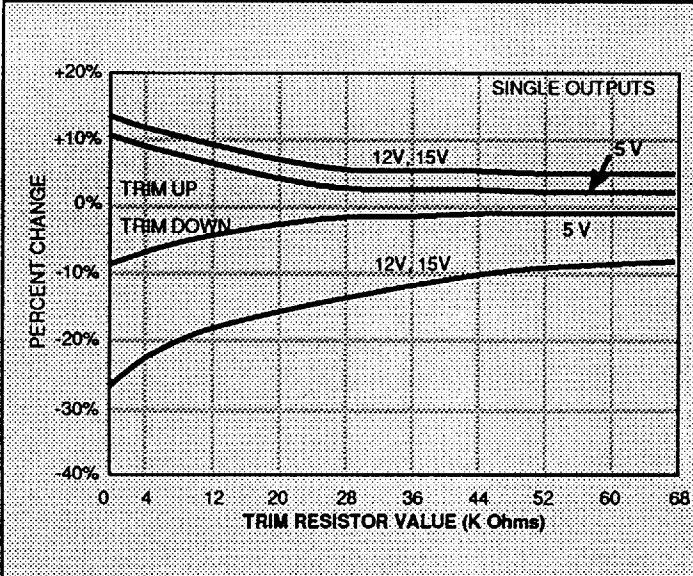
EFFICIENCY VS OUTPUT LOAD



EFFICIENCY VS INPUT VOLTAGE

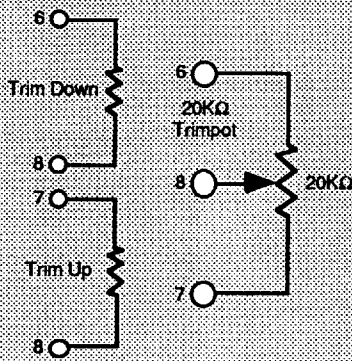


OUTPUT VOLTAGE TRIM LIMITS



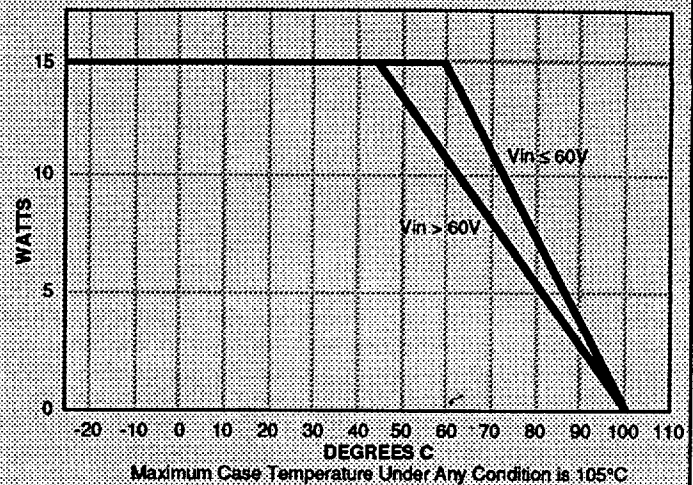
OUTPUT VOLTAGE TRIM PROCEDURE

OPERATING LIMITS AND OUTPUT POWER RANGE



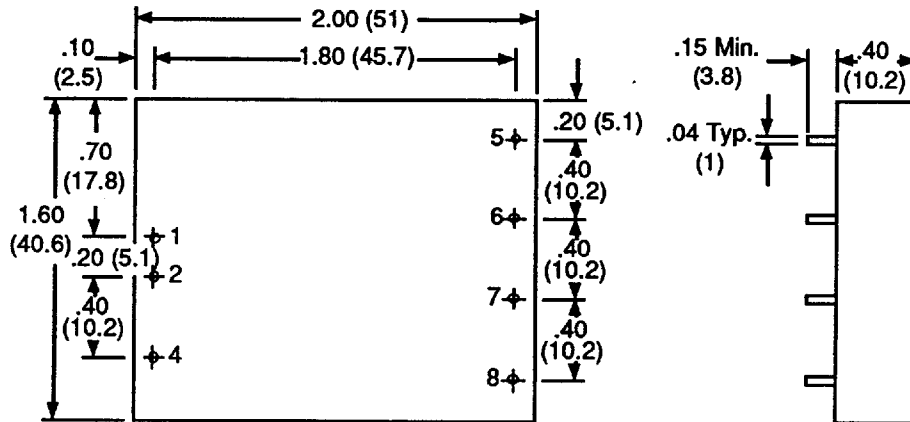
Output Voltage Trim Procedure: The output voltage(s) can be trimmed up or down using either a fixed value resistor or a potentiometer. The trim up resistor should be connected between Pin 7 and Pin 8. The trim down resistor should be connected between Pin 6 and Pin 8. Alternatively, the output voltage(s) can be made continuously variable by connecting a 10K or larger pot between Pin 6 and Pin 7 with the wiper connected to Pin 8.

NATURAL CONVECTION COOLING



All specifications subject to change without notice.

CASE DIMENSIONS



BOTTOM VIEW

Note: Dimensions are given in both inches and (mm)

PIN CONNECTIONS

Single Output	Dual Output
PIN 1. + Vdc In	1. + Vdc In
2. - Vdc In	2. - Vdc In
4. Control	4. Control
5. (no pin)	5. + Output
6. + Output	6. Output Common
7. - Output	7. - Output
8. Trim	8. Trim